Project Manual

September 15, 2022

Stantec Project No. 214000 968

100% CONSTRUCTION DOCUMENTS
Issue For Bidding, Permitting and Construction

San Marcos Administration Building

San Marcos CISD, San Marcos, Texas

VOLUME 1 of 2

09.15.22

REAR COVER

DOCUMENT 00 01 01 - PROJECT TITLE PAGE

PROJECT MANUAL

San Marcos Administration Building

San Marcos Consolidated Independent School District
631 Mill Street
San Marcos, Texas 78666

Architect Project No. 214000 968

09.15.22

Stantec Architecture Inc.
1905 Aldrich St
Austin TX 78723
P 512.328.0011
www.stantec.com

The Architect's seal on a Project Manual page represents that the information on the sealed page is accurate in the Architect's professional opinion, but the Architect does not assume professional responsibility for documents sealed by others that are referenced in the Project Manual. All professionals sealing specifications as a part of the design are professionally responsible for their own sealed documents.

Copyright © 2022 Stantec. All rights reserved.

END OF DOCUMENT 00 01 01

DOCUMENT 00 01 10 – MASTER TABLE OF CONTENTS

Note: Sections marked by asterisk (*) below are provided by the Owner, Construction Manager, or consultants to the Architect or Owner, and are not covered by the Architect's seal. Refer to attached supporting Tables of Contents to identify Consultant responsible for a particular section.

VOLUME 1 OF 2

Section	Title
00 01 01	Project Title Page
00 01 10	Master Table of Contents
*00 01 10.02	Sealed Structural Table of Contents
*00 01 10.03	Sealed Plumbing Table of Contents
*00 01 10.04	Sealed Mechanical Table of Contents
*00 01 10.05	Sealed Electrical Table of Contents
*00 01 10.06	Sealed Technology Table of Contents
*00 01 10.07	Sealed Civil Table of Contents
*00 01 10.08	Sealed Landscape Table of Contents
*00 01 10.09	Sealed Roofing Consultant Table of Contents
00 01 15	List of Drawings

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS - for Competitive Sealed Proposals (CSP)

*00 01 16	Request for Competitive Sealed Proposals	Owner Document
Section I	Instructions to Proposers	
Section II	Project Scope and Information	
Section III	Questionnaire/Information to be Submitted	
Section IV	Forms and Documents	
	Attachment 'A' – Felony Conviction Notification	
	Attachment 'B' – The Owner-modified AIA A101-2017, including the Additions & Deletions Report, is included.	
	Attachment 'C' – The Owner-modified AIA A201-2017, including the Additions & Deletions Report, is included.	
	Attachment 'D' – Board-Adopted Prevailing Wage Rates	
	Attachment 'E' – No-Conflict of Interest, Anti-Lobbying	
	Attachment 'F' – Debarment of Suspension Certification Form	
	Attachment 'G' – Certificate of Residency	
	Attachment 'H' – Conflict of Interest Notice	
	Attachment 'I' – Certification of Interested Parties – Forms 1295	
	Attachment 'J' – Deviations / Signature Page	
	Attachment 'K' – Certificate of Non-Collusion Statement	
	Attachment 'L' – Execution of Offer	
Section V	Proposal Form/Cost Form	
00 43 13	Proposal Security	
*00 50 00	Agreement Form – The Owner-modified AIA A101-2017, including the Additions & Deletions Report, is included.	
*00 50 10	General Conditions - The Owner-modified AIA A201-2017, including the Additions & Deletions Report, is included.	

DIVISION 01 - GENERAL REQUIREMENTS

01 11 00	Summary of Work and Scheduling
01 21 00	Allowances
01 22 00	Unit Prices
01 23 00	Alternates
01 25 13	Product Substitutions

01 26 00 Modification Procedures
01 29 00 Applications for Payment
01 31 00 Project Coordination
01 31 19 Project Meetings
01 32 23 Field Engineering
01 33 00 Submittals
01 42 19 Reference Standards and Definitions
01 43 39 Mockups
01 45 00 Quality Control Services
01 50 00 Temporary Facilities
*01 57 15 Dust Control
01 60 00 Materials and Equipment
01 73 29 Cutting and Patching
01 77 00 Project Closeout
01 78 00 Warranties

DIVISION 02 – EXISTING CONDITIONS
*02 41 13 Selective Site Demolition
*02 41 16 Structure Demolition
02 42 13.10 Selective Demolition

DIVISION 03 - CONCRETE
*03 01 30.71 Concrete Rehabilitation
*03 24 00 Synthetic Macro Fiber Reinforcement
*03 30 00 Cast-In-Place Concrete
03 31 00 Concrete Cutting and Patching
03 35 36 Polished Concrete Floor Topping System

DIVISION 04 - MASONRY
04 05 03 Masonry Mortaring and Grouting
*04 05 23 Through-Wall and Wall Substrate Flashing System
04 20 00 Unit Masonry
04 73 00 Adhered Manufactured Stone Veneer

DIVISION 05 - METALS
*05 12 00 Structural Steel Framing
*05 31 00 Steel Decking
05 40 00 Cold-Formed Metal Framing
05 50 00 Metal Fabrications

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES
06 10 53 Miscellaneous Rough Carpentry
06 16 00 Sheathing
06 40 23 Interior Architectural Woodwork
06 42 19 Plastic Laminate Wall Panels
06 61 19 Quartz Surfacing Fabrications

DIVISION 07 - WATERPROOFING
07 19 16 Concrete Floor Sealer and Finish
07 21 00 Thermal Insulation
*07 22 16 Roof Board Insulation
07 27 26 Fluid-Applied Membrane Air Barriers
07 42 13 Metal Wall Panels
*07 52 16 Modified Asphalt Bituminous Roofing
*07 62 00 Sheet Metal and Miscellaneous Accessories
*07 62 13 Gutters and Downspouts
*07 72 00 Roof Accessories
07 92 00 Joint Sealants and Penetration Fire-Stopping

DIVISION 08 - OPENINGS
08 11 13 Hollow Metal Doors and Frames
08 12 16 Interior Aluminum Frames
08 14 16 Flush Wood Doors
08 31 13 Access Doors and Frames
08 33 23 Overhead Coiling Doors
08 41 13 Aluminum-Framed Entrances and Storefronts
08 41 23 Fire-Rated Aluminum-Framed Storefront Systems
08 56 60 Horizontal Sliding Transaction Windows
*08 71 00 Door Hardware
08 80 00 Glazing

DIVISION 09 - FINISHES
09 22 16 Non Structural Metal Framing
09 29 00 Gypsum Board
09 30 13 Tiling
09 51 13 Acoustical Panel Ceilings
09 54 23 Linear Metal Ceilings (interior and exterior)
09 54 26 Decorative Wood Ceiling and Wall Paneling System
09 65 13 Resilient Wall Base and Accessories
09 68 16 Carpet
09 72 00 Wall Coverings
09 77 00 FRP Wall Panels
09 91 00 Painting and Coating

DIVISION 10 - SPECIALTIES
10 14 00 Applied Building Letters
10 14 23 Room Identification Signage
10 21 13 Phenolic Core Toilet Compartments
10 28 00 Toilet and Bath Accessories
10 28 10 Miscellaneous Specialties
10 44 13 Fire Protection and Emergency Aid Cabinets
10 44 16 Fire Extinguishes
10 75 16 Ground-Set Flagpoles
10 83 10 Flags

DIVISION 11 - EQUIPMENT
11 31 00 Residential Appliances

DIVISION 12 - FURNISHINGS
12 24 13 Roller Shades (manual)
12 32 16 Manufactured Plastic Laminate-Clad Casework

DIVISIONS 13 through 19: Not Used

END of VOLUME 1

Note: Sections marked by asterisk (*****) below are provided by the Owner, Construction Manager, or consultants to the Architect or Owner, and are not covered by the Architect's seal. Refer to attached supporting Tables of Contents to identify Consultant responsible for a particular section.

VOLUME 2 of 2

Section	Title Page
00 01 01	Project Title Page
00 01 10	Master Table of Contents
*00 01 10.02	Sealed Structural Table of Contents
*00 01 10.03	Sealed Plumbing Table of Contents
*00 01 10.04	Sealed Mechanical Table of Contents
*00 01 10.05	Sealed Electrical Table of Contents
*00 01 10.06	Sealed Technology Table of Contents
*00 01 10.07	Sealed Civil Table of Contents
*00 01 10.08	Sealed Landscape Table of Contents
*00 01 10.09	Sealed Roofing Consultant Table of Contents

DIVISION 20 – COMMON MECHANICAL

*20 00 10	General Mechanical Instructions
*20 05 00	Common Work Results for Mechanical
*20 05 13	Common Motor Requirements for Mechanical Equipment
*20 05 14	Variable Frequency Drives
*20 05 16	Expansion Fittings and Loops for Piping
*20 05 19	Meters and Gages
*20 05 29	Hangers and Supports
*20 05 48	Vibration Controls
*20 05 53	Mechanical Identification
*20 05 93	Testing Adjusting and Balancing

DIVISION 21 – Not Used

DIVISION 22 – PLUMBING

*22 05 16	Expansion Fittings and Loops for Plumbing Piping
*22 05 19	Meters and Gages for Plumbing Piping
*22 05 23	Valves for Plumbing Piping
*22 07 19	Plumbing Piping Insulation
*22 11 16	Domestic Water Piping
*22 11 19	Domestic Water Piping Specialties
*22 11 23	Domestic Water Pumps
*22 13 16	Sanitary Waste and Vent Piping
*22 13 19	Sanitary Waste Piping Specialties
*22 14 13	Storm Drainage Piping
*22 14 23	Storm Drainage Piping Specialties
*22 33 00	Electric, Domestic-Water Heaters
*22 42 00	Commercial Plumbing Fixtures
*22 47 00	Drinking Fountains & Electric Water Coolers

DIVISION 23 – MECHANICAL

*23 07 00	Mechanical Insulation
*23 09 00	Instrumentation and Control for HVAC
*23 11 23	Facility Natural Gas Piping
*23 23 00	Refrigerant Piping
*23 31 13	Metal Ducts
*23 33 00	Air Duct Accessories
*23 34 23	HVAC Power Ventilators
*23 36 00	Air Terminal Units

*23 37 13 Diffusers, Registers, and Grilles
*23 41 00 Particulate Air Filtration
*23 74 16 Packaged Commercial Rooftop Units
*23 81 26 Split-System Air Conditioners
*23 82 39 Electric Unit Heaters

DIVISION 26 – ELECTRICAL
*26 00 10 General Requirements for Electrical Systems
*26 05 00 Common Work Results for Electrical
*26 05 19 Low-Voltage Electrical Power Conductors and Cables
*26 05 26 Grounding and Bonding for Electrical Systems
*26 05 29 Hangers and Supports for Electrical Systems
*26 05 33 Raceway and Boxes for Electrical Systems
*26 05 43 Underground Ducts and Raceways For Electrical Systems
*26 05 53 Identification for Electrical Systems
*26 05 73 Overcurrent Protective Device Coordination and Arc Flash Hazard Studies
*26 09 23 Lighting Control Devices
*26 09 43 Networked and Digital Lighting Controls
*26 22 00 Low-Voltage Transformers
*26 24 13 Switchboards
*26 24 16 Panelboards
*26 27 26 Wiring Devices
*26 28 13 Fuses
*26 28 16 Enclosed Switches and Circuit Breakers
*26 29 13 Enclosed Controllers
*26 33 23 Central Battery Equipment for Emergency Lighting
*26 43 13 Surge Protection Devices
*26 51 00 Interior Lighting
*26 56 00 Exterior Lighting
*26 99 99 Electrical Testing

DIVISION 27 – COMMUNICATION
*27 00 00 General Technology Requirements
*27 05 23 Pathways for Technology Systems
*27 10 00 Communications Cabling General Requirements
*27 10 05 Grounding and Bonding for Technology Systems
*27 11 00 Communications Equipment Rooms
*27 13 00 Communications Backbone Cabling
*27 15 00 Communications Horizontal Cabling
*27 16 00 Communications Connecting Cords
*27 18 00 Communications Labeling and Identification
*27 40 00 AV Multimedia General Requirements
*27 41 00 Audio Visual Systems
*27 60 00 Physical Security General Requirements
*27 62 00 Video Surveillance System
*27 64 00 Electronic Access Control System
*27 66 00 Intrusion Detection System

DIVISION 28 – FIRE PROTECTION
*28 31 11 Digital, Addressable Fire-Alarm System

DIVISIONS 29 through 30: Not Used

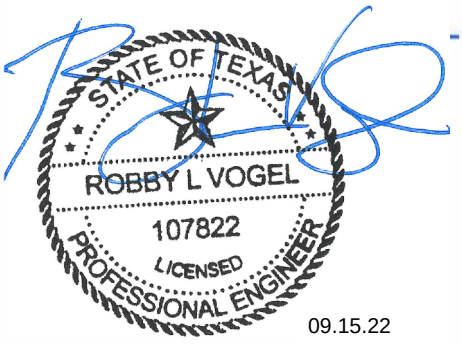
DIVISION 31: EARTHWORK
*31 11 00 Clearing and Grubbing
*31 11 01 Site Preparation
*31 14 31.23 Topsoil Stripping and Stockpiling
*31 22 13 Rough Grading
*31 22 19 Finish Grading
*31 23 13 Subgrade Preparation
*31 23 15 Building Earthwork
*31 23 33 Trenching and Backfilling
*31 25 00 Erosion and Sedimentation Controls
31 31 16 Termite Control
*31 36 00 Gabions
*31 41 33 Trench Shielding

DIVISION 32 – EXTERIOR IMPROVEMENTS
*32 11 23 Aggregate Base Course
*32 12 16 Asphalt Paving
*32 13 13 Concrete Paving
*32 13 73 Concrete Paving Joint Sealants
*32 16 21 Concrete Curbs Gutters and Walks
*32 17 13 Parking Bumpers
*32 17 23 Pavement Markings
*32 17 16 Tactile Warning Surface
*32 84 00 Irrigation
*32 91 19 Landscape Grading
*32 91 19.13 Spreading and Grading Topsoil
*32 92 19.16 Hydraulic Seeding
*32 92 20 Sodding
*32 93 00 Planting
*32 97 00 Landscape Maintenance

DIVISION 33 – UTILITIES
*33 05 16 Utility Structures
*33 41 00 Storm Utility Drainage Piping
*33 49 13 Storm Drainage Manholes Frames and Covers

END of VOLUME 2

DOCUMENT 00 01 10.02 – TABLE OF CONTENTS OF STRUCTURAL SPECIFICATIONS



DIVISION 03 – CONCRETE

03 01 30.71 CONCRETE REHABILITATION
03 24 00 SYNTHETIC MACRO FIBER REINFORCEMENT
03 30 00 CAST-IN-PLACE CONCRETE

DIVISION 05 – METALS

05 12 00 STRUCTURAL STEEL FRAMING
05 31 00 STEEL DECKING

DIVISION 31 – EARTHWORK

31 23 15 BUILDING EARTHWORK

END OF SECTION 00 01 10.02

SECTION 00 01 10.03 — TABLE OF CONTENTS OF PLUMBING SPECIFICATIONS

DIVISION 22 — PLUMBING

22 05 16	EXPANSION FITTINGS AND LOOPS FOR PLUMBING PIPING
22 05 19	METERS AND GAGES FOR PLUMBING PIPING
22 05 23	VALVES FOR PLUMBING PIPING
22 07 19	PLUMBING PIPING INSULATION
22 11 16	DOMESTIC WATER PIPING
22 11 19	DOMESTIC WATER PIPING SPECIALTIES
22 11 23	DOMESTIC WATER PUMPS
22 13 16	SANITARY WASTE AND VENT PIPING
22 13 19	SANITARY WASTE PIPING SPECIALTIES
22 14 13	STORM DRAINAGE PIPING
22 14 23	STORM DRAINAGE PIPING SPECIALTIES
22 33 00	ELECTRIC, DOMESTIC-WATER HEATERS
22 42 00	COMMERCIAL PLUMBING FIXTURES
22 47 00	DRINKING FOUNTAINS & ELECTRIC WATER COOLERS

09/14/2022

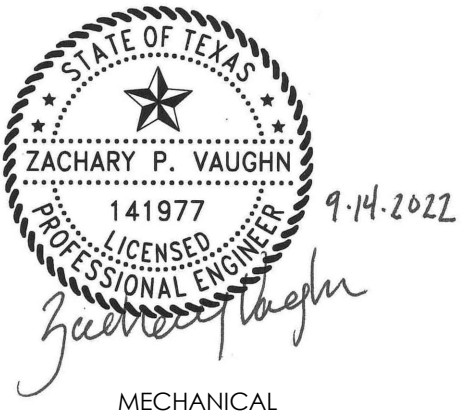
END OF SECTION 00 01 10.03

SECTION 00 01 10.04 — TABLE OF CONTENTS OF THE MECHANICAL SPECIFICATIONS

Note: Project Manual Specification Divisions not containing specification sections prepared by the Mechanical Consultant have been omitted for clarity. Refer to Section 00 01 10 — TABLE OF CONTENTS OF THE PROJECT MANUAL for a complete list of specification sections.

DIVISION 20 – COMMON MECHANICAL

20 00 10	GENERAL MECHANICAL INSTRUCTIONS
20 05 00	COMMON WORK RESULTS FOR MECHANICAL
20 05 13	COMMON MOTOR REQUIREMENTS FOR MECHANICAL EQUIPMENT
20 05 14	VARIABLE FREQUENCY DRIVES
20 05 16	EXPANSION FITTINGS AND LOOPS FOR PIPING
20 05 19	METERS AND GAGES
20 05 29	HANGERS AND SUPPORTS
20 05 48	VIBRATION CONTROLS
20 05 53	MECHANICAL IDENTIFICATION
20 05 93	TESTING ADJUSTING AND BALANCING



MECHANICAL

DIVISION 23 – MECHANICAL

23 07 00	MECHANICAL INSULATION
23 09 00	INSTRUMENTATION AND CONTROL FOR HVAC
23 11 23	FACILITY NATURAL-GAS PIPING
23 23 00	REFRIGERANT PIPING
23 31 13	METAL DUCTS
23 33 00	AIR DUCT ACCESSORIES
23 34 23	HVAC POWER VENTILATORS
23 36 00	AIR TERMINAL UNITS
23 37 13	DIFFUSERS, REGISTERS, AND GRILLES
23 41 00	PARTICULATE AIR FILTRATION
23 74 16	PACKAGED COMMERCIAL ROOFTOP UNITS
23 81 26	SPLIT-SYSTEM AIR-CONDITIONERS
23 82 39	ELECTRIC UNIT HEATERS

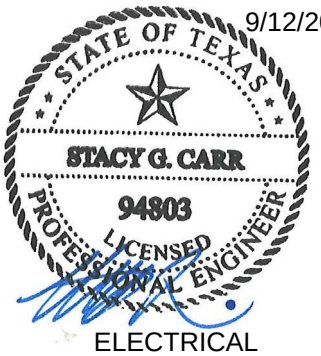
SECTION 00 01 10.05 – TABLE OF CONTENTS OF THE ELECTRICAL SPECIFICATIONS AND ELECTRONIC SAFETY AND SECURITY SPECIFICATIONS

Note: Project Manual Specification Divisions not containing specification sections prepared by the Electrical Engineer have been omitted for clarity. Refer to Section 00 01 10 — TABLE OF CONTENTS OF THE PROJECT MANUAL for a complete list of specification sections.

DIVISION 26 – ELECTRICAL

26 00 10	General Requirements for Electrical Systems
26 05 00	Common Work Results for Electrical
26 05 19	Low-Voltage Electrical Power Conductors and Cables
26 05 26	Grounding and Bonding for Electrical Systems
26 05 29	Hangers and Supports for Electrical Systems
26 05 33	Raceway and Boxes for Electrical Systems
26 05 43	Underground Ducts and Raceways For Electrical Systems
26 05 53	Identification for Electrical Systems
26 05 73	Overcurrent Protective Device Coordination and Arc Flash Hazard Studies
26 09 23	Lighting Control Devices
26 09 43	Networked and Digital Lighting Controls
26 22 00	Low-Voltage Transformers
26 24 13	Switchboards
26 24 16	Panelboards
26 27 26	Wiring Devices
26 28 13	Fuses
26 28 16	Enclosed Switches And Circuit Breakers
26 29 13	Enclosed Controllers
26 33 23	Central Battery Equipment For Emergency Lighting
26 43 13	Surge Protection Devices
26 51 00	Interior Lighting
26 56 00	Exterior Lighting
26 99 99	Electrical Testing

9/12/2022



ELECTRICAL

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

28 31 11	Digital, Addressable Fire-Alarm System

END OF SECTION 00 01 10

DOCUMENT 00 01 10.06 - TECHNOLOGY TABLE OF CONTENTS

DIVISION 27 – COMMUNICATION

27 00 00 General Technology Requirements
27 05 23 Pathways for Technology Systems
27 10 00 Communications Cabling General Requirements
27 10 05 Grounding and Bonding for Technology Systems
27 11 00 Communications Equipment Rooms
27 13 00 Communications Backbone Cabling
27 15 00 Communications Horizontal Cabling
27 16 00 Communications Connection Cords
27 18 00 Communications Labeling and Identification
27 40 00 AV Multimedia General Requirements
27 41 00 Audio Visual Systems
27 60 00 Physical Security General Requirements
27 64 00 Electronic Access Control System
27 66 00 Intrusion Detection System

TRUE NORTH CONSULTING GROUP, LLC, TX DPS SECURITY CONSULTANT COMPANY LICENSE # B05227801

Texas Registered Firm Number F-1186

DIVISION 01 – GENERAL REQUIREMENTS:

SECTION 01 57 15 – DUST CONTROL

DIVISION 02 – EXISTING CONDITIONS:

SECTION 02 41 13 – SELECTIVE SITE DEMOLITION

DIVISION 31 – EARTHWORK:

SECTION 31 11 00 – CLEARING AND GRUBBING

SECTION 31 11 01 – SITE PREPARATION

SECTION 31 14 31.23 - TOPSOIL STRIPPING AND STOCKPILING

SECTION 31 22 13 - ROUGH GRADING

SECTION 31 22 19 - FINISH GRADING

SECTION 31 23 13 - SUBGRADE PREPARATION

SECTION 31 23 33 - TRENCHING AND BACKFILLING

SECTION 31 25 00 - EROSION AND SEDIMENTATION CONTROLS

SECTION 31 36 00 – GABIONS

SECTION 31 41 33 - TRENCH SHIELDING

DIVISION 32 – EXTERIOR IMPROVEMENTS:

SECTION 32 11 23 - AGGREGATE BASE COURSE

SECTION 32 12 16 - ASPHALT PAVING

SECTION 32 13 13 - CONCRETE PAVING

SECTION 32 13 73 - CONCRETE PAVING JOINT SEALANTS

SECTION 32 16 21 – CONCRETE CURBS GUTTERS AND WALKS

SECTION 32 17 13 - PARKING BUMPERS

SECTION 32 17 23 - PAVEMENT MARKINGS

SECTION 32 17 26 – TACTILE WARNING SURFACE

SECTION 32 31 29 – WOOD FENCES AND GATES

SECTION 32 91 19.13 – SPREADING AND GRADING TOPSOIL

SECTION 32 92 19.16 – HYDRAULIC SEEDING

DIVISION 33 – UTILITIES:

SECTION 33 05 16 – UTILITY STRUCTURES

SECTION 33 41 00 – STORM UTILITY DRAINAGE PIPING

©2022 Gil Engineering Associates, Inc.

SECTION 33 49 13 – STORM DRAINAGE MANHOLES FRAMES AND COVERS

©2022 Gil Engineering Associates, Inc.

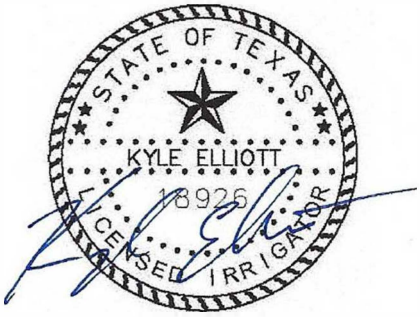
SECTION 00 01 10.08 — SEALED LANDSCAPE TABLE OF CONTENTS

Note: Project Manual Specification Divisions not containing specification sections prepared by the Landscape Architect or Irrigation Designer have been omitted for clarity. Refer to Section 00 01 10 — TABLE OF CONTENTS OF THE PROJECT MANUAL for a complete list of specification sections.

DIVISION 32 — EXTERIOR IMPROVEMENTS

32 84 00	IRRIGATION
32 91 19	LANDSCAPE GRADING
32 92 20	SODDING
32 93 00	PLANTING
32 97 00	LANDSCAPE MAINTENANCE

END OF SECTION 00 01 10.08



09.15.22

09.15.22

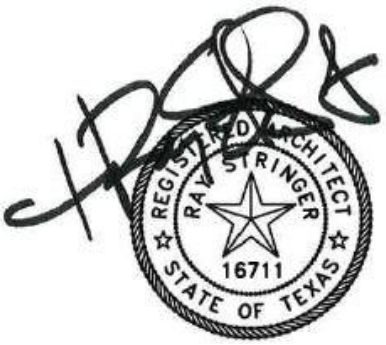
DOCUMENT 00 01 10.9 – ROOFING CONSULTANT TABLE OF CONTENTS

DIVISION 04 - WATERPROOFING

04 05 23 Through-Wall and Wall Substrate Flashing System

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07 22 16 Roof Board Insulation
07 52 16 Modified Asphalt Bituminous Roofing System
07 62 00 Sheet Metal and Miscellaneous Accessories
07 62 13 Gutters and Downspouts
07 72 00 Roof Accessories



09.15.22

SECTION 00 01 15 - LIST OF DRAWINGS

The Architect's seal on a Project Manual page represents that the information on the sealed page is accurate in the Architect's professional opinion, but the Architect does not assume professional responsibility for documents sealed by others that are referenced in the Project Manual. All professionals sealing specifications as a part of the design are professionally responsible for their own sealed documents.

GENERAL

G001	PROJECT COVER SHEET
G101	CODE REVIEW & EGRESS PLAN

CIVIL

C100	TITLE SHEET
C101	NOTES SHEET
C102	PLAT SHEET
CD100	DEMO PLAN
CE100	EROSION CONTROL PLAN
CE500	EROSION CONTROL DETAILS
CS100	OVERALL SITE PLAN
CG100	OVERALL GRADING PLAN
CN100	STORMWATER PLAN
CN200	DRAINAGE AREA MAP
CL100	LAYOUT PLAN
CL500	LAYOUT DETAILS 1
CL501	LAYOUT DETAILS 2
CL502	LAYOUT DETAILS 3
CL503	LAYOUT DETAILS 4
CP100	PAVING PLAN
CP500	PAVING DETAILS 1
CP501	PAVING DETAILS 2
CP502	PAVING DETAILS 3

09.15.22

LANDSCAPE

L 1.00	PLANTING PLAN
L 1.01	PLANTING DETAILS & TABLES
L 1.02	PLANTING DETAILS
IR 1.00	IRRIGATION PLAN
IR 1.01	IRRIGATION NOTES AND DETAILS

STRUCTURAL

S-000	COVER SHEET
S-001	GENERAL NOTES
S-002	SPECIAL INSPECTIONS
SD-111	GROUND LEVEL DEMOLITION PLAN
SD-121	ROOF DEMOLITION PLAN
S-111	GROUND LEVEL FLOOR PLAN
S-121	ROOF FRAMING PLAN
S-201	FRAMING ELEVATIONS

S-301	TYPICAL FOUNDATION DETAILS
S-501	TYPICAL STEEL ROOF FRAMING DETAILS
S-561	TYPICAL BRACING DETAILS

ARCHITECTURAL

A001	ABBV., MATERIAL LEGEND AND SYMBOLS
A002	TYPICAL MOUNTING HEIGHTS AND TOILET LAYOUT (ADULT)
A005	WALL SPANS INTERIOR AND WALL TO DECK DETAILS
A006	WALL SPANS INTERIOR AND WALL TO DECK DETAILS
A009	INTERIOR PARTITION TYPES
A021	PLAN DETAILS
AS01	ARCHITECTURAL SITE PLAN
AS02	SITE DETAILS
AD101	COMPOSITE DEMO PLAN
A101	COMPOSITE FLOOR PLAN
A200	AXONOMETRICS
A201	EXTERIOR ELEVATIONS
A301	WALL SECTIONS
A321	SECTION DETAILS
A322	LADDERS SECTION DETAILS
A341	EXTERIOR H/J/S DETAILS
A401	ENLARGED TOILET ROOMS
A402	ENLARGED PLANS
A501	DOOR SCHEDULE, INFO, AND FRAME TYPES
A511	EXTERIOR AND INTERIOR FRAME TYPES
A512	HJS DETAILS (INTERIOR CFMF/STUD)
A611	COMPOSITE REFLECTIVE CEILING PLAN
A710	COMPOSITE FINISH PLAN
A721	MILLWORK / CASEWORK DETAILS
A722	MILLWORK / CASEWORK DETAILS
A723	MILLWORK / CASEWORK DETAILS
A801	FINISH SCHEDULES
A802	SIGNAGE DETAILS
A821	INTERIOR ELEVATIONS
A822	INTERIOR ELEVATIONS
A900	COMPOSITE FURNITURE PLAN

ENVELOPE

R1-01	COMPOSITE ROOF PLAN
R2-01	ROOF DETAILS
R3-01	ENVELOPE FLASHING DETAILS
R3-02	ENVELOPE FLASHING DETAILS

MECHANICAL

M001	MECHANICAL LEGEND, SYMBOLS, AND ABBREVIATIONS
MD101	MECHANICAL DEMOLITION PLAN
MD201	MECHANICAL DEMOLITION PLAN - ROOF
M101	MECHANICAL FLOORPLAN
M201	MECHANICAL ROOF PLAN
M501	MECHANICAL DETAILS
M502	MECHANICAL DETAILS

M503	MECHANICAL DETAILS
M504	MECHANICAL DETAILS
M601	MECHANICAL SCHEDULES
M602	MECHANICAL SCHEDULES
M701	CONTROLS LEGEND, SYMBOLS, AND ABBREVIATIONS
M702	ROOFTOP UNIT CONTROL DIAGRAM AND SEQUENCE OF OPERATION
M703	ROOFTOP UNIT CONTROL DIAGRAM AND SEQUENCE OF OPERATION
M704	ROOFTOP UNIT CONTROL DIAGRAM AND SEQUENCE OF OPERATION
M705	INTEGRATED AUTOMATION – HVAC SYSTEMS
M706	INTEGRATED AUTOMATION – ELECTRICAL AND PLUMBING SYSTEMS

ELECTRICAL

E001	ELECTRICAL LEGENDS, ABBREVIATIONS AND SYMBOLS
ED101	ELECTRICAL DEMOLITION - PLAN
ES001	ELECTRICAL - SITE - POWER
ES002	ELECTRICAL - SITE - LIGHTING
E101	ELECTRICAL - LIGHTING PLAN
E201	ELECTRICAL - POWER PLAN
E211	ELECTRICAL - ROOF POWER PLAN
E401	ELECTRICAL ONE LINE DIAGRAM
E411	ELECTRICAL PANEL SCHEDULES
E412	ELECTRICAL PANEL SCHEDULES
E501	ELECTRICAL DETAILS
E502	ELECTRICAL DETAILS
E503	ELECTRICAL DETAILS
E601	LIGHTING FIXTURE SCHEDULE AND CONTROL DETAILS

PLUMBING

P001	PLUMBING LEGEND, SYMBOLS AND ABBREVIATIONS
PD200	UNDERFLOOR PLUMBING DEMO PLAN
PD201	FIRST LEVEL PLUMBING DEMO PLAN
P200	UNDERFLOOR PLUMBING PLAN
P201	FIRST LEVEL PLUMBING PLAN
P301	ROOF LEVEL PLUMBING PLAN
P401	ENLARGED PLUMBING PLANS
P501	PLUMBING RISER DIAGRAMS
P502	PLUMBING RISER DIAGRAMS
P601	PLUMBING DETAILS
P602	PLUMBING DETAILS
P701	PLUMBING SCHEDULES
P702	PLUMBING SCHEDULES

TECHNOLOGY

T000	TECHNOLOGY - INDEX SHEET
T010	TECHNOLOGY - SITE PLAN
T101	TECHNOLOGY - FLOOR PLAN
T400	TECHNOLOGY - ENLARGEMENTS
T401	TECHNOLOGY - SECTIONS
T500	TECHNOLOGY - DETAILS
T501	TECHNOLOGY - DETAILS
T502	TECHNOLOGY - DETAILS

T600	TECHNOLOGY - SECURITY DETAILS
T601	TECHNOLOGY - SECURITY DETAILS
T700	TECHNOLOGY - AV DETAILS
T701	TECHNOLOGY - AV DETAILS
T702	TECHNOLOGY - AV DETAILS

END OF SECTION 00 01 15

SAN MARCOS CONSOLIDATED INDEPENDENT SCHOOL DISTRICT

REQUEST FOR COMPETITIVE SEALED PROPOSALS

ADMINISTRATION BUILDING PROJECT

CSP Posting (First Advertisement): **Second Advertisement:**	**September 18, 2022** **September 25, 2022**
Pre-Proposal Conference (Voluntary – Not Mandatory)	**September 29, 2022 at 10:00 a.m.** **Location: 1311 Texas Hwy. 123, San Marcos, Texas 78666**
Questions Due: **Answers Published:**	**September 30, 2022 at 2:00 p.m.** **October 5, 2022 at 4:00 p.m.**
Proposals Due:	**October 13, 2022 at 2:00 p.m.**
Proposal Opening:	**Immediately after Proposals Due.**

***Note: San Marcos CISD will be closed on Monday, October 10, 2022, in observance of the federal holiday.**

Deliver Sealed Proposals to:
San Marcos CISD
Purchasing Department
631 Mill Street
San Marcos, TX 78666
P.O. Box 1087
San Marcos, TX 78667

Contact:
Michael Doyle
Director of State & Federal Programs and Procurement
512.393.6899
Michael.doyle@smcisd.net

REQUEST FOR PROPOSAL INDEX

SECTION I – INSTRUCTIONS TO PROPOSERS

1. Pre-Proposal Questions and Answers
2. Submission of Proposal Responses
3. Required Submittal Contents
4. Selection
5. Reservations
6. The Contract
7. Other General Requirements

SECTION II – PROJECT SCOPE AND INFORMATION

1. Schedule and Project Description

SECTION III – QUESTIONNAIRE/INFORMATION TO BE SUBMITTED

1. General Firm Information and Reputation
2. General Experience
3. Proposed Personnel

SECTION IV – FORMS AND DOCUMENTS

Attachment 'A' – Felony Conviction Notification
Attachment 'B' – AIA Document A101-2017, as modified by District
Attachment 'C' – AIA Document A201-2017, as modified by District
Attachment 'D' – Board-Adopted Prevailing Wage Rates
Attachment 'E' – Non-Conflict of Interest, Anti-Lobbying
Attachment 'F' – Suspension and Debarment Certification
Attachment 'G' – Certification of Residency
Attachment 'H' – Conflict of Interest Notice
Attachment 'I' – Disclosure of Interested Parties
Attachment 'J' – Deviations / Signature Page
Attachment 'K' – Certificate of Non-Collusion Statement and Certification of Compliance/Representations
Attachment 'L' – Execution of Offer

SECTION V – PROPOSAL FORM/COST FORM

SECTION I – INSTRUCTIONS TO PROPOSERS

Pursuant to the provisions of the Texas Government Code, Chapter 2269, Subchapter D, it is the intention of the San Marcos Consolidated Independent School District to select, via Competitive Sealed Proposals, a Contractor for the Administration Building Project.

For the purposes of this document, **San Marcos Consolidated Independent School District** shall be referred to as the "**Owner**," "**District**," "**San Marcos CISD,"** or "**SMCISD**."

This Request for Competitive Sealed Proposals (RFP or RCSP) contains information and instructions to enable interested Proposers to prepare and submit a Proposal Submittal and Cost Submittal, as well as information on the selection process.

1. **PRE-PROPOSAL QUESTIONS.** All questions regarding clarification or interpretation of the RFP will be submitted in writing by the Proposer, and must be received by 2:00 p.m. on September 30, 2022. Answers to the questions will be posted on the District's website at https://www.smcisd.net/domain/213 by 4:00 p.m. on October 5, 2022. No questions will be addressed unless provided in writing.

2. **SUBMISSION OF PROPOSAL RESPONSES.**
   - 2.1. Submission.
     - 2.1.1. All proposals submitted for consideration, shall follow these steps as described herein.
     - 2.1.2. The offeror shall submit a Proposal and shall include a response to all of the requirements as indicated herein.
     - 2.1.3. Using the Cost Form, the Offerors shall be required to submit a Cost Submittal.
     - 2.1.4. The Proposal responses shall be returned in an envelope or package marked on the outside with the Project name.
     - 2.1.5. Proposals must be returned in sufficient time so as to be received and time-stamped by the District on or before the time and date shown on this RFP. It is the sole responsibility of the Proposer to ensure timely delivery of the Proposal. The District will not be responsible for failure of service on the part of the U.S. Postal Office, courier companies, or any other form of delivery service chosen by the Proposer.
     - 2.1.6 Receipt of any Addenda must be acknowledged by signing in the space provided on the attached Cost Proposal Certification Form to be enclosed with the Proposer's response.
     - 2.1.7 The package containing your Proposal shall include one (1) original and five (5) copies.

2.2. Closing Time and Requirements.

2.2.1. All proposal responses must be received in the District's Administration Office no later than the time and date listed below. Reference the RFP and closing date on any correspondence. Proposals will be received by the District at the following location and time:

Time/Date: Until 2:00 p.m. on October 13, 2022.

The proposer has the right to submit, in a sealed envelope, plainly marked with the Name of Proposers, RFP Number, and RFP Title.

One (1) hard copy marked "ORIGINAL" of the proposal response – ALL hard copies will be scanned in electronically for evaluation. No physical copies will be given the evaluation committee.

Late, faxed, or e-mailed proposals will not be accepted.

Place: Deliver proposals to:

San Marcos CISD
Purchasing Department
631 Mill Street
San Marcos, TX 78666
P.O. Box 1087
San Marcos TX 78667

2.2.2. On the above date and location, the responses will be publicly opened, the respondent's names read aloud, and prices read aloud.

2.2.3. Responses received after the published time and date shall not be considered.

3. REQUIRED SUBMITTAL CONTENTS.

3.1. The District has established guidelines to facilitate, review and evaluate each Proposer's response. The Proposer will include and organize their response in accordance with the following:

3.1.1. Number of Proposals. **One (1) original and five (5) copies of requested items. Submit only one (1) copy of response to Section III. Item 2 (Section 3.2 of the Questionnaire). Financial Information in a sealed envelope clearly marked with the same information as Section 2, above.**

3.2. Order of Response Information

3.2.1. Cover Letter – One page

3.2.2. Questionnaire Response

3.2.3. Certification Form

Cost Form(s) and Attachment 'J'-Deviations/Signature Page

3.3. Each Proposer shall furnish the information required by this RFP and in the order required. The person signing the Proposal Response Certification Form must be a person authorized by the proposing firm to sign the proposal and bind the firm thereto.

4. RANKING AND SELECTION.

4.1. Upon receipt, the District will review the RFP responses and make recommendations to the Board of Trustees.

4.2. Selection Process

4.2.1. THIS IS A NEGOTIATED PROCUREMENT, and as such, award will not necessarily be made to the Proposer submitting the lowest fee/cost Proposal.

4.2.2. **The Owner will evaluate Proposals on the basis of the selection criteria listed below. A weighted value for each of the areas listed below is assigned and will be used in determining the Contractor that provides the Owner with the "Best Value."**

4.3. Evaluation.

4.3.1. The Contractor will be selected via the one-step evaluation process, pursuant to the Texas Government Code Chapter 2269, Subchapter D.

4.3.2. The Evaluation Criteria and Weight/Points follows:

General Firm Information and Reputation	**17 points**
General Experience	**23 points**
Proposed Personnel	**10 points**
Price Proposal, including alternates	**50 points**

4.3.3 By submitting its Proposal in response to this package, the Offeror accepts the methodology and evaluation process and acknowledges and accepts that determination of the "best value" will require subjective judgments by the Owner, based upon the information responsive to the Evaluation Criteria and Weight/Points Value as published with this package.

4.4. Contact with the District during the Proposal Process.
Offerors are not permitted to contact any SMCISD Board of Trustee member, officer, or employee (other than Michael Doyle, as identified above) during the Proposal Process. No gratuities of any kind will be accepted, including meals, gifts, or trips. **Violation of these conditions will subject offeror to immediate disqualification.**

4.5. All responses in your submission may be used to rank offerors based on the criteria. The District reserves the right to verify the accuracy and completeness of all responses by utilizing any information available to the District without regard to whether such information appears in your submission.

4.6. By submitting, each offeror agrees to waive any claim it has or may have against the District, the Architect/Engineer, Stantec Architecture, Inc. and their respective trustees, agents and employees, and any reference sources, arising out of or in connection with the administration, evaluation, or recommendation of any submission, including, but not limited to: waiver of any requirements under the submission documents; acceptance or rejection of any submission; and award of a contract.

4.7. The District shall have no contractual obligation to any offeror, nor will any offeror have any property interest or other right in the contract or Work being proposed unless and until a contract is unconditionally executed and delivered by all parties, and all conditions to be fulfilled by the Contractor have been so fulfilled by the Contractor.

5. RESERVATIONS. The District has the right to:

5.1. Waive any minor informality in any Proposal procedure.

5.2. Reject or cancel any or all Proposal responses.

5.3. Reject the Proposer's response based on partnerships(s) and/or any other factor the District deems not in the best interest of the District.

5.4. Extend the Proposal opening time and date.

5.5. Reissue a new Request for Competitive Sealed Proposals.

5.6. Consider and accept any response that is considered in the best interest of the District.

5.7 The District may make an award without discussion with any Proposer, after the proposal responses are received and evaluated.

5.8 Open Records Requirement – All documents submitted as part of the Contractor's Proposal response will be deemed confidential during the evaluation process. Contractor Proposal responses will not be available for review by anyone other than the District staff or its designated agents. Following award of contract, all Proposals become public documents and are available for public viewing upon written request to the District except where Proposal information is considered to be confidential or a trade secret belonging to the Proposer and, if released would give advantage to a competitor. That information should be clearly marked: "CONFIDENTIAL – DO NOT DUPLICATE WITHOUT PERMISSION". Please note that all information is subject to the Texas Public Information Act.

5.9 Availability of Funds – In the event that sufficient funds are not available for the Project, the District reserves the right to negotiate the scope of this contract, delay implementation, reject all Proposals, or award another type of contract other than that required in this RFP.

6. THE CONTRACT.

6.1. The Owner proposes to base the Owner/Contractor on the AIA Document A101-2017, as modified by SMCISD. In addition, General Conditions of the Contract for Construction will be AIA Document A201-2017 as modified by the District. **Any objections to these documents shall be noted in writing at the time of Offeror's submission.**

6.2. The AIA Document A101-2017 as modified by the District, attached as Attachment C, which includes SMCISD's prevailing wage schedule.

6.3. In addition, General Conditions of the Contract for Construction will be AIA Document A201-2017, as modified by the District, attached as Attachment D.

6.4. The Specifications and Drawings issued by the Architect.

7. OTHER GENERAL REQUIREMENTS:

7.1 WAIVER OF CLAIMS: By submitting a Proposal, each Respondent agrees to waive any claim it has or may have against the Owner, the Architect/Engineer, and their respective trustees, agents and employees, and any reference sources, arising out of or in connection with the administration, evaluation, or recommendation of any Proposal; waiver of any requirements under the Proposal documents; acceptance or rejection of any Proposal; and award of a contract.

7.2 REQUIRED NOTICES OF WORKERS' COMPENSATION INSURANCE COVERAGE: The Texas Workers' Compensation Commission has adopted rule 28 TAC, sec. 110.110, relating to REPORTING REQUIREMENTS FOR BUILDING OR CONSTRUCTION PROJECTS FOR GOVERNMENTAL ENTITIES. The rules applies to all building or construction contracts advertised for bid on or after September 1, 1994. The rules implement sec. 406.096, Texas Labor Code, which requires workers' compensation insurance coverage for all persons providing services on a building or construction project for a governmental entity. The requirements of the rules are set forth in the General Conditions (A201, as modified by the Owner/SMCISD).

7.3 PREVAILING WAGE RATE DETERMINATION: Respondents are advised that the Texas Prevailing Wage Law will be administered in accordance with the General Conditions (A201, as modified by the Owner/SMCISD). The Owner's prevailing wage schedule is included in Attachment "D" to this RFP.

SECTION II – PROJECT SCOPE and INFORMATION

Project:

The Project consists of an approximate 26,000 square feet renovation to Central Administration for San Marcos CISD, located at 1331 Texas Highway, San Marcos, Hays County, Texas 78666. The Work consists of Civil, Landscape, Structural, Architectural, Mechanical, Electrical, Plumbing, and Technology requirements as indicated by the Architect, Stantec Architecture Inc.

The estimated construction cost is Six Million, Four Hundred Thousand Dollars ($6,400,000.00).

Construction is contingent upon certain activities being completed within a specific timeframe, which will permit the District to meet its contemplated schedule. If these activities are not completed when required, the District may not proceed with construction as anticipated in this RFP.

PROJECT SCHEDULE

Board Action to Rank: Anticipated November 14, 2022

Anticipated Notice to Proceed: December 2022

Anticipated Substantial Completion: Thirteen (13) months from Notice to Proceed

SECTION III – QUESTIONNAIRE

RFPs are to include the information requested in this questionnaire in the sequence and format prescribed. Each selection criteria is associated with certain questions and will be evaluated based on this format. Failure to respond in this sequence and format will result in reduction of points or disqualification.

Supplemental materials providing additional information may be attached if limited to three (3) pages.

General Firm Information (Organization, Finances, Claims/Litigation, Safety Record) (17 Points)

A. Organization (2 Points)

1. Name of Firm
2. Address of principal office
3. Phone Number
4. Fax Number
5. Type of Business Organization (Corporation, Partnership, etc.)
6. Year Founded
7. Contact Person (with telephone and email address)
8. Does your organization qualify as a resident bidder under Texas Government Code Chapter 2252? If not, please list the state of residence of your organization.
9. State how many years your organization has been in business in its current capacity.
10. Has your organization operated under any former names? If so, list those names.
11. If your organization is a corporation, state the date of incorporation, the state of incorporation, president's name, vice president's name, secretary's name, and treasurer's name.
12. If your organization is a partnership, state the date of organization, type of partnership, and names of

general partners.

13. If your organization is individually owned, state the date of organization and the name of the owner.
14. If your organization is a form other than those listed above, please describe it and name your principals.
15. List jurisdictions and trade categories in which your organization is legally qualified to do business and indicate registration or license numbers, if applicable.
16. List jurisdictions in which your organization's partnership or trade name is filed.
17. Within the last five (5) years, has an officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, please attach details).

B. Finances (5 Points)

1. Attach a financial statement, preferably audited, including your organization's latest balance sheet and income statement.
2. Provide the name of the bonding company your organization uses, including the name and address of an agent. Proof of ability to bond (and remaining total bonding capacity) will be required prior to selection.

C. Claims/Litigation (5 Points)

1. Claims and suits: If the answer to any of the questions below is yes, please attach details:
   - 1.1 Has your organization ever failed to complete any work awarded to it?
   - 1.2 Are there any judgments, claims, arbitration proceedings or suits outstanding against your organization or its officers?
   - 1.3 Has your organization filed any lawsuits or requested arbitration with regard to construction contracts within the last five (5) years?
   - 1.4 Has your organization had any claims asserted against it in the last five (5) years?

D. Safety Record (5 Points)

1. Provide Offeror's Occupational Safety and Health Administration inspection logs for the last three (3) years, a loss analysis from the Offeror's insurance carrier, and a loss history covering all lines of insurance coverage carried by the Offeror.

<u>General Experience (23 Points)</u>

1. List the Texas public school projects or similar projects constructed by your organization over the last five (5) years. For each project, provide the name, nature of the project/function of the building, size (square footage), location, cost, delivery method used, date of notice to proceed, contractual completion date, actual completion date, owner and architect (including telephone numbers) and type of project. **(18 Points)**
2. List the major construction projects your organization has in progress, giving the name and location of the project, owner, architect, contract amount, percent complete, and scheduled completion date. **(3 Points)**
3. Describe your firm's process for handling RFI's and Change Orders to facilitate the smooth progress of the Project. **(2 Points)**

<u>Proposed Personnel</u> (10 Points)

1. Identify the Project Manager and Site Superintendent who will work on the project. Provide a resume

and references for each individual. **(5 Points)**

2. Describe the team proposed for this project and a description of planned efforts to provide quality work, meet schedules, and work within budget. **(5 Points)**
   **Note: The selected Contractor shall include the team of its employees presented to the Owner in response to the Owner's Request for Competitive Sealed Proposals. Should any of those team members leave the employment of the Contractor during the Project, the Contractor shall substitute that team member with a person of the same or higher qualifications, subject to the District's approval, which will not be unreasonably withheld or delayed.*

End of Questionnaire

SECTION IV – FORMS AND DOCUMENTS

Forms and Document Follow

ATTACHMENT 'A'

FELONY CONVICTION NOTIFICATION

The Texas Education Code, Section 44.034, Notification of Criminal History, Subsection (a), states "a person or business entity that enters into a contract with a school district must give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony."

Subsection (b) states "a school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract."

This notice is not required of a Publicly-Held Corporation.

I, the undersigned agent for the firm named below, certify that the information concerning notification of felony conviction has been received by me and the following information furnished is true to the best of my knowledge.

Proposer's Company Name _____

Authorized Company Official's Name (Printed) _____

A. My firm is a publicly-held, stock-exchange corporation; therefore this requirement is not applicable.

Signature of Company Official: _____

Date Signed: _____

B. My firm is not owned or operated by anyone who has been convicted of a felony.

Signature of Company Official: _____

Date Signed: _____

C. My firm is owned or operated by the following individual(s) who has/have been convicted of a felony (printed name and general description of type of felony or felonies):

1. _____
   _____
2. _____
   _____
3. _____
   _____

4. _____

_____

Signature of Company Official: _____

Date Signed: _____

AIA Document A101 – 2017,
as modified by the District

Contact Michael Doyle for Attachment B

AIA Document A201– 2017,
as modified by the District

Contact Michael Doyle for Attachment C

ATTACHMENT 'D'

Prevailing Wage Rates

ATTACHMENT 'E'

NO-CONFLICT OF INTEREST, ANTI-LOBBYING

By submission of this response, the undersigned certifies that:

1. Neither the Respondent nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, has in any way colluded, conspired, or agreed, directly or indirectly with any person, firm, corporation or other Respondent or potential Respondent or given any money or other valuable consideration for assistance in procuring or attempting to procure a contract or fix the prices in the attached response or the response of any other Respondent, and further states that no such money or other reward will be hereinafter paid.

2. No attempt has been or will be made by this firm's officers, employees, or agents to lobby, directly or indirectly, the District's Board of Trustees between response submission date and award by the District's Board of Trustees.

3. No officer or stockholder of Respondent is a member of the staff or related to any employee of the San Marcos Consolidated Independent School District except as noted below:

   _____

   The undersigned certifies that he/she is fully informed regarding the accuracy of the statements contained in this certification, and that the penalties herein are applicable to the Respondent as well as to any person signing on its behalf.

Signature of Authorized Official: _____

Printed Name: _____

Title: _____

Date: _____

ATTACHMENT 'F'

DEBARMENT OR SUSPENSION CERTIFICATION FORM

Non-Federal entities are prohibited from contracting with or making sub-awards under covered transaction to parties that are suspended or debarred or whose principals are suspended or debarred. Covered transactions include procurement of goods or services equal to or in excess of $100,000.

Contractors receiving individual awards of $100,000 or more and all sub-recipients must certify that the organizations and its principals are not suspended or debarred.

By submitting the offer and signing this certificate, this bidder:

> *Certifies that no suspension or debarment is in place, which would preclude receiving a federally funded contract under the Federal OMB, A-102, Common Rule (_.36).*

Signature of Authorized Company Representative

ATTACHMENT 'G'

CERTIFICATE OF RESIDENCY

The State of Texas has passed a law concerning non-resident contractors. This law can be found in Texas Government Code under Chapter 2252, Subchapter A. This law makes it necessary for San Marcos CISD to determine residency. **Section: 2252-001** (3) 'Non-resident bidder' refers to a person who in not a resident. (4) 'Resident bidder' refers to a person whose principal place of business in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state. **Section: 2252.002** A governmental entity may not award a governmental contract to a nonresident bidder unless the nonresident underbids the lowest bid submitted by a responsible resident bidder by an amount that is not less than the amount by which a resident bidder would be required to underbid the nonresident bidder to obtain a comparable contract in the state in which the nonresident's place of business is located.

I certify that _____
(Name of Company Bidding)

Is, under Section 2252.001 (3) and (4), a resident Bidder _____Non-resident Bidder_____

My or Our principal place of business under Section: 2252.001 (3) and 94), is in the city of

_____in the state of _____

_____
Signature of Authorized Company Representative

ATTACHMENT 'H'

CONFLICT OF INTEREST NOTICE
San Marcos Consolidated Independent School District

Notice to Vendors
Conflict of Interest Questionnaire Required by Chapter 176 of the Texas Local Government Code

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at https://statutes.capitol.texas.gov/Docs/LG/htm/LG.176.htm.

The form to be completed by the vendor is at:
https://www.ethics.state.tx.us/data/forms/conflict/CIQ.pdf

For easy reference, below are some of the sections cited on this form.

Local Government Code §176.001(1-a):

- "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:
  a) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
  b) a transaction conducted at a price and subject to terms available to the public; or
  c) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code §176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code §176.006(a) and (a-1):

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh (7^{th}) business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

ATTACHMENT 'I'

CERTIFICATION OF INTERESTED PARTIES- FORMS 1295

A person or business entity entering into a contract and/or agreement with SMCISD is required by the New Government Code Statute §2252.908, to complete Form 1295 "Certificate of Interested Parties" located at https://www.ethics.state.tx.us/filinginfo/1295/. Once the online submission has been processed and a claim number has been issued, the form must be printed with the claim number, then signed and submitted along with the bid/quote/proposal document(s).

THIS FORM MUST BE COMPLETED ONLINE

ATTACHMENT 'J'

DEVIATIONS / SIGNATURE PAGE

In the event the undersigned Respondent intends to deviate from the general terms, conditions, or specifications listed within this proposal, all such deviations must be listed on this page, with complete and detailed conditions and information also being attached. In the absence of any deviation entry on this form, the Respondent assures the District of their compliance with the Terms, Conditions, Specifications, and information contained within this PROPOSAL.

List Deviations here (or attach additional pages as needed);

_____

_____

_____

_____

_____

_____

_____

Deviations:

The District will be the sole judge to determine if deviations are acceptable in meeting the needs of the District.

The District reserves the right to withdraw this request for proposals at any time and for any reason. The District also reserves the right to award or not award this contract in any manner deemed to be in the best interest of the District.

All Respondents MUST COMPLETE this page.
Sign and Return with response or your submission may be considered Non-Responsive.

Our response is submitted according to: _____ **Deviations listed above**

_____ **No Deviations**

SIGNATURE: _____

PRINTED NAME: _____

TITLE: _____

ATTACHMENT 'K'

CERTIFICATE OF NON-COLLUSION STATEMENT

"Non-collusion Statement": "The undersigned affirms that they are duly authorized to execute this contract, that this company, corporation, firm, partnership, etc., or individual has not prepared this bid in collusion (*An agreement between two or more persons to deceive the school district or defraud the school district of its rights*) with any other bidder, school board member, or school district employee, and that the contents of this bid as to prices, quality or products, terms and/or conditions, etc., have not been communicated by the undersigned nor by any other employee, agent and/or representative of the company, corporation, firm partnership, etc., or individual to any other person engaged in this type of business prior to the official opening of this bid for the intent or purpose of collusion."

Signature of Authorized Representative_____

CERTIFICATION

I, or we the duly authorized undersigned, having carefully read the Request for Competitive Sealed Proposals and do hereby agree to enter into a contract with SMCISD, by tendering this proposal to perform the work required and/or provide the products(s) specified in this solicitation. The prices in this proposal have been determined independently, without consultation, communication, or agreement for the purpose of restricting competition, as to any matter related to such prices, with any other Proposer or with any competitor. I, or we, are authorized to submit this proposal and have not been a party to any collusion among Proposer(s) in restraint of freedom of competition by agreement to offer at a fixed price or to refrain from offering; or with and SMCISD employee, Board Trustee, or consultant as to quantity, quality, or price in the prospective contract, or I any terms of the prospective contract except in any authorized discussions(s) with SMCISD's Purchasing Department, or in any discussions or actions between Proposer/Proposers and any SMCISD employee, Board Trustee, or consultant concerning exchange of money or other things of value for special consideration in the award of this contract. I, or we, also certify to the accuracy of the certifications required which accompany this proposal.

Date_____

Name of Company_____

Printed Name of Authorized Representative:_____

Signature of Authorized Representative:_____

ATTACHMENT 'L'

EXECUTION OF OFFER

NOTE TO RESPONDENTS: SUBMIT ENTIRE SECTION WITH RESPONSE.

THIS EXECUTION OF OFFER MUST BE COMPLETED, SIGNED, AND RETURNED WITH THE RESPONDENT'S PROPOSAL. FAILURE TO COMPLETE, SIGN AND RETURN THIS EXECUTION OF OFFER WITH THE PROPOSAL MAY RESULT IN REJECTION OF THE SUBMISSION.

SIGNING A FALSE STATEMENT MAY VOID THE SUBMITTED PROPOSAL OR ANY AGREEMENTS OR OTHER CONTRACTUAL ARRANGEMENTS, WHICH MAY RESULT FROM THE SUBMISSION OF RESPONDENT'S PROPOSAL, AND THE RESPONDENT MAY BE REMOVED FROM ALL PROPOSER LISTS. A FALSE CERTIFICATION SHALL BE DEEMED A MATERIAL BREACH OF CONTRACT AND, AT OWNER'S OPTION, MAY RESULT IN TERMINATION OF ANY RESULTING CONTRACT.

BY SIGNATURE HEREON:

1. Respondent acknowledges and agrees that (1) this RFP is a solicitation and is not a contract or an offer to contract; (2) the submission by Respondent in response to this RFP will not create a contract between the Owner and Respondent; (3) the Owner has made no representation or warranty, written or oral, that one or more contracts with the Owner will be awarded under this RFP; and (4) Respondent shall bear, as its sole risk and responsibility, any cost which arises from Respondent's preparation of a response to this RFP.

2. Respondent agrees to furnish to the Owner the services described in its proposal, and to comply with all terms, conditions and requirements set forth in the RFP and documents contained herein.

3. Respondent affirms that Respondent has not given, and does not intend to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor or service to a public servant in connection with the submitted Proposal.

4. A corporate Respondent certifies that it is not currently delinquent in the payment of any Franchise Taxes due under Chapter 171, Texas Tax Code, or that the corporate Respondent is exempt from the payment of such taxes, or that the corporate Respondent is an out-of-state corporation that is not subject to the Texas Franchise Tax, whichever is applicable.

5. Respondent certifies that neither the Respondent nor the firm, corporation, partnership or Owner represented by the Respondent, or anyone acting for such firm, corporation, or institution has violated the antitrust laws of this state, codified in Section 15.01, et. seq., Texas Business and Commerce Code, or the Federal antitrust laws, nor communicated directly or indirectly the Qualifications made to any competitor or any other person engaged in such line of business.

6. Respondent represents and warrants that:

    a. Respondent is a reputable company regularly engaged in providing contractor services necessary to meet the terms, conditions and requirements of the RFP.

b. Respondent has the necessary experience, knowledge, abilities, skills, and resources to satisfactorily perform the terms, conditions and requirements of the RFP.

c. Respondent is aware of, is fully informed about, and is in full compliance with all applicable federal, state and local laws, rules, regulations and ordinances.

d. Respondent understands (i) the requirements and specifications set forth in this RFP and (ii) the terms and conditions set forth in the Agreement under which Respondent will be required to operate.

e. Respondent, if selected by the Owner, will maintain insurance and bonds as required by the construction agreement.

f. All statements, information and representations prepared and submitted in response to this RFP are current, complete, true and accurate. Respondent acknowledges that the Owner will rely on such statements, information and representations in selecting the successful Respondent. If selected by the Owner as the successful Respondent, Respondent will notify the Owner immediately of any material change in any matters with regard to which Respondent has made a statement or representation or provided information.

g. Under Section 231.006, Texas Family Code, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate.

h. Under Section 2155.004, Texas Government Code, the vendor or applicant certifies that the individual or business entity named in this bid or contract is not ineligible to receive the specified contract and acknowledges that this contract may be terminated and payment withheld if this certification is inaccurate.

7. Respondent certifies that the individual signing this document and the documents made part of the RFP is authorized to sign such documents on behalf of the company and to bind the company under any agreements or other contractual arrangements which may result from the submission of Respondent's submission.

8. Respondent certifies that if a Texas address is shown as the address of the Respondent, Respondent qualifies as a Texas Resident Respondent as defined in Rule 1 Tex. Admin. Code 111.2.

9. Respondent certifies that no relationship, whether as relative, business associate, by capital funding agreement or any other similar relationship exists between Respondent and a trustee or administrator of the Owner, and Respondent has not been an employee of the Owner within the immediate twelve (12) months prior to your RFP response. All such disclosures will be subject to administrative review and approval prior to the Owner entering into any contract with Respondent.

10. Respondent affirms that no compensation has been received for participation in the preparation of the specifications for this RFP. (ref. Section 2155.004 Texas Government Code).

11. Respondent represents and warrants that Respondent will comply with the safety standards established and promulgated under the Federal Occupational Safety and Health Law (Public Law 91-596) and its regulations in effect or proposed as of the date of this solicitation.

12. Respondent certifies that Respondent will comply with all applicable federal laws and regulations pertaining to Equal Employment Opportunities.

13. Respondent certifies it's understanding that, should Respondent be selected for the Project: "The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract and the Offeror or vendor agrees that the contract can be terminated if the Offeror or vendor knowingly or intentionally fails to comply with a requirement of that subchapter." Specifically: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this procurement and resulting contract and the Offeror agrees that any resulting contract can be terminated if the Offeror knowingly or intentionally fails to comply with a requirement of that subchapter. Therefore, if the value of the Project is One Million Dollars ($1,000,000.00) or more, the Offeror agrees to : (1) preserve all contracting information related to the contract as provided by the records retention requirements applicable to the SMCISD for the duration of the contract; (2) promptly provide to the governmental body any contracting information related to the contract that is in the custody or possession of the entity on request of the SMCISD; and (3) on completion of the contract, either: (a) provide at no cost to the SMCISD all contracting information related to the contract that is in the custody or possession of the entity; or (b) preserve the contracting information related to the contract as provided by the records retention requirements applicable to the SMCISD.

14. Respondent certifies its understanding that, pursuant to Texas Government Code Chapter 2271, as amended, if the resulting contract is valued at $100,000 or more and if the Offeror has at least ten (10) full time employees, then the Offeror, by its execution of any resulting agreement with SMCISD, represents and warrants to the SMCISD that the Offeror does not boycott Israel and will not boycott Israel during the term of any resulting agreement. This section does not apply to a sole proprietorship.

15. By signing, the Respondent certifies as follows: Under Section 231.006 of the Texas Family Code, the Offeror certifies that the individual or business entity named is not ineligible to receive the specified payments and acknowledges that any resulting agreement may be terminated and payment withheld in this certification is inaccurate.

16. Respondent verifies and affirms that it is not a foreign terrorist organization as identified on the list prepared and maintained by the Texas Comptroller of Public Accounts. If Offeror has misrepresented its inclusion on the Comptroller's list such omission or misrepresentation will void any contract with SMCISD.

17. Pursuant to Texas Government Code Chapters 2274 and 809, if the contract is valued at $100,000 or more and if Offeror has at least ten (10) full-time employees, then Offeror represents and warrants to the SMCISD that the Offeror does not boycott energy companies and will not boycott energy companies during the term of the contract. This provision does not apply to sole proprietorships.

18. Pursuant to Texas Government Code Chapter 2274, if the contract is valued at $100,000 or more and if Offeror has at least ten (10) full-time employees, then Offeror represents and warrants to the SMCISD that the Offeror does not discriminate against firearm entities or firearm trade associations and will not discriminate against firearm entities or firearm trade associations during the term of the contract. This provision does not apply to sole proprietorships.

19. In compliance with Chapter 2252 of the Texas Government Code, Offeror certifies that it does not engage in business with Iran, Sudan, or any foreign terrorist organization. Offeror also certifies that for the length of any resulting contract with SMCISD, Offeror will not engage in any business

with Iran, Sudan, or any foreign terrorist organization.

20. By submitting a response to this RFP, Respondent agrees to waive any and all claims it has or may have against the school district and its trustees, employees and officers, including, but not limited to, those arising out of or in connection with the administration, evaluation, or recommendation of any response or proposal; waiver of any requirements under this RFP, or the Contract Documents; acceptance or rejection of any response or proposal; and award of a contract.

21. By submitting a proposal, it is agreed that such proposal shall be valid and not withdrawn for a period of ninety (90) days from the date of opening.

22. Proposer understands and agrees that issuance of this RFP does not commit the District to award a contract or pay any costs incurred in the preparation of a response to this request.

23. The District reserves the right to waive any formality and to reject any or all proposals.

The Respondent must complete, sign and return this Execution of Offer as part of their Proposal. Failure to sign and return this form will subject the Proposal to rejection by the Owner.

Respondent's Name:_____

Respondent's State of Texas Tax Account No.:_____
(This 11 digit number is mandatory)

If a Corporation:

Respondent's State of Incorporation:_____

Respondent's Charter No:_____

Identify each person who owns at least 25% of the Respondent's business entity by name:

_____
(Name)

_____
(Name)

Submitted and Certified By:

(Respondent's Name)	*(Title)*
(Street Address)	*(Telephone Number)*
(City, State, Zip Code)	*(Fax Number)*
(AUTHORIZED SIGNATURE)	**(DATE)**

SECTION V – PROPOSAL FORM/COST FORM

IDENTIFICATION OF OFFEROR AND ACCEPTANCE OF TERMS

IMPORTANT: By such signature, Offeror agrees to strictly abide by the terms, conditions, and specifications set out in the Request for Competitive Sealed Proposal.

1.1 SUBMITTED BY:

_____

Address:

_____

Phone No.: _____ Fax: _____ Date: _____

Signature: _____

1.2 PROPOSAL AMOUNT: All labor, materials, services and equipment necessary for completion of the Work shown in the drawings and in the specifications, except the Work indicated by the alternates.

_____DOLLARS ($_____)

NOTE: The Proposal Amount includes the following Allowances:
(1) Owner's General Contingency Allowance/Construction Contingency: $77,000.00
(2) Allowance Number 2 – Digital Antenna System: $70,000.00.

1.3 ALTERNATE(S):

Alternate Number One: White Noise System in Workstation Area
If the Owner elects to proceed with Alternate Number One, (add) the sum of:

_____DOLLARS ($_____)

Alternate Number Two: Portable Hook Up For Generator
If the Owner elects to proceed with Alternate Number Two, (add) the sum of:

_____DOLLARS ($_____)

Alternate Number Three: Extended Warranty for Mechanical Roof Top Units
If the Owner elects to proceed with Alternate Number Three, (add) the sum of:

_____DOLLARS ($_____)

Alternate Number Four: Site drives Asphalt (Base Proposal) and Concrete (Alternate)
If the Owner elects to proceed with Alternate Number Four, (add)(deduct) the sum of:

_____DOLLARS ($_____)

Alternate Number Five: Provide Underground Service Entrance Conduit:
If the Owner elects to proceed with Alternate Number Five, (add) the sum of:

_____DOLLARS ($_____)

1.4 UNIT PRICES

Refer to Division 1 Section "Unit Prices" for a complete description of Unit Prices. Provide only one price for additional or less amounts of each item indicated. Submission of more than one price may be grounds for reject of Proposal. Please refer to Specification 01 22 00 UNIT PRICES section 3.1 for more information:

1. Additional communications/data outlets boxes (2):

_____DOLLARS ($_____)

2. All costs associated to provide three (3) 1P-20A circuits at a distance of 100' each:

_____DOLLARS ($_____)

3. All costs associated to provide four (4) IP-20A circuits at a distance of 100' each:

_____DOLLARS ($_____)

4. All costs associated to provide one (1) 277V lighting 1P-20A circuits at a distance of 150' each:
_____DOLLARS ($_____)

5. All costs associated to the cost equivalent of six (6) type "A" luminaires:

_____DOLLARS ($_____)

6. All costs associated to provide five (5) Exit sign luminaires of common type on this Project:
_____DOLLARS ($_____)

1.5 ADDENDA: Undersigned acknowledges receipt of Addenda:

(Nos. & Dates) _____

1.6 REVIEW OF MODIFIED AIA CONTRACT DOCUMENTS

The Proposer certifies that it has reviewed the AIA A101—2017 and AIA A201—2017, as modified by Owner and attached as Attachments B and C.
_____Yes _____No

AIA® Document A101® – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the _____ day of _____ in the year TWO THOUSAND AND TWENTY-TWO.
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

San Marcos Consolidated Independent School District
631 Mill Street
San Marcos, Texas 78666
Phone: 512.393.6700
Fax: 512.393.6787

and the Contractor:
(Name, legal status, address and other information)

DRAFT FOR PROCUREMENT, a _____ of the State of _____
[Address]
[Address continued]
Phone: _____
Fax: _____
E-mail: _____

for the following Project:
(Name, location and detailed description)

Administration Building Project

1331 Texas Hwy 123
San Marcos, Texas 78666

The Architect:
(Name, legal status, address and other information)

Stantec Architecture Inc.
1905 Aldrich Street, Suite 300
Austin, Texas 78723

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS

2 THE WORK OF THIS CONTRACT

3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

4 CONTRACT SUM

5 PAYMENTS

6 DISPUTE RESOLUTION

7 TERMINATION OR SUSPENSION

8 MISCELLANEOUS PROVISIONS

9 ENUMERATION OF CONTRACT DOCUMENTS

NOTE: Any reference hereinafter this one, to an AIA™ Document or any AIA Documents included in the Contract Documents shall refer to such document "as modified for this Project". In addition, any reference to AIA Documents shall all be considered to have included the Trademark "™" after the AIA reference, whether or not included in the text. The AIA Documents are registered intellectual property of the American Institute of Architects and use and amendment of such forms is permitted under license granted to Walsh Gallegos Trevino Kyle & Robinson P.C. for this Project. No use may be made of this AIA document other than as Contract Documents for this Project.

AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

ARTICLE 1 THE CONTRACT DOCUMENTS

§ 1.1 The Contract Documents consist of this Agreement, General Conditions of the Contract, Supplementary Conditions and other Conditions and Project Manual to the extent they are consistent with other portions of the Contract Documents), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9. The order of precedence of the Contract Documents shall be as set out in Section 1.2.4 of the AIA Document A201-2017.

§ 1.2 The Board of Trustees, by majority vote, is the only representative of the Owner, an independent school district, having the power to enter into or amend a contract, to approve changes in the scope of the Work, to approve and execute a Change Order or construction Change Directive modifying the Contract Sum, changing the approved plans or the actual construction of the facility, or to terminate a contract.

§ 1.3 The Board designates the authorized representatives identified in Paragraph 8.3 to act on its behalf in other respects.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[ ] The date of this Agreement.

[ ] A date set forth in a notice to proceed issued by the Owner.

[X] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

The commencement date will be the first business day after the Contractor's receipt of the written notice to proceed. The notice to proceed shall not be issued by Architect until the Agreement has been signed by the Contractor, approved by the Owner's Board of Trustees, signed by the Owner's authorized representative, and Owner and Architect have received all required payment and performance bonds and insurance, in compliance with Article 11 of the AIA document A201-2017

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

[ ] Not later than ( ) calendar days from the date of commencement of the Work.

[ ] By the following date:

Final Completion shall be thirty (30) calendar days after the date of Substantial Completion, subject to adjustments of the Contract Time as provided in the Contract Documents.

AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be _____ AND __/100 DOLLARS ($_____), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

None.

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

None.

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

§ 5.1.3 The Contractor shall submit monthly Applications for Payment to the Architect not later than the last day of each month, on AIA Form G702 for approval. Continuation sheets shall be submitted on AIA Form G703. The Architect will have seven business days to approve the Contractor's Application and submit its Certificate for Payment to the Owner. The Architect may require from the Contractor any additional information required by the Contract Documents and deemed necessary to substantiate the Application for Payment. The Owner shall pay to the Contractor, the certified undisputed amounts in the Payment Application to the Contractor not later than 30 days from the Owner's receipt of the Certificate of Payment from the Architect if the Owner's Board meets twice a month or more, and 45 days from the Owner's receipt of the Certificate of Payment from the Architect if the Owner's Board meets only once per month.

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work, as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values;

.2 If approved in advance by the Owner, that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017, or amounts certified by the Architect and disputed by the Owner; and

.5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

Five Percent (5%)

AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)
N/A

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

After the Certificate of Substantial Completion is accepted by the Owner, the Owner may, in its sole discretion and upon approval of its Board of Trustees and acceptance and consent of surety, make payment of retainage on all or a part of the Work accepted.

§ 5.1.7.3
(Paragraphs deleted)
Retainage is not due to the Contractor until thirty-one (31) days after Final Payment for the Work as set out in Section 9.10 of AIA Document A201-2017.

§ 5.1.8 [Paragraph Deleted.]

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment
§ 5.2.1 Final payment, shall not be made by the Owner to the Contractor until:

.1 the Contractor has fully perfonned the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment;
.2 all conditions precedent to final payment have been fulfilled including those listed in Section 9.10.2 of the AIA Document A201–2017;
.3 Contractor has submitted a signed document indicating consent of its Surety to Final Payment;
.4 a final Certificate for Payment has been issued by the Architect; and
.5 the Owner (the Board of Trustees) has acted to accept the Work.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than thirty-one (31) days after the issuance of the Architect's final Certificate for Payment.

§ 5.3 Interest
(Paragraphs deleted)
Undisputed payments remaining unpaid under the Contract on the 31st day after the date the Owner receives a properly documented Certificate of Payment from the Architect are considered overdue and in accordance with the Texas Prompt Payment Act, Texas Government Code Chapter 2251, shall bear interest from that dateuntil the date that the Owner mails or electronically transmits payment, including accrued interest to that date.

ARTICLE 6 DISPUTE RESOLUTION
§ 6.1 Initial Decision Maker
The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document
(Paragraphs deleted)
A201–2017.

§ 6.2 Binding Dispute Resolution
For any Claim not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[ ] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

[X] Litigation in a court of competent jurisdiction

[ ] Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

§ 6.3 When Owner has an applicable claim for construction defects, Owner shall comply with the provisions of Texas Government Code Chapter 2272 related to the provision of notice of defects and the Contractor's or Architect's opportunity to cure.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1
(Paragraphs deleted)
[Paragraph Deleted.]

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

Dr. Michael Cardona
Superintendent
San Marcos Consolidated Independent School District
631 Mill Street
San Marcos, Texas 78666
Phone: 512-393-6700
Fax: 512-393-6787

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

DRAFT FOR PROCUREMENT
[Name]
[Title]
[Address]
[Address continued]
Phone: _____
Fax: _____
E-mail: _____

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A201™–2017, General Conditions of the Contract for Construction, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in Article 11 of the AIA Document A201™–2017, General Conditions of the Contract of Construction, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or *(Paragraphs deleted)*
in any other format agreed to by the Owner, Contractor and Architect in writing.

§ 8.7 Other provisions:

§ 8.7.1 Pursuant to Texas Government Code Chapter 2271, as amended, if this contract is valued at $100,000 or more and if the Contractor has at least ten (10) full time employees, then the Contractor, by its execution of this Agreement represents and warrants to the Owner that the Contractor does not boycott Israel and will not boycott Israel during the term of this Agreement. This section does not apply to a sole proprietorship.

§ 8.7.2 By signing this Agreement, the undersigned certifies as follows: Under Section 231.006 of the Texas Family Code, the Contractor certifies that the individual or business entity named in this Contract is not ineligible to receive the specified payments and acknowledges that this Contract may be terminated and payment withheld in this certification is inaccurate.

§ 8.7.3 Contractor verifies and affirms that it is not a foreign terrorist organization as identified on the list prepared and maintained by the Texas Comptroller of Public Accounts. If Contractor has misrepresented its inclusion on the Comptroller's list such omission or misrepresentation will void this Agreement.

§ 8.7.4 The requirements of Subchapter J, Chapter 552, Government Code, may apply to this Contract and the Contractor agrees that the contract can be terminated if the Contractor knowingly or intentionally fails to comply with a requirement of that subchapter. Therefore, if the value of this Project is One Million Dollars ($1,000,000.00) or more, the Contractor agrees to : (1) preserve all contracting information related to the contract as provided by the records retention requirements applicable to the Owner for the duration of the contract; (2) promptly provide to the governmental body any contracting information related to the contract that is in the custody or possession of the entity on request of the Owner; and (3) on completion of the contract, either: (a) provide at no cost to the Owner all contracting information related to the contract that is in the custody or possession of the entity; or (b) preserve the contracting information related to the contract as provided by the records retention requirements applicable to the Owner.

§ 8.7.5 Contractor shall take all actions and shall comply with all federal, state, and local legal requirements, and shall also comply with all recommendations of the Centers for Disease Control.

§ 8.7.6 Pursuant to Texas Government Code Chapters 2274 and 809, if this contract is valued at $100,000 or more and if Contractor has at least ten (10) full-time employees, then Contractor represents and warrants to the Owner that the Contractor does not boycott energy companies and will not boycott energy companies during the term of this Agreement. This provision does not apply to sole proprietorships.

§ 8.7.7 Pursuant to Texas Government Code Chapter 2274, if this contract is valued at $100,000 or more and if Contractor has at least ten (10) full-time employees, then Contractor represents and warrants to the Owner that the Contractor does not discriminate against firearm entities or firearm trade associations and will not discriminate against firearm entities or firearm trade associations during the term of this Agreement. This provision does not apply to sole proprietorships.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor

.2 [Subsection Deleted.]

AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

.5 Drawings. The Drawings are those prepared by _____ dated _____ and which are listed in the Index of Drawings attached hereto as **Exhibit A**, which are incorporated herein by reference.

Number	Title	Date

.6 Specifications. The Specifications are those prepared by _____ dated _____ and which are listed in the Table of Contents attached hereto as **Exhibit B**, which are incorporated herein by reference.

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[ ] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

[ ] The Sustainability Plan:

Title	Date	Pages

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
Not Applicable			

NOTE: Any Supplementary Conditions or other Conditions of this Contract listed above, the Project Manual or other terms or conditions attempted to be incorporated into this Contract, which contradict or conflict with the terms of this document or the terms and conditions set out in the AIA Document A201™–2017, General Conditions of the Contract for Construction shall be void and subordinate to the terms set out in the AIA Document A201™–2017, General Conditions of the Contract for Construction.

.9 Other documents, if any, listed below:

AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

Exhibit A – Index of Drawings
Exhibit B – Table of Contents for Specifications

This Agreement entered into as of the day and year first written above.

SAN MARCOS CONSOLIDATED INDEPENDENT SCHOOL DISTRICT

DRAFT FOR PROCUREMENT

OWNER *(Signature)*

Dr. Michael Cardona, Superintendent
(Printed name and title)

CONTRACTOR *(Signature)*

(Printed name and title)

DRAFT

AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

Additions and Deletions Report for

AIA® Document A101® – 2017

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 14:21:33 ET on 08/25/2022.

PAGE 1

AGREEMENT made as of the _____ day of _____ in the year TWO THOUSAND AND TWENTY-TWO.

...

San Marcos Consolidated Independent School District
631 Mill Street
San Marcos, Texas 78666
Phone: 512.393.6700
Fax: 512.393.6787

...

DRAFT FOR PROCUREMENT, a _____ of the State of _____
[Address]
[Address continued]
Phone: _____
Fax: _____
E-mail: _____

...

Administration Building Project

...

1331 Texas Hwy 123
San Marcos, Texas 78666

...

Stantec Architecture Inc.
1905 Aldrich Street, Suite 300
Austin, Texas 78723

PAGE 2

NOTE: Any reference hereinafter this one, to an AIA™ Document or any AIA Documents included in the Contract Documents shall refer to such document "as modified for this Project". In addition, any reference to AIA Documents

Additions and Deletions Report for AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

shall all be considered to have included the Trademark "™" after the AIA reference, whether or not included in the text. The AIA Documents are registered intellectual property of the American Institute of Architects and use and amendment of such forms is permitted under license granted to Walsh Gallegos Trevino Kyle & Robinson P.C. for this Project. No use may be made of this AIA document other than as Contract Documents for this Project.

~~EXHIBIT A—INSURANCE AND BONDS~~

DRAFT

Additions and Deletions Report for AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

PAGE 3

~~The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, e~~ § 1.1

The Contract Documents consist of this Agreement, General Conditions of the Contract, Supplementary Conditions and other Conditions and Project Manual to the extent they are consistent with other portions of the Contract Documents), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9. The order of precedence of the Contract Documents shall be as set out in Section 1.2.4 of the AIA Document A201-2017.

§ 1.2 The Board of Trustees, by majority vote, is the only representative of the Owner, an independent school district, having the power to enter into or amend a contract, to approve changes in the scope of the Work, to approve and execute a Change Order or construction Change Directive modifying the Contract Sum, changing the approved plans or the actual construction of the facility, or to terminate a contract.

§ 1.3 The Board designates the authorized representatives identified in Paragraph 8.3 to act on its behalf in other respects.

...

[X] Established as follows:

...

The commencement date will be the first business day after the Contractor's receipt of the written notice to proceed. The notice to proceed shall not be issued by Architect until the Agreement has been signed by the Contractor, approved by the Owner's Board of Trustees, signed by the Owner's authorized representative, and Owner and Architect have received all required payment and performance bonds and insurance, in compliance with Article 11 of the AIA document A201-2017

...

[ ] By the following date:

Final Completion shall be thirty (30) calendar days after the date of Substantial Completion, subject to adjustments of the Contract Time as provided in the Contract Documents.

PAGE 4

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be ~~($),~~ AND /100 DOLLARS ($), subject to additions and deductions as provided in the Contract Documents.

...

None.

...

Additions and Deletions Report for AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

None.

PAGE 5

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the ~~month, or as follows:~~

month.

§ 5.1.3 ~~Provided that an Application for Payment is received by~~ The Contractor shall submit monthly Applications for Payment to the Architect not later than the ~~day of a month, the Owner shall make payment of the amount certified~~ last day of each month, on AIA Form G702 for approval. Continuation sheets shall be submitted on AIA Form G703. The Architect will have seven business days to approve the Contractor's Application and submit its Certificate for Payment to the Owner. The Architect may require from the Contractor any additional information required by the Contract Documents and deemed necessary to substantiate the Application for Payment. The Owner shall pay to the Contractor, the certified undisputed amounts in the Payment Application to the Contractor not later than ~~the __ day of the _ month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than __ (__) days after the Architect receives the Application for Payment.~~

~~(Federal, state or local laws may require payment within a certain period of time.)~~30 days from the Owner's receipt of the Certificate of Payment from the Architect if the Owner's Board meets twice a month or more, and 45 days from the Owner's receipt of the Certificate of Payment from the Architect if the Owner's Board meets only once per month.

...

.1 That portion of the Contract Sum properly allocable to completed ~~Work;~~Work, as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values;

.2 ~~That~~ If approved in advance by the Owner, that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, ~~if approved in advance by the Owner,~~ suitably stored off the site at a location agreed upon in writing; and

...

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document ~~A201–2017;~~ A201–2017, or amounts certified by the Architect and disputed by the Owner; and

...

Five Percent (5%)

PAGE 6

N/A

...

After the Certificate of Substantial Completion is accepted by the Owner, the Owner may, in its sole discretion and upon approval of its Board of Trustees and acceptance and consent of surety, make payment of retainage on all or a part of the Work accepted.

§ 5.1.7.3 ~~Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:~~

~~*(Insert any other conditions for release of retainage upon Substantial Completion.)*~~

Additions and Deletions Report for AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

Retainage is not due to the Contractor until thirty-one (31) days after Final Payment for the Work as set out in Section 9.10 of AIA Document A201-2017.

§ 5.1.8 ~~If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.~~[Paragraph Deleted.]

...

§ 5.2.1 Final payment, ~~constituting the entire unpaid balance of the Contract Sum, shall~~ shall not be made by the Owner to the Contractor ~~when~~until:

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; ~~and~~

.2 all conditions precedent to final payment have been fulfilled including those listed in Section 9.10.2 of the AIA Document A201–2017;

.3 Contractor has submitted a signed document indicating consent of its Surety to Final Payment;

.4 a final Certificate for Payment has been issued by the ~~Architect.~~Architect; and

.5 the Owner (the Board of Trustees) has acted to accept the Work.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than ~~30~~ thirty-one (31) days after the issuance of the Architect's final Certificate for ~~Payment, or as follows:~~

Payment.

...

~~Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.~~
~~*(Insert rate of interest agreed upon, if any.)*~~

~~5 %~~ Undisputed payments remaining unpaid under the Contract on the 31st day after the date the Owner receives a properly documented Certificate of Payment from the Architect are considered overdue and in accordance with the Texas Prompt Payment Act, Texas Government Code Chapter 2251, shall bear interest from that date until the date that the Owner mails or electronically transmits payment, including accrued interest to that date.

...

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document ~~A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.~~
~~*(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*~~

[redacted]

A201–2017.

...

For any Claim ~~subject to, but~~ not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

[X] Litigation in a court of competent jurisdiction

Additions and Deletions Report for AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

...

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

§ 6.3 When Owner has an applicable claim for construction defects, Owner shall comply with the provisions of Texas Government Code Chapter 2272 related to the provision of notice of defects and the Contractor's or Architect's opportunity to cure.

...

§ 7.1.1 ~~If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:~~
~~*(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)*~~

[Paragraph Deleted.]

...

Dr. Michael Cardona
Superintendent
San Marcos Consolidated Independent School District
631 Mill Street
San Marcos, Texas 78666
Phone: 512-393-6700
Fax: 512-393-6787

...

DRAFT FOR PROCUREMENT
[Name]
[Title]
[Address]
[Address continued]
Phone:
Fax:
E-mail:
PAGE 8

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document ~~A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds,~~ A201™–2017, General Conditions of the Contract for Construction, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in ~~AIA Document A101™–2017 Exhibit A,~~ Article 11 of the AIA Document A201™–2017, General Conditions of the Contract of Construction, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or ~~as otherwise set forth below:~~
~~*(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)*~~

Additions and Deletions Report for AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

in any other format agreed to by the Owner, Contractor and Architect in writing.

...

§ 8.7.1 Pursuant to Texas Government Code Chapter 2271, as amended, if this contract is valued at $100,000 or more and if the Contractor has at least ten (10) full time employees, then the Contractor, by its execution of this Agreement represents and warrants to the Owner that the Contractor does not boycott Israel and will not boycott Israel during the term of this Agreement. This section does not apply to a sole proprietorship.

§ 8.7.2 By signing this Agreement, the undersigned certifies as follows: Under Section 231.006 of the Texas Family Code, the Contractor certifies that the individual or business entity named in this Contract is not ineligible to receive the specified payments and acknowledges that this Contract may be terminated and payment withheld in this certification is inaccurate.

§ 8.7.3 Contractor verifies and affirms that it is not a foreign terrorist organization as identified on the list prepared and maintained by the Texas Comptroller of Public Accounts. If Contractor has misrepresented its inclusion on the Comptroller's list such omission or misrepresentation will void this Agreement.

§ 8.7.4 The requirements of Subchapter J, Chapter 552, Government Code, may apply to this Contract and the Contractor agrees that the contract can be terminated if the Contractor knowingly or intentionally fails to comply with a requirement of that subchapter. Therefore, if the value of this Project is One Million Dollars ($1,000,000.00) or more, the Contractor agrees to : (1) preserve all contracting information related to the contract as provided by the records retention requirements applicable to the Owner for the duration of the contract; (2) promptly provide to the governmental body any contracting information related to the contract that is in the custody or possession of the entity on request of the Owner; and (3) on completion of the contract, either: (a) provide at no cost to the Owner all contracting information related to the contract that is in the custody or possession of the entity; or (b) preserve the contracting information related to the contract as provided by the records retention requirements applicable to the Owner.

§ 8.7.5 Contractor shall take all actions and shall comply with all federal, state, and local legal requirements, and shall also comply with all recommendations of the Centers for Disease Control.

§ 8.7.6 Pursuant to Texas Government Code Chapters 2274 and 809, if this contract is valued at $100,000 or more and if Contractor has at least ten (10) full-time employees, then Contractor represents and warrants to the Owner that the Contractor does not boycott energy companies and will not boycott energy companies during the term of this Agreement. This provision does not apply to sole proprietorships.

§ 8.7.7 Pursuant to Texas Government Code Chapter 2274, if this contract is valued at $100,000 or more and if Contractor has at least ten (10) full-time employees, then Contractor represents and warrants to the Owner that the Contractor does not discriminate against firearm entities or firearm trade associations and will not discriminate against firearm entities or firearm trade associations during the term of this Agreement. This provision does not apply to sole proprietorships.

...

.2 ~~AIA Document A101™–2017, Exhibit A, Insurance and Bonds~~ [Subsection Deleted.]

PAGE 9

.5 Drawings. The Drawings are those prepared by _____ dated _____ and which are listed in the Index of Drawings attached hereto as **Exhibit A**, which are incorporated herein by reference.

...

Additions and Deletions Report for AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

.6 Specifications. The Specifications are those prepared by _____ dated _____ and which are listed in the Table of Contents attached hereto as **Exhibit B**, which are incorporated herein by reference.

...

Not Applicable

NOTE: Any Supplementary Conditions or other Conditions of this Contract listed above, the Project Manual or other terms or conditions attempted to be incorporated into this Contract, which contradict or conflict with the terms of this document or the terms and conditions set out in the AIA Document A201™–2017, General Conditions of the Contract for Construction shall be void and subordinate to the terms set out in the AIA Document A201™–2017, General Conditions of the Contract for Construction.

PAGE 10

Exhibit A – Index of Drawings
Exhibit B – Table of Contents for Specifications

...

SAN MARCOS CONSOLIDATED INDEPENDENT SCHOOL DISTRICT

DRAFT FOR PROCUREMENT

...

Dr. Michael Cardona, Superintendent

DRAFT

Additions and Deletions Report for AIA Document A101® – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A101," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:21:33 ET on 08/25/2022 under Order No.3104236828 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: (2052475993)

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

Administration Building Project

1331 Texas Hwy 123
San Marcos, Texas 78666

THE OWNER:
(Name, legal status and address)

San Marcos Consolidated Independent School District
631 Mill Street
San Marcos, Texas 78666
Phone: 512.393.6700
Fax: 512.393.6787

THE ARCHITECT:
(Name, legal status and address)

Stantec Architecture Inc.
1905 Aldrich Street, Suite 300
Austin, Texas 78723

THE CONTRACTOR

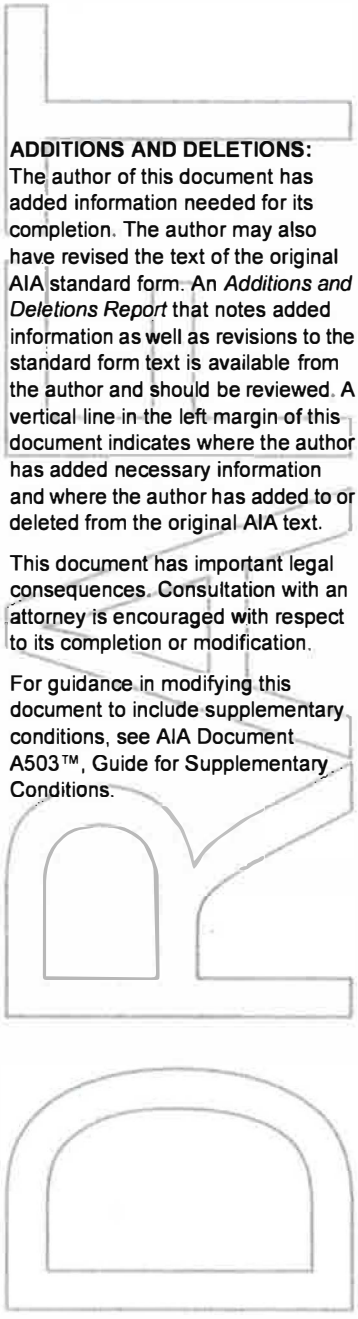
DRAFT FOR PROCUREMENT _____, a _____ of the State of _____

[Address]
[Address continued]
Phone: _____
E-mail: _____

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.



ELECTRONIC COPYING of any portion of this **AIA®** Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

TABLE OF ARTICLES

1 GENERAL PROVISIONS

2 OWNER

3 CONTRACTOR

4 ARCHITECT

5 SUBCONTRACTORS

6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

7 CHANGES IN THE WORK

8 TIME

9 PAYMENTS AND COMPLETION

10 PROTECTION OF PERSONS AND PROPERTY

11 INSURANCE AND BONDS

12 UNCOVERING AND CORRECTION OF WORK

13 MISCELLANEOUS PROVISIONS

14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

NOTE: Any reference hereinafter this one, to an AIA™ Document or any AIA Documents included in the Contract Documents shall refer to such document "as modified for this Project". In addition, any reference to AIA Documents shall all be considered to have included the Trademark "™" after the AIA reference, whether or not included in the text. The AIA Documents are registered intellectual property of the American Institute of Architects and use and amendment of such forms is permitted under license granted to Walsh Gallegos Trevino Kyle & Robinson, P.C. for this Project. No use may be made of this AIA document other than as Contract Documents for this Project.

DRAFT

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

INDEX
(Topics and numbers in bold are Section headings.)

Acceptance of Nonconforming Work
9.6.6, 9.9.3, **12.3**
Acceptance of Work
9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, 12.3
Access to Work
3.16, 6.2.1, 12.1
Accident Prevention
10
Acts and Omissions
3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5, 10.2.8, 13.3.2, 14.1, 15.1.2, 15.2
Addenda
1.1.1
Additional Costs, Claims for
3.7.4, 3.7.5, 10.3.2, 15.1.5
Additional Inspections and Testing
9.4.2, 9.8.3, 12.2.1, **13.4**
Additional Time, Claims for
3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.6**
Administration of the Contract
3.1.3, **4.2**, 9.4, 9.5
Advertisement or Invitation to Bid
1.1.1
Aesthetic Effect
4.2.13
Allowances
3.8
Applications for Payment
4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10
Approvals
2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9, 3.12.10.1, 4.2.7, 9.3.2, 13.4.1
Arbitration
8.3.1, 15.3.2, **15.4**
ARCHITECT
4
Architect, Definition of
4.1.1
Architect, Extent of Authority
2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2, 9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1, 13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1
Architect, Limitations of Authority and Responsibility
2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4, 9.4.2, 9.5.4, 9.6.4, 15.1.4, 15.2
Architect's Additional Services and Expenses
2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4
Architect's Administration of the Contract
3.1.3, 3.7.4, 15.2, 9.4.1, 9.5
Architect's Approvals
2.5, 3.1.3, 3.5, 3.10.2, 4.2.7
Architect's Authority to Reject Work
3.5, 4.2.6, 12.1.2, 12.2.1
Architect's Copyright
1.1.7, 1.5
Architect's Decisions
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1, 13.4.2, 15.2
Architect's Inspections
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4
Architect's Instructions
3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2
Architect's Interpretations
4.2.11, 4.2.12
Architect's Project Representative
4.2.10
Architect's Relationship with Contractor
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2
Architect's Relationship with Subcontractors
1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3
Architect's Representations
9.4.2, 9.5.1, 9.10.1
Architect's Site Visits
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Asbestos
10.3.1
Attorneys' Fees
3.18.1, 9.6.8, 9.10.2, 10.3.3
Award of Separate Contracts
6.1.1, 6.1.2
Award of Subcontracts and Other Contracts for Portions of the Work
5.2
Basic Definitions
1.1
Bidding Requirements
1.1.1
Binding Dispute Resolution
8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1
Bonds, Lien
7.3.4.4, 9.6.8, 9.10.2, 9.10.3
Bonds, Performance, and Payment
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**, 11.1.3, **11.5**
Building Information Models Use and Reliance
1.8
Building Permit
3.7.1
Capitalization
1.3
Certificate of Substantial Completion
9.8.3, 9.8.4, 9.8.5

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

Certificates for Payment
4.2.1, 4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4
Certificates of Inspection, Testing or Approval
13.4.4
Certificates of Insurance
9.10.2
Change Orders
1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3, 7.1.2, 7.1.3, **7.2**, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2
Change Orders, Definition of
7.2.1
CHANGES IN THE WORK
2.2.2, 3.11, 4.2.8, **7**, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1, 11.5
Claims, Definition of
15.1.1
Claims, Notice of
1.6.2, 15.1.3
CLAIMS AND DISPUTES
3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, **15**, 15.4
Claims and Timely Assertion of Claims
15.4.1
Claims for Additional Cost
3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, **15.1.5**
Claims for Additional Time
3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, **15.1.6**
Concealed or Unknown Conditions, Claims for
3.7.4
Claims for Damages
3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3, 11.3.2, 14.2.4, 15.1.7
Claims Subject to Arbitration
15.4.1
Cleaning Up
3.15, 6.3
Commencement of the Work, Conditions Relating to
2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3, 6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, **15.1.5**
Commencement of the Work, Definition of
8.1.2
Communications
3.9.1, **4.2.4**
Completion, Conditions Relating to
3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1, 9.10, 12.2, 14.1.2, 15.1.2
COMPLETION, PAYMENTS AND
9
Completion, Substantial
3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2
Compliance with Laws
2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3, 15.2.8, 15.4.2, 15.4.3
Concealed or Unknown Conditions
3.7.4, 4.2.8, 8.3.1, 10.3
Conditions of the Contract
1.1.1, 6.1.1, 6.1.4
Consent, Written
3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2, 15.4.4.2
Consolidation or Joinder
15.4.4
CONSTRUCTION BY OWNER OR BY
SEPARATE CONTRACTORS
1.1.4, **6**
Construction Change Directive, Definition of
7.3.1
Construction Change Directives
1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, **7.3**, 9.3.1.1
Construction Schedules, Contractor's
3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Contingent Assignment of Subcontracts
5.4, 14.2.2.2
Continuing Contract Performance
15.1.4
Contract, Definition of
1.1.2
CONTRACT, TERMINATION OR
SUSPENSION OF THE
5.4.1.1, 5.4.2, 11.5, **14**
Contract Administration
3.1.3, 4, 9.4, 9.5
Contract Award and Execution, Conditions Relating to
3.7.1, 3.10, 5.2, 6.1
Contract Documents, Copies Furnished and Use of
1.5.2, 2.3.6, 5.3
Contract Documents, Definition of
1.1.1
Contract Sum
2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4, **9.1**, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2, 12.3, 14.2.4, 14.3.2, 15.1.4.2, **15.1.5**, **15.2.5**
Contract Sum, Definition of
9.1
Contract Time
1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5, 7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2, 14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5
Contract Time, Definition of
8.1.1
CONTRACTOR
3
Contractor, Definition of
3.1, 6.1.2
Contractor's Construction and Submittal
Schedules
3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

Contractor's Employees
2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.3, 14.1, 14.2.1.1
Contractor's Liability Insurance
11.1
Contractor's Relationship with Separate Contractors and Owner's Forces
3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4
Contractor's Relationship with Subcontractors
1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2, 9.6.7, 9.10.2, 11.2, 11.3, 11.4
Contractor's Relationship with the Architect
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1
Contractor's Representations
3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2
Contractor's Responsibility for Those Performing the Work
3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8
Contractor's Review of Contract Documents
3.2
Contractor's Right to Stop the Work
2.2.2, 9.7
Contractor's Right to Terminate the Contract
14.1
Contractor's Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2, 9.8.3, 9.9.1, 9.10.2, 9.10.3
Contractor's Superintendent
3.9, 10.2.6
Contractor's Supervision and Construction Procedures
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4
Coordination and Correlation
1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1
Copies Furnished of Drawings and Specifications
1.5, 2.3.6, 3.11
Copyrights
1.5, **3.17**
Correction of Work
2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, **12.2**, 12.3, 15.1.3.1, 15.1.3.2, 15.2.1
Correlation and Intent of the Contract Documents
1.2
Cost, Definition of
7.3.4
Costs
2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.2, 12.1.2, 12.2.1, 12.2.4, 13.4, 14
Cutting and Patching
3.14, 6.2.5
Damage to Construction of Owner or Separate Contractors
3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damage to the Work
3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damages, Claims for
3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2, 11.3, 14.2.4, 15.1.7
Damages for Delay
6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2
Date of Commencement of the Work, Definition of
8.1.2
Date of Substantial Completion, Definition of
8.1.3
Day, Definition of
8.1.4
Decisions of the Architect
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2, 14.2.2, 14.2.4, 15.1, 15.2
Decisions to Withhold Certification
9.4.1, **9.5**, 9.7, 14.1.1.3
Defective or Nonconforming Work, Acceptance, Rejection and Correction of
2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1
Definitions
1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1
Delays and Extensions of Time
3.2, **3.7.4**, 5.2.3, 7.2.1, 7.3.1, **7.4**, **8.3**, 9.5.1, **9.7**, 10.3.2, **10.4**, 14.3.2, **15.1.6**, 15.2.5
Digital Data Use and Transmission
1.7
Disputes
6.3, 7.3.9, 15.1, 15.2
Documents and Samples at the Site
3.11
Drawings, Definition of
1.1.5
Drawings and Specifications, Use and Ownership of
3.11
Effective Date of Insurance
8.2.2
Emergencies
10.4, 14.1.1.2, **15.1.5**
Employees, Contractor's
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.3, 14.1, 14.2.1.1
Equipment, Labor, or Materials
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2
Execution and Progress of the Work
1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

Extensions of Time
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.6, **15.2.5**
Failure of Payment
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Faulty Work
(See Defective or Nonconforming Work)
Final Completion and Final Payment
4.2.1, 4.2.9, 9.8.2, **9.10**, 12.3, 14.2.4, 14.4.3
Financial Arrangements, Owner's
2.2.1, 13.2.2, 14.1.1.4
GENERAL PROVISIONS
1
Governing Law
13.1
Guarantees (See Warranty)
Hazardous Materials and Substances
10.2.4, **10.3**
Identification of Subcontractors and Suppliers
5.2.1
Indemnification
3.17, **3.18**, 9.6.8, 9.10.2, 10.3.3, 11.3
Information and Services Required of the Owner
2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5, 9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4
Initial Decision
15.2
Initial Decision Maker, Definition of
1.1.8
Initial Decision Maker, Decisions
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Initial Decision Maker, Extent of Authority
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Injury or Damage to Person or Property
10.2.8, 10.4
Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 12.2.1, 13.4
Instructions to Bidders
1.1.1
Instructions to the Contractor
3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2
Instruments of Service, Definition of
1.1.7
Insurance
6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5, **11**
Insurance, Notice of Cancellation or Expiration
11.1.4, 11.2.3
Insurance, Contractor's Liability
11.1
Insurance, Effective Date of
8.2.2, 14.4.2
Insurance, Owner's Liability
11.2
Insurance, Property
10.2.5, 11.2, 11.4, 11.5
Insurance, Stored Materials
9.3.2
INSURANCE AND BONDS
11
Insurance Companies, Consent to Partial Occupancy
9.9.1
Insured loss, Adjustment and Settlement of
11.5
Intent of the Contract Documents
1.2.1, 4.2.7, 4.2.12, 4.2.13
Interest
13.5
Interpretation
1.1.8, 1.2.3, **1.4**, 4.1.1, 5.1, 6.1.2, 15.1.1
Interpretations, Written
4.2.11, 4.2.12
Judgment on Final Award
15.4.2
Labor and Materials, Equipment
1.1.3, 1.1.6, **3.4**, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2
Labor Disputes
8.3.1
Laws and Regulations
1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Liens
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Limitations, Statutes of
12.2.5, 15.1.2, 15.4.1.1
Limitations of Liability
3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6, 4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3, 11.3, 12.2.5, 13.3.1
Limitations of Time
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7, 5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15, 15.1.2, 15.1.3, 15.1.5
Materials, Hazardous
10.2.4, **10.3**
Materials, Labor, Equipment and
1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2
Means, Methods, Techniques, Sequences and Procedures of Construction
3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2
Mechanic's Lien
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Mediation
8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, **15.3**, 15.4.1, 15.4.1.1
Minor Changes in the Work
1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, **7.4**

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

MISCELLANEOUS PROVISIONS
13
Modifications, Definition of
1.1.1
Modifications to the Contract
1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7, 10.3.2
Mutual Responsibility
6.2
Nonconforming Work, Acceptance of
9.6.6, 9.9.3, **12.3**
Nonconforming Work, Rejection and Correction of
2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4, 12.2
Notice
1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2., 2.2.3, 2.2.4, 2.5, 3.2.4, 3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4, 8.2.2 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1, 13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5, 15.1.6, 15.4.1
Notice of Cancellation or Expiration of Insurance
11.1.4, 11.2.3
Notice of Claims
1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, **15.1.3**, 15.1.5, 15.1.6, 15.2.8, 15.3.2, 15.4.1
Notice of Testing and Inspections
13.4.1, 13.4.2
Observations, Contractor's
3.2, 3.7.4
Occupancy
2.3.1, 9.6.6, 9.8
Orders, Written
1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2, 14.3.1
OWNER
2
Owner, Definition of
2.1.1
Owner, Evidence of Financial Arrangements
2.2, 13.2.2, 14.1.1.4
Owner, Information and Services Required of the
2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4
Owner's Authority
1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2, 4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1, 7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4, 15.2.7
Owner's Insurance
11.2
Owner's Relationship with Subcontractors
1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2
Owner's Right to Carry Out the Work
2.5, 14.2.2
Owner's Right to Clean Up
6.3
Owner's Right to Perform Construction and to Award Separate Contracts
6.1
Owner's Right to Stop the Work
2.4
Owner's Right to Suspend the Work
14.3
Owner's Right to Terminate the Contract
14.2, 14.4
Ownership and Use of Drawings, Specifications and Other Instruments of Service
1.1.1, 1.1.6, 1.1.7, **1.5**, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12, 5.3
Partial Occupancy or Use
9.6.6, **9.9**
Patching, Cutting and
3.14, 6.2.5
Patents
3.17
Payment, Applications for
4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1, 14.2.3, 14.2.4, 14.4.3
Payment, Certificates for
4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4
Payment, Failure of
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Payment, Final
4.2.1, 4.2.9, **9.10**, 12.3, 14.2.4, 14.4.3
Payment Bond, Performance Bond and
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**
Payments, Progress
9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4
PAYMENTS AND COMPLETION
9
Payments to Subcontractors
5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2
PCB
10.3.1
Performance Bond and Payment Bond
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**
Permits, Fees, Notices and Compliance with Laws
2.3.1, **3.7**, 3.13, 7.3.4.4, 10.2.2
PERSONS AND PROPERTY, PROTECTION OF
10
Polychlorinated Biphenyl
10.3.1
Product Data, Definition of
3.12.2
Product Data and Samples, Shop Drawings
3.11, **3.12**, 4.2.7
Progress and Completion
4.2.2, **8.2**, 9.8, 9.9.1, 14.1.4, 15.1.4
Progress Payments
9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

Project, Definition of
1.1.4
Project Representatives
4.2.10
Property Insurance
10.2.5, **11.2**
Proposal Requirements
1.1.1
PROTECTION OF PERSONS AND PROPERTY
10
Regulations and Laws
1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Rejection of Work
4.2.6, 12.2.1
Releases and Waivers of Liens
9.3.1, 9.10.2
Representations
3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1
Representatives
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1
Responsibility for Those Performing the Work
3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10
Retainage
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3
Review of Contract Documents and Field Conditions by Contractor
3.2, 3.12.7, 6.1.3
Review of Contractor's Submittals by Owner and Architect
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2
Review of Shop Drawings, Product Data and Samples by Contractor
3.12
Rights and Remedies
1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1, 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2, 12.2.4, **13.3**, 14, 15.4
Royalties, Patents and Copyrights
3.17
Rules and Notices for Arbitration
15.4.1
Safety of Persons and Property
10.2, 10.4
Safety Precautions and Programs
3.3.1, 4.2.2, 4.2.7, 5.3, **10.1**, 10.2, 10.4
Samples, Definition of
3.12.3
Samples, Shop Drawings, Product Data and
3.11, **3.12**, 4.2.7
Samples at the Site, Documents and
3.11
Schedule of Values
9.2, 9.3.1
Schedules, Construction
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Separate Contracts and Contractors
1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2
Separate Contractors, Definition of
6.1.1
Shop Drawings, Definition of
3.12.1
Shop Drawings, Product Data and Samples
3.11, **3.12**, 4.2.7
Site, Use of
3.13, 6.1.1, 6.2.1
Site Inspections
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4
Site Visits, Architect's
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Special Inspections and Testing
4.2.6, 12.2.1, 13.4
Specifications, Definition of
1.1.6
Specifications
1.1.1, **1.1.6**, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14
Statute of Limitations
15.1.2, 15.4.1.1
Stopping the Work
2.2.2, 2.4, 9.7, 10.3, 14.1
Stored Materials
6.2.1, 9.3.2, 10.2.1.2, 10.2.4
Subcontractor, Definition of
5.1.1
SUBCONTRACTORS
5
Subcontractors, Work by
1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2, 9.6.7
Subcontractual Relations
5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1
Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3
Submittal Schedule
3.10.2, 3.12.5, 4.2.7
Subrogation, Waivers of
6.1.1, **11.3**
Substances, Hazardous
10.3
Substantial Completion
4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, **9.8**, 9.9.1, 9.10.3, 12.2, 15.1.2
Substantial Completion, Definition of
9.8.1
Substitution of Subcontractors
5.2.3, 5.2.4
Substitution of Architect
2.3.3
Substitutions of Materials
3.4.2, 3.5, 7.3.8
Sub-subcontractor, Definition of
5.1.2

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

Subsurface Conditions
3.7.4
Successors and Assigns
13.2
Superintendent
3.9, 10.2.6
Supervision and Construction Procedures
1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4
Suppliers
1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6, 9.10.5, 14.2.1
Surety
5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2, 15.2.7
Surety, Consent of
9.8.5, 9.10.2, 9.10.3
Surveys
1.1.7, 2.3.4
Suspension by the Owner for Convenience
14.3
Suspension of the Work
3.7.5, 5.4.2, 14.3
Suspension or Termination of the Contract
5.4.1.1, 14
Taxes
3.6, 3.8.2.1, 7.3.4.4
Termination by the Contractor
14.1, 15.1.7
Termination by the Owner for Cause
5.4.1.1, **14.2,** 15.1.7
Termination by the Owner for Convenience
14.4
Termination of the Architect
2.3.3
Termination of the Contractor Employment
14.2.2

TERMINATION OR SUSPENSION OF THE CONTRACT
14
Tests and Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, **13.4**
TIME
8
Time, Delays and Extensions of
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5
Time Limits
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2, 15.1.3, 15.4
Time Limits on Claims
3.7.4, 10.2.8, 15.1.2, 15.1.3
Title to Work
9.3.2, 9.3.3
UNCOVERING AND CORRECTION OF WORK
12
Uncovering of Work
12.1
Unforeseen Conditions, Concealed or Unknown
3.7.4, 8.3.1, 10.3
Unit Prices
7.3.3.2, 9.1.2
Use of Documents
1.1.1, 1.5, 2.3.6, 3.12.6, 5.3
Use of Site
3.13, 6.1.1, 6.2.1
Values, Schedule of
9.2, 9.3.1
Waiver of Claims by the Architect
13.3.2
Waiver of Claims by the Contractor
9.10.5, 13.3.2, **15.1.7**
Waiver of Claims by the Owner
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, **15.1.7**
Waiver of Consequential Damages
14.2.4, 15.1.7
Waiver of Liens
9.3, 9.10.2, 9.10.4
Waivers of Subrogation
6.1.1, **11.3**
Warranty
3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2, 15.1.2
Weather Delays
8.3, 15.1.6.2
Work, Definition of
1.1.3
Written Consent
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3, 13.2, 13.3.2, 15.4.4.2
Written Interpretations
4.2.11, 4.2.12
Written Orders
1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, Project Manual and the Bid or Proposal Documents prepared and submitted by the Owner and the Contractor's Bid or Proposal submitted by the Contractor, to the extent they do not conflict with the terms of this Agreement, and other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements. The Contract Documents identified in this Section shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic operations. In the absence of individual signatures by Owner and Contractor, the Contract Documents identified in the signed contract prevail.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. After execution of the Original Contract Documents, the Contract may thereafter be amended or modified only by a written Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 1.1.9 The terms "bids" or "bidding" shall include any kind of competitive purchasing under the Texas Education Code Chapter 44 and Texas Government Code Chapter 2269.

§ 1.1.10 Miscellaneous Other Words

§ 1.1.10.1 Business Day

The term "business day" is a day the Owner's Administration Building is scheduled to be open for normal business purposes, unless closed by the Owner's Superintendent of Schools for inclement weather or other reason. Days on which the Administration Building is normally closed are Thanksgiving Break, Winter Break, Spring Break, and Summer Break, as well as other federal, state or local days specified in the calendar approved by the Owner's Board of Trustees on an annual basis. A business day does not include a day on which the Owner's Administration Building is open only for the purposes of conducting candidate filing, early voting, elections, or special events.

§ 1.1.10.2 Calendar Day

A calendar day is a day on the Gregorian calendar. The Contact Time is established in calendar days. Extensions of time granted, if any, will be converted to calendar days.

§ 1.1.10.3 Holidays

Owner approved holidays for Contractor's Work are limited to New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

§ 1.1.10.4 Work Day

Work days include all calendar days except Holidays, Saturdays and Sundays.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.1.2 During the course of the Work, should any conflict be found in or between the Contract Documents, the Contractor shall be deemed to have included in the cost of the Work the greater quantity or better quality, or the most stringent requirements, unless Contractor shall have obtained, before the submission of Contractor's Proposal, an interpretation in writing from the Architect as to what shall govern. The Architect, in case of such conflict, may interpret or construe the document so as to obtain the most substantial and complete performance of the Work consistent with the Contract Documents and reasonably inferable therefrom, in the best interests of Owner, and the Architect's interpretation shall be final. The terms and conditions of this clause shall not relieve any party of any other obligation under the Contract Documents.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.2.4 Precedence Of The Contract Documents

The most recently issued Document takes precedence over previous issues of the same Document. The order of precedence is as follows with the highest authority listed as "1".

.1 Contract Modifications signed by Contractor and Owner.
.2 Addenda, with those of later date having precedence over those of earlier date.
.3 General Conditions - AIA Document A201-2017, as modified by the Owner for the Project.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

.4 Specifications and Drawings.

.5 Agreement – AIA Document A101-2017, as modified by the Owner for the Project.

.6 Bid/Proposal Documents including the Project Manual, Contractor's Bid or Proposal Documents (to the extent such Bid or Proposal submitted by the Contractor is part of the Contract Documents and is not inconsistent with other portions of the Contract Documents)

§ 1.2.5 Relation Of Specifications And Drawings

Specifications and Drawings are to be equivalent in authority and priority. Should they disagree in themselves, or with each other, prices shall be based on the better quality and greater quantity of Work indicated. In the event of the above-mentioned disagreements, the resolution shall be determined by the Architect.

§ 1.2.5.1 Drawings and Specifications are to be equivalent in authority and priority. Should they disagree in themselves, or with each other, prices shall be based on the better quality and greater quantity of Work indicated. In the event of the above-mentioned disagreements, the resolution shall be determined by the Architect.

§ 1.2.5.2 Where, in the Drawings and Specifications, certain products, manufacturer's trade names, or catalog numbers are given, it is done for the express purpose of establishing a standard of function, dimension, appearance, and quality of design, in harmony with the Work, and is not intended for the purpose of limiting competition. Materials or equipment shall not be substituted unless such substitution has been specifically accepted for use on this Project by the Architect.

§ 1.2.5.3 When the Work is governed by reference to standards, building codes, manufacturer's instructions, or other documents, unless otherwise specified, the current edition as of the Agreement date shall apply.

§ 1.2.5.4 Requirements of public authorities apply as minimum requirements only and do not supersede more stringent specified requirements.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are: (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity, the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered (whether actually received or not) when deposited with the United States Postal Service, postage prepaid, certified mail, return receipt requested, and addressed to the intended recipient at the address shown in this Agreement. Notice may also be given in person, by

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

mail, by courier, or by electronic transmission if a method for electronic transmission (e-mail or facsimile) or other commercially reasonable means and will under any of these circumstances, be effective when actually received. Any address for notice may be changed by written notice delivered as provided in this Section 1.6.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit or such other form agreed to by the parties, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance [Paragraph Deleted.]

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the Board of Trustees of the San Marcos Consolidated Independent School District and is referred to throughout the Contract Documents as if singular in number. The Owner may designate in writing one or more persons to represent the Owner; however, such representatives shall have the authority to bind the Owner only to the extent expressly authorized by the Owner and shall have no implied authority. Except as otherwise provided in Section 4.2.1, the Architect does not have the authority to bind the Owner. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner may engage a third-party consultant to represent the Owner. The Owner will notify the Contractor of the identity of such consultant.

§ 2.1.3 The Contractor acknowledges that no lien rights exist with respect to public property.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Pursuant to the requirements of Texas Business and Commerce Code section 56.054(e)(3), the Owner represents that funds are available and have been authorized for the full contract amount of the Work.

§ 2.2.2 [Paragraph Deleted.]

§ 2.2.3 [Paragraph Deleted.]

§ 2.2.4 [Paragraph Deleted.]

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner may furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site, but shall have no duty to do so. Notwithstanding the foregoing, if the Owner provides such survey, the Contractor shall remain responsible to independently investigate the physical characteristics, legal limitations, and utility locations for the Project site. In the event that the Contractor

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

damages any utilities during construction, the Contractor shall immediately repair the same at its sole cost and expense.

§ 2.3.5 Information or services required of the Owner by the Contract Documents shall be furnished by the Owner within a reasonable time following actual receipt of a written request.

§ 2.3.6 The Contractor, Owner and Architect shall agree on an appropriate quantity of drawings and specifications to be printed and distributed for bidding purposes. The drawings shall be provided by the Architect and paid for by the Owner.

§ 2.3.7 Owner's personnel or consultant may, but are not required to be present at the construction site during progress of the Work to assist the Architect in the performance of his duties, and to verify the Contractor's record of the number of workmen employed on the Work, their occupational classification, the time each is engaged in the Work, and the equipment used in the performance of the Work for purpose of verification of Contractor's Applications for Payment.

§ 2.3.8 The Owner (either directly or by contract with the Architect) may furnish tests, inspections, and reports, required by law and as otherwise agreed to by the parties, such as structural, mechanical, and chemical tests, tests for air and water pollution, and tests for hazardous materials.

§ 2.3.9 The Owner, (directly or by contract with the Architect), when such services are required, in the professional opinion of the Architect, shall furnish services of geotechnical engineers, which may include test borings, test pits, determinations of soil bearing values, percolation tests, evaluations of hazardous materials, seismic evaluation, ground corrosion tests and resistivity tests, including necessary operations for anticipating subsoil conditions, with written reports and appropriate recommendations.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is defective or not in accordance with the requirements of the Contract Documents as required by Section 12.2, fails to timely carry out Work in accordance with the Contract Documents or is in default of any of its material obligations hereunder, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.. This right shall be in addition to, and not in restriction of, the Owner's right under Section 12.2.

§ 2.5 Owner's Right to Carry Out the Work

§ 2.5.1 If the Contractor is in default in any of its material obligations hereunder, neglects to timely carry out the Work in accordance with the Contract Documents, or fails to correct nonconforming or defective Work as required by Section 12.2, and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or such non-conforming or defective Work with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or such non-conforming or defective Work at the sole cost of the Contractor. The Architect may, pursuant to Section 9.5.1, withhold or nullify the Contractor's Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such default or such non-conforming or defective Work, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure to correct such non-conforming or defective Work. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

§ 2.5.2 Nothing contained in this Section 2.5 is intended to limit or modify any obligations under the law or under the Contract Documents, including any warranty obligations, expressed or implied.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be authorized to do business in the state of Texas and lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative, or in the case of a Construction Manager-at-Risk, the Construction Manager-at-Risk, or its authorized representative.

§ 3.1.2 The Contractor shall perform the Work in a good and workmanlike manner and accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Owner or Owner's consultants, if applicable, conducted in accordance with the Contract Documents or activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents. The Contractor and each Subcontractor shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed, including without limitation: (1) the location, condition, layout and nature of the Project site and surrounding areas, (2) generally prevailing climatic conditions, (3) anticipated labor supply and costs, (4) availability and cost of materials, tools and equipment, and (5) other similar issues. The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any improvements located on the Project site, or for price escalations in the marketplace. The Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or Contract Time in connection with any failure by the Contractor or any Subcontractor to comply with the requirements of this Section.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents. Contractor shall not perform any Work it knows involves an error, inconsistency, or omission without further instructions to Contractor or revised Construction Documents from the Architect. The exactness of grades, elevations, dimensions, or locations given on any Drawings issued by the Architect, or the Work installed by other contractors, is not guaranteed by the Architect or the Owner. The Contractor shall, therefore, satisfy itself as to the accuracy of all grades, elevations, dimensions, and locations. In all cases of interconnection of its Work with existing or other Work, it shall verify at the site all dimensions relating to such existing or other Work. Any errors due to the Contractor's failure to so verify all such grades, elevations, dimensions, or locations shall be promptly rectified by the Contractor without any additional cost to the Owner.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require. If the Contractor has knowledge that any of the products or systems specified will perform in a manner that will limit the Contractor's ability to satisfactorily perform the Work or honor its warranty, or will result in a limitation of or interference with the Owner's intended use, then the Contractor shall promptly notify the Architect and Owner, in writing providing substantiation for its position.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15; however, nothing in this section shall provide the Contractor with an affirmative claim for damages for delay by Owner or Architect, as such a claim is prohibited under this Contract. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.5 Notwithstanding the delivery of a survey or other documents by the Owner, Contractor shall use reasonable efforts to perform all Work in such a manner so as to avoid damaging any utility lines, cables, pipes, or pipelines on the property. Contractor shall be responsible for, and shall repair at Contractor's own expense, any damage done to lines, cables, pipes, and pipelines identified to Contractor.

§ 3.2.6 The Owner and Contractor agree that the Contract Documents may not be free from errors, inconsistencies, or omissions, and further agree that the Owner makes no warranty as to the completeness or accuracy of the Contract Documents, either express or implied. Execution of the Contract by the Contractor is a representation that the Contractor has thoroughly reviewed and become familiar with the Contract Documents and that the Contractor is not aware of any errors, inconsistencies or omissions in the Contract Documents which would delay the Contractor in the performance of the Contract Work. The Contractor shall not be entitled to any damages or increase in the Contract Amount due to delays or disruptions to the Work. This limitation on damages is further subject to the limitations set forth in Section 15.1.7.

§ 3.2.7 The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for the Architect to evaluate and respond to the Contractor's request for information, where such information was available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner provided information, Contractor prepared coordination drawings, or prior Project correspondence or documentation.

§ 3.2.8 The Contractor shall use the AIA Document G716-2004 "REQUEST FOR INFORMATION" (RFI) form unless otherwise provided in the Contract Documents. The Contractor shall keep a log of all RFI's submitted and number the RFI's consecutively beginning with the number 1.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall assign a Superintendent who shall make decisions on behalf of the Contractor and its subcontractors. The Superintendent shall be on the Project, in this capacity, at all times while Work on the Project is in progress. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.3.4 Contractor shall bear responsibility for design and execution of acceptable trenching and shoring procedures, in accordance with Texas Government Code, Section 2166.303 and Texas Health and Safety Code, chapter C, Sections 756.021, *et seq.*, and shall require any applicable subcontractor to comply all such procedures. Trench excavation safety protection shall be a separate pay item, and shall be based on linear feet of trench excavated. Special shoring requirements shall also be a separate pay item, and shall be based on the square feet of shoring used.

§ 3.3.5 It is understood and agreed that the relationship of Contractor to Owner shall be that of an independent Contractor. Nothing contained herein or inferable herefrom shall be deemed or construed to (1) make Contractor the agent, servant, or employee of the Owner, or (2) create any partnership, joint venture, or other association between Owner and Contractor. Any direction or instruction by Owner in respect of the Work shall relate to the results the

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

Owner desires to obtain from the Work, and shall in no way affect Contractor's independent contractor status as described herein.

§ 3.3.6 The Contractor shall review contractor safety programs, procedures, and precautions in connection with performance of the Work. However, the Contractor's duties shall not relieve any Subcontractor(s) or any other person or entity (e.g. a supplier) including any person or entity with whom the Contractor does not have a contractual relationship, of their responsibility or liability relative to compliance with all applicable federal, state and local laws, rules, regulations, and ordinances which shall include the obligation to provide for the safety of their employees, persons, and property and their requirements to maintain a work environment free of recognized hazards. The foregoing notwithstanding, the requirements of this Section are not intended to impose upon the Contractor any additional obligations that the Contractor would not have under any applicable state or federal laws including, but not limited to, any rules, regulations, or statutes pertaining to the Occupational Safety and Health Administration.

§ 3.3.7 Contractor acknowledges that the Work may be performed in connection with an educational facility which is currently occupied and in use. It is imperative that Contractor's operations and the performance of the Work not interfere with, interrupt, disturb, or disrupt Owner's normal operations or facilities. Contractor agrees to and shall comply with all rules, regulations and requirements of the Owner and the school campus on which the Work is to be performed, and shall take all steps necessary to protect and guard the safety of the employees, students and invitees of Owner. Contractor shall exercise the utmost skill and judgment to ensure that continuing construction activity will not interfere with the use, occupancy and quiet enjoyment of facilities in use on the site. Contractor recognizes that the ongoing activities in proximity with its construction activities shall result in the need for prompt and effective coordination of its services with those involved in the ongoing utilization of the premises. Such coordination and adequate site access shall be the responsibility of Contractor. Contractor understands and accepts the difficulties and costs associated with working in an existing facility and the potential delays and disruptions in its Work and has included such items in the Contract Time and the Contract Sum. The Contractor shall perform all the Work in such a manner as to cause minimum interference with the operations of the Owner and other contractors and Subcontractors on the site, and shall take, and cause the Contractor's and its Subcontractor's employees, agents, licensees and permittees to take all necessary precautions to protect the Work and the site and all persons and property thereon from damage or injury.

§ 3.3.8 Representatives of the Owner, Contractor, and Architect shall meet periodically at mutually agreed upon intervals, for the purpose of establishing procedures to facilitate cooperation, communication, and timely responses among the participants. By participating in this arrangement, the parties do not intend to create additional contractual obligations or modify the legal relationships which may otherwise exist.

§ 3.3.9 The Contractor shall pay fees for public or private water, gas, electrical and other utility service at the site until Substantial Completion of the Work. In the event that the Work will be conducted at an Owner site, where utility services are existing on site and reasonably accessible to the Contractor, the Owner may elect, in writing, to provide and pay for utility service for the Project site. Agreement to pay for such utility service shall not absolve the Contractor from using utilities judiciously in connection with its performance of the Work. In all cases, the Contractor shall secure and arrange for all necessary utility connections.

§ 3.3.10 The Owner may require that the Contractor use and/or respond to certain Owner-furnished forms or inquiries during the course of the Project. From time to time, there may be future revisions, changes, additions or deletions to these forms. The fact that the Owner modifies and increases reasonable reporting requirements shall not serve as the basis for a claim for additional time or compensation by the Contractor.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for qualified, careful, and efficient workers and labor, eligible to work in accordance with state and federal law. Contractor shall appropriately classify all workers in accordance with the Fair Labor Standards Act, its implementing regulations, and Texas Labor Code Section 214.008. In addition, unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. Before ordering any material or doing any Work, Contractor shall verify all dimensions and check all conditions in order to assure Contractor that they are the same as those in the Drawings, Specifications, and other Construction Documents. Any

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

inconsistency shall be brought to the attention of the Architect. In the event that discrepancies occur between ordered material and actual conditions and Architect was not notified beforehand, then costs to correct such discrepancies shall be borne by Contractor. In accordance with Texas Government Code §2269.054, these Contract Documents shall not be construed to deny or diminish the right of any person to work because of the person's membership or other relationship status with respect to any organization. In accordance with Texas Government Code §2269.0541, these Contract Documents shall also not prohibit, require, discourage or encourage a person, or discriminate against a person bidding on this contract from entering into or declining to enter into, or adhering to, an agreement with a collective bargaining organization relating to this Project.

(Paragraph deleted)

§ 3.4.2 Prevailing Wages

§ 3.4.2.1 The Project is subject to the Texas Government Code, Chapter 2258, Prevailing Wage Rates. This statute requires the Contractor and any Subcontractor to pay not less than the prevailing rates of per diem wages in the locality at the time of construction to all laborers, workmen, and mechanics employed by them in the execution of the contract.

§ 3.4.2.2 In accordance therewith, the Owner has established a scale of prevailing wages which is incorporated in the Project specifications, and not less than this established scale must be paid on the Project. Any workers not included in the schedule shall be properly classified and paid not less than the rate of wages prevailing in the locality of the Work at the time of construction.

§ 3.4.2.3 A Contractor or Subcontractor who violates the provisions of Sections 3.4.1.1 or 3.4.1.2 shall pay to Owner the sum of Sixty Dollars and No/100 ($60.00) for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rate stipulated in the scale of prevailing wages applicable to this Project, as required by Texas Government Code Section 2258.023(b).

§ 3.4.3 Substitutions

§ 3.4.3.1 If the Contract Documents (including the Instructions to Proposers and /or Offerors) specifically permit the submission by Contractor of requests for substitutions, Contractor may, within thirty (30) days after the Contract has been executed, make written request for the substitution of products in place of those specified in the Contract Documents to the Owner and the Architect. Any request for substitution shall be submitted to the Architect in writing, with appropriate shop drawings, product data, and certified test results substantiating the proposed product equivalence as required by this Section 3.4.3.1 and Section 3.4.3.2 and will be rejected if not so submitted.

§ 3.4.3.2 The Contractor must submit to the Architect and the Owner (i) a full explanation of the proposed substitution and submittal of all supporting data, including technical information, catalog cuts, warranties, test results, installation instructions, operating procedures, and other information necessary for a complete evaluation of the substitution; (ii) a written explanation of the reasons the substitution is necessary, including the benefits to the Owner and the Work in the event the substitution is acceptable; (iii) the adjustment, if any, in the Contract Sum; (iv) the adjustment, if any, in the time of completion of the Contract and any modifications to the construction schedule; and (v) an affidavit stating that (a) the proposed substitution confirms to and meets all the requirements of the pertinent Specifications and the requirements shown on the Drawings, (b) the Contractor accepts the warranty and correction obligations in connection with the proposed substitution as if originally specified by the Architect; (c) the cost breakdown presented with Contractor's request is complete and includes all related costs, except for the Architect's redesign costs, if any, and waives all claims for additional costs related to the substitution which subsequently become apparent;(d) that the Contractor will coordinate and supervise the installation of the proposed substitute, making such changes as may be required for the Work to be complete in all respects; and (e) the Contractor will reimburse the Owner and for review or redesign services associated with any re-approval by applicable governmental authorities related to the substitution.

§ 3.4.3.3 By making requests for substitutions pursuant to Section 3.4.3 (and all subsections), the Contractor represents and certifies that: (1) Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to the product specified; (2) Contractor will provide the same warranty for the substitution product that the Contractor would have provided for the product specified; (3) the cost breakdown presented with the request is complete and includes all related costs, except for the Architect's redesign costs, if any, and waives all claims for additional costs related to the substitution which subsequently become apparent; (4) Contractor will coordinate and supervise the installation of the proposed substitute, making such changes as may be required for the Work to be complete in all respects; and (5) will reimburse Owner and Architect for review or redesign services associated with any re-approval by applicable governmental authorities related to the substitution.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 3.4.3.4 Owner and the Architect may accept or reject any such request for substitution in their sole discretion, based on cost, time, or other considerations. Requests for substitutions submitted after such thirty (30) day period will not be considered unless a product becomes impossible to obtain due to circumstances beyond the Contractor's control.

§ 3.4.3.5 Regardless of acceptance or rejection of substitution, the Contractor shall be responsible for amounts paid by the Owner to the Architect, to evaluate the Contractor's proposed substitutions and any amounts paid to the Architect to make agreed upon changes in the Specifications and Drawings made necessary by the Owner's acceptance of such substitutions. The Owner shall be entitled to deduct such amounts from the Contract Sum.

§ 3.4.4 Responsibility for Subcontractors

§ 3.4.4.1 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them. Contractor, its subcontractors and vendors shall bear responsibility for compliance with all federal, state and local laws, regulations, guidelines, and ordinances pertaining to worker safety and applicable to the Work. Contractor further recognizes that the Owner and Architect do not owe the Contractor any duty to supervise or direct his work so as to protect the Contractor from the consequences of his own conduct. THE CONTRACTOR RELEASES, INDEMNIFIES AND HOLDS HARMLESS THE OWNER FOR CONTRACTOR'S FORCES; NON-COMPLIANCE WITH OWNER'S DRUG-FREE, ALCOHOL-FREE, WEAPON-FREE, HARASSMENT-FREE, AND TOBACCO-FREE ZONES; CONTRACTOR'S FORCES NON-COMPLIANCE WITH CRIMINAL LAW; OR CONTRACTOR'S OR CONTRACTOR'S FORCES NON-COMPLIANCE WITH IMMIGRATION LAW OR REGULATIONS. Any individual found by Owner to have violated these restrictions is subject to permanent removal from the Project, at Owner's request. Contractor shall place similar language in its subcontract agreements, requiring its Subcontractors and Sub-subcontractors to be responsible for their own forces and Contractor shall cooperate with the Owner to ensure Subcontractor and Sub-subcontractor compliance.

§ 3.4.4.2 The Contractor shall only employ or use labor in connection with the Work capable of working harmoniously with all trades, crafts, and any other individuals associated with the Project. The Contractor shall be responsible for the actions of Contractor's forces, Subcontractor's forces and all tiers of Sub-subcontractor's forces. The Contractor recognizes that the Work may be performed in connection with an operational educational facility or the Project site may be adjacent to a public-school campus. It is imperative that Contractor's operations and the performance of the Work not interfere with, interrupt, disturb or disrupt Owner's normal operations or facilities. Contractor shall exercise the utmost skill and judgment to ensure that continuing construction activity will not interfere with the use, occupancy and quiet enjoyment of facilities in use on the site. Contractor recognizes that the ongoing activities in proximity with its construction activities shall result in the need for prompt and effective coordination of its services with those involved in the ongoing utilization of the premises. Such coordination and adequate site access shall be the responsibility of Contractor. Contractor understands and accepts the difficulties and costs associated with working at or near an operational campus and the potential delays and disruptions in its Work and has included such items in the Contract Time and the Contract Sum.

§ 3.4.5 Criminal History Records Checks

§ 3.4.5.1 Unless otherwise exempt from providing such information by any provision in Texas Education Code, Section 22.08341 (the "Statute"), the Contractor agrees, that prior to commencement of work under this Agreement, using the form promulgated by the Owner or such other form approved by the Owner, Contractor will arrange with the Owner to obtain any national criminal history record information ("CHRI") required pursuant to Texas Education Code, Section 22.08341 (the "Statute") on all of Contractor's employees, independent contractors, agents, or Subcontractors, Contractor's Subcontractors of every tier ("Subcontractors"), Subcontractors' employees, independent contractors, agents, or sub-subcontractors, if any of these persons is a "Covered Employee" as defined by the Statute, i.e. the person has or will have continuing duties related to the contracted for services, and said person has or will have the opportunity for direct contact with students in connection with those continuing duties and shall reimburse the Owner for the costs and expenses associated with obtaining the criminal history information. For purposes of this Section 15.3 a person does not have the opportunity for direct contact with students if:

.1 the public work does not involve the construction, alteration, or repair of an improvement to real property, or a necessary fixture of an improvement to real property that is used predominantly for teaching the curriculum required by the Texas Education Code ("Instructional Facility);

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

.2 for a public work that involves construction of a new Instructional Facility, the person's duties related to the contracted services will be completed not later than the seventh (7th) day before the first date the facility will be used for instructional purposes; or

.3 for a public work that involves an existing Instructional Facility:

(a) the public work area contains sanitary facilities and is separated from all areas used by students by a secure barrier fence that is not less than six feet in height; and

(b) the Contractor adopts a policy prohibiting employees, including subcontractor entity employees, from interacting with students or entering areas used by students, informs employees of the policy, and enforces the policy at the public work area.

§ 3.4.5.3 Any Covered Employee that has during the preceding thirty (30) years, been convicted of one of the following offenses, if at the time of the offense the victim was under eighteen (18) or enrolled in a public school: (a) a felony offense under Title 5, Texas Penal Code; (b) an offense for which a defendant is required to register as a sex offender under Chapter 62, Texas Code of Criminal Procedure; or (c) an equivalent offense to (a) or (b) under federal law or the laws of another state ("Disqualifying Criminal History") shall be disqualified and prohibited from performing any contract duties or services and neither the Contractor nor its Subcontractor may permit such person to provide services at an instructional facility. If a Covered Employee is determined by the Owner's review of the CHRI to have a Disqualifying Criminal History, Contractor will exclude that person from assignment to the Project. Contractor understands that it will not have access to the results of such criminal history records check, based on statewide regulations beyond the control of the Owner, and agrees to rely solely on the judgment of the Owner as to whether the Covered Employee must be excluded from the Project.

§ 3.4.5.4 Prior to commencement of its work on the Project the Contractor will provide written certification to the Owner that either: (1) Contractor and its Subcontractors of every tier, do not have any Covered Employees, as defined; (2) are otherwise exempt from compliance with the Statute; or (3) has complied with the statutory and contractual requirements stated in this Section 15.3 and 15.4 of this Agreement as of that date, and that it:

.1 has requested a Criminal History Records Check through the District on all Covered Employees, if any, of every tier, has provided the required information to the District to do so and reimbursed the District for same;

.2 has obtained written certification from its independent contractors, and Subcontractors (of any tier) that they have provided the required information to the Contractor, necessary to secure the information from the District and reimbursed the Contractor for same; and

.3 have excluded any Covered Employee reported by the District to have a Disqualifying Criminal History from assignment to the Project.

Further, Contractor agrees that if it receives information that a Covered Employee is arrested or convicted for any of the Disqualifying Criminal History offenses, during the performance of the Work, Contractor will immediately remove the Covered Employee from District's property or other location where students are regularly present, and notify the District of said removal within three (3) days of doing so. Contractor understands that any failure to comply with the requirements of this section may be grounds for termination of this Agreement, in accordance with Article VI, Termination.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. The Contractor further warrants that Contractor shall perform the Work in a good and workmanlike manner, continuously and diligently in accordance with all applicable codes, generally accepted standards of construction practice for construction of projects similar to the Project. All materials shall be installed in a true and straight alignment, level and plumb; patterns shall be uniform; and jointing of materials shall be flush and level, unless otherwise directed in writing by the Architect. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. No acceptance or payment by the Owner shall constitute a waiver of the foregoing and nothing herein shall exclude or limit any warranties implied by law. The warranties provided in this Section 3.5.1 are in addition to , and

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

not in limitation of, any other warranties, remedies and/or guaranties set out in the Contract Documents or under applicable law.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.5.3 Contractor acknowledges that the Project may involve construction work on more than one (1) building for the Owner. In such case, each building, or approved phase of each building, may have its own, separate, and independent date of Substantial Completion (or, for Work to be completed or corrected after the date of Substantial Completion, the Warranty Commencement Date). Contractor shall maintain a complete and accurate schedule of the date(s) of Substantial Completion, the date(s) of Final Completion, and the dates upon which the warranties under granted in the Contract Documents will expire, on each phase or building and will provide a copy of such Schedule to the Owner, as required in Subsection 3.5.6, as a condition precedent to Final Payment.

§ 3.5.4 When deemed necessary by the Owner and prior to installation of any item specifically made subject to a performance standard or regulatory agency standard under any provision of the Contract Documents, Contractor shall furnish proof of conformance to the Architect. Proof of conformance shall be in the form of an affidavit from the manufacturer certifying that the item is in conformance with the applicable standards; an affidavit from a testing laboratory certifying that the product has been tested within the past year and is in conformance with the applicable standards; or such further reasonable proof as is required by the Architect.

§ 3.5.5 The Contractor agrees to assign to the Owner at the time of Final Completion of the Work any and all manufacturer's warranties relating to equipment, machinery, materials, equipment or components and labor incorporated into the Work and further agrees to perform the Work in such manner so as to preserve any and all such manufacturer's warranties. Contractor shall take no action or fail to act in any way which results in the termination or expiration of such third-party warranties or which otherwise results in prejudice to the rights of Owner under such warranties. Contractor agrees to provide all notices required for the effectiveness of such warranties and shall include provisions in the contracts with the providers and manufacturers of such systems and equipment whereby Owner shall have a direct right, but not a duty, of enforcement of such warranty obligations. The warranties provided in this Section 3.5 or otherwise provided in the Contract Documents or by law, shall in no way limit or abridge the warranties provided by the suppliers of equipment and systems which are to comprise a portion of the Work. A complete set of all warranties required from contractors, manufacturers, or suppliers as appropriate, on the manufacturer's or supplier's approved forms, executed by Contractor as required, with a Warranty Commencement Date noted as required, and in the form required by Subparagraph 3.5.6 shall be submitted to the Architect for delivery to the Owner, as a condition precedent to Final Payment.

§ 3.5.6 Prior to receipt of Final Payment, Contractor shall: (1) obtain duplicate original warranties, executed by all subcontractors, and the warranties of suppliers and manufacturers, noting the Warranty Commencement Date on the face of each; (2) verify that the documents are in proper form and contain full information; (3) Co-sign warranties when required; (4) bind all warranties in commercial quality 8-1/2 X 11 inch three-ring binder, with hardback, cleanable, plastic covers; (5) label the cover of each binder with a typed or printed title labeled "WARRANTIES", along with the Title of the Project; name, address and telephone number of Contractor; and name of its responsible principal; (6) include a Table of Contents, with each item identified by the number and title of the specification section under which the product is specified; (7) include the Schedule of Warranty Commencement Dates required by Subparagraph 3.5.3; (8) separate each warranty with index tab sheets keyed to the Table of Contents listing; and (8) deliver warranties in the form described in this Subparagraph 3.5.6, to the Architect for review same prior to submission to the Owner.

§ 3.6 Taxes

The Contractor shall not include in the Contract Price or any Modification any amount for sales, use, or similar taxes for which (1) a Texas independent school district is exempt, and (2) the Owner has provided the Contractor with a tax exemption certificate or other documentation necessary to establish the Owner's exemption from such taxes. **CONTRACTOR HEREBY RELEASES, INDEMNIFIES, AND HOLDS HARMLESS OWNER FROM ANY AND ALL CLAIMS AND DEMANDS MADE AS A RESULT OF THE FAILURE OF CONTRACTOR OR ANY SUBCONTRACTOR TO COMPLY WITH THE PROVISIONS OF ANY OR ALL SUCH LAWS AND REGULATIONS.**

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time proposals are received or negotiations concluded. The Owner shall be responsible for payment of TDLR Texas Accessibility submissions and inspection costs.

§ 3.7.2 In performing its obligations hereunder, the Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work and upon request by the Owner or Architect shall furnish evidence, satisfactory to the Owner, of such compliance.

§ 3.7.3 If the Contractor performs Work when Contractor knows or reasonably should have known it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, the Contract Documents, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction. **THE CONTRACTOR AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE OWNER, ITS TRUSTEES, OFFICERS, REPRESENTATIVES, AGENTS AND EMPLOYEES FROM AND AGAINST ALL THIRD-PARTY CLAIMS, FINES, PENALTIES, OR LIABILITIES FROM, ARISING OUT OF, OR BASED UPON CONTRACTOR'S VIOLATION OF ANY LAWS, ORDINANCES, RULES, REGULATIONS, ORDERS OR DECREES.**

(Paragraphs deleted)

§ 3.7.4 Claims for Concealed or Unknown Conditions

Contractor acknowledges that there may exist at the Project site certain soil and geological conditions and/or surface physical conditions which are not disclosed in the Contract Documents, and which have been known to or may be reasonably anticipated to occur in the area or be related to any past use of the Project site, including, without limitation, the presence of rock and its hardness, geologic formations, differing soils, and surface structures, equipment or other impediments, either natural or man-made (collectively, "Subsurface Conditions"). Owner makes no representations or warranties regarding Subsurface Conditions at the Project site, or of the accuracy or continuity of conditions which may be noted in any reports furnished or made available to Contractor. Contractor covenants and agrees that any such reports are furnished or made available by Owner to Contractor for information purposes only, and Contractor acknowledges that Owner is not responsible for the content thereof. Contractor shall be responsible for inspecting the site and determining the existence or likelihood of any Subsurface Conditions which may affect the Contract Time or the Contract Sum, or both. The Contract Time and the Contract Sum contained herein (as proposed by Contractor), or GMP as applicable, shall be deemed to include all costs of and sufficient time to complete all Work associated with or attributable to Subsurface Conditions, and Contractor shall not be entitled to submit a claim for or to obtain an extension of the Contract Time or increase in the Contract Sum due to the existence of Subsurface Conditions. Except as provided above with respect to Subsurface Conditions, if the Contractor encounters conditions at the site that are subsurface or otherwise concealed physical conditions which were not known to the Contractor, and that differ materially from those indicated in the Contract Documents the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed, and in no event later than three (3) days after first observance of the conditions and report its findings to the Owner and Architect.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Time arising from the existence of such remains or features may be made as provided in Article 15. In accordance with the terms of this Agreement, there will be no adjustment to the Contract Sum for delay arising out or related to the circumstances described in this Section 3.7.5.

§ 3.7.6 The Contractor shall also obtain all permits and approvals, and pay all fees and expenses, if any, associated with National Pollutant Discharge Elimination System (NPDES) regulations administered by the Environmental Protection Agency (EPA) and local authorities, if applicable, that require completion of documentation and/or acquisition of a "Land Disturbing Activities Permit" for the Project. Contractor's obligations under this Section do not require it to perform engineering services during the pre-construction phase to prepare proper drainage for the construction sites.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

However, any drainage alterations made by Contractor during the construction process which require the issuance of a permit shall be at Contractor's sole cost.

§ 3.7.7 The Contractor shall certify in writing that no materials used in the Work contain lead or asbestos materials in them in excess of amounts allowed by Local/State standards, laws, codes, rules and regulations; the Federal Environmental Protection Agency (EPA) standards and/or the Federal Occupational Safety and Health Administration (OSHA) standards, whichever is most restrictive. The Contractor shall provide this written certification as part of submittals under the Section in the Instruments of Service related to Contract Closeout.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner within such time as is reasonably specified by the Contractor as necessary to avoid delay in the Work.

§ 3.8.4 When performing Work under Allowances, where reasonably possible, Contractor shall solicit and receive no fewer than three (3) written proposals and shall provide the Work on the basis of the best value for the Owner, as directed by the Architect following Owner's written approval of the cost proposal.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. The Contractor shall not replace the Superintendent prior to Final Completion of the Work unless (1) the Superintendent shall cease to be employed by the Contractor or its subsidiaries or affiliated companies, or (2) the Owner agrees to such replacement. The Superintendent may not be employed on any other project prior to Final Completion of the Work. From Substantial Completion to Final Completion, the Superintendent shall be on-site as necessary to ensure that Final Completion occurs within thirty (30) days of Substantial Completion.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish a list to the Architect a list of all engineers, consultants, job-site superintendents, subcontractors and suppliers involved in construction. The Architect shall provide such information to the Owner. The Owner shall have the right, at any time, to require a change in any engineer, consultant, job-site superintendent, subcontractor or supplier if their performance is deemed unsatisfactory in its sole discretion.

§ 3.9.3 The Contractor shall provide an adequate staff for the proper coordination and expedition of the Work. Owner reserves the right to require Contractor to dismiss from the Work any employee or employees that Owner may deem incompetent, careless, insubordinate, or in violation of any provision in these Contract Documents. This provision is applicable to Subcontractors, Sub-subcontractors and their employees.

§ 3.9.4 Owner shall be notified as soon as Contractor becomes aware, but in no event fewer than twenty-four (24) hours before the time of that the Superintendent is required to be present at the site, that the Superintendent will not be present at the site for any reason, except illness. If the reason is due to illness, then Owner shall be notified as soon as the Contractor obtains the information, but in no event later than the beginning of the day that the Superintendent will be absent from the site. In such event of such absence, the Contractor will designate a person as acting superintendent

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

and Contractor promptly notify the Owner of the identity and contact information for the designated acting superintendent.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work, utilizing critical path method scheduling techniques. The Schedule shall not exceed the time limits set forth in the Contract Documents. The Schedule shall thereafter be updated on a monthly basis and submitted with each Application For Payment. The receipt of an updated schedule with each Application For Payment shall be a condition precedent to the Owner's duty to make any payment pursuant to Article 9.6. The schedule shall not interfere with the operation of Owner's existing facilities and operations without Owner's prior written approval.

§ 3.10.1.1 Each Schedule shall: (1) break the work into a sufficient number of activities to facilitate the efficient use of critical path method scheduling by the Contractor, Owner, and Architect and shall assign each scheduled activity a cost value consistent with the Schedule of Values so as to allow the Owner and Contractor to project cash flow for the Project; (2) include activates representing manufacturing, fabrication, or ordering lead time for materials, equipment or other items for which the Architect is required to review submittals, shop drawings, product data, or samples; (3) with the exception of the initial schedule, shall indicate the activities, or portions thereof, which have been completed; (4) shall reflect the actual time for completion of such activities, and shall reflect any changes to the sequence or planned duration of all activities.

§ 3.10.1.2 If any updated Schedule exceeds the time limits set forth in the Contract Documents for completion of the Work, the Contractor shall include with the updated Schedule, a statement of the reasons for the anticipated delay in completion of the Work and the Contractor's planned course of action for completing the Work within the time limits set forth in the Contract Documents. If the Contractor asserts that the failure of the Owner or the Architect to provide information to the Contractor is the reason for anticipated delay in completion, the Contractor shall also specify what information is required from the Owner or Architect and documentation of the date such information was requested.

§ 3.10.1.3 Neither the Owner or the Contractor shall have exclusive ownership of float time in the schedule, and all float time shall inure to the benefit of the Project. The Contractor agrees to use its best efforts not to sequence the Work or assign activity durations so as to produce a schedule in which more than one-fourth of the remaining activities have no float time.

§ 3.10.1.4 Upon review and acceptance by the Owner and the Architect of the Milestone Dates, the construction schedule shall be deemed part of the Contract Documents. If not accepted, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and the Architect and resubmitted for acceptance. Submission of any schedule under this Contract constitutes a representation by the Contractor that: (1) the schedule represents the sequence in which the Contractor intends to prosecute the remaining Work; (2) the schedule represents the actual sequence and durations used to prosecute the completed Work; (3) that to the best of its knowledge and belief the Contractor is able to complete the remaining Work in the sequence and time indicated; and, (4) that the Contractor intends to complete the remaining Work in the sequence and time indicated.

§ 3.10.1.5 The Contractor shall recommend to the Owner and to the Architect a schedule for procurement of long-lead time items which will constitute part of the Work as required to meet the Project schedule. If such long-lead time items are procured by the Owner, they shall be procured on terms and conditions as recommended by the Contractor. Upon the Owner's acceptance of the Contractor's Stipulated Sum proposal or Guaranteed Maximum Price, as applicable, all contracts previously entered into by Owner shall be assigned by Owner to the Contractor who shall accept responsibility for such contracts as if it had initially entered into such contracts. Contractor shall expedite the delivery of long-lead time items. The Contractor shall receive and protect all Owner supplied material.

§ 3.10.1.6 The Contractor shall monitor the progress of the Work for conformance with the requirements of the construction schedule and shall promptly advise the Owner of any delays or potential delays. The accepted construction schedule shall be updated to reflect actual conditions.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect and shall attend progress meetings at the Project Site, in such frequency as are acceptable to the Owner. Progress of the work shall be reported at said meetings with reference to Contractor's construction schedule.

§ 3.10.4 The Contractor shall submit to the Architect with each monthly application for payment a copy of the progress schedule showing all modifications required, and shall take whatever corrective action is necessary to assure that the project completion schedule is met at no additional cost to Owner, except as allowed herein.

§ 3.10.4 Correction of Delay.

§ 3.10.4.1 In the event any progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary. In no event shall any progress report constitute an adjustment in the Contract Time, or any Milestone Date unless any such adjustment is submitted by the Contractor as a Claim in compliance with Article 15 or the adjustment is otherwise agreed to in a written confirmation from the Owner and documented by written Change Order.

§ 3.10.4.2 If at any time the Owner determines that the performance of the Work has not progressed or reached the level of completion required by the Contract Documents, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite the progress of construction, including, without limitations, (i) working additional shifts of overtime, (ii) supplying additional manpower, equipment and facilities, and (iii) other similar measures (hereinafter referred to collectively as "Extraordinary Measures"). Such Extraordinary Measures shall continue until the progress of the Work complies with the stage of completion required by the Contract Documents. The Owner's right to require Extraordinary Measures is solely for the purpose of ensuring the Contractor's compliance with the construction schedule. The Contractor shall not be entitled to an adjustment in the Contract Sum in connection with Extraordinary Measures required by the Owner under or pursuant to this Subparagraph 3.10.4. The Owner may exercise the rights furnished the Owner under or pursuant to this Subparagraph 3.10.4 as frequently as the Owner deems necessary to ensure that the Contractor's performance of the Work will comply with any Milestone Date or completion date set forth in the Contract Documents.

§ 3.10.4.3 In the event Contractor determines that the Scheduled Completion Date cannot be met by resequencing the Work, then Contractor shall immediately provide to the Owner, and in any event within seven (7) days after the date of receipt of any request by Owner for resequencing or acceleration, a plan to complete the Work in the shortest possible time. No approval by the Owner of any plan for resequencing or acceleration of the Work submitted by Contractor pursuant to this paragraph shall constitute a waiver by Owner of any damages or losses which Owner may suffer by reason of such resequencing or the failure of Contractor to meet the Scheduled Completion Date.

§ 3.11 Documents and Samples at the Site

The Contractor shall maintain and make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, field test records (including environmental inspection and test records), inspection certificates or records, manufacturers' certificates, The Documents to be maintained shall be kept in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner or their respective representatives, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. Specific dimensions, quantities, installation and performance of equipment and systems in compliance with the Construction Documents and the Contract Documents remain the Contractor's responsibility.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect, in writing, of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Contractor represents and warrants that all shop drawings shall be prepared by persons and entities possessing expertise and experience in the trade for which the shop drawings are prepared and, if required by the Architect or applicable law, by a licensed engineer The Owner and the Architect shall be entitled to rely upon the adequacy, completeness and accuracy of the services, certifications, and approvals performed or provided by such design professionals. Pursuant to

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

this Section 3.12.10.1, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. A registered architect must prepare plans and specifications for all the Work, as governed by the Texas Occupations Code Chapter 1051; and a registered engineer must prepare plans, specifications and estimates for all Work governed by Texas Occupations Code Chapter 1001. In the event that Contractor retains a licensed design professional under the terms of this paragraph, Contractor shall require that the licensed design professional carry commercial general liability and errors and omissions insurance coverage in the same amounts and forms as required of the Architect on this Project. In the event that the licensed design professional retained by the Contractor will be conducting on-site services or observations, the licensed design professional shall also carry worker's compensation insurance and comprehensive automobile liability in the same amounts and forms as required of the Architect on this Project.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.12.10.3 The Architect's review of Contractor's submittals will be limited to one examination of an initial submittal and one (1) examination of a resubmittal. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for evaluation of such additional resubmittals.

§ 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. The Contractor shall so conduct its operations as not to unreasonably interfere with traffic on public thoroughfares adjacent or near to the Project site.

§ 3.13.2 Only materials and equipment which are to be used directly in the Work shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it shall be promptly removed from the Project site. Protection of construction material and equipment stored at the Project site from weather, theft, damage and all other adversity is solely the responsibility of the Contractor.

§ 3.13.3 Without prior approval of the Owner, the Contractor shall not permit any workers to use any of Owner's existing facilities at or adjacent to the Project site, including, without limitation, lavatories, toilets, entrance and parking areas other than those designated by the Owner. The Contractor shall comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project site and District's Buildings.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly, provided, however, that any such cutting, fitting or patching can only be performed if the cutting, fitting or patching results in Work that is in accordance with the Contract Documents. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall, on a daily basis, keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. Contractor shall provide on-site containers for the collection of waste materials, debris and rubbish, and shall periodically remove waste materials, debris and rubbish from the Work and dispose of all such materials at legal disposal areas away from the site. All cleaning operations shall be scheduled so as to ensure that contaminants resulting from the cleaning process will not fall on newly-coated

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

or newly-painted surfaces. Immediately after unpacking materials, all packing case lumber or other packing materials, wrapping or other like flammable waste shall be collected and removed from the building and premises. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project. Prior to the Architect's inspection for Substantial Completion, the Contractor shall clean exterior and interior surfaces exposed to view; remove temporary labels, stains, putty, soil, paint and foreign substances from all surfaces, including glass and painted surfaces; polish transparent and glossy surfaces; clean equipment and fixtures to a sanitary condition; replace air filters in mechanical equipment; clean roofs, gutters, and downspouts; remove obstructions and flush debris from drainage systems; clean site; sweep paved areas and rake clean other surfaces; remove trash and surplus materials from the site; clean and polish all floors; clean and polish all hardware; and repair all Work damaged during cleaning and replace any damaged or broken glass.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor. Such reimbursement amounts may be deducted from Contractor's Final Payment Application.

§ 3.16 Access to Work

The Contractor shall provide the Owner, Architect and their designated representatives, with access to the Work in preparation and progress wherever located. The presence of the Owner, Architect or their representatives does not constitute acceptance or approval of the Work. Upon request of the Architect or Owner, the Contractor shall accompany the Architect or Owner on an inspection of the Work.

§ 3.17 Royalties, Patents and Copyrights

THE CONTRACTOR SHALL PAY ALL ROYALTIES AND LICENSE FEES. TO THE FULLEST EXTENT PERMITTED BY LAW, THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER, THE OWNER'S TRUSTEES, OFFICERS, AGENTS AND EMPLOYEES DEFEND AGAINST ANY AND ALL SUITS, CLAIMS, LAWSUITS, JUDGMENTS, COSTS, LIENS, LOSSES, EXPENSES, FEES (INCLUDING REASONABLE ATTORNEY'S FEES, AS PERMITTED BY STATUTE), PROCEEDINGS, ACTIONS, DEMANDS, CAUSES OF ACTION, LIABILITY FOR INFRINGEMENT OF COPYRIGHTS AND PATENT RIGHTS ALLEGED TO HAVE RESULTED FROM CONTRACTOR'S INFRINGEMENT, AND SHALL INDEMNIFY AND HOLD THE OWNER THE OWNER'S TRUSTEES, OFFICERS, AGENTS AND EMPLOYEES HARMLESS FROM LOSS ON ACCOUNT THEREOF, INCLUDING ATTORNEY'SF EES (AS PERMITTED BY STATUTE), BUT SHALL NOT BE RESPONSIBLE FOR DEFENSE OR LOSS WHEN A PARTICULAR DESIGN, PROCESS, OR PRODUCT OF A PARTICULAR MANUFACTURER OR MANUFACTURERS IS REQUIRED BY THE CONTRACT DOCUMENTS, OR WHERE THE COPYRIGHT VIOLATIONS ARE CONTAINED IN DRAWINGS, SPECIFICATIONS, OR OTHER DOCUMENTS PROVIDED BY THE OWNER OR PREPARED BY THE ARCHITECT. HOWEVER, IF AN INFRINGEMENT OF A COPYRIGHT OR PATENT ATTRIBUTABLE TO THE OWNER OR ARCHITECT, IS DISCOVERED BY, OR MADE KNOWN TO, THE CONTRACTOR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOSS UNLESS THE INFORMATION IS PROMPTLY FURNISHED TO THE OWNER AND THE ARCHITECT.

§ 3.18 Indemnification

§ 3.18.1 TO THE FULLEST EXTENT PERMITTED BY LAW, THE CONTRACTOR SHALL INDEMNIFY, DEFEND (EXCEPT AS LIMITED BELOW) AND HOLD HARMLESS THE OWNER, THE OWNER'S TRUSTEES, OFFICERS, AGENTS AND EMPLOYEES (HEREINAFTER IN THIS SECTION 3.18 "OWNER"), FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, (INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNEY'S FEES, AS PERMITTED BY STATUTE), ARISING OUT OF OR RESULTING FROM PERFORMANCE OF THE WORK, PROVIDED THAT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF), INCLUDING THE LOSS OF USE RESULTING THEREFROM, CAUSED IN WHOLE OR IN PART BY THE WILLFUL, INTENTIONAL OR NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THE CONTRACTOR, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS CAUSED IN PART BY THE OWNER. IF THE OWNER'S NEGLIGENCE IS A CONCURRENT CAUSE OF THE INJURY, DEATH, OR DAMAGE, CONTRACTOR'S OBLIGATION TO INDEMNIFY IS LIMITED TO THE AMOUNT NECESSARY TO CAUSE THE RELATIVE LIABILITY OF OWNER AND CONTRACTOR TO REFLECT THE COMPARATIVE NEGLIGENCE FINDINGS OF THE TRIER OF FACT

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

(JUDGE OR JURY) OR AS AGREED IN A SETTLEMENT AGREEMENT TO WHICH OWNER AND CONTRACTOR ARE BOTH PARTIES. SUCH OBLIGATION SHALL NOT BE CONSTRUED TO NEGATE, ABRIDGE, OR REDUCE OTHER RIGHTS OR OBLIGATIONS OF INDEMNITY THAT WOULD OTHERWISE EXIST AS TO A PARTY OR PERSON DESCRIBED IN THIS SECTION 3.18.

§ 3.18.2 IN CLAIMS AGAINST ANY PERSON OR ENTITY INDEMNIFIED UNDER THIS SECTION 3.18 BY AN EMPLOYEE OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THEM, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, THE INDEMNIFICATION OBLIGATION UNDER SECTION 3.18.1 SHALL NOT BE LIMITED BY A LIMITATION ON AMOUNT OR TYPE OF DAMAGES, COMPENSATION, OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR A SUBCONTRACTOR UNDER INSURANCE POLICIES, WORKERS' COMPENSATION ACTS, DISABILITY BENEFIT ACTS, OR OTHER EMPLOYEE BENEFIT ACTS.

§ 3.18.3 THE OBLIGATIONS OF THE CONTRACTOR UNDER THIS SECTION 3.18 SHALL NOT EXTEND TO THE LIABILITY OF THE ARCHITECT, THE ARCHITECT'S CONSULTANTS, AND AGENTS AND EMPLOYEES OF ANY OF THEM, CAUSED BY OR RESULTING FROM: (1) DEFECTS IN PLANS, DESIGNS, OR SPECIFICATIONS PREPARED, APPROVED, OR USED BY THE ARCHITECT OR ENGINEER; OR (2) NEGLIGENCE OF THE ARCHITECT OR ENGINEER IN THE RENDITION OR CONDUCT OF PROFESSIONAL DUTIES CALLED FOR OR ARISING OUT OF THE CONSTRUCTION CONTRACT AND THE PLANS, DESIGNS, OR SPECIFICATIONS THAT ARE A PART OF THE CONSTRUCTION CONTRACT; AND (3) ARISING FROM: (A) PERSONAL INJURY OR DEATH; (B) PROPERTY DAMAGE; OR (C) ANY OTHER EXPENSE THAT ARISES FROM PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE, OR AS OTHERWISE LIMITED BY TEXAS CIVIL PRACTICE & REMEDIES CODE SECTION 130.001 ET SEQ.

§ 3.18.4 THE DUTY TO DEFEND SET OUT ABOVE SHALL NOT APPLY IN THE EVENT THAT THE CLAIM IS BASED, IN WHOLE OR IN PART, ON THE NEGLIGENCE OF, FAULT OF, OR BREACH OF CONTRACT BY THE OWNER. NOTWITHSTANDING THE FOREGOING, THE CONTRACTOR AGREES TO REIMBURSE THE OWNER'S REASONABLE ATTORNEY'S FEES IN PROPORTION TO THE CONTRACTOR'S LIABILITY.

§ 3.18.5 CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL HOLD OWNER FREE AND HARMLESS FROM LIABILITY RESULTING FROM LOSS OF OR DAMAGE TO CONTRACTOR'S OR ITS SUBCONTRACTORS' CONSTRUCTION TOOLS AND EQUIPMENT AND RENTED ITEMS WHICH ARE USED OR INTENDED FOR USE IN PERFORMING THE WORK, REGARDLESS OF WHETHER SUCH LOSS OR DAMAGE IS CAUSED IN WHOLE OR IN PART BY THE WILLFUL, INTENTIONAL OR NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THE CONTRACTOR, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS CAUSED IN PART BY THE OWNER. IF THE OWNER'S NEGLIGENCE IS A CONCURRENT CAUSE OF THE INJURY, DEATH, OR DAMAGE, CONTRACTOR'S OBLIGATION TO INDEMNIFY IS LIMITED TO THE AMOUNT NECESSARY TO CAUSE THE RELATIVE LIABILITY OF OWNER AND CONTRACTOR TO REFLECT THE COMPARATIVE NEGLIGENCE FINDINGS OF THE TRIER OF FACT (JUDGE OR JURY) OR AS AGREED IN A SETTLEMENT AGREEMENT TO WHICH OWNER AND CONTRACTOR ARE BOTH PARTIES. THIS PROVISION SHALL APPLY, WITHOUT LIMITATION, TO LOSS OR DAMAGE OCCURRING AT THE WORK SITE OR WHILE SUCH ITEMS ARE IN TRANSIT TO OR FROM THE WORK SITE AND IS IN ADDITION TO CONTRACTOR'S OBLIGATIONS UNDER SECTION 3.18.1.

§ 3.18.6 The indemnification hereunder shall include, without limiting the generality of the foregoing, liability which could arise to the Owner pursuant to State statutes for the safety of workmen and in addition, all Federal statutes and rules existing thereunder for protection, occupational safety and health to workmen. It being agreed that the primary obligation of the Contractor is to comply with said statutes in performance of the Work by Contractor and that the obligations of the Owner under said statutes are secondary to that of the Contractor.

§ 3.18.7 It is agreed with respect to any legal limitations now or hereafter in effect and affecting the validity or enforceability of the indemnification obligations under Section 3.18, such legal limitations are made a part of the indemnification obligation and shall operate to amend the indemnification obligation to the minimum

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

extent necessary to bring the provision into conformity with the requirements of such limitations, and as so modified, the indemnification obligations shall continue in full force and effect.

§ 3.18.8 Contractor shall promptly advise the Owner, in writing, of any claim or demand against the Owner or Contractor, known to the Contractor related to or arising out of Contractor's activities under this Contract.

§ 3.18.9 The provisions in Section 3.18 in its entirety shall survive the completion, termination or expiration of this contract and are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

§ 3.19 Representations And Warranties

§ 3.19.1 The Contractor represents and warrants the following to the Owner (in addition to the other representations and warranties contained in the Contract Documents), as an inducement to the Owner to execute this Contract, which representations and warranties shall survive the execution and delivery of the Contract and the Final Completion of the Work:

- **.1** that it is financially solvent, able to pay its debts as they mature and possessed of sufficient working capital to complete the Work and perform its obligations under the Contract Documents;
- **.2** that it is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the Work and perform its obligations hereunder and has sufficient experience and competence to do so;
- **.3** that it is authorized to do business in the State where the Project is located and properly licensed by all necessary governmental and public quasi-public authorities having jurisdiction over it and over the Work and the site of the Project;
- **.4** that the execution of the Contract and its performance thereof is within its duly authorized powers; and
- **.5** that its duly authorized representative has visited the site of the Work, familiarized itself with the local conditions under which the Work is to be performed and correlated its observations with the requirements of the Contract Documents.

§ 3.20 Business Standards

§ 3.20.1 Contractor, in performing its obligations under Contract, shall establish and maintain appropriate business standards, procedures, and controls, including those necessary to avoid any real or apparent impropriety or adverse impact on the interest of Owner or affiliates. Contractor shall review, with Owner, at a reasonable frequency during the performance of the Work hereunder, such business standards and procedures including, without limitation, those related to the activities of Contractor's employees and agents in their relations with Owner's employees, agents, and representatives, vendors, Subcontractors, and other third parties, and those relating to the placement and administration of purchase orders and contracts.

§ 3.21 Antitrust Violation

To permit the Owner to recover damages suffered in antitrust violations, Contractor hereby assigns to Owner any and all claims for overcharges associated with this Contract which violate the antitrust laws of the United States, 15 U.S.C.A. Section 1 et seq. The Contractor shall include this provision in its agreements with each subcontractor and supplier. Each subcontractor shall include such provisions in agreements with sub-subcontractors and suppliers.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner,

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date of the Owner's contract with the Architect terminates. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, or as they may be amended in the future.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents, and delivered on time. In addition, the Architect or its structural consultant will (1) provide on-site observations prior to and during all concrete pours that contribute to the structural integrity of the building, including all pours of concrete piers, footings, grade beams, floor slabs, and concrete superstructure components, if applicable; and (2) provide on-site observations prior to covering up or closing up of portions of the construction which, if covered, would conceal problems with the structural integrity of the Project. Contractor shall not close or cover said Work until said observations have occurred. Contractor or Architect will advise Owner of the need for any third-party laboratory or testing services to assist the Architect and Owner.

§ 4.2.3 On the basis of the site observations, the Architect will keep the Owner informed about the progress and quality of the Work. The Architect shall promptly report to the Owner and Contractor orally regarding: (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. An oral notification of defects and deficiencies observed in the Work shall be followed by a notice in writing to the Owner and Contractor specifying the defect(s), non-conforming Work, deviations from the Contract Documents and corrective actions taken or recommended. The Architect shall not have control over or responsibility for the Contractor's construction means, methods, techniques, sequences, procedures, or safety programs and will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents, nor shall the Architect have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work. This does not, however, relieve Architect of Architect's responsibilities under this Agreement. Any services by Contractor made necessary by Contractor's construction defect or nonconforming Work shall be performed by the Contractor at no additional cost to Owner. In addition, the Contractor shall reimburse the Owner for compensation paid to the Architect (whether performed by the Architect or its Consultants) or the Owner's Consultants, for additional site visits made necessary by the fault, neglect, the request of the Contractor or made necessary by the Contractor's construction defect or nonconforming Work. Any amount subject to reimbursement under this Section may be required by Owner to be deducted from the next Payment Application submitted by the Contractor and any subsequent Payment Application until paid, and if any amount remains unpaid, the balance shall be paid by the Contractor as a condition to Final Payment.

§ 4.2.4 Communications

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters relating to the Contract and the Project. However, the Owner reserves the right to communicate directly with the Contractor and Subcontractors. Communication by and with the Architect's consultants shall be through the Architect. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, in accordance with the Contract Documents, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect or the Owner has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect or the Owner considers it necessary or advisable, the Architect or the Owner will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect or the Owner nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Owner to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work. Certain portions of the Work may be tested and/or observed at various stages, sometimes off the Project site, between initial observation or review and final positioning of the completed Work. Nothing in any initial or prior approval or test result shall prevent action to require conformance, if at any subsequent time the Work or any portion thereof is found not to conform to the requirements of the Contract Documents. Architect and/or Contractor shall promptly notify, the other party orally and in writing, and Owner of any perceived fault or defect in the design or nonconformance of the Work with the Construction Documents they may respectively discover and each, upon discovery of the defect or nonconformance, shall be responsible for notifying the

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

other party and Owner of those corrective actions they respectively take; provided, however, Contractor shall have no duty to notify Owner of discoveries made or actions taken by Architect.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or Separate Contractors, and allow sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component. If any submittal does not comply with the requirements of the Contract Documents, the Architect shall require Contractor to come into compliance. The Architect shall promptly report in writing to the Contractor and Owner any errors, inconsistencies and omissions discovered by the Architect in the Shop Drawings, Product Data and Samples, so as to keep from delaying the Work or the activities of the Owner, Contractor or other Contractors.

§ 4.2.8 The Architect will prepare, and make written recommendations to Owner regarding all Change Orders (including changes in the Work to be paid from contingency funds) and Construction Change Directives, for the Owner's approval and execution in accordance with the Contract Documents. The Architect's recommendation shall be accompanied by all supporting documentation necessary for the Owner to make an informed decision, including but not limited to an itemized turn-key proposal from the Contractor which includes quantities and unit costs of labor and materials extended and totaled and, if permitted, overhead and profit proposed. Prior to submission of such documentation to the Owner, the Architect shall review such proposals for reasonableness of pricing and compliance with Section 7.1.4 regarding markup. The Architect may order minor changes in the Work not involving an adjustment in Contract Sum or Guaranteed Maximum Price, or an extension of the Contract Time which are consistent with the intent of the Contract Documents. If necessary, the Architect shall prepare, reproduce and distribute Drawings and Specifications to describe Work to be added, deleted or modified, as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4. The Architect is specifically **not** authorized to approve changes involving major systems such as: Heating, Ventilation and Air Conditioning ("HVAC"); roof; foundation; outward appearance; color schemes; floor plans; building materials; drainage or mechanical equipment without Owner's prior written consent.

§ 4.2.9 The Architect and the Owner's representative will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion. Upon completion of such inspection and agreement by Owner and Architect as to Substantial Completion, the Architect may issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10 for approval by the Owner.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 Upon written request of the Owner or Contractor, the Architect will issue its interpretation of the requirements of the plans and specifications. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents and not expressly overruled in writing by the Owner.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information at no additional expense to the Owner.

§ 4.2.15 The Architect may appoint an employee or other person to assist the Architect during the construction. These representatives will be instructed to assist the Contractor in interpreting the Contract Documents; however, such assistance shall not relieve the Contractor from any responsibility as set forth by the Contract Documents. The fact that the Architect's Representative may have allowed Work not in accordance with the Contract Documents shall not prevent the Architect from insisting that the faulty Work be corrected to conform to the Contract Documents and the Contractor shall correct same.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect, in writing, of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect shall notify the Contractor in writing, whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection. A notice of no reasonable objection shall in no way relieve the Contractor from full responsibility for performance and completion of the Work and its obligations under the Contract Documents. The Contractor shall be fully responsible for the performance of its subcontractors, including those recommended or approved by the Owner.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. When the parties agree on a proposed substitute Subcontractor reasonably capable of performing the Work, the Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected without providing reasonable written notice to the Owner and Architect. If neither the Owner nor Architect submits a reasonable objection to such proposed substitution within ten (10) days following their receipt of written notice the Contractor may proceed with the substitution. If either Owner or Architect submit an objection, the Subcontractor shall proceed in accordance with Section 5.2.3 above.

§ 5.2.5 Each Contractor or subcontractor shall be required to completely familiarize itself with the plans and specifications, to visit the Work site to completely familiarize itself with existing conditions, and to conduct any other appropriate investigations, inspections or inquiries prior to submission of a bid or proposal. No increases in Contract Sum shall be allowed for failure to so inspect or investigate.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 5.3 Subcontractual Relations

§ 5.3.1 By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. The terms and conditions of the Contract Documents shall be incorporated by reference into each subcontract agreement, included as provided below. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors. Each subcontractor shall provide proof of insurance to Contractor consistent with the Contractor's insurance to Owner and in an amount commensurate with the Work to be performed by the Subcontractor.

§ 5.3.2 Neither the Owner nor the Architect shall be obligated to pay or to insure the payment of any monies to Subcontractors or vendors by the Contractor.

§ 5.3.3 The Contractor shall require any potential Subcontractor to disclose to the Contractor any ownership interest or familial relationship between the Contractor, the Architect or the Owner and the potential Subcontractor prior to entering into a contract. Contractor shall report to Owner all such disclosures and the Owner shall have the right, in its sole discretion, to reject any such affiliated Subcontractor.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for any unperformed portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner or abandonment of the Project by the Contractor and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing;

.2 assignment is subject to the prior rights and obligations of the surety, if any, obligated under bond relating to the Contract; and

.3 The Subcontractor provides bonds as required by law of prime contractors and by Owner.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation may, in the Owner's sole discretion, be equitably adjusted for increases in cost resulting from the suspension. Such assignment shall not constitute a waiver by Owner of its rights against Contractor, including, but not limited to, claims for defaults, delays or defects for which a subcontractor or material vendor may also be liable.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. Owner shall only be responsible for compensating subcontractors for Work performed or materials furnished from and after the date on which the Owner gives written notice of its acceptance of the subcontract agreement. Owner shall not be responsible for any Work performed or materials furnished by subcontractors prior to the date of Owner's written notice of acceptance.

§ 5.5 Notice Of Subcontractor Default

Contractor shall promptly notify Owner and Architect of any material defaults by any Subcontractor or Sub-subcontractor. Notwithstanding any provision contained in Article 5 to the contrary, it is hereby acknowledged and agreed that Owner has in no way agreed, expressly or implicitly, nor will Owner agree, to allow any Subcontractor, Sub-subcontractor or other materialman or worker employed by Contractor the right to obtain a

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

personal judgment or to create a mechanic's or materialman's lien against Owner for the amount due from the Owner or the Contractor.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement by the Owner and Contractor. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 [Paragraph Deleted.]

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for site access, staging, introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work.

§ 6.2.3 All costs resulting from the Contractor's negligence, lack of oversight, inattention to detail, failure to investigate, or failure to follow the Construction Documents or Contract Documents, will be borne by the Contractor. The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor, the Architect or any Consultant because of the Contractor's delays, improperly timed activities or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Owner will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

limitations stated in this Article 7 and elsewhere in the Contract Documents. Changes may be funded out of a contingency fund, if any, or other allowance established herein, or may require a change in the Contract Sum. The authority to approve a change to the Work, the Contract Sum, approve payment from a Contingency or Allowance, or a change in the Project Time, rests solely with the Owner. A Change Order funded from the Contingency or other Allowance shall be referred to herein for clarity as a "Contingency Authorization Order".

§ 7.1.2 A Contingency Authorization Order or Change Order shall be based upon agreement among the Owner, Contractor, and Architect executed prior to commencement of any Work covered by the Order. A Construction Change Directive (whether funded from contingency, if any, or by an increase in the Contract Sum) requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor prior to the commencement of the Work. An order for a minor change in the Work may be issued by the Architect alone, except as otherwise provided herein.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.1.4 Change Order Mark-Up. On Change Orders and Construction Change Directives, the total Contractor mark-up for overhead, profit permitted to be charged to the Owner shall be based on the following schedule:

- **.1** for work performed by the Contractor's own forces, Contractor's mark-up for overhead and profit shall not exceed 10% of the cost of the change in the Work (0% for change orders to be paid out of any contingency allowance).
- **.2** for the Contractor, for supervision of work performed by the Contractor's Subcontractors, the total Contractor mark-up for overhead and profit shall not exceed 4% of the amount due to the Subcontractors (0% for change orders to be paid out of any contingency allowance).
- **.3** for each Subcontractor or Sub-subcontractor involved, in Work performed by that Subcontractor's or Sub-subcontractor's own forces, the total mark-up for overhead and profit ten percent (10%) of the cost of the change in the Work.
- **.4** In no event shall total mark-up for overhead, profit or fee in any work which involves a subcontractor or one or more sub-subcontractors, regardless of who performs the work, exceed 14% of the total cost of the change in the Work. The Contractor will not be allowed an overhead, profit, or fee mark-up when changes in the Work are funded by Contingency or other Allowances provided for in the Contract Documents.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- **.1** The change in the Work;
- **.2** The amount of the adjustment, if any, in the Contract Sum; and
- **.3** The extent of the adjustment, if any, in the Contract Time.

Methods used to determine adjustments to the Contract Sum or Guaranteed Maximum Price may include those listed in Section 7.3.3.

§ 7.2.2 Acceptance of a disbursement from any allowance fund, contingency fund or acceptance of a Change Order by the Contractor shall constitute full accord and satisfaction for any and all claims, whether direct or indirect, including but not limited to impact, delay or acceleration damages, arising from the subject matter of the disbursement or Change Order.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum (the Guaranteed Maximum Price, as applicable) or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum (the Guaranteed Maximum Price, as applicable) and Contract Time being adjusted as provided in Section 7.3.3.

AIA Document A201® - 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum (or the Guaranteed Maximum Price, as applicable), the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

.2 Unit prices stated in the Contract Documents or subsequently agreed upon(additional mark-ups for overhead and profit will not be allowed);

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee, subject to the limitations of subparagraph 7.1.4; or

.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum (or the Guaranteed Maximum Price, as applicable), the Architect shall determine the adjustment on the basis of the amount by which the Contractor's direct costs have actually been increased over the direct cost of performing the Work without the Change in the Work. Direct costs shall be limited to the following:

.1 Actual documented costs of labor, including applicable payroll taxes and other employee costs approved by the Owner prior to the approval of the Change Order or Contingency Authorization Order (a labor burden factor will not be accepted as documentation);

.2 Actual documented costs of materials, supplies, and equipment, including cost of transportation, whether such materials, supplies, and equipment are incorporated or consumed;

.3 Actual documented rental costs of machinery and equipment, if rented from unaffiliated third-parties, exclusive of hand tools;

.4 Actual documented costs of premiums for all bonds and insurance, permit fees, and applicable sales, use, or similar taxes, directly related to the change, if any; and

.5 Actual documented costs of supervision and field office personnel directly attributable to the change and only if the adjustment causes an extension of the Contract Time.

The Contractor shall keep and present, in such form as the Architect or Owner may prescribe, an itemized accounting of the items listed above, together with appropriate supporting documentation.

§ 7.3.5 If the Work is performed without an agreement as to the final price, the Contractor shall, at a minimum, retain and provide to the Owner, the following documentation to adequately document its actual costs of performing the scope of work set out in a Construction Change Directive. Adequate Documentation shall include at a minimum, but not limited to, payroll records for employees of Contractor providing the Work included in the Change Directive, as well as written documentation of time spent **solely** on the scope of the Change Directive Work, prepared concurrent with the performance of the Work, including (for example) sign-in and sign-out sheets or time cards, executed by the employee(s) documenting attendance and receipts for all materials delivered to the Project site for incorporation in the Work of the Change Directive and paid for by the Contractor. If any of the Work of the Change Directive is performed by subcontractors, the Contractor shall provide a copy of the subcontract, an itemized invoice or payment application which includes, in either case, a detailed itemization of costs showing quantities and unit costs of labor and materials extended and totaled and, if permitted, overhead and profit (in accordance with Section 7.1.4) labor and materials provided by the subcontractor, with receipted invoices for all materials incorporated in the Work and evidence of payment by the subcontractor attached. If the Contractor disagrees with the adjustment in the Contract Time, the Contract Sum (or the Guaranteed Maximum Price, as applicable), allowed in any Change Directive, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement (by executing and returning the Change Directive) or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time, not later than ten (10) calendar days following the Contractor's receipt of the Construction Change Directive. A copy of a notice of disagreement shall also be provided to the Owner concurrent with the notice to the Architect. A Notice of Disagreement must contain the number of the Change Directive, the date the Change Directive was issued and the words **"Notice of Disagreement With Change Directive"** in the Subject line. It is imperative that Owner receive timely specific notice of any potential problem identified by Contractor in order that the problem can be mitigated or resolved promptly.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and/or the Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost plus the permitted overhead and profit as set forth in Section 7.1.4. When both additions and credits covering related Work or substitutions are involved in a change, both changes shall be shown on the same Change Order and the permitted allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change. Returned materials shall be credited at actual cost and no penalty or restocking fee shall be permitted to be charged to the Owner.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will require as a condition precedent to certification of payment for Work completed under the Construction Change Directive that the Contractor provide the documentation required by Section 7.3.4, and based on such documentation, shall make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect is specifically authorized by this Section 7.3.9 to require submission of such documentation and any other documentation required to evaluate the requested payment, and shall withhold payment certification until such documentation is received and an interim determination is made in accordance with this Section. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order reflecting the Agreement of the Owner and Contractor. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

With prior written notice to the Owner's representative, the Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time. The Contractor shall carry out such written orders promptly. Minor changes in the Work shall not include changes that involve the outward appearance of the structure, color schemes, floor plans, building materials, landscaping, or mechanical equipment.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Contract Time. Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 Commencement. The date of commencement of the Work shall be the first business day following the Contractor's written notice to proceed. The notice to proceed shall not be issued until the Agreement (or Guaranteed Maximum Price Amendment, as applicable) has been signed by the Contractor and the Owner, and the Owner and Architect have received and approved as to form all required payment and performance bonds and insurance as required by Article 11.

§ 8.1.3 Substantial and Final Completion

§ 8.1.3.1 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 8.1.3.2 The date of Final Completion is the date certified by the Architect in accordance with Section 9.10. Unless otherwise agreed in writing by Owner, Contractor agrees that Final Completion shall occur not more than thirty (30) days after the date of Substantial Completion.

§ 8.1.4 Day. The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor stipulates that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by war, civil commotion, pandemic, epidemic, federal, state or local declared disaster or public emergency, act of God, governmental restrictions, regulations, orders, or interference, fire or other unavoidable casualty, material changes ordered in the Work; adverse weather conditions documented in accordance with Section 15.1.6 by delay authorized in writing by the Owner prior to the happening of the delay event; or (5) by other causes that the Contractor asserts, and the Architect and Owner determine, justify delay, then the Contract Time may be extended for such reasonable time as the Architect and Owner may determine based upon documentation by the Contractor.

§ 8.3.1.1 The adjustment of the Contract Time for delay, disruption, and interference described in this Section 8.3.1 is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Time and Contractor's timely delivery of the notice and claim as set out in this Section 8.3.1. An adjustment to the Contract Time shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this Section 8.3.1, and under no circumstances shall the Owner be liable to pay the Contractor any compensation for Owner-caused delays.

§ 8.3.1.2 Notice and Claim for Extension. In the event of a delay in the commencement or progress of the Work as a result of any of the circumstances in this Section 8.3.1, the Contractor may receive an extension of time for completion of the Work equal to the delay, if the Contractor delivers a written notice and claim to the Owner and Architect delivered in any manner provided in Section 1.6.1 of this Agreement. The Notice shall identify and provide a reasonably detailed description of the circumstances causing the delay, disruption, or interference to the Contractor's performance or progress of the Work on or before the due date of Contractor's Application for Payment covering the period in which the delay began. Claims for an extension of time shall be stated in whole or half calendar days, as applicable. The actual date on which the delay(s) began and/or the date the delay ended, if applicable, must be stated in the Claim Notices as applicable.

§ 8.3.2 In the case of claims for extension of time because of unusually inclement weather, such extension of time may be granted only if the Contractor files a claim in accordance with the requirements set out in Section 15.1.6.

§ 8.3.3 Contractor shall not be entitled to an adjustment in the Contract Time for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

§ 8.3.4 Any adjustment of the Contract Time authorized under Section 8.3 shall be conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Time and Contractor's submission of a timely and properly documented Notice and Claim for additional time in accordance with Section 8.3.

§ 8.3.5 Adjustments to the Contract Time addressed in this Section 8.3 shall apply only to requests for extensions of time based upon delay, disruption, or interference to the Contractor's performance or progress of the Work and shall

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

have no applicability to requests for adjustment of the Contract Time due to other changes in circumstance, including but not limited to: a change in the materials used; a change in the specified manner of constructing and/or installing the Work; or additional labor, services or materials required, beyond those specified by the Contract Documents. Claims for an adjustment of the Contract Time resulting from these kinds of changes shall be authorized only pursuant to a written order or directive from Owner authorizing Contractor to proceed with a change in the Work in accordance with the Contract Documents.

§ 8.4 No Damages or Other Compensation for Delay or Acceleration

This Agreement does not permit recovery by the Contractor of damages or additional compensation for delay, acceleration, disruption, or interference to the Contractor's performance or progress of the Work Contractor agrees that Contractor shall be fully compensated for all delays solely by an extension of time including but not limited to delay, disruption, or interference caused by the Owner the Architect, of an employee of either, or of a Separate Contractor, any of the circumstances set out in Section 8.3.1 or acceleration of the Work required by the Owner in accordance with the terms of this Agreement. Contractor's sole remedy for delay disruption, or interference in its performance or progress of the Work or any required acceleration of the Work shall be the grant of an extension of time for completion equal to a delay or such reasonable time as the Owner and Architect may determine in their sole discretion.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement or the Guaranteed Maximum Price Amendment in the case of a Construction Manager at Risk Contract and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents. All costs of overtime Work required by the Contract Time and the nature of the Work, as set forth in or inferable from the Contract Documents, except costs of emergencies covered in Section 10.4, shall be and are included in the Contract. The Contract Sum shall not be increased because the Contractor experiences an unexpected or unforeseeable increase in the price of labor or materials required to complete the Project.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices may be equitably adjusted by written agreement between the Owner and Contractor, executed prior to an order being placed based on the unit prices.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, as applicable, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment or, in the case of a Guaranteed Maximum Price, concurrent with the Guaranteed Maximum Price Proposal, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, or the Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment. The schedule of values shall be prepared in such a manner that each major item of work, whether done by Contractor's own forces or subcontracted, is shown as a single line item on AIA Documents G702-1992 and G703-1992, Application and Certificate for Payment and Continuation Sheet.

§ 9.3 Applications for Payment

§ 9.3.1 In accordance with the requirements of Section 5.1 of the Agreement, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage withheld. The form of Application for Payment, duly notarized, shall be a current authorized edition of AIA Document G702-1992, Application and Certificate for Payment, supported by a current authorized edition of AIA Document G703-1992, Continuation Sheet.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 9.3.1.1 Such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor has not been invoiced by a Subcontractor or supplier, unless such Work was self-performed; in such case, only portions of Work actually performed shall be included on the Contractor's request for payment.

§ 9.3.1.3 Contractor agrees that, for purposes of Texas Government Code section 2251.042, receipt of the Application for Payment by the Architect shall not be construed as receipt of an invoice by the Owner. Contractor further agrees that Owner's receipt of the Architect's Certificate for Payment shall be construed as a receipt of an invoice by the Owner, for purposes of Texas Government Code section 2251.042.

§ 9.3.1.4 The Owner shall withhold retainage as provided in the Agreement, except that Owner shall not pay amounts for which the Architect refuses to certify payment, or the Owner refuses to pay, as provided herein. The retainage shall be paid to the Contractor with the Final Payment, subject to the requirements of the Contract Documents.

§ 9.3.2 Unless otherwise provided in a separate written agreement executed between the Owner and Contractor prior to delivery, payments shall not be made on account of materials and equipment delivered and stored at the site or off-site for subsequent incorporation in the Work. The Owner may, in Owner's sole discretion, require Contractor's compliance with such reasonable procedures and requirements as it may establish, as a condition precedent to the grant of Owner's consent and agreement to payment, including but not limited to the following:

.1 provision of any additional insurance required to protect the materials and equipment while stored;

.2 payment of the costs to store the materials and equipment and any additional transportation costs for multiple deliveries;

.3 provision of written consent of Contractor's surety to such storage;

.4 submission of an affidavit identifying materials and equipment stored off-site for later incorporation into the Work, and acknowledging responsibility for such materials and equipment;

.5 provision of documentation that the facility where the materials and/or equipment will be stored is an adequately insured commercial warehouse, where the materials and equipment stored will be sheltered from the weather and outside elements and are stored in accordance with the manufacturer's instructions, including proper temperature and humidity controls and that the materials and equipment have been physically separated and marked for the Project;

.6. its agreement to bear the cost of Owner and/or Architect's visits to the off-site storage facility to confirm compliance with these requirements and review the stored contents, and Contractor shall agree to allow such costs to be offset from Progress Payments;

.7 agreement that payment of any costs related to compliance with the procedures and requirements for storage of materials and equipment on or off-site, shall not be subject to charges for overhead or profit;

.8 submission of bills of sale or other documentation acceptable to the Owner, showing proof of delivery and establishing the Owner's title to the materials or equipment and/or otherwise protecting the Owner's interest, including naming the Owner as additional insured on the required insurance policy (naming the specific materials or equipment stored and their location) and providing proof of delivery for those materials and equipment;

.9 agreeing that, in the event of termination of the Contract or default by the Contractor, the material and equipment stored on or off-site shall be immediately turned over to the Owner by delivery to the location designated by the Owner and that the operator of the storage facility is aware of this agreement and willing to honor it; and

.10 agreeing that all such stored materials and equipment, to the extent they include mechanical components, will be maintained by the Contractor kept in good working condition and ready for immediate installation, to the same extent they would have been, had they been delivered "just in time" for installation, that Contractor will be solely responsible for assuring any manufacturer's warranty will commence on date of completion of installation and/or start-up of the material or equipment and for repairs required prior to installation to assure performance in accordance with the Contract Documents.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work. **CONTRACTOR SHALL INDEMNIFY AND HOLD OWNER HARMLESS FROM ANY LIENS, CLAIMS, SECURITY INTERESTS OR ENCUMBRANCES FILED BY A SUPPLIER, SUBCONTRACTORS, OR ANYONE CLAIMING BY, THROUGH OR UNDER THE CONTRACTOR OR SUBCONTRACTOR FOR ITEMS COVERED BY PAYMENTS PREVIOUSLY MADE BY THE OWNER TO CONTRACTOR FOR ITEMS COVERED BY PAYMENTS MADE BY THE OWNER TO CONTRACTOR.**

§ 9.3.4 In each Application for Payment, Contractor shall certify that: the information contained in the Application presented is true, correct, accurate and complete; that the submitted Work has been completed to the extent represented in the Applications for Payment; that the materials and supplies identified in the Applications for Payment have been purchased, paid for, and, unless an agreement described in Paragraph 9.3.2 has been signed, incorporated into the Work; that the subcontractors whose work is identified in the Applications for Payment have been paid, or Contractor has been invoiced for same and intends to pay such subcontractors; there are no known mechanics' or materialmens' liens outstanding at the date of the Application, that all due and payable bills with respect to the Work have been paid to date or are included in the amount requested in the current Application and that except for such bills not paid but so included, there is no known basis for the filing of any mechanics' or materialmens' liens on the Work, and that releases from all contractors and materialmen have been obtained in such form as to constitute an effective release of lien under the laws of the State of Texas covering all Work theretofore performed and for which payment has been made by Owner to Contractor.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, carefully evaluate and review the Application for Payment and, when appropriate, return the Application for Payment to the Contractor as provided in Section 9.4.2. If the Application for Payment is complete, then the Architect shall sign and, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner in writing, of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner in writing, of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. Architect's written reasons for withholding certification shall be construed as the notice required by Texas Government Code Section 2251.042 *et seq.*

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, that the Architect has observed the progress of the Work and determined that, in the Architect's professional opinion based on the Architect's evaluation of the Work and the data in the Application for Payment, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect in writing to the Owner. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data unless requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum. Examinations, audits, and verifications, if required by the Owner, will be performed by the Owner's accountants or other representatives of the Owner acting in the sole interest of the Owner.

§ 9.4.3 The issuance of a Certificate for Payment shall constitute a recommendation to the Owner regarding the amount to be paid. This recommendation is not binding on the Owner if Owner knows of other reasons under the Contract Documents why payment should be withheld.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such

AIA Document A201® - 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

.1 defective Work not remedied;
.2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
.3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a Separate Contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
.7 repeated failure to carry out the Work in accordance with the Contract Documents;
.8 delay beyond the times set forth elsewhere in the Contract Documents including but not limited to the submission for approval of the schedule of values, cost breakdowns on proposal requests, progress schedule, list of Subcontractors and insurance requirements;
.9 failure to submit a written plan indicating action by the Contractor to regain the time schedule for completion of Work within the Contract Time;
.10 evidence of financial inability to perform the Contract fully;
.11 failure to submit record documents required by the Contract; or
.12 failure of the Contractor to perform any other obligations of the Contract.

§ 9.5.2 If the Contractor disputes the Architect's or the Owner's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, the Contractor may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld. The Owner shall not be deemed in default by reason of withholding payment as provided for in Section 9.5.1.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment. Notwithstanding any provision contained within this Article, if the Contractor has not achieved Substantial Completion by the required date, subject to extensions of time allowed under the Contract Documents, then Architect may withhold any further Certificate for Payment to the extent necessary to preserve sufficient funds to complete construction of the Project and to cover liquidated damages. The Owner shall not be deemed in default by reason of withholding payment as provided for in Section 9.5.1, or this Section 9.5.4.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued and the Owner has approved a Certificate for Payment, the Owner shall make payment of disputed amounts in the manner and within the time provided in the Contract Documents, and in accordance with the Texas Government Code section 2251.042 *et. seq.*, Owner shall within twenty-one (21) days notify the Architect and Contractor if Owner disputes the Architect's Certificate for Payment, listing the specific reasons for nonpayment. Payments to the Contractor shall not be construed as releasing the Contractor or his Surety from any obligations under the Contract Documents.

§ 9.6.2 In compliance with Texas Government Code Section 2251.022, the Contractor shall, within ten (10) days following receipt of payment from the Owner, pay all bills for labor and materials performed and furnished by others in connection with the construction, furnished and equipping of the improvements and the performance of the Work, and shall, if requested, provide the Owner with evidence of such payment. Contractor's failure to make payments within such time shall constitute a material breach of this contract. Contractor shall include a provision in each of its contracts imposing the same payment obligations on its Subcontractors as are applicable to the Contractor hereunder. If the Contractor has failed to make payment promptly to the Contractor's Subcontractors or for materials or labor used in the Work for which the Owner has made payment to the Contractor, the Owner shall be entitled to withhold payment to the Contractor in part or in whole to the extent necessary to protect the Owner.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 The Contractor shall, as a condition precedent to any obligation of the Owner under the Contract Documents, provide to the Owner payment and performance bonds in the full penal amount of the Contract in accordance with Texas Government Code Chapter 2253. Notwithstanding the foregoing, payments received by the Contractor from the Owner for Work properly performed by Subcontractors, or materials properly provided by suppliers, shall be held in trust by the Contractor for the benefit of those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

Pursuant to Texas Government Code Section 2251.051,if the Owner does not pay the Contractor any payment certified by the Architect, which is undisputed, due and owing after the date the payment is due under the Contract Documents, then the Contractor may, upon ten (10) days' written notice to the Owner and Architect, that payment has not been made and the Contractor intends to suspend performance for nonpayment, may stop the Work until payment of the undisputed amount owing has been received. If the Owner provides written notice to the Contractor that: 1) payment has been made; or 2) a bona fide dispute for payment exists, listing the specific reasons for nonpayment, then Contractor shall be liable for damages resulting from suspension of the Work. If a reason specified is that labor, services, or materials provided by the Contractor are not provided in compliance with the Contract Documents, then the Contractor shall be provided a reasonable opportunity to cure the noncompliance or to compensate Owner for any failure to cure the noncompliance. No amount shall be added to the Contract Sum as a result of a dispute between Owner and Contractor unless and until such dispute is resolved in Contractor's favor.

§ 9.7.2 If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Contract Documents, then such payment shall be made promptly upon demand by the Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if the Contractor fails to promptly make any payment due to Owner, pursuant to the Contract, or if the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective Work, then the Owner shall have an absolute right to offset such amount against the Contract Sum and, in the Owner's sole discretion and without waiving any other remedies, may elect to either: (1) deduct an amount equal to that which the Owner is entitled from any payment then or thereafter due to Contractor from the Owner, or (2) issue a written notice to the Contractor reducing the Contract Sum by an amount equal to that which the Owner is entitled.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

its intended use; provided, however, as a condition precedent to Substantial Completion, the Owner has received all certificates of occupancy and any other permits, approvals, licenses, and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial occupancy of the Project (or if the same cannot be delivered for reasons not the fault or responsibility of the Contractor, nevertheless all Contractor's obligations necessary to the issuance of such certificates, permits, approvals, or licenses will have been performed.) Without limiting the foregoing, in general, the only remaining Work following Substantial Completion shall be minor in nature, so that the Owner could occupy the Project on that date and the completion of the Work by the Contractor would not materially interfere or hamper the Owner's normal business operations.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect accompanied by the Owner or Owner's representative, at the Owner's option, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, then the Architect shall so notify the Contractor and Owner in writing, and the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.3.1 If, in Architect's opinion during the inspection, the Project, or the designated portion thereof which Owner has agreed to accept separately, is not sufficiently complete to warrant inspection, or if the list of items to be completed or corrected is not sufficiently complete to warrant inspection, then Architect may terminate the inspection and notify the Contractor that the Project is not ready for inspection. If for such reasons, Architect is required to make additional inspections, the Owner may deduct the cost of Architect's additional services made necessary thereby from any payments due the Contractor. The Architect's compensation shall be determined in accordance with the applicable provisions of the Agreement between the Owner and Architect.

§ 9.8.3.2 Except with the consent of the Owner, the Architect will perform no more than ONE (1) inspection to determine whether the Work has attained Substantial Completion in accordance with the Contract Documents. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect, Engineer, Consultant or service provider for any additional inspections.

§ 9.8.4 When the Work or designated portion thereof is Substantially Complete, as defined by the Contract Documents, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof, unless otherwise provided in the Certificate of Substantial Completion. If Work is to be completed or corrected after the date of Substantial Completion and prior to final payment, Warranties for Work to be completed or corrected after the date of Substantial Completion and prior to final payment shall become effective on the later of the date the Work is completed or corrected and accepted by the Owner and Architect, or the date of Final Payment. ("Warranty Commencement Date").

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate.

§ 9.8.6 Retainage is not due to the Contractor until thirty-one (31) days after Final Completion of the Work as set out in Section 9.10. After the Certificate of Substantial Completion is accepted by the Owner, the Owner may, in its sole discretion and upon acceptance and consent of surety, make payment of retainage on all or a part of the Work accepted.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to in writing by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work resulting from such occupancy, use or installation, and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties on the partially completed portion of the Work, as required by the Contract Documents.. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect. Contractor agrees that the Owner may place and install as much equipment and furnishings as is possible before completion or partial completion of portions of the Work.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless expressly agreed upon in writing, partial occupancy or use of a portion or portions of the Work or installation of furnishings and equipment shall not constitute acceptance of Work not complying with the requirements of the Contract Documents, nor shall it constitute evidence of Substantial Completion or Final Completion.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 When all of the Work is finally completed and the Contractor is ready for a final inspection it shall notify the Owner and the Architect thereof in writing. Thereupon, the Architect and Owner (at Owner's option) will make final inspection of the Work and, if the Work is complete in full accordance with the Contract Documents and this Contract has been fully performed, the Architect will promptly issue a final Certificate for Payment certifying to the Owner that the Work has been completed in accordance with the Contract Documents and that remainder of the Contract Sum, including all retainage, less any amount withheld pursuant to the Contract and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. Except with the consent of the Owner, the Architect will perform no more than one (1) inspection to determine whether the Work has attained Final Completion in accordance with the Contract Documents. If the Architect is unable to issue its final Certificate for Payment and is required to repeat its final inspection of the Work, the Contractor shall bear the cost of such repeat final inspection(s) which cost may be deducted by the Owner from the Contractor's final payment.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) its affidavit that payrolls, bills for materials and equipment, and other liabilities connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) except for amounts previously withheld by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may have been fully paid or otherwise satisfied; releases and waivers of liens from all Subcontractors of the Contractor and of any and all other parties required by the Architect or the Owner; such other provisions as Owner may request; and consent of Surety to final payment. If any third party fails or refuses to provide a release of claims or waiver of lien as required by Owner, the Contractor shall furnish a bond satisfactory to the Owner to discharge any such lien or indemnify the Owner from liability; (7) In addition, the following items must be completed and received by the Owner before Final Payment will be due:

.1 Written certifications required by Sections 10.5, 10.6, and 10.7 herein;
.2 Final list of subcontractors (AIA Document G705-2001);
.3 Contractor's Certification of Project Compliance required by 16 Texas Administrative Code, Section 61.1036, located at: https://tea.texas.gov;
.4 Contractor's warranties, organized as required elsewhere in the Contract Documents;

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17

.5 Maintenance and Instruction Manuals;
.6 Owner's Certificate of Final Completion; and
.7 "As-constructed record drawings". At the completion of the Project, the Contractor shall submit one complete set of "as-constructed" record drawings, with all changes made during construction, including concealed mechanical, electrical, and plumbing items. The Contractor shall submit these as electronic, sepia, or other acceptable medium, in the discretion of the Owner. The "as-constructed" record drawings shall delete the seal of the Architect and/or the Engineer and any reference to those firms providing professional services to the Owner, except for historical or reference purposes.

Documents identified as affidavits must be notarized. All manuals will contain an index listing the information submitted. The index section will be divided and identified by tabbing each section as listed in the index. Upon request, the Architect will furnish the Contractor with blank copies of the forms listed above.

§ 9.10.3 The Owner shall make final payment of all sums due the Contractor not more than thirty-one (31) days after the Architect's execution of a final Certificate for Payment. Final Payment shall not constitute a waiver of any Claims by the Owner.

§ 9.10.4
(Paragraphs deleted)
[Paragraph Deleted.]

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously asserted pursuant to Article 15 and identified by that payee as unsettled at the time of final Application for Payment.

§ 9.10.6 The Contractor shall not permit any actual or purported lien, charge or claim to attach or attempt to attach to the Work, the site or any amounts due or to become due to the Contractor under the Contract Documents. If any such lien, charge or claim is so asserted, the Contractor shall promptly procure its release and indemnify the Owner against all damage and expense incident thereto. Upon completion of the Work and before any final payment and settlement, the Contractor shall provide evidence satisfactory to the Owner of payment and release of all debts, taxes, liens, charges, obligations and claims for or relating to labor, materials, Subcontractors and Sub-subcontractors; provided, however, that if the Contractor has not paid for any of the aforesaid as a result of a bona fide dispute, and payment of such is guaranteed and covered by the payment bond provided by the Contractor, then the Contractor shall not be required to pay such claim as a condition to final payment and settlement, but instead shall be required to provide Owner with written consent to final payment executed by such surety, expressly acknowledging the existence of such unpaid claim, and agreeing that full and final payment to the Contractor shall not impair any of the Owner's rights or the surety's obligations under the bond.

§ 9.11 Audit
Contractor agrees to maintain adequate books, payrolls and records satisfactory to the Owner in connection with any and all Work performed hereunder. Contractor agrees to retain all such books, payrolls and records (including data stored in computer) for a period of not less than three (3) years after completion of the Work. At all reasonable times, Owner and its duly authorized representatives shall have access to all personnel of Contractor and all such books, payrolls and records, and shall have the right to audit same.

§ 9.12 In addition to any liquidated damages payable to the Owner by the Contractor, if: (1) the Architect is required to make more than one (1) inspection for Substantial Completion; (2) the Architect is required to make more than 1 inspection for Final Completion; or (3) the Work is not substantially complete within thirty (30) days after the date established for Substantial Completion in the Contract Documents; the Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for any additional inspections or services.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs
The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract and shall conform to all provisions of the "Manual of Accident Prevention in Construction", published by the Associated General Contractors of America, Inc., latest edition, and the Contractor further agrees to fully comply with all safety standards required by the Occupational Safety and Health

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

Administration ("OSHA") 29 USC Section 651 et seq., and all amendments thereto. However, the Contractor's duties herein shall not relieve any Subcontractor or any other person or entity, including any person or entity required to comply with all applicable federal, state and local laws, rules, regulations, and ordinances, from the obligation to provide for the safety of their employees, persons, and property and their requirements to maintain a work environment free of recognized hazards. Contractor shall provide reasonable fall protection safeguards and provide approved fall protection safety equipment for use by all exposed Contractor employees.

§ 10.1.1 Contractor shall ensure that the Project site is alcohol-free, drug-free, nicotine/ tobacco-free, e-cigarette free, weapon-free, and sexual-harassment free, and shall require strict compliance on the Project Site with the Owner's Board Policies, including but not limited to GKA(Legal) and GKA(Local). Contractor will remove any of its employees from performing the Work any time there is suspicion of alcohol and/or drug use, possession, or impairment involving such employee, and at any time an incident occurs where drug or alcohol use could have been a contributing factor. Owner has the right to require Contractor to remove employees from performing the Work any time cause exists to suspect alcohol or drug use. In such cases, Contractor's employees may only be considered for return to work after the Contractor certifies as a result of a for-cause test, conducted immediately following removal that said employee was in compliance with this contract. Contractor will not use an employee to perform the Work who either refuses to take, or tests positive in, any alcohol or drug test.

10.1.2 Dress Code, Fraternization and Sexual Harassment. Contractor shall require adequate dress of the Contractor's forces consistent with the nature of the Work being performed, including wearing shirts at all times. Contractor shall prohibit fraternization between all persons working under Contractor or any of its subcontractors, students and Owner's employees while on Owner's property. Sexual harassment of employees of the Contractor or employees or students of the Owner by employees of the Contractor is strictly forbidden. Any employee of the Contractor who is found to have engaged in such conduct shall be subject to appropriate disciplinary action by the Contractor, including removal from the job site.

§ 10.1.3 Weapons. Owner has also banned use, possession, or display of any firearm, handgun, location-restricted knife, club, or "prohibited weapon", as defined by the Texas Penal Code and Owner's Board Policy FNCG(Legal), except when the Contractor, its representatives, employees, agents, and subcontractors, or anyone else over which the Contractor has control or authority holds a Texas handgun license, stores the handgun or other firearm in a locked vehicle in the Owners parking lot, garage, or other parking area provided by the Owner AND the firearm is not loaded and not in plain view. A copy of such policy is available through a link on the Owner's website. The Contractor further agrees that Contractor's representatives, employees, agents, and subcontractors will abide by these requirements as well as the Federal Gun-Free School Zones Act.

§ 10.1.4 Tobacco and E-Cigarettes. Contractor's employees, agents, Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, shall not use e-cigarettes or tobacco products while on the Project Site.

§ 10.1.4 Small Unmanned Aircraft (Drones). The Contractor shall operate any Small Unmanned Aircraft as required by 14 C.F.R. Part 107. as applicable, and any other applicable federal or state laws and regulations.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall maintain good order among its employees and its Subcontractors, shall confine its employees and Subcontractors to such work areas, roads and gates as directed by the Owner, take reasonable and necessary precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work, school personnel, students and other persons on the Owner's premises and other persons who may be affected thereby, which protection shall include the installation of fencing between the Work site and the occupied portion of a connecting or adjacent educational facility, and taking reasonable precautions to secure any abusable glue, aerosol paint, or any other chemical substance for inhalation being used on the project site;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

.3 other property at the site or adjacent thereto, such as fences, trees, shrubs, lawns, walks, athletic fields and tracks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction. Contractor's obligations under this Section shall continue to apply during any time period when all or a portion of the Work is suspended for any reason.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

Contractor's obligations under Section 10.2 as to each portion of the Project shall continue until Owner takes possession of and occupies that portion of the Project.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including installing fencing, posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards. The Contractor shall also be responsible, at the Contractor's sole cost and expense, for all measures necessary to protect any property adjacent to the Project and improvements therein. Any damage to such property or improvements shall be promptly repaired by the Contractor. Contractor shall provide reasonable fall protection safeguards and provide approved fall protection safety equipment for use by all exposed Contractor employees.

§ 10.2.4 When use or storage of hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel, and shall only conduct such activities after giving reasonable advance written notice of the presence or use of such materials, equipment or methods to Owner and Architect. The storage of explosives on Owner's property is prohibited. The use of explosive materials on Owner's property is prohibited unless expressly approved in advance in writing by Owner and Architect.

§ 10.2.5 [Paragraph Deleted.]

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

§ 10.2.8.1 If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 3 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter. No provision of the Contract Documents shall waive Owner's immunity under the Texas Tort Claims Act, Texas Civil Practice and Remedies Code, Chapter 101.

§ 10.2.8.2 The Contractor shall promptly report in writing to the Owner and Architect all accidents arising out of or in connection with the Work which cause death, bodily injury, or property damage, giving full details and statements of any witnesses. In addition, if death, serious bodily injuries, or serious property damages are caused, then the accident shall be reported immediately by any means necessary to give actual notice to the Owner's representative and the Architect.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition. If such notice is provided orally, written confirmation of such notice by Contractor shall be provided not later than one (1) business day following such notification. Owner shall not be responsible for materials or substances brought to the site by the Contractor.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall, as soon as reasonably possible, obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. Contractor may be entitled to an extension of the Contract Time in accordance with Article 8.3.

§ 10.3.3 To the extent permitted by the laws and Constitution of the State of Texas, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity. Notwithstanding anything to the contrary contained in this Section 10.3.3, the agreement of the Owner to indemnify, defend and hold harmless the parties described in this Section shall not extend or apply to claims, damages, losses, expenses or liabilities related to, created or caused in whole or in part by a party indemnified hereunder; it being agreed and understood that the Owner and any party so indemnified shall each bear liability for its own negligent acts or omissions, and that such indemnity shall extend only to liability for the negligent acts and omissions of the Owner.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents.

§ 10.3.5 Except to the extent that the cost and expense are due to the Owner's fault or negligence, if Contractor imports hazardous materials onto the Project site, the Contractor shall indemnify and hold harmless the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, (2) where the Contractor fails to perform its obligations under Section 10.3.1; and (3) any fines or penalties of government agencies directly resulting from the Contractor's importation of the hazardous materials onto the Project site.

§ 10.3.6 [Paragraph Deleted.]

§ 10.4 Emergencies

§ 10.4 .1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

§ 10.4.2 The performance of the foregoing services by the Contractor shall not relieve the subcontractors of their responsibility for the safety of persons and property and for compliance with all federal, state and local statutes, rules, regulations and orders of any governmental authority applicable to the conduct of the Work.

§ 10.5 Asbestos Or Asbestos-Containing Materials. Contractor shall submit to the Architect a written certification addressed to the Owner that all materials used in the construction of this Project contain less than 0.10% by weight of asbestos and for which it can be demonstrated that, under reasonably foreseeable job site conditions, will not release asbestos fibers in excess of 0.1 fibers per cubic centimeter. The written certification shall further state that, should asbestos fibers be found at this Project in concentrations greater than 0.1 fibers per cubic centimeter, then Contractor shall be responsible for determining which materials contain asbestos fibers and shall take all necessary corrective action to remove those materials from the Project, at no additional cost to the Owner. The written certification shall be dated, shall reference this specific Project and shall be signed by not less than two (2) officers of the Contractor. Final Payment shall not be made until this written certification has been received.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 10.6 Lead-Free Material In Potable Water System

§ 10.6.1 Prior to payment of retainage and final payment, the Contractor and each subcontractor involved with the potable water system shall furnish a written certification that the potable water system is "lead-free".

§ 10.6.2 The written certification shall further state that should lead be found in the potable water system built under this Project, then Contractor shall be responsible for determining which materials contain lead and shall take all necessary corrective action to remove lead from the Project, at no additional cost to the Owner. The written certification shall be dated, shall reference this specific Project and shall be signed by not less than two (2) officers of the Contractor.

§ 10.7 Hazardous Materials Certification

The Contractor shall provide written certification that no materials used in the Work contain lead or asbestos materials in them in excess of amounts allowed by federal, state or local standards, laws, codes, rules and regulations; the Federal Environmental Protection Agency (EPA) standards; and/or the Federal Occupational Safety and Health Administration (OSHA) standards, whichever is most restrictive. The Contractor shall provide this written certification as part of submittals under the Section in the Project Manual related to Contract Closeout.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance

§ 11.1.1 The Contractor and the Contractor's Subcontractors shall purchase and maintain in force, insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the table below the Agreement or elsewhere in the Contract Documents. No Work will be commenced, and no equipment or materials may be shipped, until all requirements of Article 11 have been satisfied, satisfactory evidence of insurance has been provided, and all required insurance is in full force and effect. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the State of Texas.

Workmen's Compensation: (Including Waiver of Subrogation Endorsement)	All liability arising out of Contractor's employment of workers and anyone for whom Contractor shall be liable for Worker's Compensation claims. Worker's Compensation is required and no "alternative" form of insurance shall be permitted.
Employer's Liability:	$1,000,000.00
Commercial General Liability: Each Occurrence General Aggregate Personal & Advertising Injury Products and Completed Operations	 $1,000,000.00 $2,000,000.00 (A Designated Construction Project General Aggregate Limit shall be provided) $1,000,000.00 each person $1,000,000.00 (for one (1) year, commencing with issuance of final Certificate for Payment)
Property Damage Independent Contractors Contractual Liability	$1,000,000.00 each occurrence $2,000,000.00 aggregate (Same limits as above) (Same limits as above)
Automobile Liability: Bodily Injury/Property Damage	$1,000,000.00 combined single limit $1,000,000.00 each occurrence
Umbrella or Excess Liability	$5,000,000.00 each occurrence/aggregate

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

All Risk Builders Risk against the perils of fire, lightening, windstorm, hurricane, hail, explosion, riot, civil commotion, smoke, aircraft, land vehicles, vandalism, malicious mischief, and all other perils in the amount one hundred percent (100%) of the value of the improvements including transit and materials stored off site. Additionally, this coverage shall provide protection to the full replacement value for boiler and machinery equipment up to installation, during testing, and until acceptance by Owner.

(Paragraph deleted)

§ 11.1.2 The required insurance must be written by a company licensed to do business in Texas at the time the policy is issued. In addition, the company must be acceptable to the Owner.

§ 11.1.3 The General Liability and Automobile policies so issued in the name of Contractor shall also name the Owner as additional insured. The coverage afforded to the additional insured under the policy or policies shall be primary insurance. It is the intent of the parties to this Agreement that the General Liability coverage (and associated Umbrella Coverage) required herein shall be primary to and shall seek no contribution from all insurance available to Owner, with Owner's insurance being excess, secondary and non-contributing. The Commercial General Liability coverage provided by Contractor shall be endorsed to provide such primary and non-contributing liability. If the additional insured has other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis.

§ 11.1.4 If the insurance is written with stipulated amounts deductible under the terms of the policy, the Contractor shall pay the difference attributable to deductions in any payment made by the insurance carrier on claims paid by this insurance. If the Owner is damaged by the failure of the Contractor to maintain such insurance and to so notify the Owner then the Contractor shall bear all reasonable costs properly attributable thereto.

§ 11.1.5 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents. Nothing contained herein shall limit or waive Contractor's legal or contractual responsibilities to Owner or others.

§ 11.1.6 Contractor shall have its insurance carrier(s) furnish to Owner insurance certificates in form satisfactory to Owner specifying the types and amounts of coverage in effect, the expiration dates of each policy, and a statement that no insurance will be canceled or materially changed while the Work is in progress without thirty (30) calendar day's prior written notice to Owner. Contractor shall permit Owner to examine the insurance policies, or at Owner's option, Contractor shall furnish Owner with copies, certified by the carrier(s), of insurance policies required in Section 11.1.1. If Contractor neglects or refuses to provide any insurance required herein, or if any insurance is canceled, Owner may, but shall not be obligated to, procure such insurance and the provisions of Section 11.1.8 hereof shall apply.

§ 11.1.7 Contractor and its Subcontractors shall not commence the shipment of equipment or materials or commence the Work at the site until all of the insurance coverage required of Contractor and its Subcontractors are in force and the necessary certificates and statements pursuant to Section 11.1.6 hereof have been received by Owner and the Architect has issued a written notice to proceed.

§ 11.1.8 As an alternative and at Owner's option and expense, Owner may elect to furnish or to arrange for any part or all of the insurance required by Section 11.1 hereof. If Owner so elects, it shall notify, in writing, Contractor and issue a Change Order therefor, but no adjustment to the scheduled completion date or the Contract Sum shall be allowed.

§ 11.1.9 Workers' Compensation Insurance Coverage.

.1 **Definitions**:

.1.1 **Certificate of coverage ("Certificate")**. A copy of a certificate of insurance, a certificate of authority to self-insure issued by the division, or a coverage agreement (DWC Form-81, DWC Form-82, DWC Form-83, or DWC Form-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on the Project, for the duration of the Project.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

.1.2 **Duration of the Project.** Includes the time from the beginning of the work on the Project until the Contractor's work on the Project has been completed and accepted by the Owner.

.1.3 **Persons providing services on the Project ("subcontractor" in Texas Labor Code §406.096).** Includes all persons or entities performing all or part of the services the Contractor has undertaken to perform on the Project, regardless of whether that person contracts directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a Project. "Services" does not include activities unrelated to the Project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

.2 The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the Contractor providing services on the Project, for the duration of the Project.

.3 The Contractor must provide a certificate of coverage to the Owner prior to being awarded the contract.

.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the Project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the Owner showing that coverage has been extended.

.5 The Contractor shall obtain from each person providing Services on a Project, and provide to the Owner:

.5.1 a certificate of coverage, prior to that person beginning work on the Project, so the Owner will have on file certificates of coverage showing coverage for all persons providing services on the Project; and

.5.2 no later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project.

.6 The Contractor shall retain all required certificates of coverage for the duration of the Project and for one (1) year thereafter.

.7 The Contractor shall notify the Owner in writing by certified mail or personal delivery, within ten (10) days after the Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project.

.8 The Contractor shall post on each Project site a notice, in the text, form and manner prescribed by the Texas Department of Insurance, Division of Workers' Compensation, informing all persons providing services on the Project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

.9 The Contractor shall contractually require each person with whom it contracts to provide services on a Project, to:

.9.1 provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the Project, for the duration of the Project;

.9.2 provide to the Contractor, prior to that person beginning work on the Project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the Project, for the duration of the Project;

.9.3 provide the Contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;

.9.4 obtain from each other person with whom it contracts, and provide to the Contractor:

(a) a certificate of coverage, prior to the other person beginning work on the Project; and

(b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;

.9.5 retain all required certificates of coverage on file for the duration of the Project and for one (1) year thereafter;

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

.9.6 notify the Owner in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project; and

.9.7 contractually require each person with whom it contracts, to perform as required by Subparagraphs .9.1 - .9.7 with the certificates of coverage to be provided to the person for whom they are providing services.

.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the Owner that all employees of the Contractor who will provide services on the Project will be covered by workers' compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the Texas Department of Insurance, Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the Owner to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the Owner. [28 TAC §110.110(c)(7)]

§ 11.1.10 The Owner and Contractor shall waive all rights against (1) each other and the Contractors, Subcontractors, agents and employees each of the other, and (2) the Architect and separate Contractors, if any, and their contractors, Subcontractors, agents and employees, for damages caused by fire or other perils to the extent covered by property insurance applicable to the Work. The foregoing waiver afforded the Architect, his agents and employees shall not extend to the liability imposed by Section 3.18.3. The Owner or the Contractor, as appropriate, shall require of the Architect, separate contractors, contractors and Subcontractors by appropriate agreements, written where legally required for validity, similar waivers, each in favor of all other parties enumerated in this Section 11.1.10.

§ 11.2 Owner's Insurance [Paragraph Deleted.]

(Paragraphs deleted)

§ 11.3 Waivers of Subrogation [Paragraph Deleted.]

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

(Paragraphs deleted)

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Contractor is required, as a condition precedent to the execution of the Contract, to execute a PERFORMANCE BOND in the form required by TEXAS STATUTES, in an amount equal to ONE HUNDRED PERCENT (100%) of the Contract Sum.

§ 11.4.2 The Contractor is required, as a condition precedent to the execution of the Contract, to execute a PAYMENT BOND in the form required by TEXAS STATUTES, in an amount equal to ONE HUNDRED PERCENT (100%) of the Contract Sum as security for payment of all persons performing labor and furnishing materials in connection with this Contract. (Bonding Company is to furnish such forms). All bonds shall name the Owner as additional obligee.

§ 11.4.3 The Payment and Performance Bond shall meet requirements of Chapter 2253 of the Texas Governmental Code. All bonds shall be issued by a surety company licensed, listed and authorized to issue bonds in the State of Texas by the Texas Department of Insurance. The surety company may be required by the Owner to have a rating of

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

not less than "B" in the latest edition of Best's Insurance Reports, Property-Casualty. The surety company shall provide, if requested, information on bonding capacity, other projects under coverage and shall provide proof to establish adequate financial capacity for this Project. Should the bond amount be in excess of ten percent (10%) of the surety company's capital and surplus, the surety company issuing the bond shall certify that the surety company has acquired reinsurance, in a form and amount acceptable to the Owner, to reinsure the portion of the risk that exceeds ten percent (10%) of the surety company's capital and surplus with one or more reinsurers who are duly authorized and admitted to do business in Texas and that amount reinsured by an reinsurer does not exceed ten percent (10%) of the reinsurer's capital and surplus.

§ 11.4.4 The Sureties shall promptly file a signed copy of the Contract, Performance Bond, and Payment Bond with the Owner in full compliance with Chapter 2253 of the Texas Governmental Code or, in the case of a Construction Manager, as required by Section 14.3.3 of the AIA Document A133-2019.

§ 11.4.5 All bonds will be reviewed by the Architect for compliance with the Contract Documents prior to execution of the contract. In the event that the Architect has any questions concerning the sufficiency of the bonds, the bonds will be referred to the Owner or the Owner's representative for review and decision.

§ 11.4.6 All bonds shall be originals. The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the Power-of-Attorney. The name, address, and telephone number of a contact person for the bonding company shall be provided.

§ 11.4.7 Upon the request in writing of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

§ 11.4.8 Bonds shall be signed by an agent resident in the State of Texas and the date of the bond shall be the date of execution of the contract. If at any time during the continuance of the contract, the surety of the Contractor's bonds becomes insufficient, Owner shall have the right to require additional and sufficient sureties which the Contractor shall furnish to the satisfaction of the Owner within ten (10) business days after notice to do so. In default thereof, the Contractor may be suspended, and all payment or money due to the Contractor withheld.

§ 11.4.9 By inclusion of this Section 11.4.8 in the Contract Documents, the surety which issues the bonds is hereby notified that the Owner, the Architect, and their agents and employees do not represent and will not be responsible for the surety's interests during the course of the Work. To protect its interests, the surety shall have the right to attend pay estimate meetings, review Applications for Payment when requested in writing by them, comment upon and make recommendations regarding payments, and inspect the Work in the presence of the Contractor and the Architect. By providing the bonds for the Work, the surety shall and hereby waives any cause of action against the Owner, the Architect, their agents and employees, for any loss suffered by the surety by reason of overpayment of any amounts to the Contractor, unless such is a direct result of a fraudulent or grossly negligent act committed by such party.

§11.5 Adjustment and Settlement of Insured Loss [Paragraph Deleted.]

(Paragraphs deleted)

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered prior to inspection, contrary to the Architect's request or to requirements specifically expressed in the Contract Documents or if any known deficiencies exist, it must, if requested by the Architect, be uncovered by the Contractor for the Architect's examination and be replaced at the Contractor's sole expense without change in the Contract Time. If the uncovered work is determined by the Architect upon inspection to be deficient or not in accordance with the Contract Documents, the uncovered Work which is deficient or not in accordance with the Contract Documents shall be corrected and covered at the Contractor's sole expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense. If the a request inspection of the Work prior to covering or including a requirement for inspection in the Contract Documents is within the Architect's standard of care and the Architect has failed to timely make such request or include the requirement in the Contract Documents, the Architect shall reimburse the Owner for the actual costs of uncovering and recovering such Work and additional costs of correction, if any, caused by covering the Work prior to inspection.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense and will be subject to offset by the Owner at Final Payment.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Owner shall give such notice of the condition to the Contractor with reasonable promptness after discovery of the condition. The Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition in its non-conforming state. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor based on a breach of the warranty contained in this Section 12.2.2.1 providing for correction of Work during the one-year period. If the Contractor fails to correct nonconforming Work within a reasonable time during the period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.2.4 Upon request by the Owner and prior to the expiration of one (1) year from the date of Substantial Completion, the Architect will conduct and the Contractor shall attend a meeting with the Owner to review the facility operations and performance.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.2.6 Contractor shall (i) re-execute any parts of the Work that fail to conform with the requirements of this Agreement that appear during the progress of the Work; (ii) remedy any defects in the Work due to faulty materials or workmanship which appear within a period of one (1) year from Substantial Completion of the Work hereunder, or within such longer period of time as may be set forth in the Drawings and Specifications or other Contract Documents;

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

and (iii) replace, repair, or restore any parts of the Project or furniture, fixtures, equipment, or other items placed therein (whether by Owner or any other party) that are injured or damaged by any such parts of the Work that do not conform to the requirements of the Contract Documents or defects in the Work or by the negligent act of the Contractor or its employees, agents or subcontractors. The cost to Contractor of performing any of its obligations under this Section 12.2.6 to the extent not covered by insurance shall be borne by Contractor.

§ 12.2.7 The provisions of this Section 12.2 apply to Work done by Subcontractors of the Contractor as well as Work done directly by employees of the Contractor. The provisions of this Section 12.2.7 shall not apply to corrective Work attributable solely to the acts or omissions of any separate Contractor of Owner (unless Contractor is acting in such capacities). The cost to Contractor of performing any of its obligations under this Section 12.2.7 to the extent not covered by insurance shall be borne by Contractor.

§ 12.2.8 If, however, Owner and Contractor deem it inexpedient to require the correction of Work damaged or not done in accordance with the Contract Documents, an equitable deduction from the Contract Sum shall be made by written agreement between Contractor and Owner. Until such settlement, Owner may withhold such sums as Owner deems just and reasonable from moneys, if any, due Contractor. The settlement shall not be unreasonably delayed by the Owner and the amount of money withheld shall be based on estimated actual cost to the Owner of the correction.

§ 12.2.9 Contractor's express warranties set out in this Article 12 shall be in addition to, and not in lieu of, any other warranties or remedies Owner may have under the Contract Documents, at law, or in equity for defective Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the laws of the State of Texas without regard to choice-of-law rules of any jurisdiction. The Contract is deemed performable entirely in the County in which the Project is located. Any litigation to enforce or interpret any terms of the Contract, or any other litigation arising out of or as a result of the Contract, shall be brought in the State courts of said County. No provision of this Agreement shall waive any immunity or defense.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract in whole or in part without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender or other entity providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.2.3 The invalidity of any part or provision of the Contract Documents shall not impair or affect in any manner whatsoever the validity, enforceability, or effect of the remainder of the Contact Documents.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made at appropriate times as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities having jurisdiction. Except for tests, inspections and approvals required to be provided by the Contractor in the Contract Documents, the Owner will contract for, independently of the Contractor, the inspection services, the testing of construction materials engineering, and the verification testing services necessary for the acceptance of the Work by the Owner. The Contractor shall give timely notice to the persons or entities selected by the Owner of the need for such services. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense. Architect, Owner and Contractor shall cooperate for the timely scheduling of such tests and inspections.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including but not limited to those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Undisputed payments due and unpaid under the Contract Documents shall bear interest in accordance with the Texas Prompt Payment Act, Texas Gov't Code Chapter 2251. Any such payment shall be deemed overdue on the thirty-first (31st) day after Owner receives the Contractor's Certificate for Payment from the Architect, if Owner's Board of Trustees meets more than once per month. Any such payment shall be deemed overdue on the forty-sixth (46th) day after Owner receives the Contractor's Certificate for Payment from the Architect, if Owner's Board of Trustees meets once a month or less frequently. No interest shall be due on sums properly retained by Owner, except as provided by law, or on disputed sums unpaid by Owner.

§ 13.6 Equal Opportunity In Employment

§ 13.6.1 The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, age, disability, sex, national origin, or any class otherwise protected by District policy or law. The Contractor agrees to post in conspicuous places, available to employees and applicants, notices setting forth the Contractor's nondiscrimination policies.

§ 13.6.2 The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, age, disability, sex, national origin, or any class otherwise protected by District policy or law.

§ 13.7 Contractors Records

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 13.7.1 Contractor agrees to furnish Owner such information as may be available in Contractor's files and records for the Project for the purpose of aiding Owner in establishing a depreciation schedule for the Project or such portions thereof as Owner may determine.

§ 13.7.2 Contractor shall at all times through the date of Final Completion, maintain Job Records, including, but not limited to, invoices, payment records, payroll record, daily reports, diaries, logs, instructions, drawings, receipts, contracts, purchase orders, vouchers, memoranda, other financial data and job meeting minutes applicable to the Project, in a manner which maintains the integrity of the documents. Job Records must be retained by Contractor for at least twelve (12) years after the date of Final Completion of the Project. Within ten (10) days of Owner's request, Contractor shall make such Job Records available for inspection, copying and auditing by the Owner, Architect or their respective representatives, at Owner's central office or the principal offices of the Contractor, at the sole option of the Owner.

§ 13.7.3 For all Change Orders, Allowances and expenditures from Contingency Funds, Contractor shall also maintain, in accordance with the provisions of Section 13.9.1, the following: contract files, including proposals of successful and unsuccessful bidders, bid recaps and contractor payments; original estimates; estimating Work sheets; general ledger entries detail cash and trade discounts received; insurance rebates and dividends; and any other supporting evidence deemed necessary by the Owner to substantiate charges related to the Contract.

§ 13.7.4 Contractor shall keep a full and detailed financial accounting system and shall exercise such controls as may be necessary for proper financial management under this Contract; the accounting and control system shall be satisfactory to the Owner and shall be subject to the provisions of Section 13.7.1.

§ 13.7.5 Contractor shall keep all Construction Documents related to the Project, provided, however, Contractor shall not destroy said documents until Contractor has confirmed with Owner in writing that Owner has obtained a copy of all as-built drawings.

§ 13.7.6 In the event that an audit by the Owner reveals any errors/overpayments by the Owner, then the Contractor shall refund to the Owner the full amount of such overpayment within thirty (30) days of such audit findings, or the Owner, as its option, reserves the right to deduct such amounts owed to the Owner from any payments due to the Contractor.

§ 13.8 No Third-Party Beneficiaries

There are no third-party beneficiaries to this agreement.

§ 13.9 Proprietary Interests And Confidential Information

§ 13.9.1 Neither Architect nor Contractor shall use the image or likeness of Owner's Project or Owner's official logo or emblem and any other trademark, service mark, or copyrighted or otherwise protected information of Owner, without Owner's prior written consent. Contractor and Architect shall not have any authority to advertise or claim that Owner endorses Architect or Contractor's services, without Owner's prior written consent.

§ 13.9.2 Neither Architect nor Contractor shall disclose any confidential information of Owner which comes into the possession of Architect or Contractor at any time during the Project, including but not limited to: pending real estate purchases, exchange, lease, or value; information related to litigation; detailed layouts of the Owner's Facilities; the location and deployment of security devices; security access codes; student likenesses; student record information; employee information; or any other information deemed confidential by law.

§ 13.9.3 The parties acknowledge that, as a public entity in the State of Texas, Owner is subject to, and must comply with, the provisions of the Texas Public Information Act, Texas Government Code Section 552.001, *et seq.*, and the Texas Open Meetings Act, Texas Government Code, Section 551.001, *et seq.*

§ 13.10 The invalidity of any part or provision of the Contract Documents shall not impair or affect in any manner whatsoever the validity, enforceability or effect of the remainder of the Contract Documents.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 If the Work is stopped for a period of thirty (30) consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor for any of the reasons set forth below, the Contractor may terminate the Contract upon twenty (20) days written notice to Owner and Architect if the Work is not allowed to commence within such period. The sole grounds for termination under this Subsection 14.1.1 are as follows:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;

.3 Because the Owner has not made payment of undisputed sums due on an approved Certificate for Payment within the time stated in the Contract Documents; or

.4 [Subsection Deleted.]

§ 14.1.2 If through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less, the Contractor may terminate the Contract so long as Contractor has provided Owner and Architect with written notice of its intent to terminate in the event of additional delays of not less than twenty (20) days and has furnished written notice of termination to Owner and Architect no less than seven (7) days prior to the effective date of termination.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment in an amount which would have been recoverable had the termination been for the Owner's convenience.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon ten (10) additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 fails to proceed continuously and diligently with the construction and completion of the Work; except as permitted under the Contract Documents; .5 fails to furnish the Owner, upon written request, with assurances satisfactory to the Owner, evidencing the Contractor's ability to complete the Work in compliance with all the requirements of the Contract Documents;

.6 engages in or permits serious or repeated worker misconduct in violation of Article 3.3;

.7 engages in conduct that would constitute a violation of state or federal criminal law, including but not limited to, the laws prohibiting certain gifts to public servants, or engages in conduct that would constitute a violation of the Owner's ethics or conflict of interest policies; or

.8 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, subject to any prior rights of the surety, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient.

In any such event, title to the Work and any products thereof, whether completed or partially completed, as well as all materials prepared, procured or set aside by the Contractor for use in the Work, shall vest in the Owner at the Owner's option, and the Owner may enter the Contractor's premises and remove the same therefrom. No election hereunder shall be construed as a waiver of any rights or remedies of the Owner with regard to any breach of the Contract Documents.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished. Any further payment shall be limited to amounts actually earned to the date of termination.

§ 14.2.4 If the costs of finishing the Work, including compensation for the Architects' services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, exceed the unpaid balance of the Contract Sum or Guaranteed Maximum Price (if the Project is a Construction Manager at Risk project), then the Contractor and/or its Surety shall pay the difference to the Owner. The amount to be paid to the Owner shall be certified by Architect upon application. The obligation for payment shall survive termination of the Contract.

§ 14.2.5 The parties hereby agree that: 1) if an order for relief is entered on behalf of the Contractor, pursuant to Chapter 11 of the U.S. Bankruptcy Code; 2) if any other similar order is entered under any debtor relief laws; 3) if Contractor makes an assignment for the benefit of one or more of its creditors; 4) if a receiver is appointed for the benefit of its creditors; or 5) if a receiver is appointed on account of its insolvency, any such event could impair or frustrate Contractor's performance of the Contract Documents. Accordingly, it is agreed that upon occurrence of any such event, Owner shall be entitled to request of Contractor or its successor in interest adequate assurance of future performance in accordance with the terms and conditions of the Contract Documents. Failure to comply with such request within ten (10) days of delivery of the request shall entitle Owner to terminate the Contract and to the accompanying rights set forth in Subparagraphs 14.2.1 through 14.2.6. In all events, pending receipt of adequate assurance of performance and actual performance in accordance with the Contract Documents, Owner shall be entitled to proceed with the Work with Owner's own forces or with other Contractors on a time and material or other appropriate basis, the cost of which will be charged against the Contract Sum.

§ 14.2.6 As required by Texas Government Code Chapter 2253, if a Performance Bond has been furnished and the Contractor is declared by the Owner to be in default under the Contract, then the Surety shall promptly perform the Work, in full accordance with the plans, specifications and Contract Documents. Unless otherwise agreed in writing between the Surety and the Owner, the Surety shall complete the Work by the Surety entering into a Contract acceptable to Owner, with a Contractor acceptable to Owner, and shall obtain new Payment and Performance Bonds as required by law.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time may be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. Furthermore, if this Contract is a multi-year contract funded through Owner's current general funds that are not bond funds, then the Owner's Board of Trustees has the right to not appropriate adequate monies for the next fiscal year and to terminate this Contract at the end of each fiscal year during the term of the Contract, without the Owner incurring any further liability to Contractor as a result of such termination.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed, for profit only on that portion of the Work executed, and reasonable costs of demobilization.

§ 14.4.4 Upon determination by a Court of competent jurisdiction that termination of the Contractor pursuant to Section 14.2 was wrongful, such termination will be deemed converted to a termination for convenience pursuant to Section 14.4, and Contractor's remedy for wrongful termination shall be limited to the recovery of the payments permitted for termination for convenience as set forth in this Section 14.4.3.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims [Paragraph Deleted.]

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by the Contractor, shall be initiated by notice to the Owner and to the Architect, Claims under this Section 15.1.3.1 shall be initiated within 21 calendar days after the occurrence of the event giving rise to such Claim or within 21 calendar days after the claimant first knew or should have known of the condition giving rise to the Claim, whichever is earlier. If the full impact cannot be assessed as of the date of the Notice, then Notice shall be provided and amended by a second notice at the earliest date that is reasonably possible, but in no event later than the date of Contractor's Application for Payment covering the period in which the impact can be assessed and quantified.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required. If Texas Government Code, Chapter 2272 is applicable to the Claim, the Owner shall comply with the requirements set out therein as a condition precedent to any initiation of any litigation.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make undisputed payments for Work performed in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum (or Guaranteed Maximum Price, as applicable), if permitted, and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of the Contractor to proceed in accordance with this Article 15.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum (provided such a claim is specifically permitted by the Contract Documents), notice as provided in Section 15.1.3 shall be given to the Owner and Architect. before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4. The Architect will promptly investigate such Claim and report findings and a recommended resolution in writing to the Owner and Contractor. If the Claim is approved by Owner, then Contractor shall proceed with the execution of the Work that is the subject matter of the Claim. If the Claim is rejected by the Owner, then Contractor may pursue alternative dispute resolution as provided for in the Contract Documents.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No. 3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.**§ 15.1.6.2** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions occurred at the locality of the Work which were abnormal for the period of time, were in excess of that normally experienced at the job site, could not have been reasonably anticipated, and prevented the execution of Work on scheduled Working Days. The term "Adverse Weather Conditions" as used herein means unusually severe weather which is beyond the normal weather recorded and expected for the locality of the Work and/or the season or seasons of the year. Normal weather conditions shall be determined based upon information compiled from the Local Climatological Data maintained by NOAA's National Centers for Environmental Information [formerly the National Climatic Data Center (NCDC)] from the station closest to the location of the Work. No day will be counted as a rain-day when substantial Contractor forces are able to perform Work on the Project for more than fifty percent (50%) of the usual workday or when the stage of the Work on the Project is not adversely impacted. The Contractor shall bear the entire economic risk of all weather delays and disruptions, and shall not be entitled to any increase in the Contract Price by reason of such delays or disruptions. Requests for an extension of the Contract Time pursuant to this Subparagraph shall be submitted to the Architect not later than the fifteenth (15th) day of the month following the month during which the delays or disruptions occurred, but shall be applied only to the extent that Substantial Completion of the Project exceeds the Substantial Completion date established for the Work. As provided herein, Contractor shall only be entitled an extension of the Contract Time per the terms of the Contract Documents and no damages shall be paid for delays.

(Paragraphs deleted)

§ 15.1.7 Calculating Claims For Damages

Except as otherwise provided in this Agreement, in calculating the amount of any Claim recoverable by the Contractor, the following standards will apply:

.1 No indirect or consequential damages will be allowed.

.2 No recovery shall be based on a comparison of planned expenditures to total actual expenditures, or on estimated loss of labor efficiency, or on a comparison of planned manloading to actual manloading, or any other analysis that is used to show damages indirectly.

.3 Damages are limited to extra costs specifically shown to have been directly caused by a proven wrong.

.4 No damages will be allowed for home office overhead or other home office changes or any Eichlay formula calculation.

Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents, nor will this Section 15.1.7 be deemed to apply to delay damages, which are prohibited entirely.

§ 15.2 Initial Decision

§ 15.2.1 Claims by the Contractor against the Owner, including those alleging an error or omission by the Architect but excluding those arising under Section 10.3, shall be referred initially to the Architect for consideration and recommendation to the Owner. An initial recommendation by the Architect shall be required as a condition precedent to mediation of any Claim, after the Claim has been referred to the Architect with no recommendation having been rendered by the Architect.

§ 15.2.2 The Architect will review Claims and within ten (10) days of receipt of the Claim take one or more of the following actions: (1) request additional supporting data from the Contractor; (2) issue an initial recommendation; (3) suggest a compromise; or (4) advise the parties that the Architect is unable to issue an initial recommendation due to a lack of sufficient information or conflict of interest.

§ 15.2.3 Following receipt of the Architect's initial recommendation regarding a claim, the Owner and Contractor shall attempt to reach agreement as to any adjustment to the Contract Price and/or Contract Time. If no agreement can be reached either party may request mediation of the dispute pursuant to Article 15.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished.

§ 15.2.5 [Paragraph Deleted.]

§ 15.2.6 [Paragraph Deleted.]

§ 15.2.6.1 [Paragraph Deleted.]

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 Waiver Of Lien
It is distinctly understood that by virtue of this Contract, no mechanic, contractor, materialman, artisan, or laborer, whether skilled or unskilled, shall ever in any manner have, claim, or acquire any lien upon the building, or any of the improvements of whatever nature or kind so erected or to be erected by virtue of this Contract nor upon any of the land upon which said building or any of the improvements are so erected, built, or situated.

§ 15.3 Mediation
§ 15.3.1 In the event that the Owner or the Contractor shall contend that the other has committed a material breach of this Agreement, the party alleging such breach shall, as a condition precedent to filing any lawsuit, request mediation of the dispute. Mediation shall be subject to and in accordance with Chapter 154 of the Texas Civil Practice & Remedies Code. Mediation shall be conducted by a mutually-agreed-upon mediator qualified as an impartial third party for purposes of Section 154.052 of the Texas Civil Practice & Remedies Code.

§ 15.3.2 Request for mediation shall be in writing, and shall request that the mediation commence not less than thirty (30) or more than ninety (90) days following the date of the request, except upon agreement of both parties.

§ 15.3.3 In the event the Owner and the Contractor are unable to agree to a date for the mediation or to the identity of the mediator or mediators within thirty (30) days following the date of the request for mediation, all conditions precedent in this article shall be deemed to have occurred.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.3.5 Nothing herein shall preclude the Owner or the Contractor or as applicable, the Construction Manager from requesting that the Architect or one or more subcontractors be joined as parties to the mediation, to the extent allowed by their respective contracts.

§ 15.3.6 Any claim not resolved in mediation pursuant to Section 15.3 shall be subject to litigation as the sole method of dispute resolution.

§ 15.3.7 Unless otherwise agreed in writing by the Owner in the Owner's sole discretion, the Contractor may not bring a legal action against the Owner unless:

- **.1** the Contractor has given written notice to the Owner of the Claim, dispute, or other mattergiving rise to the legal action within ninety-one (91) days after the date of the start of the event giving rise to the Contractor's Claim, dispute or other matter, and
- **.2** the legal action is brought within two (2) years and one (1) day after the date of the start of the event giving rise to Contractor's Claim, dispute or other matter.

§ 15.4 Arbitration. This Section 15.4 and all subparts are intentionally deleted. No dispute arising under the Contract Documents, these General Conditions or the underlying Contract shall be subject under any circumstances to Arbitration as the method of binding dispute resolution and Owner rejects any selection otherwise made by the parties.

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 15.5 Immunity

Contractor stipulates that Owner is a political subdivision of the State of Texas and, as such, may enjoy immunities from suit and liability under the Constitution and laws of the State of Texas. By entering into this Agreement, Owner does not waive any of its immunities from suit and/or liability, except as otherwise specifically provided herein and as specifically provided by law.

Executed on this the ____ day of _____, 2022.

SAN MARCOS CONSOLIDATED INDEPENDENT SCHOOL DISTRICT		**DRAFT FOR PROCUREMENT**
OWNER *(Signature)*		**CONTRACTOR** *(Signature)*
Dr. Michael Cardona, Superintendent		
(Printed name and title)		*(Printed name and title)*

(Paragraphs deleted)

DRAFT

AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

Additions and Deletions Report for

AIA® Document A201® – 2017

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to ~~or deleted~~ from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 14:22:37 ET on 08/25/2022.

PAGE 1

(Name and location or address)

Administration Building Project

...

1331 Texas Hwy 123
San Marcos, Texas 78666

...

(Name, legal status and address)

San Marcos Consolidated Independent School District
631 Mill Street
San Marcos, Texas 78666
Phone: 512.393.6700
Fax: 512.393.6787

...

(Name, legal status and address)

Stantec Architecture Inc.
1905 Aldrich Street, Suite 300
Austin, Texas 78723

THE CONTRACTOR

DRAFT FOR PROCUREMENT _____, a _____ of the State of _____
[Address]
[Address continued]
Phone: _____
E-mail: _____

DRAFT

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

PAGE 2

NOTE: Any reference hereinafter this one, to an AIA™ Document or any AIA Documents included in the Contract Documents shall refer to such document "as modified for this Project". In addition, any reference to AIA Documents shall all be considered to have included the Trademark "™" after the AIA reference, whether or not included in the text. The AIA Documents are registered intellectual property of the American Institute of Architects and use and amendment of such forms is permitted under license granted to Walsh Gallegos Trevino Kyle & Robinson, P.C. for this Project. No use may be made of this AIA document other than as Contract Documents for this Project.

PAGE 10

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, Project Manual and the Bid or Proposal Documents prepared and submitted by the Owner and the Contractor's Bid or Proposal submitted by the Contractor, to the extent they do not conflict with the terms of this Agreement, and other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements. The Contract Documents identified in this Section shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic operations. In the absence of individual signatures by Owner and Contractor, the Contract Documents identified in the signed contract prevail.

...

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. ~~The Contract may~~ After execution of the Original Contract Documents, the Contract may thereafter be amended or modified only by a written Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

PAGE 11

§ 1.1.9 The terms "bids" or "bidding" shall include any kind of competitive purchasing under the Texas Education Code Chapter 44 and Texas Government Code Chapter 2269.

§ 1.1.10 Miscellaneous Other Words

§ 1.1.10.1 Business Day

The term "business day" is a day the Owner's Administration Building is scheduled to be open for normal business purposes, unless closed by the Owner's Superintendent of Schools for inclement weather or other reason. Days on which the Administration Building is normally closed are Thanksgiving Break, Winter Break, Spring Break, and Summer Break, as well as other federal, state or local days specified in the calendar approved by the Owner's Board of Trustees on an annual basis. A business day does not include a day on which the Owner's Administration Building is open only for the purposes of conducting candidate filing, early voting, elections, or special events.

§ 1.1.10.2 Calendar Day

A calendar day is a day on the Gregorian calendar. The Contact Time is established in calendar days. Extensions of time granted, if any, will be converted to calendar days.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 1.1.10.3 Holidays
Owner approved holidays for Contractor's Work are limited to New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

§ 1.1.10.4 Work Day
Work days include all calendar days except Holidays, Saturdays and Sundays.

...

§ 1.2.1.2 During the course of the Work, should any conflict be found in or between the Contract Documents, the Contractor shall be deemed to have included in the cost of the Work the greater quantity or better quality, or the most stringent requirements, unless Contractor shall have obtained, before the submission of Contractor's Proposal, an interpretation in writing from the Architect as to what shall govern. The Architect, in case of such conflict, may interpret or construe the document so as to obtain the most substantial and complete performance of the Work consistent with the Contract Documents and reasonably inferable therefrom, in the best interests of Owner, and the Architect's interpretation shall be final. The terms and conditions of this clause shall not relieve any party of any other obligation under the Contract Documents.

...

§ 1.2.4 Precedence Of The Contract Documents
The most recently issued Document takes precedence over previous issues of the same Document. The order of precedence is as follows with the highest authority listed as "1".

.1 Contract Modifications signed by Contractor and Owner.
.2 Addenda, with those of later date having precedence over those of earlier date.
.3 General Conditions - AIA Document A201-2017, as modified by the Owner for the Project.
.4 Specifications and Drawings.
.5 Agreement – AIA Document A101-2017, as modified by the Owner for the Project.
.6 Bid/Proposal Documents including the Project Manual, Contractor's Bid or Proposal Documents (to the extent such Bid or Proposal submitted by the Contractor is part of the Contract Documents and is not inconsistent with other portions of the Contract Documents)

§ 1.2.5 Relation Of Specifications And Drawings
Specifications and Drawings are to be equivalent in authority and priority. Should they disagree in themselves, or with each other, prices shall be based on the better quality and greater quantity of Work indicated. In the event of the above-mentioned disagreements, the resolution shall be determined by the Architect.

§ 1.2.5.1 Drawings and Specifications are to be equivalent in authority and priority. Should they disagree in themselves, or with each other, prices shall be based on the better quality and greater quantity of Work indicated. In the event of the above-mentioned disagreements, the resolution shall be determined by the Architect.

§ 1.2.5.2 Where, in the Drawings and Specifications, certain products, manufacturer's trade names, or catalog numbers are given, it is done for the express purpose of establishing a standard of function, dimension, appearance, and quality of design, in harmony with the Work, and is not intended for the purpose of limiting competition. Materials or equipment shall not be substituted unless such substitution has been specifically accepted for use on this Project by the Architect.

§ 1.2.5.3 When the Work is governed by reference to standards, building codes, manufacturer's instructions, or other documents, unless otherwise specified, the current edition as of the Agreement date shall apply.

§ 1.2.5.4 Requirements of public authorities apply as minimum requirements only and do not supersedem ore stringent specified requirements.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

Terms capitalized in these General Conditions include those that ~~are~~ are: (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.
PAGE 12

In the interest of ~~brevity~~ brevity, the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

...

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered (whether actually received or not) when deposited with the United States Postal Service, postage prepaid, certified mail, return receipt requested, and addressed to the intended recipient at the address shown in this Agreement. Notice may also be given in person, by mail, by courier, or by electronic transmission if a method for electronic transmission ~~is set forth in the Agreement.~~ (e-mail or facsimile) or other commercially reasonable means and will under any of these circumstances, be effective when actually received. Any address for notice may be changed by written notice delivered as provided in this Section 1.6.
PAGE 13

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data ~~Exhibit,~~ Exhibit or such other form agreed to by the parties, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance
~~**Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.**~~ [Paragraph Deleted.]

...

§ 2.1.1 The Owner is the ~~person or entity identified as such in the Agreement~~ Board of Trustees of the San Marcos Consolidated Independent School District and is referred to throughout the Contract Documents as if singular in number. The Owner ~~shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization.~~ may designate in writing one or more persons to represent the Owner; however, such representatives shall have the authority to bind the Owner only to the extent expressly authorized by the Owner and shall have no implied authority. Except as otherwise provided in Section 4.2.1, the Architect does not have ~~such authority.~~ the authority to bind the Owner. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner ~~shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.~~ may engage a third-party consultant to represent the Owner. The Owner will notify the Contractor of the identity of such consultant.

§ 2.1.3 The Contractor acknowledges that no lien rights exist with respect to public property.

...

§ 2.2.1 ~~**Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations**~~

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

~~under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.~~Pursuant to the requirements of Texas Business and Commerce Code section 56.054(e)(3), the Owner represents that funds are available and have been authorized for the full contract amount of the Work.

§ 2.2.2 ~~Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.~~[Paragraph Deleted.]

§ 2.2.3 ~~After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.~~[Paragraph Deleted.]

§ 2.2.4 ~~Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.~~[Paragraph Deleted.]

...

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor ~~to whom the Contractor has no reasonable objection and~~ whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner ~~shall~~ may furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the ~~site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.~~site, but shall have no duty to do so. Notwithstanding the foregoing, if the Owner provides such survey, the Contractor shall remain responsible to independently investigate the physical characteristics, legal limitations, and utility locations for the Project site. In the event that the Contractor damages any utilities during construction, the Contractor shall immediately repair the same at its sole cost and expense.

§ 2.3.5 ~~The Owner shall furnish information~~ Information or services required of the Owner by the Contract Documents ~~with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.~~shall be furnished by the Owner within a reasonable time following actual receipt of a written request.

§ 2.3.6 ~~Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.~~ The Contractor, Owner and Architect shall agree on an appropriate quantity of drawings and specifications to be printed and distributed for bidding purposes. The drawings shall be provided by the Architect and paid for by the Owner.

§ 2.3.7 Owner's personnel or consultant may, but are not required to be present at the construction site during progress of the Work to assist the Architect in the performance of his duties, and to verify the Contractor's record of the number

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

of workmen employed on the Work, their occupational classification, the time each is engaged in the Work, and the equipment used in the performance of the Work for purpose of verification of Contractor's Applications for Payment.

§ 2.3.8 The Owner (either directly or by contract with the Architect) may furnish tests, inspections, and reports, required by law and as otherwise agreed to by the parties, such as structural, mechanical, and chemical tests, tests for air and water pollution, and tests for hazardous materials.

§ 2.3.9 The Owner, (directly or by contract with the Architect), when such services are required, in the professional opinion of the Architect, shall furnish services of geotechnical engineers, which may include t_st borings, test pits, determinations of soil bearing values, percolation tests, evaluations of hazardous materials, seismic evaluation, ground corrosion tests and resistivity tests, including necessary operations for anticipating subsoil conditions, with written reports and appropriate recommendations.

PAGE 14

If the Contractor fails to correct Work that is defective or not in accordance with the requirements of the Contract Documents as required by ~~Section 12.2 or repeatedly~~ Section 12.2, fails to timely carry out Work in accordance with the Contract ~~Documents,~~ Documents or is in default of any of its material obligations hereunder, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person ~~or entity, except to the extent required by Section 6.1.3.~~entity.. This right shall be in addition to, and not in restriction of, the Owner's right under Section 12.2.

...

~~If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.~~§ 2.5.1 If the Contractor is in default in any of its material obligations hereunder, negl cts to timely carry out the Work in accordance with the Contract Documents, or fails to correct nonconforming or defective Work as required by Section 12.2, and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or such non-conforming or defective Work with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or such non-conforming or defective Work at the sole cost of the Contractor. The Architect may, pursuant to Section 9.5.1, withhold or nullify the Contractor's Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such default or such non-conforming or defective Work, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure to correct such non-conforming or defective Work. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

§ 2.5.2 Nothing contained in this Section 2.5 is intended to limit or modify any obligations under the law or under the Contract Documents, including any warranty obligations, expressed or implied.

...

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be authorized to do business in the state of Texas and lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative, or in the case of a Construction Manager-at-Risk, the Construction Manager-at-Risk, or its authorized representative.

§ 3.1.2 The Contractor shall perform the Work in a good and workmanlike manner and accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Owner or Owner's consultants, if applicable, conducted in accordance with the Contract Documents or activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.
PAGE 15

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents. The Contractor and each Subcontractor shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed, including without limitation: (1) the location, condition, layout and nature of the Project site and surrounding areas, (2) generally prevailing climatic conditions, (3) anticipated labor supply and costs, (4) availability and cost of materials, tools and equipment, and (5) other similar issues. The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any improvements located on the Project site, or for price escalations in the marketplace. The Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or Contract Time in connection with any failure by the Contractor or any Subcontractor to comply with the requirements of this Section.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents. Contractor shall not perform any Work it knows involves an error, inconsistency, or omission without further instructions to Contractor or revised Construction Documents from the Architect. The exactness of grades, elevations, dimensions, or locations given on any Drawings issued by the Architect, or the Work installed by other contractors, is not guaranteed by the Architect or the Owner. The Contractor shall, therefore, satisfy itself as to the accuracy of all grades, elevations, dimensions, and locations. In all cases of interconnection of its Work with existing or other Work, it shall verify at the site all dimensions relating to such existing or other Work. Any errors due to the Contractor's failure to so verify all such grades, elevations, dimensions, or locations shall be promptly rectified by the Contractor without any additional cost to the Owner.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require. If the Contractor has knowledge that any of the products or systems specified will perform in a manner that will limit the Contractor's ability to satisfactorily perform the Work or honor its warranty, or will result in a limitation of or interference with the Owner's intended use, then the Contractor shall promptly notify the Architect and Owner, in writing providing substantiation for its position.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article ~~15.~~ 15; however, nothing in this section shall provide the Contractor with an affirmative claim for damages for delay by Owner or Architect, as such a claim is prohibited under this Contract. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.5 Notwithstanding the delivery of a survey or other documents by the Owner, Contractor shall use reasonable efforts to perform all Work in such a manner so as to avoid damaging any utility lines, cables, pipes, or pipelines on the property. Contractor shall be responsible for, and shall repair at Contractor's own expense, any damage done to lines, cables, pipes, and pipelines identified to Contractor.

§ 3.2.6 The Owner and Contractor agree that the Contract Documents may not be free from errors, inconsistencies, or omissions and further a ree that the Owner makes no warran as to the com leteness or acc ac of the Contract Documents, either express or implied. Execution of the Contract by the Contractor is a representation that the Contractor has thoroughly reviewed and become familiar with the Contract Documents and that the Contractor is not aware of any errors, inconsistencies or omissions in the Contract Documents which would delay the Contractor in the performance of the Contract Work. The Contractor shall not be entitled to any damages or increase in the Contract Amount due to delays or disruptions to the Work. This limitation on damages is further subject to the limitations set forth in Section 15.1.7.

§ 3.2.7 The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for the Architect to evaluate and respond to the Contractor's request for information, where such information was available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner provided information, Contractor prepared coordination drawings, or prior Project correspondence or documentation.

§ 3.2.8 The Contractor shall use the AIA Document G716-2004 "REQUEST FOR INFORMATION" (RFI) form unless otherwise provided in the Contract Documents. The Contractor shall keep a log of all RFI's submitted and number the RFI's consecutively beginning with the number 1.

PAGE 16

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall assign a Superintendent who shall make decisions on behalf of the Contractor and its subcontractors. The Superintendent shall be on the Project, in this capacity, at all times while Work on the Project is in progress. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect, and shall propose ~~alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its~~ alternative means, methods, techniques, sequences, or procedures.

...

§ 3.3.4 Contractor shall bear responsibility for design and execution of acceptable trenching and shoring procedures, in accordance with Texas Government Code, Section 2166.303 and Texas Health and Safety Code, chapter C, Sections 756.021, *et seq.*, and shall require any applicable subcontractor to comply all such procedures. Trench excavation safety protection shall be a separate pay item, and shall be based on linear feet of trench excavated. Special shoring requirements shall also be a separate pay item, and shall be based on the square feet of shoring used.

§ 3.3.5 It is understood and agreed that the relationship of Contractor to Owner shall be that of an independent Contractor. Nothing contained herein or inferable herefrom shall be deemed or construed to (1) make Contractor the agent, servant, or employee of the Owner, or (2) create any partnership, joint venture, or other association between Owner and Contractor. Any direction or instruction by Owner in respect of the Work shall relate to the results the Owner desires to obtain from the Work, and shall in no way affect Contractor's independent contractor status as described herein.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 3.3.6 The Contractor shall review contractor safety programs, procedures, and precautions in connection with performance of the Work. However, the Contractor's duties shall not relieve any Subcontractor(s) or any other person or entity (e.g. a supplier) including any person or entity with whom the Contractor does not have a contractual relationship, of their responsibility or liability relative to compliance with all applicable federal, state and local laws, rules, regulations, and ordinances which shall include the obligation to provide for the safety of their employees, persons, and property and their requirements to maintain a work environment free of recognized hazards. The foregoing notwithstanding, the requirements of this Section are not intended to impose upon the Contractor any additional obligations that the Contractor would not have under any applicable state or federal laws including, but not limited to, any rules, regulations, or statutes pertaining to the Occupational Safety and Health Administration.

§ 3.3.7 Contractor acknowledges that the Work may be performed in connection with an educational facility which is currently occupied and in use. It is imperative that Contractor's operations and the performance of the Work not interfere with, interrupt, disturb, or disrupt Owner's normal operations or facilities. Contractor agrees to and shall comply with all rules, regulations and requirements of the Owner and the school campus on which the Work is to be performed, and shall take all steps necessary to protect and guard the safety of the employees, students and invitees of Owner. Contractor shall exercise the utmost skill and judgment to ensure that continuing construction activity will not interfere with the use, occupancy and quiet enjoyment of facilities in use on the site. Contractor recognizes that the ongoing activities in proximity with its construction activities shall result in the need for prompt and effective coordination of its services with those involved in the ongoing utilization of the premises. Such coordination and adequate site access shall be the responsibility of Contractor. Contractor understands and accepts the difficulties and costs associated with working in an existing facility and the potential delays and disruptions in its Work and has included such items in the Contract Time and the Contract Sum. The Contractor shall perform all the Work in such a manner as to cause minimum interference with the operations of the Owner and other contractors and Subcontractors on the site, and shall take, and cause the Contractor's and its Subcontractor's employees, agents, licensees and permittees to take all necessary precautions to protect the Work and the site and all persons and property thereon from damage or injury.

§ 3.3.8 Representatives of the Owner, Contractor, and Architect shall meet periodically at mutually agreed upon intervals, for the purpose of establishing procedures to facilitate cooperation, communication, and timely responses among the participants. By participating in this arrangement, the parties do not intend to create additional contractual obligations or modify the legal relationships which may otherwise exist.

§ 3.3.9 The Contractor shall pay fees for public or private water, gas, electrical and other utility service at the site until Substantial Completion of the Work. In the event that the Work will be conducted at an Owner site, where utility services are existing on site and reasonably accessible to the Contractor, the Owner may elect, in writing, to provide and pay for utility service for the Project site. Agreement to pay for such utility service shall not absolve the Contractor from using utilities judiciously in connection with its performance of the Work. In all cases, the Contractor shall secure and arrange for all necessary utility connections.

§ 3.3.10 The Owner may require that the Contractor use and/or respond to certain Owner-furnished forms or inquiries during the course of the Project. From time to time, there may be future revisions, changes, additions or deletions to these forms. The fact that the Owner modifies and increases reasonable reporting requirements shall not serve as the basis for a claim for additional time or compensation by the Contractor.

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for qualified, careful, and efficient workers and labor, eligible to work in accordance with state and federal law. Contractor shall appropriately classify all workers in accordance with the Fair Labor Standards Act, its implementing regulations, and Texas Labor Code Section 214.008. In addition, unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. Before ordering any material or doing any Work, Contractor shall verify all dimensions and check all conditions in order to assure Contractor that they are the same as those in the Drawings, Specifications, and other Construction Documents. Any inconsistency shall be brought to the attention of the Architect. In the event that discrepancies occur between ordered material and actual conditions and Architect was not notified beforehand, then costs to correct such discrepancies shall be borne by Contractor. In accordance with Texas Government Code §2269.054, these Contract Documents shall not be construed to deny or diminish the right of any person to work because of the person's membership or other

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

relationship status with respect to any organization. In accordance with Texas Government Code §2269.0541, these Contract Documents shall also not prohibit, require, discourage or encourage a person, or discriminate against a person bidding on this contract from entering into or declining to enter into, or adhering to, an agreement with a collective bargaining organization relating to this Project.

~~§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.~~

§ 3.4.2 Prevailing Wages

§ 3.4.2.1 The Project is subject to the Texas Government Code, Chapter 2258, Prevailing Wage Rates. This statute requires the Contractor and any Subcontractor to pay not less than the prevailing rates of per diem wages in the locality at the time of construction to all laborers, workmen, and mechanics employed by them in the execution of the contract.

§ 3.4.2.2 In accordance therewith, the Owner has established a scale of prevailing wages which is incorporated in the Project specifications and not less than this established scale must be paid on the Project. Any workers not included in the schedule shall be properly classified and paid not less than the rate of wages prevailing in the locality of the Work at the time of construction.

§ 3.4.2.3 A Contractor or Subcontractor who violates the provisions of Sections 3.4.1.1 or 3.4.1.2 shall pay to Owner the sum of Sixty Dollars and No/100 ($60.00) for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rate stipulated in the scale of prevailing wages applicable to this Project, as required by Texas Government Code Section 2258.023(b).

§ 3.4.3 ~~The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.~~ Substitutions

~~§ 3.4.3.1~~ If the Contract Documents (including the Instructions to Proposers and /or Offerors) specifically permit the submission by Contractor of requests for substitutions, Contractor may, within thirty (30) days after the Contract has been executed, make written request for the substitution of products in place of those specified in the Contract Documents to the Owner and the Architect. Any request for substitution shall be submitted to the Architect in writing, with appropriate shop drawings, product data, and certified test results substantiating the proposed product equivalence as required by this Section 3.4.3.1 and Section 3.4.3.2 and will be rejected if not so submitted.

§ 3.4.3.2 The Contractor must submit to the Architect and the Owner (i) a full explanation of the proposed substitution and submittal of all supporting data, including technical information, catalog cuts, warranties, test results, installation instructions, operating procedures, and other information necessary for a complete evaluation of the substitution; (ii) a written explanation of the reasons the substitution is necessary, including the benefits to the Owner and the Work in the event the substitution is acceptable; (iii) the adjustment, if any, in the Contract Sum; (iv) the adjustment, if any, in the time of completion of the Contract and any modifications to the construction schedule; and (v) an affidavit stating that (a) the proposed substitution confirms to and meets all the requirements of the pertinent Specifications and the requirements shown on the Drawings, (b) the Contractor accepts the warranty and correction obligations in connection with the proposed substitution as if originally specified by the Architect; (c) the cost breakdown presented with Contractor's request is complete and includes all related costs, except for the Architect's redesign costs, if any, and waives all claims for additional costs related to the substitution which subsequently become apparent;(d) that the Contractor will coordinate and supervise the installation of the proposed substitute, making such changes as may be required for the Work to be complete in all respects; and (e) the Contractor will reimburse the Owner and for review or redesign services associated with any re-approval by applicable governmental authorities related to the substitution.

§ 3.4.3.3 By making requests for substitutions pursuant to Section 3.4.3 (and all subsections), the Contractor represents and certifies that: (1) Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to the product specified; (2) Contractor will provide the same warranty for the substitution product that the Contractor would have provided for the product specified; (3) the cost breakdown presented with the request is complete and includes all related costs, except for the Architect's redesign costs, if any, and waives all claims for additional costs related to the substitution which subsequently become apparent; (4) Contractor will coordinate and supervise the installation of the proposed substitute, making such changes as may be

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

required for the Work to be complete in all respects; and (5) will reimburse Owner and Architect for review or redesign services associated with any re-approval by applicable governmental authorities related to the substitution.

§ 3.4.3.4 Owner and the Architect may accept or reject any such request for substitution in their sole discretion, based on cost, time, or other considerations. Requests for substitutions submitted after such thirty (30) day period will not be considered unless a product becomes impossible to obtain due to circumstances beyond the Contractor's control.

§ 3.4.3.5 Regardless of acceptance or rejection of substitution, the Contractor shall be responsible for amounts paid by the Owner to the Architect, to evaluate the Contractor's proposed substitutions and any amounts paid to the Architect to make agreed upon changes in the Specifications and Drawings made necessary by the Owner's acceptance of such substitutions. The Owner shall be entitled to deduct such amounts from the Contract Sum.

§ 3.4.4 Responsibility for Subcontractors

§ 3.4.4.1 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them. Contractor, its subcontractors and vendors shall bear responsibility for compliance with all federal, state and local laws, regulations, guidelines, and ordinances pertaining to worker safety and applicable to the Work. Contractor further recognizes that the Owner and Architect do not owe the Contractor any duty to supervise or direct his work so as to protect the Contractor from the consequences of his own conduct. THE CONTRACTOR RELEASES, INDEMNIFIES AND HOLDS HARMLESS THE OWNER FOR CONTRACTOR'S FORCES; NON-COMPLIANCE WITH OWNER'S DRUG-FREE, ALCOHOL-FREE, WEAPON-FREE, HARASSMENT-FREE, AND TOBACCO-FREE ZONES; CONTRACTOR'S FORCES NON-COMPLIANCE WITH CRIMINAL LAW; OR CONTRACTOR'S OR CONTRACTOR'S FORCES NON-COMPLIANCE WITH IMMIGRATION LAW OR REGULATIONS. Any individual found by Owner to have violated these restrictions is subject to permanent removal from the Project, at Owner's request. Contractor shall place similar language in its subcontract agreements, requiring its Subcontractors and Sub-subcontractors to be responsible for their own forces and Contractor shall cooperate with the Owner to ensure Subcontractor and Sub-subcontractor compliance.

§ 3.4.4.2 The Contractor shall only employ or use labor in connection with the Work capable of working harmoniously with all trades, crafts, and any other individuals associated with the Project. The Contractor shall be responsible for the actions of Contractor's forces, Subcontractor's forces and all tiers of Sub-subcontractor's forces. The Contractor recognizes that the Work may be performed in connection with an operational educational facility or the Project site may be adjacent to a public-school campus. It is imperative that Contractor's operations and the performance of the Work not interfere with, interrupt, disturb or disrupt Owner's normal operations or facilities. Contractor shall exercise the utmost skill and judgment to ensure that continuing construction activity will not interfere with the use, occupancy and quiet enjoyment of facilities in use on the site. Contractor recognizes that the ongoing activities in proximity with its construction activities shall result in the need for prompt and effective coordination of its services with those involved in the ongoing utilization of the premises. Such coordination and adequate site access shall be the responsibility of Contractor. Contractor understands and accepts the difficulties and costs associated with working at or near an operational campus and the potential delays and disruptions in its Work and has included such items in the Contract Time and the Contract Sum.

§ 3.4.5 Criminal History Records Checks

§ 3.4.5.1 Unless otherwise exempt from providing such information by any provision in Texas Education Code, Section 22.08341 (the "Statute"), the Contractor agrees, that prior to commencement of work under this Agreement, using the form promulgated by the Owner or such other form approved by the Owner, Contractor will arrange with the Owner to obtain any national criminal history record information ("CHRI") required pursuant to Texas Education Code, Section 22.08341 (the "Statute") on all of Contractor's employees, independent contractors, agents, or Subcontractors, Contractor's Subcontractors of every tier ("Subcontractors"), Subcontractors' employees, independent contractors, agents, or sub-subcontractors, if any of these persons is a "Covered Employee" as defined by the Statute, i.e. the person has or will have continuing duties related to the contracted for services, and said person has or will have the opportunity for direct contact with students in connection with those continuing duties and shall reimburse the Owner for the costs and expenses associated with obtaining the criminal history information. For purposes of this Section 15.3 a person does not have the opportunity for direct contact with students if:

.1 the public work does not involve the construction, alteration, or repair of an improvement to real property, or a necessary fixture of an improvement to real property that is used predominantly for teaching the curriculum required by the Texas Education Code ("Instructional Facility);

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

.2 for a public work that involves construction of a new Instructional Facility, the person's duties related to the contracted services will be completed not later than the seventh (7th) day before the first date the facility will be used for instructional purposes; or

.3 for a public work that involves an existing Instructional Facility:

(a) the public work area contains sanitary facilities and is separated from all areas used by students by a secure barrier fence that is not less than six feet in height; and

(b) the Contractor adopts a policy prohibiting employees, including subcontractor entity employees, from interacting with students or entering areas used by students, informs employees of the policy, and enforces the policy at the public work area.

§ 3.4.5.3 Any Covered Employee that has during the preceding thirty (30) years, been convicted of one of the following offenses, if at the time of the offense the victim was under eighteen (18) or enrolled in a public school: (a) a felony offense under Title 5, Texas Penal Code; (b) an offense for which a defendant is required to register as a sex offender under Chapter 62, Texas Code of Criminal Procedure; or (c) an equivalent offense to (a) or (b) under federal law or the laws of another state ("Disqualifying Criminal History") shall be disqualified and prohibited from performing any contract duties or services and neither the Contractor nor its Subcontractor may permit such person to provide services at an instructional facility. If a Covered Employee is determined by the Owner's review of the CHRI to have a Disqualifying Criminal History, Contractor will exclude that person from assignment to the Project. Contractor understands that it will not have access to the results of such criminal history records check, based on statewide regulations beyond the control of the Owner, and agrees to rely solely on the judgment of the Owner as to whether the Covered Employee must be excluded from the Project.

§ 3.4.5.4 Prior to commencement of its work on the Project the Contractor will provide written certification to the Owner that either: (1) Contractor and its Subcontractors of every tier, do not have any Covered Employees, as defined; (2) are otherwise exempt from compliance with the Statute; or (3) has complied with the statutory and contractual requirements stated in this Section 15.3 and 15.4 of this Agreement as of that date, and that it:

.1 has requested a Criminal History Records Check through the District on all Covered Employees, if any, of every tier, has provided the required information to the District to do so and reimbursed the District for same;

.2 has obtained written certification from its independent contractors, and Subcontractors (of any tier) that they have provided the required information to the Contractor, necessary to secure the information from the District and reimbursed the Contractor for same; and

.3 have excluded any Covered Employee reported by the District to have a Disqualifying Criminal History from assignment to the Project.

Further, Contractor agrees that if it receives information that a Covered Employee is arrested or convicted for any of the Disqualifying Criminal History offenses, during the performance of the Work, Contractor will immediately remove the Covered Employee from District's property or other location where students are regularly present, and notify the District of said removal within three (3) days of doing so. Contractor understands that any failure to comply with the requirements of this section may be grounds for termination of this Agreement, in accordance with Article VI, Termination.

PAGE 20

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. The Contractor further warrants that Contractor shall perform the Work in a good and workmanlike manner, continuously and diligently in accordance with all applicable codes, generally accepted standards of construction practice for construction of projects similar to the Project. All materials shall be installed in a true and straight alignment, level and plumb; patterns shall be uniform; and jointing of materials shall be flush and level, unless otherwise directed in writing by the Architect. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. No acceptance or payment by the Owner shall constitute a waiver of the foregoing and nothing herein shall exclude or limit any warranties implied by law. The warranties provided in this Section 3.5.1 are in addition to , and

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

not in limitation of, any other warranties, remedies and/or guaranties set out in the Contract Documents or under applicable law.
PAGE 21

§ 3.5.3 Contractor acknowledges that the Project may involve construction work on more than one (1) building for the Owner. In such case, each building, or approved phase of each building, may have its own, separate, and independent date of Substantial Completion (or, for Work to be completed or corrected after the date of Substantial Completion, the Warranty Commencement Date). Contractor shall maintain a complete and accurate schedule of the date(s) of Substantial Completion, the date(s) of Final Completion, and the dates upon which the warranties under granted in the Contract Documents will expire, on each phase or building and will provide a copy of such Schedule to the Owner, as required in Subsection 3.5.6, as a condition precedent to Final Payment.

§ 3.5.4 When deemed necessary by the Owner and prior to installation of any item specifically made subject to a performance standard or regulatory agency standard under any provision of the Contract Documents, Contractor shall furnish proof of conformance to the Architect. Proof of conformance shall be in the form of an affidavit from the manufacturer certifying that the item is in conformance with the applicable standards; an affidavit from a testing laboratory certifying that the product has been tested within the past year and is in conformance with the applicable standards; or such further reasonable proof as is required by the Architect.

§ 3.5.5 The Contractor agrees to assign to the Owner at the time of Final Completion of the Work any and all manufacturer's warranties relating to equipment, machinery, materials, equipment or components and labor incorporated into the Work and further agrees to perform the Work in such manner so as to preserve any and all such manufacturer's warranties. Contractor shall take no action or fail to act in any way which results in the termination or expiration of such third-party warranties or which otherwise results in prejudice to the rights of Owner under such warranties. Contractor agrees to provide all notices required for the effectiveness of such warranties and shall include provisions in the contracts with the providers and manufacturers of such systems and equipment whereby Owner shall have a direct right, but not a duty, of enforcement of such warranty obligations. The warranties provided in this Section 3.5 or otherwise provided in the Contract Documents or by law, shall in no way limit or abridge the warranties provided by the suppliers of equipment and systems which are to comprise a portion of the Work. A complete set of all warranties required from contractors, manufacturers, or suppliers as appropriate, on the manufacturer's or supplier's approved forms, executed by Contractor as required, with a Warranty Commencement Date noted as required, and in the form required by Subparagraph 3.5.6 shall be submitted to the Architect for delivery to the Owner, as a condition precedent to Final Payment.

§ 3.5.6 Prior to receipt of Final Payment, Contractor shall: (1) obtain duplicate original warranties, executed by all subcontractors, and the warranties of suppliers and manufacturers, noting the Warranty Commencement Date on the face of each; (2) verify that the documents are in proper form and contain full information; (3) Co-sign warranties when required; (4) bind all warranties in commercial quality 8-1/2 X 11 inch three-ring binder, with hardback, cleanable, plastic covers; (5) label the cover of each binder with a typed or printed title labeled "WARRANTIES", along with the Title of the Project; name, address and telephone number of Contractor; and name of its responsible principal; (6) include a Table of Contents, with each item identified by the number and title of the specification section under which the product is specified; (7) include the Schedule of Warranty Commencement Dates required by Subparagraph 3.5.3; (8) separate each warranty with index tab sheets keyed to the Table of Contents listing; and (8) deliver warranties in the form described in this Subparagraph 3.5.6, to the Architect for review same prior to submission to the Owner.

The Contractor shall ~~pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.~~not include in the Contract Price or any Modification any amount for sales, use, or sil ilar taxes for which (1) a Texas independent school district is exempt, and (2) the Owner has provided the Contractor with a tax exemption certificate or other documentation necessary to establish the Owner's exemption from such taxes. **CONTRACTOR HEREBY RELEASES, INDEMNIFIES, AND HOLDS HARMLESS OWNER FROM ANY AND ALL CLAIMS AND DEMA DS MADE AS A RESULT OF THE FAILURE OF CONTRACTOR OR ANY SUBCONTRACTOR TO COMPLY WITH THE PROVISIONS OF ANY OR ALL SUCH LAWS AND REGULATIONS.**
PAGE 22

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17

execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time ~~bids are received or negotiations concluded.~~ proposals are received or negotiations concluded. The Owner shall be responsible for payment of TDLR Texas Accessibility submissions and inspection costs.

§ 3.7.2 ~~The~~ In performing its obligations hereunder, the Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the ~~Work.~~ Work and upon request by the Owner or Architect shall furnish evidence, satisfactory to the Owner, of such compliance.

§ 3.7.3 If the Contractor performs Work ~~knowing~~ when Contractor knows or reasonably should have known it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, the Contract Documents, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction. **THE CONTRACTOR AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE OWNER, ITS TRUSTEES, OFFICERS, REPRESENTATIVES, AGENTS AND EMPLOYEES FROM AND AGAINST ALL THIRD-PARTY CLAIMS, FINES, PENALTIES, OR LIABILITIES FROM, ARISING OUT OF, OR BASED UPON CONTRACTOR'S VIOLATION OF ANY LAWS, ORDINANCES, RULES, REGULATIONS, ORDERS OR DECREES.**

~~**§ 3.7.4 Concealed or Unknown Conditions**~~

~~If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.~~

§ 3.7.4 Claims for Concealed or Unknown Conditions

Contractor acknowledges that there may exist at the Project site certain soil and geological conditions and/or surface physical conditions which are not disclosed in the Contract Documents, and which have been known to or may be reasonably anticipated to occur in the area or be related to any past use of the Project site, including, without limitation, the presence of rock and its hardness, geologic formations, differing soils, and surface structures, equipment or other impediments, either natural or man-made (collectively, "Subsurface Conditions"). Owner makes no representations or warranties regarding Subsurface Conditions at the Project site, or of the accuracy or continuity of conditions which may be noted in any reports furnished or made available to Contractor. Contractor covenants and agrees that any such reports are furnished or made available by Owner to Contractor for information purposes only, and Contractor acknowledges that Owner is not responsible for the content thereof. Contractor shall be responsible for inspecting the site and determining the existence or likelihood of any Subsurface Conditions which may affect the Contract Time or the Contract Sum, or both. The Contract Time and the Contract Sum contained herein (as proposed by Contractor), or GMP as applicable, shall be deemed to include all costs of and sufficient time to complete all Work associated with or attributable to Subsurface Conditions, and Contractor shall not be entitled to submit a claim for or to obtain an extension of the Contract Time or increase in the Contract Sum due to the existence of Subsurface Conditions. Except as provided above with respect to Subsurface Conditions, if the Contractor encounters conditions at the site that are subsurface or otherwise concealed physical conditions which were not known to the Contractor, and that differ materially from those indicated in the Contract Documents the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed, and in no event later than three (3) days after first observance of the conditions and report its findings to the Owner and Architect.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract ~~Sum and Contract~~ Time arising from the existence of such remains or features may be made as provided in Article 15. In accordance with the terms of this Agreement, there will be no adjustment to the Contract Sum for delay arising out or related to the circumstances described in this Section 3.7.5.

§ 3.7.6 The Contractor shall also obtain all permits and approvals, and pay all fees and expenses, if any, associated with National Pollutant Discharge Elimination System (NPDES) regulations administered by the Environmental Protection Agency (EPA) and local authorities, if applicable, that require completion of documentation and/or acquisition of a "Land Disturbing Activities Permit" for the Project. Contractor's obligations under this Section do not require it to perform engineering services during the pre-construction phase to prepare proper drainage for the construction sites. However, any drainage alterations made by Contractor during the construction process which require the issuance of a permit shall be at Contractor's sole cost.

§ 3.7.7 The Contractor shall certify in writing that no materials used in the Work contain lead or asbestos materials in them in excess of amounts allowed by Local/State standards, laws, codes, rules and regulations; the Federal Environmental Protection Agency (EPA) standards and/or the Federal Occupational Safety and Health Administration (OSHA) standards, whichever is most restrictive. The Contractor shall provide this written certification as part of submittals under the Section in the Instruments of Service related to Contract Closeout.

PAGE 23

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner ~~with reasonable promptness.~~ within such time as is reasonably specified by the Contractor as necessary to avoid delay in the Work.

§ 3.8.4 When performing Work under Allowances, where reasonably possible, Contractor shall solicit and receive no fewer than three (3) written proposals and shall provide the Work on the basis of the best value for the Owner, as directed by the Architect following Owner's written approval of the cost proposal.

...

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. The Contractor shall not replace the Superintendent prior to Final Completion of the Work unless (1) the Superintendent shall cease to be employed by the Contractor or its subsidiaries or affiliated companies, or (2) the Owner agrees to such replacement. The Superintendent may not be employed on any other project prior to Final Completion of the Work. From Substantial Completion to Final Completion, the Superintendent shall be on-site as necessary to ensure that Final Completion occurs within thirty (30) days of Substantial Completion.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall ~~notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.~~ furnish a list to the Architect a list of all engineers, consultants, job-site superintendents, subcontractors and suppliers involved in construction. The Architect shall provide such information to the Owner. The Owner shall have the right, at any time, to require a change in any engineer, consultant, job-site superintendent, subcontractor or supplier if their performance is deemed unsatisfactory in its sole discretion.

§ 3.9.3 The Contractor shall ~~not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.~~ provide an adequate staff for the proper coordination and expedition of the Work. Owner reserves the right to require Contractor to dismiss from the Work any employee or employees that Owner may deem incompetent, careless, insubordinate, or in violation of any provision in these Contract Documents. This provision is applicable to Subcontractors, Sub-subcontractors and their employees.

§ 3.9.4 Owner shall be notified as soon as Contractor becomes aware, but in no event fewer than twenty-four (24) hours before the time of that the Superintendent is required to be present at the site, that the Superintendent will not be

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

present at the site for any reason, except illness. If the reason is due to illness, then Owner shall be notified as soon as the Contractor obtains the information, but in no event later than the beginning of the day that the Superintendent will be absent from the site. In such event of such absence, the Contractor will designate a person as acting superintendent and Contractor promptly notify the Owner of the identity and contact information for the designated acting superintendent.

PAGE 24

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the ~~Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.~~ Work, utilizing critical path method scheduling techniques. The Schedule shall not exceed the time limits set forth in the Contract Documents. The Schedule shall thereafter be updated on a monthly basis and submitted with each Application For Payment. The receipt of an updated schedule with each Application For Payment shall be a condition precedent to the Owner's duty to make any payment pursuant to Article 9.6. The schedule shall not interfere with the operation of Owner's existing facilities and operations without Owner's prior written approval.

§ 3.10.1.1 Each Schedule shall: (1) break the work into a sufficient number of activities to facilitate the efficient use of critical path method scheduling by the Contractor, Owner, and Architect and shall assign each scheduled activity a cost value consistent with the Schedule of Values so as to allow the Owner and Contractor to project cash flow for the Project; (2) include activates representing manufacturing, fabrication, or ordering lead time for materials, equipment or other items for which the Architect is required to review submittals, shop drawings, product data, or samples; (3) with the exception of the initial schedule, shall indicate the activities, or portions thereof, which have been completed; (4) shall reflect the actual time for completion of such activities, and shall reflect any changes to the sequence or planned duration of all activities.

§ 3.10.1.2 If any updated Schedule exceeds the time limits set forth in the Contract Documents for completion of the Work, the Contractor shall include with the updated Schedule, a statement of the reasons for the anticipated delay in completion of the Work and the Contractor's planned course of action for completing the Work within the time limits set forth in the Contract Documents. If the Contractor asserts that the failure of the Owner or the Architect to provide information to the Contractor is the reason for anticipated delay in completion, the Contractor shall also specify what information is required from the Owner or Architect and documentation of the date such information was requested.

§ 3.10.1.3 Neither the Owner or the Contractor shall have exclusive ownership of float time in the schedule, and all float time shall inure to the benefit of the Project. The Contractor agrees to use its best efforts not to sequence the Work or assign activity durations so as to produce a schedule in which more than one-fourth of the remaining activities have no float time.

§ 3.10.1.4 Upon review and acceptance by the Owner and the Architect of the Milestone Dates, the construction schedule shall be deemed part of the Contract Documents. If not accepted, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and the Architect and resubmitted for acceptance. Submission of any schedule under this Contract constitutes a representation by the Contractor that: (1) the schedule represents the sequence in which the Contractor intends to prosecute the remaining Work; (2) the schedule represents the actual sequence and durations used to prosecute the completed Work; (3) that to the best of its knowledge and belief the Contractor is able to complete the remaining Work in the sequence and time indicated; and, (4) that the Contractor intends to complete the remaining Work in the sequence and time indicated.

§ 3.10.1.5 The Contractor shall recommend to the Owner and to the Architect a schedule for procurement of long-lead time items which will constitute part of the Work as required to meet the Project schedule. If such long-lead time items are procured by the Owner, they shall be procured on terms and conditions as recommended by the Contractor. Upon the Owner's acceptance of the Contractor's Stipulated Sum proposal or Guaranteed Maximum Price, as applicable, all contracts previously entered into by Owner shall be assigned by Owner to the Contractor who shall accept responsibility for such contracts as if it had initially entered into such contracts. Contractor shall expedite the delivery of long-lead time items. The Contractor shall receive and protect all Owner supplied material.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 3.10.1.6 The Contractor shall monitor the progress of the Work for conformance with the requirements of the construction schedule and shall promptly advise the Owner of any delays or potential delays. The accepted construction schedule shall be updated to reflect actual conditions.

PAGE 25

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and ~~Architect.~~Architect and shall attend progress meetings at the Project Site, in such frequency as are acceptable to the Owner. Progress of the work shall be reported at said meetings with reference to Contractor's construction schedule.

§ 3.10.4 The Contractor shall submit to the Architect with each monthly application for payment a copy of the progress schedule showing all modifications required, and shall take whatever corrective action is necessary to assure that the project completion schedule is met at no additional cost to Owner, except as allowed herein.

§ 3.10.4 Correction of Delay.

§ 3.10.4.1 In the event any progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary. In no event shall any progress report constitute an adjustment in the Contract Time, or any Milestone Date unless any such adjustment is submitted by the Contractor as a Claim in compliance with Article 15 or the adjustment is otherwise agreed to in a written confirmation from the Owner and documented by written Change Order.

§ 3.10.4.2 If at any time the Owner determines that the performance of the Work has not progressed or reached the level of completion required by the Contract Documents, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite the progress of construction, including, without limitations, (i) working additional shifts of overtime, (ii) supplying additional manpower, equipment and facilities, and (iii) other similar measures (hereinafter referred to collectively as "Extraordinary Measures"). Such Extraordinary Measures shall continue until the progress of the Work complies with the stage of completion required by the Contract Documents. The Owner's right to require Extraordinary Measures is solely for the purpose of ensuring the Contractor's compliance with the construction schedule. The Contractor shall not be entitled to an adjustment in the Contract Sum in connection with Extraordinary Measures required by the Owner under or pursuant to this Subparagraph 3.10.4. The Owner may exercise the rights furnished the Owner under or pursuant to this Subparagraph 3.10.4 as frequently as the Owner deems necessary to ensure that the Contractor's performance of the Work will comply with any Milestone Date or completion date set forth in the Contract Documents.

§ 3.10.4.3 In the event Contractor determines that the Scheduled Completion Date cannot be met by resequencing the Work, then Contractor shall immediately provide to the Owner, and in any event within seven (7) days after the date of receipt of any request by Owner for resequencing or acceleration, a plan to complete the Work in the shortest possible time. No approval by the Owner of any plan for resequencing or acceleration of the Work submitted by Contractor pursuant to this paragraph shall constitute a waiver by Owner of any damages or losses which Owner may suffer by reason of such resequencing or the failure of Contractor to meet the Scheduled Completion Date.

...

The Contractor shall maintain and make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, field test records (including environmental inspection and test records), inspection certificates or records, manufacturers' certificates. The Documents to be maintained shall be kept in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and ~~Owner,~~ Owner or their respective representatives, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

PAGE 26

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the ~~information given and the design concept expressed in the~~ Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

...

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. Specific dimensions, quantities, installation and performance of equipment and systems in compliance with the Construction Documents and the Contract Documents remain the Contractor's responsibility.

...

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the ~~Architect~~ Architect, in writing, of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

...

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall ~~be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall~~ cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Contractor represents and warrants that all shop drawings shall be prepared by persons and entities possessing expertise and experience in the trade for which the shop drawings are prepared and, if required by the Architect or applicable law, by a licensed engineer The Owner and the Architect shall be entitled to rely upon the ~~adequacy~~ adequacy, completeness and accuracy of the services, certifications, and approvals performed or provided by such design ~~professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10,~~ professionals. Pursuant to this Section 3.12.10.1, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. A registered architect must prepare plans and specifications for all the Work, as governed by the Texas Occupations Code Chapter 1051; and a registered engineer must prepare plans, specifications and estimates for all Work governed by Texas Occupations Code Chapter 1001. In the event that Contractor retains a licensed design professional under the terms of this paragraph, Contractor shall require that the licensed design professional carry commercial general liability and errors and omissions insurance coverage in the same amounts and forms as required of the Architect on this Project. In the event that the licensed design professional retained by the Contractor will be conducting on-site services or observations, the licensed design professional shall also carry worker's compensation insurance and comprehensive automobile liability in the same amounts and forms as required of the Architect on this Project.

PAGE 27

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 3.12.10.3 The Architect's review of Contractor's submittals will be limited to one examination of an initial submittal and one (1) examination of a resubmittal. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for evaluation of such additional resubmittals.

~~The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.~~ § 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. The Contractor shall so conduct its operations as not to unreasonably interfere with traffic on public thoroughfares adjacent or near to the Project site.

§ 3.13.2 Only materials and equipment which are to be used directly in the Work shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it shall be promptly removed from the Project site. Protection of construction material and equipment stored at the Project site from weather, theft, damage and all other adversity is solely the responsibility of the Contractor.

§ 3.13.3 Without prior approval of the Owner, the Contractor shall not permit any workers to use any of Owner's existing facilities at or adjacent to the Project site, including, without limitation, lavatories, toilets, entrance and parking areas other than those designated by the Owner. The Contractor shall comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project site and District's Buildings.

...

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together ~~properly.~~ properly, provided, however, that any such cutting, fitting or patching can only be performed if the cutting, fitting or patching results in Work that is in accordance with the Contract Documents. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

...

§ 3.15.1 The Contractor ~~shall~~ shall, on a daily basis, keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. Contractor shall provide on-site containers for the collection of waste materials, debris and rubbish, and shall periodically remove waste materials, debris and rubbish from the Work and dispose of all such materials at legal disposal areas away from the site. All cleaning operations shall be scheduled so as to ensure that contaminants resulting from the cleaning process will not fall on newly-coated or newly-painted surfaces. Immediately after unpacking materials, all packing case lumber or other packing materials, wrapping or other like flammable waste shall be collected and removed from the building and premises. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project. Prior to the Architect's inspection for Substantial Completion, the Contractor shall clean exterior and interior surfaces exposed to view; remove temporary labels, stains, putty, soil, paint and foreign substances from all surfaces, including glass and painted surfaces; polish transparent and glossy surfaces; clean equipment and fixtures to a sanitary condition; replace air filters in mechanical equipment; clean roofs, gutters, and downspouts; remove obstructions and flush debris from drainage systems; clean site; sweep paved areas and rake clean other surfaces; remove trash and surplus materials from the site; clean and polish all floors; clean and polish all hardware; and repair all Work damaged during cleaning and replace any damaged or broken glass.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor. Such reimbursement amounts may be deducted from Contractor's Final Payment Application.

PAGE 28

The Contractor shall provide the ~~Owner and Architect~~ Owner, Architect and their designated representatives, with access to the Work in preparation and progress wherever located. The presence of the Owner, Architect or their

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

representatives does not constitute acceptance or approval of the Work. Upon request of the Architect or Owner, the Contractor shall accompany the Architect or Owner on an inspection of the Work.

...

~~The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.~~THE CONTRACTOR SHALL PAY ALL ROYALTIES AND LICENSE FEES. TO THE FULLEST EXTENT PERMITTED BY LAW, THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER, THE OWNER'S TRUSTEES, OFFICERS, AGENTS AND EMPLOYEES DEFEND AGAINST ANY AND ALL SUITS, CLAIMS, LAWSUITS, JUDGMENTS, COSTS, LIENS, LOSSES, EXPENSES, FEES (INCLUDING REASONABLE ATTORNEY'S FEES, AS PERMITTED BY STATUTE), PROCEEDINGS, ACTIONS, DEMANDS, CAUSES OF ACTION, LIABILITY FOR INFRINGEMENT OF COPYRIGHTS AND PATENT RIGHTS ALLEGED TO HAVE RESULTED FROM CONTRACTOR'S INFRINGEMENT, AND SHALL INDEMNIFY AND HOLD THE OWNER THE OWNER'S TRUSTEES, OFFICERS, AGENTS AND EMPLOYEES HARMLESS FROM LOSS ON ACCOUNT THEREOF, INCLUDING ATTORNEY'S FEES (AS PERMITTED BY STATUTE), BUT SHALL NOT BE RESPONSIBLE FOR DEFENSE OR LOSS WHEN A PARTICULAR DESIGN, PROCESS, OR PRODUCT OF A PARTICULAR MANUFACTURER OR MANUFACTURERS IS REQUIRED BY THE CONTRACT DOCUMENTS, OR WHERE THE COPYRIGHT VIOLATIONS ARE CONTAINED IN DRAWINGS, SPECIFICATIONS, OR OTHER DOCUMENTS PROVIDED BY THE OWNER OR PREPARED BY THE ARCHITECT. HOWEVER, IF AN INFRINGEMENT OF A COPYRIGHT OR PATENT ATTRIBUTABLE TO THE OWNER OR ARCHITECT, IS DISCOVERED BY, OR MADE KNOWN TO, THE CONTRACTOR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOSS UNLESS THE INFORMATION IS PROMPTLY FURNISHED TO THE OWNER AND THE ARCHITECT.

...

§ 3.18.1 ~~To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.~~TO THE FULLEST EXTENT PERMITTED BY LAW, THE CONTRACTOR SHALL INDEMNIFY, DEFEND (EXCEPT AS LIMITED BELOW) AND HOLD HARMLESS THE OWNER, THE OWNER'S TRUSTEES, OFFICERS, AGENTS AND EMPLOYEES (HEREINAFTER IN THIS SECTION 3.18 "OWNER"), FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, (INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNEY'S FEES, AS PERMITTED BY STATUTE), ARISING OUT OF OR RESULTING FROM PERFORMANCE OF THE WORK, PROVIDED THAT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF), INCLUDING THE LOSS OF USE RESULTING THEREFROM, CAUSED IN WHOLE OR IN PART BY THE WILLFUL, INTENTIONAL OR NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THE CONTRACTOR, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS CAUSED IN PART BY THE OWNER. IF THE OWNER'S NEGLIGENCE IS A CONCURRENT CAUSE OF THE INJURY, DEATH, OR DAMAGE, CONTRACTOR'S OBLIGATION TO INDEMNIFY IS LIMITED TO THE AMOUNT NECESSARY TO CAUSE THE RELATIVE LIABILITY OF OWNER AND CONTRACTOR TO REFLECT THE COMPARATIVE NEGLIGENCE FINDINGS OF THE TRIER OF FACT

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

(JUDGE OR JURY) OR AS AGREED IN A SETTLEMENT AGREEMENT TO WHICH OWNER AND CONTRACTOR ARE BOTH PARTIES. SUCH OBLIGATION SHALL NOT BE CONSTRUED TO NEGATE, ABRIDGE, OR REDUCE OTHER RIGHTS OR OBLIGATIONS OF INDEMNITY THAT WOULD OTHERWISE EXIST AS TO A PARTY OR PERSON DESCRIBED IN THIS SECTION 3.18.

§ 3.18.2 ~~In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.~~IN CLAIMS AGAINST ANY PERSON OR ENTITY INDEMNIFIED UNDER THIS SECTION 3.18 BY AN EMPLOYEE OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THEM, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, THE INDEMNIFICATION OBLIGATION UNDER SECTION 3.18.1 SHALL NOT BE LIMITED BY A LIMITATION ON AMOUNT OR TYPE OF DAMAGES, COMPENSATION, OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR A SUBCONTRACTOR UNDER INSURANCE POLICIES, WORKERS' COMPENSATION ACTS, DISABILITY BENEFIT ACTS, OR OTHER EMPLOYEE BENEFIT ACTS.

§ 3.18.3 THE OBLIGATIONS OF THE CONTRACTOR UNDER THIS SECTION 3.18 SHALL NOT EXTEND TO THE LIABILITY OF THE ARCHITECT, THE ARCHITECT'S CONSULTANTS, AND AGENTS AND EMPLOYEES OF ANY OF THEM, CAUSED BY OR RESULTING FROM: (1) DEFECTS IN PLANS, DESIGNS, OR SPECIFICATIONS PREPARED, APPROVED, OR USED BY THE ARCHITECT OR ENGINEER; OR (2) NEGLIGENCE OF THE ARCHITECT OR ENGINEER IN THE RENDITION OR CONDUCT OF PROFESSIONAL DUTIES CALLED FOR OR ARISING OUT OF THE CONSTRUCTION CONTRACT AND THE PLANS, DESIGNS, OR SPECIFICATIONS THAT ARE A PART OF THE CONSTRUCTION CONTRACT; AND (3) ARISING FROM: (A) PERSONAL INJURY OR DEATH; (B) PROPERTY DAMAGE; OR (C) ANY OTHER EXPENSE THAT ARISES FROM PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE, OR AS OTHERWISE LIMITED BY TEXAS CIVIL PRACTICE & REMEDIES CODE SECTION 130.001 ET SEQ.

§ 3.18.4 THE DUTY TO DEFEND SET OUT ABOVE SHALL NOT APPLY IN THE EVENT THAT THE CLAIM IS BASED, IN WHOLE OR IN PART, ON THE NEGLIGENCE OF, FAULT OF, OR BREACH OF CONTRACT BY THE OWNER. NOTWITHSTANDING THE FOREGOING, THE CONTRACTOR AGREES TO REIMBURSE THE OWNER'S REASONABLE ATTORNEY'S FEES IN PROPORTION TO THE CONTRACTOR'S LIABILITY.

§ 3.18.5 CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL HOLD OWNER FREE AND HARMLESS FROM LIABILITY RESULTING FROM LOSS OF OR DAMAGE TO CONTRACTOR'S OR ITS SUBCONTRACTORS' CONSTRUCTION TOOLS AND EQUIPMENT AND RENTED ITEMS WHICH ARE USED OR INTENDED FOR USE IN PERFORMING THE WORK, REGARDLESS OF WHETHER SUCH LOSS OR DAMAGE IS CAUSED IN WHOLE OR IN PART BY THE WILLFUL, INTENTIONAL OR NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THE CONTRACTOR, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS CAUSED IN PART BY THE OWNER. IF THE OWNER'S NEGLIGENCE IS A CONCURRENT CAUSE OF THE INJURY, DEATH, OR DAMAGE, CONTRACTOR'S OBLIGATION TO INDEMNIFY IS LIMITED TO THE AMOUNT NECESSARY TO CAUSE THE RELATIVE LIABILITY OF OWNER AND CONTRACTOR TO REFLECT THE COMPARATIVE NEGLIGENCE FINDINGS OF THE TRIER OF FACT (JUDGE OR JURY) OR AS AGREED IN A SETTLEMENT AGREEMENT TO WHICH OWNER AND CONTRACTOR ARE BOTH PARTIES. THIS PROVISION SHALL APPLY, WITHOUT LIMITATION, TO LOSS OR DAMAGE OCCURRING AT THE WORK SITE OR WHILE SUCH ITEMS ARE IN TRANSIT TO OR FROM THE WORK SITE AND IS IN ADDITION TO CONTRACTOR'S OBLIGATIONS UNDER SECTION 3.18.1.

§ 3.18.6 The indemnification hereunder shall include, without limiting the generality of the foregoing, liability which could arise to the Owner pursuant to State statutes for the safety of workmen and in addition, all Federal statutes and rules existing thereunder for protection, occupational safety and health to workmen. It being agreed that the primary obligation of the Contractor is to comply with said statutes in performance of the Work by Contractor and that the obligations of the Owner under said statutes are secondary to that of the Contractor.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17

§ 3.18.7 It is agreed with respect to any legal limitations now or hereafter in effect and affecting the validity or enforceability of the indemnification obligations under Section 3.18, such legal limitations are made a part of the indemnification obligation and shall operate to amend the indemnification obligation to the minimum extent necessary to bring the provision into conformity with the requirements of such limitations, and as so modified, the indemnification obligations shall continue in full force and effect.

§ 3.18.8 Contractor shall promptly advise the Owner, in writing, of any claim or demand against the Owner or Contractor, known to the Contractor related to or arising out of Contractor's activities under this Contract.

§ 3.18.9 The provisions in Section 3.18 in its entirety shall survive the completion, termination or expiration of this contract and are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

§ 3.19 Representations And Warranties

§ 3.19.1 The Contractor represents and warrants the following to the Owner (in addition to the other representations and warranties contained in the Contract Documents), as an inducement to the Owner to execute this Contract, which representations and warranties shall survive the execution and delivery of the Contract and the Final Completion of the Work:

.1 that it is financially solvent, able to pay its debts as they mature and possessed of sufficient working capital to complete the Work and perform its obligations under the Contract Documents;

.2 that it is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the Work and perform its obligations hereunder and has sufficient experience and competence to do so;

.3 that it is authorized to do business in the State where the Project is located and properly licensed by all necessary governmental and public quasi-public authorities having jurisdiction over it and over the Work and the site of the Project;

.4 that the execution of the Contract and its performance thereof is within its duly authorized powers; and

.5 that its duly authorized representative has visited the site of the Work, familiarized itself with the local conditions under which the Work is to be performed and correlated its observations with the requirements of the Contract Documents.

§ 3.20 Business Standards

§ 3.20.1 Contractor, in performing its obligations under Contract, shall establish and maintain appropriate business standards, procedures, and controls, including those necessary to avoid any real or apparent impropriety or adverse impact on the interest of Owner or affiliates. Contractor shall review, with Owner, at a reasonable frequency during the performance of the Work hereunder, such business standards and procedures including, without limitation, those related to the activities of Contractor's employees and agents in their relations with Owner's employees, agents, and representatives, vendors, Subcontractors, and other third parties, and those relating to the placement and administration of purchase orders and contracts.

§ 3.21 Antitrust Violation

To permit the Owner to recover damages suffered in antitrust violations, Contractor hereby assigns to Owner any and all claims for overcharges associated with this Contract which violate the antitrust laws of the United States, 15 U.S.C.A. Section 1 et seq. The Contractor shall include this provision in its agreements with each subcontractor and supplier. Each subcontractor shall include such provisions in agreements with sub-subcontractors and suppliers.

PAGE 30

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, ~~Contractor, and Architect. Consent shall not be unreasonably withheld.~~

...

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date ~~the Architect issues the final Certificate for Payment.~~ of the Owner's contract with the Architect terminates. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract ~~Documents.~~Documents, or as they may be amended in the future.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract ~~Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.~~Documents, and delivered on time. In addition, the Architect or its structural consultant will (1) provide on-site observations prior to and during all concrete pours that contribute to the structural integrity of the building, including all pours of concrete piers, footings, grade beams, floor slabs, and concrete superstructure components, if applicable; and (2) provide on-site observations prior to covering up or closing up of portions of the construction which, if covered, would conceal problems with the structural integrity of the Project. Contractor shall not close or cover said Work until said observations have occurred. Contractor or Architect will advise Owner of the need for any third-party laboratory or testing services to assist the Architect and Owner.

§ 4.2.3 On the basis of the site ~~visits~~, observations, the Architect will keep the Owner ~~reasonably~~ informed about the progress and quality of the ~~portion of the Work completed, and~~ Work. The Architect shall promptly report to the Owner and Contractor orally regarding: (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. An oral notification of defects and deficiencies observed in the Work shall be followed by a notice in writing to the Owner and Contractor specifying the defect(s), non-conforming Work, deviations from the Contract Documents and corrective actions taken or recommended. The Architect shall not have control over or responsibility for the Contractor's construction means, methods, techniques, sequences, procedures, or safety programs and will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract ~~Documents. The Architect will not~~ Documents, nor shall the Architect have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions ~~of the Work.~~of the Work. This does not, however, relieve Architect of Architect's responsibilities under this Agreement. Any services by Contractor made necessary by Contractor's construction defect or nonconforming Work shall be performed by the Contractor at no additional cost to Owner. In addition, the Contractor shall reimburse the Owner for compensation paid to the Architect (whether performed by the Architect or its Consultants) or the Owner's Consultants, for additional site visits made necessary by the fault, neglect, the request of the Contractor or made necessary by the Contractor's construction defect or nonconforming Work. Any amount subject to reimbursement under this Section may be required by Owner to be deducted from the next Payment Application submitted by the Contractor and any subsequent Payment Application until paid, and if any amount remains unpaid, the balance shall be paid by the Contractor as a condition to Final Payment.

PAGE 31

~~The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications~~ Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters relating to the Contract and the Project. However, the Owner reserves the right to communicate directly with the Contractor and Subcontractors. Communication by and with the Architect's consultants shall be through the Architect. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and ~~with Separate Contractors~~ shall be through the Owner. ~~The Contract Documents may specify other communication protocols.~~

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, in accordance with the Contract Documents, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect or the Owner has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect or the Owner considers it necessary or advisable, the Architect or the Owner will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect or the Owner nor a

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Owner to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work. Certain portions of the Work may be tested and/or observed at various stages, sometimes off the Project site, between initial observation or review and final positioning of the completed Work. Nothing in any initial or prior approval or test result shall prevent action to require conformance, if at any subsequent time the Work or any portion thereof is found not to conform to the requirements of the Contract Documents. Architect and/or Contractor shall promptly notify, the other party orally and in writing; and Owner of any perceived fault or defect in the design or nonconformance of the Work with the Construction Documents they may respectively discover and each, upon discovery of the defect or nonconformance, shall be responsible for notifying the other party and Owner of those corrective actions they respectively take; provided, however, Contractor shall have no duty to notify Owner of discoveries made or actions taken by Architect.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness ~~while allowing~~ as to cause no delay in the Work or in the activities of the Owner, Contractor or Separate Contractors, and allow sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component. If any submittal does not comply with the requirements of the Contract Documents, the Architect shall require Contractor to come into compliance. The Architect shall promptly report in writing to the Contractor and Owner any errors, inconsistencies and omissions discovered by the Architect in the Shop Drawings, Product Data and Samples, so as to keep from delaying the Work or the activities of the Owner, Contractor or other Contractors.

§ 4.2.8 The Architect will ~~prepare Change Orders and Construction Change Directives, and~~ prepare, and make written recommendations to Owner regarding all Change Orders (including changes in the Work to be paid from contingency funds) and Construction Change Directives, for the Owner's approval and execution in accordance with the Contract Documents. The Architect's recommendation shall be accompanied by all supporting documentation necessary for the Owner to make an informed decision, including but not limited to an itemized turn-key proposal from the Contractor which includes quantities and unit costs of labor and materials extended and totaled and, if permitted, overhead and profit proposed. Prior to submission of such documentation to the Owner, the Architect shall review such proposals for reasonableness of pricing and compliance with Section 7.1.4 regarding markup. The Architect may order minor changes in the Work not involving an adjustment in Contract Sum or Guaranteed Maximum Price, or an extension of the Contract Time which are consistent with the intent of the Contract Documents. If necessary, the Architect shall prepare, reproduce and distribute Drawings and Specifications to describe Work to be added, deleted or modified, as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4. The Architect is specifically not authorized to approve changes involving major systems such as: Heating, Ventilation and Air Conditioning ("HVAC"); roof; foundation; outward appearance; color schemes; floor plans; building materials; drainage or mechanical equipment without Owner's prior written consent.

§ 4.2.9 The Architect and the Owner's representative will conduct inspections to determine the date or dates of Substantial Completion and the date of final ~~completion;~~ completion. Upon completion of such inspection and agreement by Owner and Architect as to Substantial Completion, the Architect may issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to ~~Section 9.10.~~Section 9.10 for approval by the Owner.

§ 4.2.11 ~~The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor.~~ Upon written request of the Owner or

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

Contractor, the Architect will issue its interpretation of the requirements of the plans and specifications. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. ~~When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.~~

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract ~~Documents.~~Documents and not expressly overruled in writing by the Owner.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for ~~information.~~information at no additional expense to the Owner.

§ 4.2.15 The Architect may appoint an employee or other person to assist the Architect during the construction. These representatives will be instructed to assist the Contractor in interpreting the Contract Documents; however, such assistance shall not relieve the Contractor from any responsibility as set forth by the Contract Documents. The fact that the Architect's Representative may have allowed Work not in accordance with the Contract Documents shall not prevent the Architect from insisting that the faulty Work be corrected to conform to the Contract Documents and the Contractor shall correct same.

PAGE 33

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and ~~Architect~~ Architect, in writing, of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect ~~may~~ shall notify the Contractor in writing, whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection. A notice of no reasonable objection shall in no way relieve the Contractor from full responsibility for performance and completion of the Work and its obligations under the Contract Documents. The Contractor shall be fully responsible for the performance of its subcontractors, including those recommended or approved by the Owner.

...

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. ~~If the proposed but rejected Subcontractor was~~ When the parties agree on a proposed substitute Subcontractor reasonably capable of performing the Work, the ~~Contract Sum and~~ Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in ~~the Contract Sum or~~ Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected ~~if the Owner or Architect makes reasonable objection to such substitution.~~without providing reasonable written notice to the Owner and Architect. If neither the Owner nor Architect submits a reasonable objection to such proposed substitution within ten (10) days following their receipt of written notice the Contractor may proceed with the substitution. If either Owner or Architect submit an objection, the Subcontractor shall proceed in accordance with Section 5.2.3 above.

§ 5.2.5 Each Contractor or subcontractor shall be required to completely familiarize itself with the plans and specifications, to visit the Work site to completely familiarize itself with existing conditions, and to conduct any other appropriate investigations, inspections or inquiries prior to submission of a bid or proposal. No increases in Contract Sum shall be allowed for failure to so inspect or investigate.

PAGE 34

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

~~By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.~~ § 5.3.1 By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. The terms and conditions of the Contract Documents shall be incorporated by reference into each subcontract agreement, included as provided below. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors. Each subcontractor shall provide proof of insurance to Contractor consistent with the Contractor's insurance to Owner and in an amount commensurate with the Work to be performed by the Subcontractor.

§ 5.3.2 Neither the Owner nor the Architect shall be obligated to pay or to insure the payment of any monies to Subcontractors or vendors by the Contractor.

§ 5.3.3 The Contractor shall require any potential Subcontractor to disclose to the Contractor any ownership interest or familial relationship between the Contractor, the Architect or the Owner and the potential Subcontractor prior to entering into a contract. Contractor shall report to Owner all such disclosures and the Owner shall have the right, in its sole discretion, to reject any such affiliated Subcontractor.

...

§ 5.4.1 Each subcontract agreement for ~~a~~ any unperformed portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner ~~for cause pursuant to Section 14.2~~ or abandonment of the Project by the Contractor and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and ~~Contractor; and~~ Contractor in writing;

.2 assignment is subject to the prior rights and obligations of the surety, if any, obligated under bond relating to the ~~Contract.~~ Contract; and

.3 The Subcontractor provides bonds as required by law of prime contractors and by Owner.

...

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation ~~shall~~ may, in the Owner's sole discretion, be equitably adjusted for increases in cost resulting from the suspension. Such assignment shall not constitute a waiver by Owner of its rights against Contractor, including, but not limited to, claims for defaults, delays or defects for which a subcontractor or material vendor may also be liable.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. ~~If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.~~Owner shall only be responsible for compensating subcontractors for Work performed or materials furnished from and after the date on which the Owner gives written notice of its acceptance of the subcontract agreement. Owner shall not be responsible for any Work performed or materials furnished by subcontractors prior to the date of Owner's written notice of acceptance.

§ 5.5 Notice Of Subcontractor Default

Contractor shall promptly notify Owner and Architect of any material defaults by any Subcontractor or Sub-subcontractor. Notwithstanding any provision contained in Article 5 to the contrary, it is hereby acknowledged and agreed that Owner has in no way agreed, expressly or implicitly, nor will Owner agree, to allow any Subcontractor, Sub-subcontractor or other materialman or worker employed by Contractor the right to obtain a personal judgment or to create a mechanic's or materialman's lien against Owner for the amount due from the Owner or the Contractor.

PAGE 35

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this ~~Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.~~Contract.

...

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual ~~agreement.~~ agreement by the Owner and Contractor. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 ~~Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.~~[Paragraph Deleted.]

...

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for site access, staging, introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. ~~The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.~~

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 6.2.3 All costs resulting from the Contractor's negligence, lack of oversight, inattention to detail, failure to investigate, or failure to follow the Construction Documents or Contract Documents, will be borne by the Contractor. The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate ~~Contractor~~ Contractor, the Architect or any Consultant because of the Contractor's delays, improperly timed activities ~~or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work~~ or defective construction.

...

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the ~~Architect~~ Owner will allocate the cost among those responsible.

...

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents. Changes may be funded out of a contingency fund, if any, or other allowance established herein, or may require a change in the Contract Sum. The authority to approve a change to the Work, the Contract Sum, approve payment from a Contingency or Allowance, or a change in the Project Time, rests solely with the Owner. A Change Order funded from the Contingency or other Allowance shall be referred to herein for clarity as a "Contingency Authorization Order".

§ 7.1.2 A Contingency Authorization Order or Change Order shall be based upon agreement among the Owner, Contractor, and ~~Architect. A Construction Change Directive~~ Architect executed prior to commencement of any Work covered by the Order. A Construction Change Directive (whether funded from contingency, if any, or by an increase in the Contract Sum) requires agreement by the Owner and Architect and may or may not be agreed to by ~~the Contractor.~~ the Contractor prior to the commencement of the Work. An order for a minor change in the Work may be issued by the Architect ~~alone.~~alone, except as otherwise provided herein.

PAGE 36

§ 7.1.4 **Change Order Mark-Up.** On Change Orders and Construction Change Directives, the total Contractor mark-up for overhead, profit permitted to be charged to the Owner shall be based on the following schedule:

.1 for work performed by the Contractor's own forces, Contractor's mark-up for overhead and profit shall not exceed 10% of the cost of the change in the Work (0% for change orders to be paid out of any contingency allowance).

.2 for the Contractor, for supervision of work performed by the Contractor's Subcontractors, the total Contractor mark-up for overhead and profit shall not exceed 4% of the amount due to the Subcontractors (0% for change orders to be paid out of any contingency allowance).

.3 for each Subcontractor or Sub-subcontractor involved, in Work performed by that Subcontractor's or Sub-subcontractor's own forces, the total mark-up for overhead and profit ten percent (10%) of the cost of the change in the Work.

.4 In no event shall total mark-up for overhead, profit or fee in any work which involves a subcontractor or one or more sub-subcontractors, regardless of who performs the work, exceed 14% of the total cost of the change in the Work. The Contractor will not be allowed an overhead, profit, or fee mark-up when changes in the Work are funded by Contingency or other Allowances provided for in the Contract Documents.

...

Methods used to determine adjustments to the Contract Sum or Guaranteed Maximum Price may include those listed in Section 7.3.3.

§ 7.2.2 Acceptance of a disbursement from any allowance fund, contingency fund or acceptance of a Change Order by the Contractor shall constitute full accord and satisfaction for any and all claims, whether direct or indirect, including

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

but not limited to impact, delay or acceleration damages, arising from the subject matter of the disbursement or Change Order.

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum (the Guaranteed Maximum Price, as applicable) or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum ~~and Contract Time being adjusted accordingly.~~(the Guaranteed Maximum Price, as applicable) and Contract Time being adjusted as provided in Section 7.3.3.

PAGE 37

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract ~~Sum,~~ Sum (or the Guaranteed Maximum Price, as applicable), the adjustment shall be based on one of the following methods:

...

.2 Unit prices stated in the Contract Documents or subsequently agreed ~~upon;~~upon(additional mark-ups for overhead and profit will not be allowed);

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage ~~fee;~~ fee, subject to the limitations of subparagraph 7.1.4; or

...

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract ~~Sum,~~ Sum (or the Guaranteed Maximum Price, as applicable), the Architect shall determine the adjustment on the basis ~~of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4~~ of the amount by which the Contractor's direct costs have actually been increased over the direct cost of performing the Work without the Change in the Work. Direct costs shall be limited to the following:

.1 ~~Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance,~~ Actual documented costs of labor, including applicable payroll taxes and other employee costs approved by ~~the Architect;~~the Owner prior to the approval of the Change Order or Contingency Authorization Order (a labor burden factor will not be accepted as documentation);

.2 ~~Costs~~ Actual documented costs of materials, supplies, and equipment, including cost of transportation, whether such materials, supplies, and equipment are incorporated or consumed;

.3 ~~Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;~~Actual documented rental costs of machinery and equipment, if rented from unaffiliated third-parties, exclusive of hand tools;

.4 ~~Costs~~ Actual documented costs of premiums for all bonds and insurance, permit fees, and applicable sales, use, or similar taxes, directly related to the ~~change;~~ change, if any; and

.5 ~~Costs~~ Actual documented costs of supervision and field office personnel directly attributable to ~~the change.~~the change and only if the adjustment causes an extension of the Contract Time.

The Contractor shall keep and present, in such form as the Architect or Owner may prescribe, an itemized accounting of the items listed above, together with appropriate supporting documentation.

§ 7.3.5 If the Work is performed without an agreement as to the final price, the Contractor shall, at a minimum, retain and provide to the Owner, the following documentation to adequately document its actual costs of performing the scope of work set out in a Construction Change Directive. Adequate Documentation shall include at a minimum, but not limited to, payroll records for employees of Contractor providing the Work included in the Change Directive, as well as written documentation of time spent **solely** on the scope of the Change Directive Work, prepared concurrent with the performance of the Work, including (for example) sign-in and sign-out sheets or time cards, executed by the

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

employee(s) documenting attendance and receipts for all materials delivered to the Project site for incorporation in the Work of the Change Directive and paid for by the Contractor. If any of the Work of the Change Directive is performed by subcontractors, the Contractor shall provide a copy of the subcontract, an itemized invoice or payment application which includes, in either case, a detailed itemization of costs showing quantities and unit costs of labor and materials extended and totaled and, if permitted, overhead and profit (in accordance with Section 7.1.4) labor and materials provided by the subcontractor, with receipted invoices for all materials incorporated in the Work and evidence of payment by the subcontractor attached. If the Contractor disagrees with the adjustment in the Contract Time, the Contract Sum (or the Guaranteed Maximum Price, as applicable), allowed in any Change Directive, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement (by executing and returning the Change Directive) or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract ~~Time~~ Time, not later than ten (10) calendar days following the Contractor's receipt of the Construction Change Directive. A copy of a notice of disagreement shall also be provided to the Owner concurrent with the notice to the Architect. A Notice of Disagreement must contain the number of the Change Directive, the date the Change Directive was issued and the words **"Notice of Disagreement With Change Directive"** in the Subject line. It is imperative that Owner receive timely specific notice of any potential problem identified by Contractor in order that the problem can be mitigated or resolved promptly.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum ~~and~~ and/or the Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost ~~as confirmed by the Architect.~~ plus the permitted overhead and profit as set forth in Section 7.1.4. When both additions and credits covering related Work or substitutions are involved in a change, both changes shall be shown on the same Change Order and the permitted allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change. Returned materials shall be credited at actual cost and no penalty or restocking fee shall be permitted to be charged to the Owner.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will require as a condition precedent to certification of payment for Work completed under the Construction Change Directive that the Contractor provide the documentation required by Section 7.3.4, and based on such documentation, shall make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect is specifically authorized by this Section 7.3.9 to require submission of such documentation and any other documentation required to evaluate the requested payment, and shall withhold payment certification until such documentation is received and an interim determination is made in accordance with this Section. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change ~~Order.~~ Order reflecting the Agreement of the Owner and Contractor. Change Orders may be issued for all or any part of a Construction Change Directive.

PAGE 38

~~The~~ With prior written notice to the Owner's representative, the Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

Contract Time. The Contractor shall carry out such written orders promptly. Minor changes in the Work shall not include changes that involve the outward appearance of the structure, color schemes, floor plans, building materials, landscaping, or mechanical equipment.

...

§ 8.1.1 Contract Time. Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 Commencement. The date of commencement of the Work ~~is the date established in the Agreement.~~ shall be the first business day following the Contractor's written notice to proceed. The notice to proceed shall not be issued until the Agreement (or Guaranteed Maximum Price Amendment, as applicable) has been signed by the Contractor and the Owner, and the Owner and Architect have received and approved as to form all required payment and performance bonds and insurance as required by Article 11.

§ 8.1.3 ~~The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.~~ **Substantial and Final Completion**

~~§ 8.1.3.1 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.~~

§ 8.1.3.2 The date of Final Completion is the date certified by the Architect in accordance with Section 9.10. Unless otherwise agreed in writing by Owner, Contractor agrees that Final Completion shall occur not more than thirty (30) days after the date of Substantial Completion.

§ 8.1.4 Day. The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

PAGE 39

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor ~~confirms~~ stipulates that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the ~~Contractor and Owner.~~ Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance.

...

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by ~~(1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties,~~ war, civil commotion, pandemic, epidemic, federal, state or local declared disaster or public emergency, act of God, governmental restrictions, regulations, orders, or interference, fire or other unavoidable casualty, material changes ordered in the Work; adverse weather conditions documented in accordance with Section ~~15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution;~~ 15.1.6 by delay authorized in writing by the Owner prior to the happening of the delay event; or (5) by other causes that the Contractor asserts, and the Architect ~~determines,~~ and Owner determine, justify delay, then the Contract Time ~~shall~~ may be extended for such reasonable time as the Architect ~~may determine.~~ and Owner may determine based upon documentation by the Contractor.

§ 8.3.1.1 The adjustment of the Contract Time for delay, disruption, and interference described in this Section 8.3.1 is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Time and Contractor's timely delivery of the notice and claim as set out in this Section 8.3.1. An adjustment to the Contract Time shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this Section 8.3.1, and under no circumstances shall the Owner be liable to pay the Contractor any compensation for Owner-caused delays.

§ 8.3.1.2 Notice and Claim for Extension. In the event of a delay in the commencement or progress of the Work as a result of any of the circumstances in this Section 8.3.1, the Contractor may receive an extension of time for

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

completion of the Work equal to the delay, if the Contractor delivers a written notice and claim to the Owner and Architect delivered in any manner provided in Section 1.6.1 of this Agreement. The Notice shall identify and provide a reasonably detailed description of the circumstances causing the delay, disruption, or interference to the Contractor's performance or progress of the Work on or before the due date of Contractor's Application for Payment covering the period in which the delay began. Claims for an extension of time shall be stated in whole or half calendar days, as applicable. The actual date on which the delay(s) began and/or the date the delay ended, if applicable, must be stated in the Claim Notices as applicable.

§ 8.3.2 ~~Claims relating to time shall be made in accordance with applicable provisions of Article 15.~~In the case of claims for extension of time because of unusually inclement weather, such extension of time may be granted only if the Contractor files a claim in accordance with the requirements set out in Section 15.1.6.

§ 8.3.3 ~~This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.~~Contractor shall not be entitled to an adjustment in the Contract Time for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

§ 8.3.4 Any adjustment of the Contract Time authorized under Section 8.3 shall be conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Time and Contractor's submission of a timely and properly documented Notice and Claim for additional time in accordance with Section 8.3.

§ 8.3.5 Adjustments to the Contract Time addressed in this Section 8.3 shall apply only to requests for extensions of time based upon delay, disruption, or interference to the Contractor's performance or progress of the Work and shall have no applicability to requests for adjustment of the Contract Time due to other changes in circumstance, including but not limited to: a change in the materials used; a change in the specified manner of constructing and/or installing the Work; or additional labor, services or materials required, beyond those specified by the Contract Documents. Claims for an adjustment of the Contract Time resulting from these kinds of changes shall be authorized only pursuant to a written order or directive from Owner authorizing Contractor to proceed with a change in the Work in accordance with the Contract Documents.

§ 8.4 No Damages or Other Compensation for Delay or Acceleration

This Agreement does not permit recovery by the Contractor of damages or additional compensation for delay, acceleration, disruption, or interference to the Contractor's performance or progress of the Work Contractor agrees that Contractor shall be fully compensated for all delays solely by an extension of time including but not limited to delay, disruption, or interference caused by the Owner the Architect, of an employee of either, or of a Separate Contractor, any of the circumstances set out in Section 8.3.1 or acceleration of the Work required by the Owner in accordance with the terms of this Agreement. Contractor's sole remedy for delay disruption, or interference in its performance or progress of the Work or any required acceleration of the Work shall be the grant of an extension of time for completion equal to a delay or such reasonable time as the Owner and Architect may determine in their sole discretion.

PAGE 40

§ 9.1.1 The Contract Sum is stated in the Agreement or the Guaranteed Maximum Price Amendment in the case of a Construction Manager at Risk Contract and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents. All costs of overtime Work required by the Contract Time and the nature of the Work, as set forth in or inferable from the Contract Documents, except costs of emergencies covered in Section 10.4, shall be and are included in the Contract. The Contract Sum shall not be increased because the Contractor experiences an unexpected or unforeseeable increase in the price of labor or materials required to complete the Project.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices ~~shall be equitably adjusted.~~may be equitably adjusted by written agreement between the Owner and Contractor, executed prior to an order being placed based on the unit prices.

...

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, as applicable, the Contractor shall submit a schedule of values to the Architect before the first Application for ~~Payment,~~ Payment or, in the case of a Guaranteed Maximum Price, concurrent with the Guaranteed Maximum Price Proposal, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, or the Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment. The schedule of values shall be prepared in such a manner that each major item of work, whether done by Contractor's own forces or subcontracted, is shown as a single line item on AIA Documents G702-1992 and G703-1992, Application and Certificate for Payment and Continuation Sheet.

...

§ 9.3.1 ~~At least ten days before the date established for each progress payment,~~ In accordance with the requirements of Section 5.1 of the Agreement, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage ~~if provided for in the Contract Documents.~~ withheld. The form of Application for Payment, duly notarized, shall be a current authorized edition of AIA Document G702-1992, Application and Certificate for Payment, supported by a current authorized edition of AIA Document G703-1992, Continuation Sheet.

§ 9.3.1.1 ~~As provided in Section 7.3.9, such~~ Such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor ~~does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.~~ has not been invoiced by a Subcontractor or supplier, unless such Work was self-performed; in such case, only portions of Work actually performed shall be included on the Contractor's request for payment.

§ 9.3.1.3 Contractor agrees that, for purposes of Texas Government Code section 2251.042, receipt of the Application for Payment by the Architect shall not be construed as receipt of an invoice by the Owner. Contractor further agrees that Owner's receipt of the Architect's Certificate for Payment shall be construed as a receipt of an invoice by the Owner, for purposes of Texas Government Code section 2251.042.

§ 9.3.1.4 The Owner shall withhold retainage as provided in the Agreement, except that Owner shall not pay amounts for which the Architect refuses to certify payment, or the Owner refuses to pay, as provided herein. The retainage shall be paid to the Contractor with the Final Payment, subject to the requirements of the Contract Documents.

§ 9.3.2 Unless otherwise provided in ~~the Contract Documents, payments shall~~ a separate written agreement executed between the Owner and Contractor prior to delivery, payments shall not be made on account of materials and equipment delivered and ~~suitably~~ stored at the site or off-site for subsequent incorporation in the ~~Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site. The Owner may, in Owner's~~ sole discretion, require Contractor's compliance with such reasonable procedures and requirements as it may establish, as a condition precedent to the grant of Owner's consent and agreement to payment, including but not limited to the following:

.1 provision of any additional insurance required to protect the materials and equipment while stored;

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

.2 payment of the costs to store the materials and equipment and any additional transportation costs for multiple deliveries;

.3 provision of written consent of Contractor's surety to such storage;

.4 submission of an affidavit identifying materials and equipment stored off-site for later incorporation into the Work, and acknowledging responsibility for such materials and equipment;

.5 provision of documentation that the facility where the materials and/or equipment will be stored is an adequately insured commercial warehouse, where the materials and equipment stored will be sheltered from the weather and outside elements and are stored in accordance with the manufacturer's instructions, including proper temperature and humidity controls and that the materials and equipment have been physically separated and marked for the Project;

.6. its agreement to bear the cost of Owner and/or Architect's visits to the off-site storage facility to confirm compliance with these requirements and review the stored contents, and Contractor shall agree to allow such costs to be offset from Progress Payments;

.7 agreement that payment of any costs related to compliance with the procedures and requirements for storage of materials and equipment on or off-site. shall not be subject to charges for overhead or profit;

.8 submission of bills of sale or other documentation acceptable to the Owner, showing proof of delivery and establishing the Owner's title to the materials or equipment and/or otherwise protecting the Owner's interest, including naming the Owner as additional insured on the required insurance policy (naming the specific materials or equipment stored and their location) and providing proof of delivery for those materials and equipment;

.9 agreeing that, in the event of termination of the Contract or default by the Contractor, the material and equipment stored on or off-site shall be immediately turned over to the Owner by delivery to the location designated by the Owner and that the operator of the storage facility is aware of this agreement and willing to honor it; and

.10 agreeing that all such stored materials and equipment, to the extent they include mechanical components, will be maintained by the Contractor kept in good working condition and ready for immediate installation, to the same extent they would have been, had they been delivered "just in time" for installation, that Contractor will be solely responsible for assuring any manufacturer's warranty will commence on date of completion of installation and/or start-up of the material or equipment and for repairs required prior to installation to assure performance in accordance with the Contract Documents.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work. **CONTRACTOR SHALL INDEMNIFY AND HOLD OWNER HARMLESS FROM ANY LIENS, CLAIMS, SECURITY INTERESTS OR ENCUMBRANCES FILED BY A SUPPLIER, SUBCONTRACTORS, OR ANYONE CLAIMING BY, THROUGH OR UNDER THE CONTRACTOR OR SUBCONTRACTOR FOR ITEMS COVERED BY PAYMENTS PREVIOUSLY MADE BY THE OWNER TO CONTRACTOR FOR ITEMS COVERED BY PAYMENTS MADE BY THE OWNER TO CONTRACTOR.**

§ 9.3.4 In each Application for Payment, Contractor shall certify that: the information contained in the Application presented is true, correct, accurate and complete; that the submitted Work has been completed to the extent represented in the Applications for Payment; that the materials and supplies identified in the Applications for Payment have been purchased, paid for, and, unless an agreement described in Paragraph 9.3.2 has been signed, incorporated into the Work; that the subcontractors whose work is identified in the Applications for Payment have been paid, or Contractor has been invoiced for same and intends to pay such subcontractors; there are no known mechanics' or materialmens' liens outstanding at the date of the Application, that all due and payable bills with respect to the Work have been paid to date or are included in the amount requested in the current Application and that except for such bills not paid but so included, there is no known basis for the filing of any mechanics' or materialmens' liens on the Work, and that releases from all contractors and materialmen have been obtained in such form as to constitute an effective release of lien under the laws of the State of Texas covering all Work theretofore performed and for which payment has been made by Owner to Contractor.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 9.4.1 The Architect will, ~~within seven days after receipt of the Contractor's Application for Payment,~~ carefully evaluate and review the Application for Payment and, when appropriate, return the Application for Payment to the Contractor as provided in Section 9.4.2. If the Application for Payment is complete, then the Architect shall sign and, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner in writing, of the Architect's reasons for withholding certification in part as provided in ~~Section 9.5.1;~~ Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner in writing, of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. Architect's written reasons for withholding certification shall be construed as the notice required by Texas Government Code Section 2251.042 *et seq.*

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, that the Architect has observed the progress of the Work and determined that, in the Architect's professional opinion based on the Architect's evaluation of the Work and the data in the Application for Payment, ~~that, to the best of the Architect's knowledge, information, and belief,~~ the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the ~~Architect.~~ Architect in writing to the Owner. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data unless requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum. Examinations, audits, and verifications, if required by the Owner, will be performed by the Owner's accountants or other representatives of the Owner acting in the sole interest of the Owner.

§ 9.4.3 The issuance of a Certificate for Payment shall constitute a recommendation to the Owner regarding the amount to be paid. This recommendation is not binding on the Owner if Owner knows of other reasons under the Contract Documents why payment should be withheld.

PAGE 43

.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; ~~or~~

.7 repeated failure to carry out the Work in accordance with ~~the Contract Documents.~~ the Contract Documents;

.8 delay beyond the times set forth elsewhere in the Contract Documents including but not limited to the submission for approval of the schedule of values, cost breakdowns on proposal requests, progress schedule, list of Subcontractors and insurance requirements;

.9 failure to submit a written plan indicating action by the Contractor to regain the time schedule for completion of Work within the Contract Time;

.10 evidence of financial inability to perform the Contract fully;

.11 failure to submit record documents required by the Contract; or

.12 failure of the Contractor to perform any other obligations of the Contract.

§ 9.5.2 ~~When either party disputes the Architect's~~ If the Contractor disputes the Architect's or the Owner's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, ~~that party~~ the Contractor may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld. The Owner shall not be deemed in default by reason of withholding payment as provided for in Section 9.5.1.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17

for Payment. Notwithstanding any provision contained within this Article, if the Contractor has not achieved Substantial Completion by the required date, subject to extensions of time allowed under the Contract Documents, then Architect may withhold any further Certificate for Payment to the extent necessary to preserve sufficient funds to complete construction of the Project and to cover liquidated damages. The Owner shall not be deemed in default by reason of withholding payment as provided for in Section 9.5.1, or this Section 9.5.4.

...

§ 9.6.1 After the Architect has issued and the Owner has approved a Certificate for Payment, the Owner shall make payment of disputed amounts in the manner and within the time provided in the Contract Documents, and ~~shall so notify the Architect.~~in accordance with the Texas Government Code section 2251.042 *et. seq.* Owner shall within twenty-one (21) days notify the Architect and Contractor if Owner disputes the Architect's Certificate for Payment, listing the specific reasons for nonpayment. Payments to the Contractor shall not be construed as releasing the Contractor or his Surety from any obligations under the Contract Documents.

§ 9.6.2 ~~The Contractor shall pay each Subcontractor, no later than seven days after~~ In compliance with Texas Government Code Section 2251.022, the Contractor shall, within ten (10) days following receipt of payment from the Owner, ~~the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.~~pay all bills for labor and materials performed and furnished by others in connection with the construction, furnished and equipping of the improvements and the performance of the Work, and shall, if requested, provide the Owner with evidence of such payment. Contractor's failure to make payments within such time shall constitute a material breach of this contract. Contractor shall include a provision in each of its contracts imposing the same payment obligations on its Subcontractors as are applicable to the Contractor hereunder. If the Contractor has failed to make payment promptly to the Contractor's Subcontractors or for materials or labor used in the Work for which the Owner has made payment to the Contractor, the Owner shall be entitled to withhold payment to the Contractor in part or in whole to the extent necessary to protect the Owner.

PAGE 44

§ 9.6.7 ~~Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for~~ The Contractor shall, as a condition precedent to any obligation of the Owner under the Contract Documents, provide to the Owner payment and performance bonds in the full penal amount of the Contract in accordance with Texas Government Code Chapter 2253. Notwithstanding the foregoing, payments received by the Contractor from the Owner for Work properly performed by Subcontractors, or materials properly provided by suppliers, shall be held in trust by the Contractor for the benefit of those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the ~~Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.~~Contractor.

...

~~If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the~~ Pursuant to Texas Government Code Section 2251.051,if the Owner does not pay the Contractor ~~within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days'~~ any payment certified by the Architect, which is undisputed, due and owing after the date the payment is due under the Contract Documents, then the Contractor may, upon ten (10) days' written notice to the Owner and Architect, that payment has not been made and the Contractor intends to suspend performance for nonpayment, may stop the Work until payment of the ~~amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.~~undisputed amount owing has been received. If the Owner provides written notice to the Contractor that: 1) payment has been made; or 2) a bona fide dispute for payment exists, listing the specific reasons for nonpayment, then Contractor shall be liable for damages

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

resulting from suspension of the Work. If a reason specified is that labor, services, or materials provided by the Contractor are not provided in compliance with the Contract Documents, then the Contractor shall be provided a reasonable opportunity to cure the noncompliance or to compensate Owner for any failure to cure the noncompliance. No amount shall be added to the Contract Sum as a result of a dispute between Owner and Contractor unless and until such dispute is resolved in Contractor's favor.

§ 9.7.2 If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Contract Documents, then such payment shall be made promptly upon demand by the Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if the Contractor fails to promptly make any payment due to Owner, pursuant to the Contract, or if the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective Work, then the Owner shall have an absolute right to offset such amount against the Contract Sum and, in the Owner's sole discretion and without waiving any other remedies, may elect to either: (1) deduct an amount equal to that which the Owner is entitled from any payment then or thereafter due to Contractor from the Owner, or (2) issue a written notice to the Contractor reducing the Contract Sum by an amount equal to that which the Owner is entitled.

...

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended ~~use~~ use; provided, however, as a condition precedent to Substantial Completion, the Owner has received all certificates of occupancy and any other permits, approvals, licenses, and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial occupancy of the Project (or if the same cannot be delivered for reasons not the fault or responsibility of the Contractor, nevertheless all Contractor's obligations necessary to the issuance of such certificates, permits, approvals, or licenses will have been performed.) Without limiting the foregoing, in general, the only remaining Work following Substantial Completion shall be minor in nature, so that the Owner could occupy the Project on that date and the completion of the Work by the Contractor would not materially interfere or hamper the Owner's normal business operations.
PAGE 45

§ 9.8.3 Upon receipt of the Contractor's list, the Architect accompanied by the Owner or Owner's representative, at the Owner's option, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, then the Architect shall so notify the Contractor and Owner in writing, and the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.3.1 If, in Architect's opinion during the inspection, the Project, or the designated portion thereof which Owner has agreed to accept separately, is not sufficiently complete to warrant inspection, or if the list of items to be completed or corrected is not sufficiently complete to warrant inspection, then Architect may terminate the inspection and notify the Contractor that the Project is not ready for inspection. If for such reasons, Architect is required to make additional inspections, the Owner may deduct the cost of Architect's additional services made necessary thereby from any payments due the Contractor. The Architect's compensation shall be determined in accordance with the applicable provisions of the Agreement between the Owner and Architect.

§ 9.8.3.2 Except with the consent of the Owner, the Architect will perform no more than ONE (1) inspection to determine whether the Work has attained Substantial Completion in accordance with the Contract Documents. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect, Engineer, Consultant or service provider for any additional inspections.

§ 9.8.4 When the Work or designated portion thereof is ~~substantially complete~~, Substantially Complete, as defined by the Contract Documents, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17

Substantial Completion of the Work or designated portion ~~thereof~~ thereof, unless otherwise provided in the Certificate of Substantial Completion. If Work is to be completed or corrected after the date of Substantial Completion and prior to final payment, Warranties for Work to be completed or corrected after the date of Substantial Completion and prior to final payment shall become effective on the later of the date the Work is completed or corrected and accepted by the Owner and Architect, or the date of Final Payment. ("Warranty Commencement Date").

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. ~~Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.~~

§ 9.8.6 Retainage is not due to the Contractor until thirty-one (31) days after Final Completion of the Work as set out in Section 9.10. After the Certificate of Substantial Completion is accepted by the Owner, the Owner may, in its sole discretion and upon acceptance and consent of surety, make payment of retainage on all or a part of the Work accepted.

PAGE 46

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to in writing by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work resulting from such occupancy, use or installation, and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties ~~required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2.~~ on the partially completed portion of the Work, as required by the Contract Documents.. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect. Contractor agrees that the Owner may place and install as much equipment and furnishings as is possible before completion or partial completion of portions of the Work.

...

§ 9.9.3 Unless ~~otherwise agreed upon,~~ expressly agreed upon in writing, partial occupancy or use of a portion or portions of the Work or installation of furnishings and equipment shall not constitute acceptance of Work not complying with the requirements of the Contract ~~Documents.~~Documents, nor shall it constitute evidence of Substantial Completion or Final Completion.

...

§ 9.10.1 ~~Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract~~ When all of the Work is finally completed and the Contractor is ready for a final inspection it shall notify the Owner and the Architect thereof in writing. Thereupon, the Architect and Owner (at Owner's option) will make final inspection of the Work and, if the Work is complete in full accordance with the Contract Documents and this Contract has been fully performed, the Architect will promptly issue a final Certificate for Payment ~~stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the~~ certifying to the Owner that the ~~Work has been~~ completed in accordance with the Contract Documents and that ~~the entire balance found to be due the Contractor~~ remainder of the Contract Sum, including all retainage, less any amount withheld pursuant to th Contract and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. Except with the consent of the Owner, the Architect will perform no more than one (1) inspection to determine whether the Work has attained Final Completion in accordance with the Contract Documents. If the Architect is unable to issue its final Certificate for Payment and is required to repeat its final inspection of the Work,

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

the Contractor shall bear the cost of such repeat final inspection(s) which cost may be deducted by the Owner from the Contractor's final payment.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) ~~an~~ its affidavit that payrolls, bills for materials and equipment, and other ~~indebtedness~~ liabilities connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) ~~if required~~ except for amounts previously withheld by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may have been fully paid or otherwise satisfied; releases and waivers of liens from all Subcontractors of the Contractor and of any and all other parties required by the Architect or the Owner; such other provisions as Owner may request; and consent of Surety to final payment. If any third party fails or refuses to provide a release of claims or waiver of lien as required by Owner, the Contractor shall furnish a bond satisfactory to the Owner to ~~indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.~~discharge any such lien or indemnify the Owner from liability; (7) In addition, the following items must be completed and received by the Owner before Final Payment will be due:

.1 Written certifications required by Sections 10.5, 10.6, and 10.7 herein;

.2 Final list of subcontractors (AIA Document G705-2001);

.3 Contractor's Certification of Project Compliance required by 16 Texas Administrative Code, Section 61.1036, located at: https://tea.texas.gov;

.4 Contractor's warranties, organized as required elsewhere in the Contract Documents;

.5 Maintenance and Instruction Manuals;

.6 Owner's Certificate of Final Completion; and

.7 "As-constructed record drawings". At the completion of the Project, the Contractor shall submit one complete set of "as-constructed" record drawings, with all changes made during construction, including concealed mechanical, electrical, and plumbing items. The Contractor shall submit these as electronic, sepia, or other acceptable medium, in the discretion of the Owner. The "as-constructed" record drawings shall delete the seal of the Architect and/or the Engineer and any reference to those firms providing professional services to the Owner, except for historical or reference purposes.

Documents identified as affidavits must be notarized. All manuals will contain an index listing the information submitted. The index section will be divided and identified by tabbing each section as listed in the index. Upon request, the Architect will furnish the Contractor with blank copies of the forms listed above.

§ 9.10.3 ~~If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it~~ The Owner shall make final payment of all sums due the Contractor not more than thirty-one (31) days after the Architect's execution of a final Certificate for Payment. Final Payment shall not constitute a waiver of ~~Claims.~~any Claims by the Owner.

§ 9.10.4 ~~The making of final payment shall constitute a waiver of Claims by the Owner except those arising from~~

~~.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;~~

~~.2 failure of the Work to comply with the requirements of the Contract Documents;~~

~~.3 terms of special warranties required by the Contract Documents; or~~

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

~~.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.~~ [Paragraph Deleted.]

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously ~~made in writing~~ asserted pursuant to Article 15 and identified by that payee as unsettled at the time of final Application for Payment.

§ 9.10.6 The Contractor shall not permit any actual or purported lien, charge or claim to attach or attempt to attach to the Work, the site or any amounts due or to become due to the Contractor under the Contract Documents. If any such lien, charge or claim is so asserted, the Contractor shall promptly procure its release and indemnify the Owner against all damage and expense incident thereto. Upon completion of the Work and before any final payment and settlement, the Contractor shall provide evidence satisfactory to the Owner of payment and release of all debts, taxes, liens, charges, obligations and claims for or relating to labor, materials, Subcontractors and Sub-subcontractors; provided, however, that if the Contractor has not paid for any of the aforesaid as a result of a bona fide dispute, and payment of such is guaranteed and covered by the payment bond provided by the Contractor, then the Contractor shall not be required to pay such claim as a condition to final payment and settlement, but instead shall be required to provide Owner with written consent to final payment executed by such surety, expressly acknowledging the existence of such unpaid claim, and agreeing that full and final payment to the Contractor shall not impair any of the Owner's rights or the surety's obligations under the bond.

§ 9.11 Audit

Contractor agrees to maintain adequate books, payrolls and records satisfactory to the Owner in connection with any and all Work performed hereunder. Contractor agrees to retain all such books, payrolls and records (including data stored in computer) for a period of not less than three (3) years after completion of the Work. At all reasonable times, Owner and its duly authorized representatives shall have access to all personnel of Contractor and all such books, payrolls and records, and shall have the right to audit same.

§ 9.12 In addition to any liquidated damages payable to the Owner by the Contractor, if: (1) the Architect is required to make more than one (1) inspection for Substantial Completion; (2) the Architect is required to make more than 1 inspection for Final Completion; or (3) the Work is not substantially complete within thirty (30) days after the date established for Substantial Completion in the Contract Documents; the Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for any additional inspections or services.

PAGE 47

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the ~~Contract.~~Contract and shall conform to all provisions of the "Manual of Accident Prevention in Construction", published by the Associated General Contractors of America, Inc., latest edition, and the Contractor further agrees to fully comply with all safety standards required by the Occupational Safety and Health Administration ("OSHA") 29 USC Section 651 et seq., and all amendments thereto. However, the Contractor's duties herein shall not relieve any Subcontractor or any other person or entity, including any person or entity required to comply with all applicable federal, state and local laws, rules, regulations, and ordinances, from the obligation to provide for the safety of their employees, persons, and property and their requirements to maintain a work environment free of recognized hazards. Contractor shall provide reasonable fall protection safeguards and provide approved fall protection safety equipment for use by all exposed Contractor employees.

§ 10.1.1 Contractor shall ensure that the Project site is alcohol-free, drug-free, nicotine/ tobacco-free, e-cigarette free, weapon-free, and sexual-harassment free, and shall require strict compliance on the Project Site with the Owner's Board Policies, including but not limited to GKA(Legal) and GKA(Local). Contractor will remove any of its employees from performing the Work any time there is suspicion of alcohol and/or drug use, possession, or impairment involving such employee, and at any time an incident occurs where drug or alcohol use could have been a contributing factor. Owner has the right to require Contractor to remove employees from performing the Work any time cause exists to suspect alcohol or drug use. In such cases, Contractor's employees may only be considered for return to work after the Contractor certifies as a result of a for-cause test, conducted immediately following removal that said employee was in compliance with this contract. Contractor will not use an employee to perform the Work who either refuses to take, or tests positive in, any alcohol or drug test.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

10.1.2 Dress Code, Fraternization and Sexual Harassment. Contractor shall require adequate dress of the Contractor's forces consistent with the nature of the Work being performed, including wearing shirts at all times. Contractor shall prohibit fraternization between all persons working under Contractor or any of its subcontractors, students and Owner's employees while on Owner's property. Sexual harassment of employees of the Contractor or employees or students of the Owner by employees of the Contractor is strictly forbidden. Any employee of the Contractor who is found to have engaged in such conduct shall be subject to appropriate disciplinary action by the Contractor, including removal from the job site.

§ 10.1.3 Weapons. Owner has also banned use, possession, or display of any firearm, handgun, location-restricted knife, club, or "prohibited weapon", as defined by the Texas Penal Code and Owner's Board Policy FNCG(Legal), except when the Contractor, its representatives, employees, agents, and subcontractors, or anyone else over which the Contractor has control or authority holds a Texas handgun license, stores the handgun or other firearm in a locked vehicle in the Owners parking lot, garage, or other parking area provided by the Owner AND the firearm is not loaded and not in plain view. A copy of such policy is available through a link on the Owner's website. The Contractor further agrees that Contractor's representatives, employees, agents, and subcontractors will abide by these requirements as well as the Federal Gun-Free School Zones Act.

§ 10.1.4 Tobacco and E-Cigarettes. Contractor's employees, agents, Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, shall not use e-cigarettes or tobacco products while on the Project Site.

§ 10.1.4 Small Unmanned Aircraft (Drones). The Contractor shall operate any Small Unmanned Aircraft as required by 14 C.F.R. Part 107. as applicable, and any other applicable federal or state laws and regulations.

PAGE 48

§ 10.2.1 The Contractor shall maintain good order among its employees and its Subcontractors, shall confine its employees and Subcontractors to such work areas, roads and gates as directed by the Owner, take reasonable and necessary precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees ~~on the Work~~ on the Work, school personnel, students and other persons on the Owner's premises and other persons who may be affected ~~thereby;~~thereby, which protection shall include the installation of fencing between the Work site and the occupied portion of a connecting or adjacent educational facility, and taking reasonable precautions to secure any abusable glue, aerosol paint, or any other chemical substance for inhalation being used on the project site;

...

.3 other property at the site or adjacent thereto, such as fences, trees, shrubs, lawns, walks, athletic fields and tracks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction. Contractor's obligations under this Section shall continue to apply during any time period when all or a portion of the Work is suspended for any reason. Contractor's obligations under Section 10.2 as to each portion of the Project shall continue until Owner takes possession of and occupies that portion of the Project.

PAGE 49

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including installing fencing, posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards. The Contractor shall also be responsible, at the Contractor's sole cost and expense, for all measures necessary to protect any property adjacent to the Project and improvements therein. Any damage to such property or improvements shall be promptly repaired by the Contractor. Contractor shall provide reasonable fall protection safeguards and provide approved fall protection safety equipment for use by all exposed Contractor employees.

§ 10.2.4 When use or storage of ~~explosives or other~~ hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified ~~personnel.~~personnel, and shall only conduct such activities after giving reasonable advance written notice of the presence or use of such materials, equipment or methods to Owner and Architect. The

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

storage of explosives on Owner's property is prohibited. The use of explosive materials on Owner's property is prohibited unless expressly approved in advance in writing by Owner and Architect.

§ 10.2.5 ~~The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.~~[Paragraph Deleted.]

...

~~If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.~~ **§ 10.2.8.1** If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 3 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter. No provision of the Contract Documents shall waive Owner's immunity under the Texas Tort Claims Act, Texas Civil Practice and Remedies Code, Chapter 101.

§ 10.2.8.2 The Contractor shall promptly report in writing to the Owner and Architect all accidents arising out of or in connection with the Work which cause death, bodily injury, or property damage, giving full details and statements of any witnesses. In addition, if death, serious bodily injuries, or serious property damages are caused, then the accident shall be reported immediately by any means necessary to give actual notice to the Owner's representative and the Architect.

...

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition. If such notice is provided orally, written confirmation of such notice by Contractor shall be provided not later than one (1) business day following such notification. Owner shall not be responsible for materials or substances brought to the site by the Contractor.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner ~~shall~~ shall, as soon as reasonably possible, obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. ~~By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.~~Contractor may be entitled to an extension of the Contract Time in accordance with Article 8.3.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 10.3.3 To the ~~fullest extent permitted by law,~~ extent permitted by the laws and Constitution of the State of Texas, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been renderedharmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity. Notwithstanding anything to the contrary contained in this Section 10.3.3, the agreement of the Owner to indemnify, defend and hold harmless the parties described in this Section shall not extend or apply to claims, damages, losses, expenses or liabilities related to, created or caused in whole or in part by a party indemnified hereunder; it being agreed and understood that the Owner and any party so indemnified shall each bear liability for its own negligent acts or omissions, and that such indemnity shall extend only to liability for the negligent acts and omissions of the Owner.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. ~~The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.~~

§ 10.3.5 ~~The Contractor shall reimburse~~ Except to the extent that the cost and expense are due to the Owner's fault or negligence, if Contractor imports hazardous materials onto the Project site, the Contractor shall indemnify and hold harmless the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, ~~or~~ (2) where the Contractor fails to perform its obligations under ~~Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.~~Section 10.3.1; and (3) any fines or penalties of government agencies directly resulting from the Contractor's importation of the hazardous materials onto the Project site.

~~§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.~~[Paragraph Deleted.]

~~In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.~~§ 10.4 .1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

§ 10.4.2 The performance of the foregoing services by the Contractor shall not relieve the subcontractors of their responsibility for the safety of persons and property and for compliance with all federal, state and local statutes, rules, regulations and orders of any governmental authority applicable to the conduct of the Work.

§ 10.5 Asbestos Or Asbestos-Containing Materials. Contractor shall submit to the Architect a written certification addressed to the Owner that all materials used in the construction of this Project contain less than 0.10% by weight of asbestos and for which it can be demonstrated that, under reasonably foreseeable job site conditions, will not release asbestos fibers in excess of 0.1 fibers per cubic centimeter. The written certification shall further state that, should asbestos fibers be found at this Project in concentrations greater than 0.1 fibers per cubic centimeter, then Contractor shall be responsible for determining which materials contain asbestos fibers and shall take all necessary corrective action to remove those materials from the Project, at no additional cost to the Owner. The written certification shall be dated, shall reference this specific Project and shall be signed by not less than two (2) officers of the Contractor. Final Payment shall not be made until this written certification has been received.

§ 10.6 Lead-Free Material In Potable Water System

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 10.6.1 Prior to payment of retainage and final payment, the Contractor and each subcontractor involved with the potable water system shall furnish a written certification that the potable water system is "lead-free".

§ 10.6.2 The written certification shall further state that should lead be found in the potable water system built under this Project, then Contractor shall be responsible for determining which materials contain lead and shall take all necessary corrective action to remove lead from the Project, at no additional cost to the Owner. The written certification shall be dated, shall reference this specific Project and shall be signed by not less than two (2) officers of the Contractor.

§ 10.7 Hazardous Materials Certification

The Contractor shall provide written certification that no materials used in the Work contain lead or asbestos materials in them in excess of amounts allowed by federal, state or local standards, laws, codes, rules and regulations; the Federal Environmental Protection Agency (EPA) standards; and/or the Federal Occupational Safety and Health Administration (OSHA) standards, whichever is most restrictive. The Contractor shall provide this written certification as part of submittals under the Section in the Project Manual related to Contract Closeout.

PAGE 51

§ 11.1 Contractor's Insurance ~~and Bonds~~

§ 11.1.1 The Contractor and the Contractor's Subcontractors shall purchase and maintain in force, insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the table below the Agreement or elsewhere in the Contract Documents. No Work will be commenced, and no equipment or materials may be shipped, until all requirements of Article 11 have been satisfied, satisfactory evidence of insurance has been provided, and all required insurance is in full force and effect. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the ~~jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.~~State of Texas.

Workmen's Compensation: (Including Waiver of Subrogation Endorsement)	All liability arising out of Contractor's employment of workers and anyone for whom Contractor shall be liable for Worker's Compensation claims. Worker's Compensation is required and no "alternative" form of insurance shall be permitted.
Employer's Liability:	$1,000,000.00
Commercial General Liability: Each Occurrence General Aggregate Personal & Advertising Injury Products and Completed Operations	 $1,000,000.00 $2,000,000.00 (A Designated Construction Project General Aggregate Limit shall be provided) $1,000,000.00 each person $1,000,000.00 (for one (1) year, commencing with issuance of final Certificate for Payment)
Property Damage Independent Contractors Contractual Liability	$1,000,000.00 each occurrence $2,000,000.00 aggregate (Same limits as above) (Same limits as above)
Automobile Liability: Bodily Injury/Property Damage	$1,000,000.00 combined single limit $1,000,000.00 each occurrence
Umbrella or Excess Liability	$5,000,000.00 each occurrence/aggregate
All Risk Builders Risk against the perils of fire, lightening, windstorm, hurricane, hail, explosion, riot, civil commotion, smoke, aircraft, land vehicles, vandalism, malicious mischief, and all other perils in the amount one hundred percent (100%) of the value of the improvements including transit and materials stored off site. Additionally, this coverage shall provide protection to the full replacement value for boiler and machinery equipment up to installation, during testing, and until acceptance by Owner.	

Additions and Deletions Report for AIA Document A201® – 2017. Copyright ©1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

~~§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.~~

§ 11.1.2 The required insurance must be written by a company licensed to do business in Texas at the time the policy is issued. In addition, the company must be acceptable to the Owner.

§ 11.1.3 ~~Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.~~ The General Liability and Automobile policies so issued in the name of Contractor shall also name the Owner as additional insured. The coverage afforded to the additional insured under the policy or policies shall be primary insurance. It is the intent of the parties to this Agreement that the General Liability coverage (and associated Umbrella Coverage) required herein shall be primary to and shall seek no contribution from all insurance available to Owner, with Owner's insurance being excess, secondary and non-contributing. The Commercial General Liability coverage provided by Contractor shall be endorsed to provide such primary and non-contributing liability. If the additional insured has other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis.

§ 11.1.4 ~~Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.~~ If the insurance is written with stipulated amounts deductible under the terms of the policy, the Contractor shall pay the difference attributable to deductions in any payment made by the insurance carrier on claims paid by this insurance. If the Owner is damaged by the failure of the Contractor to maintain such insurance and to so notify the Owner then the Contractor shall bear all reasonable costs properly attributable thereto.

§ 11.1.5 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents. Nothing contained herein shall limit or waive Contractor's legal or contractual responsibilities to Owner or others.

§ 11.1.6 Contractor shall have its insurance carrier(s) furnish to Owner insurance certificates in form satisfactory to Owner specifying the types and amounts of coverage in effect, the expiration dates of each policy, and a statement that no insurance will be canceled or materially changed while the Work is in progress without thirty (30) calendar day's prior written notice to Owner. Contractor shall permit Owner to examine the insurance policies, or at Owner's option, Contractor shall furnish Owner with copies, certified by the carrier(s), of insurance policies required in Section 11.1.1. If Contractor neglects or refuses to provide any insurance required herein, or if any insurance is canceled, Owner may, but shall not be obligated to, procure such insurance and the provisions of Section 11.1.8 hereof shall apply.

§ 11.1.7 Contractor and its Subcontractors shall not commence the shipment of equipment or materials or commence the Work at the site until all of the insurance coverage required of Contractor and its Subcontractors are in force and the necessary certificates and statements pursuant to Section 11.1.6 hereof have been received by Owner and the Architect has issued a written notice to proceed.

§ 11.1.8 As an alternative and at Owner's option and expense, Owner may elect to furnish or to arrange for any part or all of the insurance required by Section 11.1 hereof. If Owner so elects, it shall notify, in writing, Contractor and issue a Change Order therefor, but no adjustment to the scheduled completion date or the Contract Sum shall be allowed.

§ 11.1.9 Workers' Compensation Insurance Coverage.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

.1 **Definitions:**

.1.1 **Certificate of coverage ("Certificate").** A copy of a certificate of insurance, a certificate of authority to self-insure issued by the division, or a coverage agreement (DWC Form-81, DWC Form-82, DWC Form-83, or DWC Form-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on the Project, for the duration of the Project.

.1.2 **Duration of the Project.** Includes the time from the beginning of the work on the Project until the Contractor's work on the Project has been completed and accepted by the Owner.

.1.3 **Persons providing services on the Project ("subcontractor" in Texas Labor Code §406.096).** Includes all persons or entities performing all or part of the services the Contractor has undertaken to perform on the Project, regardless of whether that person contracts directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a Project. "Services" does not include activities unrelated to the Project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

.2 The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the Contractor providing services on the Project, for the duration of the Project.

.3 The Contractor must provide a certificate of coverage to the Owner prior to being awarded the contract.

.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the Project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the Owner showing that coverage has been extended.

.5 The Contractor shall obtain from each person providing Services on a Project, and provide to the Owner:

.5.1 a certificate of coverage, prior to that person beginning work on the Project, so the Owner will have on file certificates of coverage showing coverage for all persons providing services on the Project; and

.5.2 no later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project.

.6 The Contractor shall retain all required certificates of coverage for the duration of the Project and for one (1) year thereafter.

.7 The Contractor shall notify the Owner in writing by certified mail or personal delivery, within ten (10) days after the Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project.

.8 The Contractor shall post on each Project site a notice, in the text, form and manner prescribed by the Texas Department of Insurance, Division of Workers' Compensation, informing all persons providing services on the Project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

.9 The Contractor shall contractually require each person with whom it contracts to provide services on a Project, to:

.9.1 provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the Project, for the duration of the Project;

.9.2 provide to the Contractor, prior to that person beginning work on the Project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the Project, for the duration of the Project;

.9.3 provide the Contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;

.9.4 obtain from each other person with whom it contracts, and provide to the Contractor:

(a) a certificate of coverage, prior to the other person beginning work on the Project; and

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

(b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;

.9.5 retain all required certificates of coverage on file for the duration of the Project and for one (1) year thereafter;

.9.6 notify the Owner in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project; and

.9.7 contractually require each person with whom it contracts, to perform as required by Subparagraphs .9.1 - .9.7 with the certificates of coverage to be provided to the person for whom they are providing services.

.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the Owner that all employees of the Contractor who will provide services on the Project will be covered by workers' compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the Texas Department of Insurance, Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the Owner to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the Owner. [28 TAC §110.110(c)(7)]

§ 11.1.10 The Owner and Contractor shall waive all rights against (1) each other and the Contractors, Subcontractors, agents and employees each of the other, and (2) the Architect and separate Contractors, if any, and their contractors, Subcontractors, agents and employees, for damages caused by fire or other perils to the extent covered by property insurance applicable to the Work. The foregoing waiver afforded the Architect, his agents and employees shall not extend to the liability imposed by Section 3.18.3. The Owner or the Contractor, as appropriate, shall require of the Architect, separate contractors, contractors and Subcontractors by appropriate agreements, written where legally required for validity, similar waivers, each in favor of all other parties enumerated in this Section 11.1.10.

§ 11.2 Owner's Insurance [Paragraph Deleted.]

~~**§ 11.2.1** The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.~~

~~**§ 11.2.2 Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.~~

~~**§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor,~~

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

~~Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.~~

§ 11.3 Waivers of Subrogation [Paragraph Deleted.]
PAGE 54

~~**§ 11.3.2** If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.~~

~~**§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance**~~
~~The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.~~

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Contractor is required, as a condition precedent to the execution of the Contract, to execute a PERFORMANCE BOND in the form required by TEXAS STATUTES, in an amount equal to ONE HUNDRED PERCENT (100%) of the Contract Sum.

§ 11.4.2 The Contractor is required, as a condition precedent to the execution of the Contract, to execute a PAYMENT BOND in the form required by TEXAS STATUTES, in an amount equal to ONE HUNDRED PERCENT (100%) of the Contract Sum as security for payment of all persons performing labor and furnishing materials in connection with this Contract. (Bonding Company is to furnish such forms). All bonds shall name the Owner as additional obligee.

§ 11.4.3 The Payment and Performance Bond shall meet requirements of Chapter 2253 of the Texas Governmental Code. All bonds shall be issued by a surety company licensed, listed and authorized to issue bonds in the State of Texas by the Texas Department of Insurance. The surety company may be required by the Owner to have a rating of not less than "B" in the latest edition of Best's Insurance Reports, Property-Casualty. The surety company shall provide, if requested, information on bonding capacity, other projects under coverage and shall provide proof to establish adequate financial capacity for this Project. Should the bond amount be in excess of ten percent (10%) of the surety company's capital and surplus, the surety company issuing the bond shall certify that the surety company has acquired reinsurance, in a form and amount acceptable to the Owner, to reinsure the portion of the risk that exceeds ten percent (10%) of the surety company's capital and surplus with one or more reinsurers who are duly authorized and admitted to do business in Texas and that amount reinsured by an reinsurer does not exceed ten percent (10%) of the reinsurer's capital and surplus.

§ 11.4.4 The Sureties shall promptly file a signed copy of the Contract, Performance Bond, and Payment Bond with the Owner in full compliance with Chapter 2253 of the Texas Governmental Code or, in the case of a Construction Manager, as required by Section 14.3.3 of the AIA Document A133-2019.

§ 11.4.5 All bonds will be reviewed by the Architect for compliance with the Contract Documents prior to execution of the contract. In the event that the Architect has any questions concerning the sufficiency of the bonds, the bonds will be referred to the Owner or the Owner's representative for review and decision.

§ 11.4.6 All bonds shall be originals. The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the Power-of-Attorney. The name, address, and telephone number of a contact person for the bonding company shall be provided.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 11.4.7 Upon the request in writing of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

§ 11.4.8 Bonds shall be signed by an agent resident in the State of Texas and the date of the bond shall be the date of execution of the contract. If at any time during the continuance of the contract, the surety of the Contractor's bonds becomes insufficient, Owner shall have the right to require additional and sufficient sureties which the Contractor shall furnish to the satisfaction of the Owner within ten (10) business days after notice to do so. In default thereof, the Contractor may be suspended, and all payment or money due to the Contractor withheld.

§ 11.4.9 By inclusion of this Section 11.4.8 in the Contract Documents, the surety which issues the bonds is hereby notified that the Owner, the Architect, and their agents and employees do not represent and will not be responsible for the surety's interests during the course of the Work. To protect its interests, the surety shall have the right to attend pay estimate meetings, review Applications for Payment when requested in writing by them, comment upon and make recommendations regarding payments, and inspect the Work in the presence of the Contractor and the Architect. By providing the bonds for the Work, the surety shall and hereby waives any cause of action against the Owner, the Architect, their agents and employees, for any loss suffered by the surety by reason of overpayment of any amounts to the Contractor, unless such is a direct result of a fraudulent or grossly negligent act committed by such party.

§11.5 Adjustment and Settlement of Insured Loss [Paragraph Deleted.]

~~§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.~~

~~§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.~~

PAGE 55

§ 12.1.1 If a portion of the Work is covered prior to inspection, contrary to the Architect's request or to requirements specifically expressed in the Contract ~~Documents,~~ Documents or if any known deficiencies exist, it must, if requested ~~in writing~~ by the Architect, be uncovered by the Contractor for the Architect's examination and be replaced at the Contractor's sole expense without change in the Contract Time. If the uncovered work is determined by the Architect upon inspection to be deficient or not in accordance with the Contract Documents, the uncovered Work which is deficient or not in accordance with the Contract Documents shall be corrected and covered at the Contractor's sole expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense. If the a request inspection of the Work prior to covering or including a requirement for inspection in the Contract Documents is within the Architect's standard of care and the Architect has failed to timely make such request or include the

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

requirement in the Contract Documents, the Architect shall reimburse the Owner for the actual costs of uncovering and recovering such Work and additional costs of correction, if any, caused by covering the Work prior to inspection.
PAGE 56

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's ~~expense.~~expense and will be subject to offset by the Owner at Final Payment.

...

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Owner shall give such notice of the condition to the Contractor with reasonable promptness after discovery of the condition. The Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such ~~condition. The Owner shall give such notice promptly after discovery of the condition.~~ condition in its non-conforming state. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor ~~and to make a claim for breach of warranty.~~ based on a breach of the warranty contained in this Section 12.2.2.1 providing for correction of Work during the one-year period. If the Contractor fails to correct nonconforming Work within a reasonable time during ~~that~~ the period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

...

§ 12.2.2.3 The one-year period for correction of Work shall ~~not~~ be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.2.4 Upon request by the Owner and prior to the expiration of one (1) year from the date of Substantial Completion, the Architect will conduct and the Contractor shall attend a meeting with the Owner to review the facility operations and performance.

...

§ 12.2.6 Contractor shall (i) re-execute any parts of the Work that fail to conform with the requirements of this Agreement that appear during the progress of the Work; (ii) remedy any defects in the Work due to faulty materials or workmanship which appear within a period of one (1) year from Substantial Completion of the Work hereunder, or within such longer period of time as may be set forth in the Drawings and Specifications or other Contract Documents; and (iii) replace, repair, or restore any parts of the Project or furniture, fixtures, equipment, or other items placed therein (whether by Owner or any other party) that are injured or damaged by any such parts of the Work that do not conform to the requirements of the Contract Documents or defects in the Work or by the negligent act of the Contractor or its employees, agents or subcontractors. The cost to Contractor of performing any of its obligations under this Section 12.2.6 to the extent not covered by insurance shall be borne by Contractor.

§ 12.2.7 The provisions of this Section 12.2 apply to Work done by Subcontractors of the Contractor as well as Work done directly by employees of the Contractor. The provisions of this Section 12.2.7 shall not apply to corrective Work attributable solely to the acts or omissions of any separate Contractor of Owner (unless Contractor is acting in such capacities). The cost to Contractor of performing any of its obligations under this Section 12.2.7 to the extent not covered by insurance shall be borne by Contractor.

§ 12.2.8 If, however, Owner and Contractor deem it inexpedient to require the correction of Work damaged or not done in accordance with the Contract Documents, an equitable deduction from the Contract Sum shall be made by written agreement between Contractor and Owner. Until such settlement, Owner may withhold such sums as Owner deems

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

just and reasonable from moneys, if any, due Contractor. The settlement shall not be unreasonably delayed by the Owner and the amount of money withheld shall be based on estimated actual cost to the Owner of the correction.

§ 12.2.9 Contractor's express warranties set out in this Article 12 shall be in addition to, and not in lieu of, any other warranties or remedies Owner may have under the Contract Documents, at law, or in equity for defective Work.

PAGE 57

The Contract shall be governed by the ~~law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.~~laws of the State of Texas without regard to choice-of-law rules of any jurisdiction. The Contract is deemed performable entirely in the County in which the Project is located. Any litigation to enforce or interpret any terms of the Contract, or any other litigation arising out of or as a result of the Contract, shall be brought in the State courts of said County. No provision of this Agreement shall waive any immunity or defense.

...

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. ~~Except as provided in Section 13.2.2, neither~~ Neither party to the Contract shall assign the Contract ~~as a whole~~ in whole or in part without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender or other entity providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.2.3 The invalidity of any part or provision of the Contract Documents shall not impair or affect in any manner whatsoever the validity, enforceability, or effect of the remainder of the Contact Documents.

PAGE 58

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made at appropriate times as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public ~~authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals.~~ authorities having jurisdiction. Except for tests, inspections and approvals required to be provided by the Contractor in the Contract Documents, the Owner will contract for, independently of the Contractor, the inspection services, the testing of construction materials engineering, and the verification testing services necessary for the acceptance of the Work by the Owner. The Contractor shall give timely notice to the persons or entities selected by the Owner of the need for such services. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense. Architect, Owner and Contractor shall cooperate for the timely scheduling of such tests and inspections.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including but not limited to those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

...

~~Payments~~ Undisputed payments due and unpaid under the Contract Documents shall bear interest ~~from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.~~ in accordance with the Texas Prompt Payment Act, Texas Gov't Code Chapter 2251. Any such payment shall be deemed overdue on the thirty-first (31st) day after Owner receives the Contractor's Certificate for Payment from the Architect, if Owner's Board of Trustees meets more than once per month. Any such payment shall be deemed overdue on the forty-sixth (46th) day after Owner receives the Contractor's Certificate for Payment from the Architect, if Owner's Board of Trustees meets once a month or less frequently. No interest shall be due on sums properly retained by Owner, except as provided by law, or on disputed sums unpaid by Owner.

§ 13.6 Equal Opportunity In Employment

§ 13.6.1 The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, age, disability, sex, national origin, or any class otherwise protected by District policy or law. The Contractor agrees to post in conspicuous places, available to employees and applicants, notices setting forth the Contractor's nondiscrimination policies.

§ 13.6.2 The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, age, disability, sex, national origin, or any class otherwise protected by District policy or law.

§ 13.7 Contractors Records

§ 13.7.1 Contractor agrees to furnish Owner such information as may be available in Contractor's files and records for the Project for the purpose of aiding Owner in establishing a depreciation schedule for the Project or such portions thereof as Owner may determine.

§ 13.7.2 Contractor shall at all times through the date of Final Completion, maintain Job Records, including, but not limited to, invoices, payment records, payroll record, daily reports, diaries, logs, instructions, drawings, receipts, contracts, purchase orders, vouchers, memoranda, other financial data and job meeting minutes applicable to the Project, in a manner which maintains the integrity of the documents. Job Records must be retained by Contractor for at least twelve (12) years after the date of Final Completion of the Project. Within ten (10) days of Owner's request, Contractor shall make such Job Records available for inspection, copying and auditing by the Owner, Architect or their respective representatives, at Owner's central office or the principal offices of the Contractor, at the sole option of the Owner.

§ 13.7.3 For all Change Orders, Allowances and expenditures from Contingency Funds, Contractor shall also maintain, in accordance with the provisions of Section 13.9.1, the following: contract files, including proposals of successful and unsuccessful bidders, bid recaps and contractor payments; original estimates; estimating Work sheets; general ledger entries detail cash and trade discounts received; insurance rebates and dividends; and any other supporting evidence deemed necessary by the Owner to substantiate charges related to the Contract.

§ 13.7.4 Contractor shall keep a full and detailed financial accounting system and shall exercise such controls as may be necessary for proper financial management under this Contract; the accounting and control system shall be satisfactory to the Owner and shall be subject to the provisions of Section 13.7.1.

§ 13.7.5 Contractor shall keep all Construction Documents related to the Project, provided, however, Contractor shall not destroy said documents until Contractor has confirmed with Owner in writing that Owner has obtained a copy of all as-built drawings.

§ 13.7.6 In the event that an audit by the Owner reveals any errors/overpayments by the Owner, then the Contractor shall refund to the Owner the full amount of such overpayment within thirty (30) days of such audit findings, or the Owner, as its option, reserves the right to deduct such amounts owed to the Owner from any payments due to the Contractor.

§ 13.8 No Third-Party Beneficiaries

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

There are no third-party beneficiaries to this agreement.

§ 13.9 Proprietary Interests And Confidential Information

§ 13.9.1 Neither Architect nor Contractor shall use the image or likeness of Owner's Project or Owner's official logo or emblem and any other trademark, service mark, or copyrighted or otherwise protected information of Owner, without Owner's prior written consent. Contractor and Architect shall not have any authority to advertise or claim that Owner endorses Architect or Contractor's services, without Owner's prior written consent.

§ 13.9.2 Neither Architect nor Contractor shall disclose any confidential information of Owner which comes into the possession of Architect or Contractor at any time during the Project, including but not limited to: pending real estate purchases, exchange, lease, or value; information related to litigation; detailed layouts of the Owner's Facilities; the location and deployment of security devices; security access codes; student likenesses; student record information; employee information; or any other information deemed confidential by law.

§ 13.9.3 The parties acknowledge that, as a public entity in the State of Texas, Owner is subject to, and must comply with, the provisions of the Texas Public Information Act, Texas Government Code Section 552.001, *et seq.*, and the Texas Open Meetings Act, Texas Government Code, Section 551.001, *et seq.*

§ 13.10 The invalidity of any part or provision of the Contract Documents shall not impair or affect in any manner whatsoever the validity, enforceability or effect of the remainder of the Contract Documents.

PAGE 60

§ 14.1.1 ~~The Contractor may terminate the Contract if~~ If the Work is stopped for a period of ~~30~~ thirty (30) consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of ~~the Work, for any of the following reasons:~~ the Work under direct or indirect contract with the Contractor for any of the reasons set forth below, the Contractor may terminate the Contract upon twenty (20) days written notice to Owner and Architect if the Work is not allowed to commence within such period. The sole grounds for termination under this Subsection 14.1.1 are as follows:

...

.3 Because ~~the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because~~ the Owner has not made payment ~~on a~~ of undisputed sums due on an approved Certificate for Payment within the time stated in the Contract Documents; or

.4 ~~The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.~~ [Subsection Deleted.]

§ 14.1.2 ~~The Contractor may terminate the Contract if,~~ If through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is ~~less.~~less, the Contractor may terminate the Contract so long as Contractor has provided Owner and Architect with written notice of its intent to terminate in the event of additional delays of not less than twenty (20) days and has furnished written notice of termination to Owner and Architect no less than seven (7) days prior to the effective date of termination.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment ~~for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.~~ in an amount which would have been recoverable had the termination been for the Owner's convenience.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon ~~seven~~ ten (10) additional

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

...

.2 fails to make payment to Subcontractors or suppliers for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

...

.4 fails to proceed continuously and diligently with the construction and completion of the Work; except as permitted under the Contract Documents; .5 fails to furnish the Owner, upon written request, with assurances satisfactory to the Owner, evidencing the Contractor's ability to complete the Work in compliance with all the requirements of the Contract Documents;

.6 engages in or permits serious or repeated worker misconduct in violation of Article 3.3;

.7 engages in conduct that would constitute a violation of state or federal criminal law, including but not limited to, the laws prohibiting certain gifts to public servants, or engages in conduct that would constitute a violation of the Owner's ethics or conflict of interest policies; or

.8 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, ~~and upon certification by the Architect that sufficient cause exists to justify such action,~~ subject to any prior rights of the surety, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

PAGE 61

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. ~~Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.~~

In any such event, title to the Work and any products thereof, whether completed or partially completed, as well as all materials prepared, procured or set aside by the Contractor for use in the Work, shall vest in the Owner at the Owner's option, and the Owner may enter the Contractor's premises and remove the same therefrom. No election hereunder shall be construed as a waiver of any rights or remedies of the Owner with regard to any breach of the Contract Documents.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished. Any further payment shall be limited to amounts actually earned to the date of termination.

§ 14.2.4 If the ~~unpaid balance of the Contract Sum exceeds~~ costs of finishing the Work, including compensation for the ~~Architect's~~ Architects' services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, ~~such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor~~ exceed the unpaid balance of the Contract Sum or Guaranteed Maximum Price (if the Project is a Construction Manager at Risk project), then the Contractor and/or its Surety shall pay the difference to the Owner. The amount to be paid to the ~~Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this~~ Owner shall be certified by Architect upon application. The obligation for payment shall survive termination of the Contract.

§ 14.2.5 The parties hereby agree that: 1) if an order for relief is entered on behalf of the Contractor, pursuant to Chapter 11 of the U.S. Bankruptcy Code; 2) if any other similar order is entered under any debtor relief laws; 3) if Contractor makes an assignment for the benefit of one or more of its creditors; 4) if a receiver is appointed for the benefit of its creditors; or 5) if a receiver is appointed on account of its insolvency, any such event could impair or frustrate Contractor's performance of the Contract Documents. Accordingly, it is agreed that upon occurrence of any such event, Owner shall be entitled to request of Contractor or its successor in interest adequate assurance of future performance in accordance with the terms and conditions of the Contract Documents. Failure to comply with such request within ten (10) days of delivery of the request shall entitle Owner to terminate the Contract and to the accompanying rights set forth in Subparagraphs 14.2.1 through 14.2.6. In all events, pending receipt of adequate

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

assurance of performance and actual performance in accordance with the Contract Documents, Owner shall be entitled to proceed with the Work with Owner's own forces or with other Contractors on a time and material or other appropriate basis, the cost of which will be charged against the Contract Sum.

§ 14.2.6 As required by Texas Government Code Chapter 2253, if a Performance Bond has been furnished and the Contractor is declared by the Owner to be in default under the Contract, then the Surety shall promptly perform the Work, in full accordance with the plans, specifications and Contract Documents. Unless otherwise agreed in writing between the Surety and the Owner, the Surety shall complete the Work by the Surety entering into a Contract acceptable to Owner, with a Contractor acceptable to Owner, and shall obtain new Payment and Performance Bonds as required by law.

...

§ 14.3.2 The Contract Sum and Contract Time ~~shall~~ may be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. ~~Adjustment of the Contract Sum shall include profit.~~ No adjustment shall be made to the extent

...

§ 14.4.1 The Owner may, at any time, terminate the Contract ~~for the Owner's convenience and without cause~~. Furthermore, if this Contract is a multi-year contract funded through Owner's current general funds that are not bond funds, then the Owner's Board of Trustees has the right to not appropriate adequate monies for the next fiscal year and to terminate this Contract at the end of each fiscal year during the term of the Contract, without the Owner incurring any further liability to Contractor as a result of such termination.
PAGE 62

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly ~~executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.~~executed, for profit only on that portion of the Work executed, and reasonable costs of demobilization.

§ 14.4.4 Upon determination by a Court of competent jurisdiction that termination of the Contractor pursuant to Section 14.2 was wrongful, such termination will be deemed converted to a termination for convenience pursuant to Section 14.4, and Contractor's remedy for wrongful termination shall be limited to the recovery of the payments permitted for termination for convenience as set forth in this Section 14.4.3.

...

§ 15.1.2 Time Limits on Claims
~~The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.~~[Paragraph Deleted.]

...

§ 15.1.3.1 Claims by ~~either~~ the ~~Owner or~~ Contractor, ~~where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2,~~ shall be initiated by notice to the ~~other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party Owner and to the Architect. Claims~~ under this Section 15.1.3.1 shall be initiated within 21 calendar days after the occurrence of the event giving rise to such Claim or within 21 calendar days after the claimant first ~~recognizes~~ knew or should have known of the condition giving rise to the Claim, whichever ~~is later~~ is earlier. If the full impact cannot be assessed as of the date of the Notice, then Notice shall be provided and amended by a second notice at the earliest date that is reasonably possible, but in no event later than the date of Contractor's Application for Payment covering the period in which the impact can be assessed and quantified.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required. If Texas Government Code, Chapter 2272 is applicable to the Claim, the Owner shall comply with the requirements set out therein as a condition precedent to any initiation of any litigation.

...

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make undisputed payments for Work performed in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum (or Guaranteed Maximum Price, as applicable), if permitted, and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of ~~either party~~ the Contractor to proceed in accordance with this Article 15. ~~The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.~~

...

If the Contractor wishes to make a Claim for an increase in the Contract ~~Sum,~~ Sum (provided such a claim is specifically permitted by the Contract Documents), notice as provided in Section 15.1.3 shall be given to the Owner and Architect. before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4. The Architect will promptly investigate such Claim and report findings and a recommended resolution in writing to the Owner and Contractor. If the Claim is approved by Owner, then Contractor shall proceed with the execution of the Work that is the subject matter of the Claim. If the Claim is rejected by the Owner, then Contractor may pursue alternative dispute resolution as provided for in the Contract Documents.

PAGE 63

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is ~~necessary.~~necessary.**§ 15.1.6.2** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions occurred at the locality of the Work which were abnormal for the period of time, were in excess of that normally experienced at the job site, could not have been reasonably anticipated, and prevented the execution of Work on scheduled Working Days. The term "Adverse Weather Conditions" as used herein means unusually severe weather which is beyond the normal weather recorded and expected for the locality of the Work and/or the season or seasons of the year. Normal weather conditions shall be determined based upon information compiled from the Local Climatological Data maintained by NOAA's National Centers for Environmental Information [formerly the National Climatic Data Center (NCDC)] from the station closest to the location of the Work. No day will be counted as a rain-day when substantial Contractor forces are able to perform Work on the Project for more than fifty percent (50%) of the usual workday or when the stage of the Work on the Project is not adversely impacted. The Contractor shall bear the entire economic risk of all weather delays and disruptions, and shall not be entitled to any increase in the Contract Price by reason of such delays or disruptions. Requests for an extension of the Contract Time pursuant to this Subparagraph shall be submitted to the Architect not later than the fifteenth (15th) day of the month following the month during which the delays or disruptions occurred, but shall be applied only to the extent that Substantial Completion of the Project exceeds the Substantial Completion date established for the Work. As provided herein, Contractor shall only be entitled an extension of the Contract Time per the terms of the Contract Documents and no damages shall be paid for delays.

~~**§ 15.1.6.2** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.~~

~~**§ 15.1.7 Waiver of Claims for Consequential Damages**~~

~~The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes~~

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.1.7 Calculating Claims For Damages

Except as otherwise provided in this Agreement, in calculating the amount of any Claim recoverable by the Contractor, the following standards will apply:

.1 No indirect or consequential damages will be allowed.

.2 No recovery shall be based on a comparison of planned expenditures to total actual expenditures, or on estimated loss of labor efficiency, or on a comparison of planned manloading to actual manloading, or any other analysis that is used to show damages indirectly.

.3 Damages are limited to extra costs specifically shown to have been directly caused by a proven wrong.

.4 No damages will be allowed for home office overhead or other home office changes or any Eichlay formula calculation.

Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents, nor will this Section 15.1.7 be deemed to apply to delay damages, which are prohibited entirely.

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision Claims by the Contractor against the Owner, including those alleging an error or omission by the Architect but excluding those arising under Section 10.3, shall be referred initially to the Architect for consideration and recommendation to the Owner. An initial recommendation by the Architect shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days Claim, after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.Architect with no recommendation having been rendered by the Architect.

§ 15.2.2 The Initial Decision Maker Architect will review Claims and within ten (10) days of the receipt of a the Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.Contractor; (2) issue an initial recommendation; (3) suggest a compromise; or (4) advise the parties that the Architect is unable to issue an initial recommendation due to a lack of sufficient information or conflict of interest.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.Following receipt of the Architect's initial recommendation regarding a claim, the Owner and Contractor shall attempt to reach agreement as to any adjustment to the Contract Price and/or Contract Time. If no agreement can be reached either party may request mediation of the dispute pursuant to Article 15.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. ~~Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.~~

§ 15.2.5 ~~The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.~~[Paragraph Deleted.]

§ 15.2.6 ~~Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.~~[Paragraph Deleted.]

§ 15.2.6.1 ~~Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.~~[Paragraph Deleted.]

PAGE 64

§ 15.2.8 ~~If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.~~**Waiver Of Lien**

It is distinctly understood that by virtue of this Contract, no mechanic, contractor, materialman, artisan, or laborer, whether skilled or unskilled, shall ever in any manner have, claim, or acquire any lien upon the building, or any of the improvements of whatever nature or kind so erected or to be erected by virtue of this Contract nor upon any of the land upon which said building or any of the improvements are so erected, built, or situated.

...

§ 15.3.1 ~~Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.~~In the event that the Owner or the Contractor shall contend that the other has committed a material breach of this Agreement, the party alleging such breach shall, as a condition precedent to filing any lawsuit, request mediation of the dispute. Mediation shall be subject to and in accordance with Chapter 154 of the Texas Civil Practice & Remedies Code. Mediation shall be conducted by a mutually-agreed-upon mediator qualified as an impartial third party for purposes of Section 154.052 of the Texas Civil Practice & Remedies Code.

§ 15.3.2 ~~The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.~~Request for mediation shall be in writing, and shall request that the mediation commence not less than thirty (30) or more than ninety (90) days following the date of the request, except upon agreement of both parties.

§ 15.3.3 ~~Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.~~In the event the Owner and the Contractor are unable to agree to a date for the mediation or to the identity of the mediator or mediators within thirty (30) days following the date of the request for mediation, all conditions precedent in this article shall be deemed to have occurred.

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

...

§ 15.3.5 Nothing herein shall preclude the Owner or the Contractor or as applicable, the Construction Manager from requesting that the Architect or one or more subcontractors be joined as parties to the mediation, to the extent allowed by their respective contracts.

§ 15.3.6 Any claim not resolved in mediation pursuant to Section 15.3 shall be subject to litigation as the sole method of dispute resolution.

§ 15.3.7 Unless otherwise agreed in writing by the Owner in the Owner's sole discretion, the Contractor may not bring a legal action against the Owner unless:

.1 the Contractor has given written notice to the Owner of the Claim, dispute, or other matter giving rise to the legal action within ninety-one (91) days after the date of the start of the event giving rise to the Contractor's Claim, dispute or other matter, and

.2 the legal action is brought within two (2) years and one (1) day after the date of the start of the event giving rise to Contractor's Claim, dispute or other matter.

§ 15.4 **Arbitration. This Section 15.4 and all subparts are intentionally deleted.** No dispute arising under the Contract Documents, these General Conditions or the underlying Contract shall be subject under any circumstances to Arbitration as the method of binding dispute resolution and Owner rejects any selection otherwise made by the parties.

DRAFT

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

§ 15.5 Immunity

Contractor stipulates that Owner is a political subdivision of the State of Texas and, as such, may enjoy immunities from suit and liability under the Constitution and laws of the State of Texas. By entering into this Agreement, Owner does not waive any of its immunities from suit and/or liability, except as otherwise specifically provided herein and as specifically provided by law.

Executed on this the ____ day of _____, 2022.

SAN MARCOS CONSOLIDATED INDEPENDENT SCHOOL DISTRICT		**DRAFT FOR PROCUREMENT**
OWNER *(Signature)*		**CONTRACTOR** *(Signature)*
Dr. Michael Cardona, Superintendent		
(Printed name and title)		*(Printed name and title)*

~~**§ 15.4.1** If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.~~

~~**§ 15.4.1.1** A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.~~

~~**§ 15.4.2** The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.~~

~~**§ 15.4.3** The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.~~

~~**§ 15.4.4 Consolidation or Joinder**~~

~~**§ 15.4.4.1** Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).~~

~~**§ 15.4.4.2** Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.~~

~~**§ 15.4.4.3** The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.~~

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17 (1129407097)

DRAFT

Additions and Deletions Report for AIA Document A201® – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. All rights reserved. The "American Institute of Architects," "AIA," the AIA Logo, "A201," and "AIA Contract Documents" are registered trademarks and may not be used without permission. This draft was produced by AIA software at 14:22:37 ET on 08/25/2022 under Order No.3104236826 which expires on 04/24/2023, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail copyright@aia.org.
User Notes: CLOUD TEMPLATE 08-18-17
(1129407097)

SECTION 00 43 13 - PROPOSAL SECURITY

PART 1 - GENERAL

1.1 SUPPLEMENTS TO PROPOSAL FORMS

A. Each proposal shall be accompanied by Proposal Security in the amount of 5% of the largest possible total of the Proposal submitted.

B. The Proposal Security shall be by cash, certified check or a Propoasl Bond. The Proposal shall be executed by the Proposer as principal. The Bid Bond form and security company are subject to approval by the Owner.

C. The Proposal security shall be returned to all except the three lowest Proposers within three days after opening of the proposals.

D. The remaining Proposal securities shall be returned promptly after the Owner and the accepted Proposer have executed the Contract, or, if no award has been made within thirty days after the date of the opening of Proposals, upon demand of the Proposer any-time thereafter so long as he has not been notified of the acceptance of hisPproposal.

PART 2 – Not Used

PART 3 – Not Used

END OF SECTION

SECTION 01 11 00 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and other Division 1 Specification Sections, apply to this Section.

1.2 PROJECT DESCRIPTION

A. The Project consists of an approximate 26,000 square feet renovation to Central Administration for San Marcos CISD, located at 1331 Texas Hwy 123, San Marcos, TX 78666 San Marcos, as shown on Contract Documents prepared by Stantec.

B. The Work consists of Civil, Landscape, Structural, Architectural, Mechanical, Electrical, Plumbing, and Technology requirements as indicated in the drawings and specifications.

1.3 CONTRACTOR USE OF PREMISES

A. General: Limit use of the premises to construction activities in areas indicated; allow for Owner occupancy and use by the public.

1. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
2. Keep driveways and entrances serving the premises clear and available to the Owner and the Owner's employees at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
3. Schedule a meeting with the Owner to discuss work that will interfere with Owner’s operations at the construction site or at adjacent Owner sites. Interferences include but are not limited to planned power interruptions or standardized testing schedules. For unplanned, unforeseen/nonemergency power interruptions that become necessary as the work progresses, deliver written notice at least 72 hours in advance of the interruption to the Owner. Where 72 hours advance notice is not possible, meet with Owner to discuss the interference/interruption.

1.4 OWNER OCCUPANCY

A. Full Owner Occupancy: The Owner will occupy the site and existing buildings on site during the entire construction period for the new building. Cooperate with the Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with the Owner's operations.

B. Partial Owner Occupancy: The Owner reserves the right to occupy and to place and install equipment in completed areas of the new building, prior to Substantial Completion provided that such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.

1. A Certificate of Substantial Completion will be executed for each specific portion of the Work to be occupied prior to Owner occupancy.
2. Obtain a Certificate of Occupancy from local building officials prior to Owner occupancy.
3. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy the

Owner will provide operation and maintenance of mechanical and electrical systems in occupied portions of the building.

1.5 OWNER-FURNISHED ITEMS

A. The Owner will furnish Wall Mounted Soap Dispensers and Paper Towel Dispensers, The Work includes providing support systems to receive Owner's equipment, and service and utility connections as required for the intended use of the item(s).

1. The Owner will arrange and pay for delivery of Owner-furnished items in accordance with the Contractor's Construction Schedule and will inspect deliveries for damage.
2. If Owner-furnished items are damaged, defective, or missing, the Owner will arrange for replacement. The Owner will also arrange for manufacturer's field services, and the delivery of manufacturer's warranties and bonds to the Contractor.
3. The Contractor is responsible for designating the delivery dates of Owner-furnished items in the Contractor's Construction Schedule and for receiving, unloading, and handling Owner- furnished items at the site. The Contractor is responsible for protecting Owner-furnished items from damage, including damage from exposure to the elements, and to repair or replace items damaged as a result of his operations.

1.6 MISCELLANEOUS PROVISIONS

A. For projects with roofing that requires melting of asphaltic or other similar materials which may create undesirable fumes, coordinate times of proposed work with the Owner. The Owner may or may not allow the work to occur during school hours and / or after school hours when the school is still occupied.

B. Under no circumstance shall the Construction Professional, i.e., the General Contractor, the Construction Manager or any Subcontractor to the work, utilize drawings or specifications that have been sealed by the Design Team members, i.e., the Architect, any Engineer, Landscape Architect, or other project Consultant, for use in the project's Construction Documents, as backgrounds for submittal documents that they may be required to provide to the jurisdiction (city, county, state, country) where the project resides; nor shall the sealed Construction Documents be used for any other purpose, by the project Construction Professionals, except as instruments to inform the construction for which the Construction Documents were originally assembled.

C. The General Contractor, or the Construction Manager, the Construction-Profession-in-charge, shall be responsible for compliance with the applicable in-force International Building Code requirements for Safeguards During Construction. The members of the Design Team accept no responsibility for temporary constructions nor on-site conditions which we are not expected to be aware of on a daily basis. The Construction-Profession-in-charge is responsible for temporary construction which differs from, and is separate from the permitted design.

PART 2 - PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01 11 00

SECTION 01 21 00 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements governing handling and processing allowances.

1. Selected materials and equipment, and in some cases, their installation are shown and specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. Additional requirements, if necessary, will be issued by Change Order.

B. Types of allowances required include the following:

1. Contingency allowance.
2. Digital Antenna System allowance.

C. Allowance amounts shall be transferable to other allowances as directed by the Architect.

D. Procedures for submitting and handling Unit Prices are included in Division 1 Section "Unit Prices".

E. Procedures for submitting and handling Change Orders are included in Division 1 Section "Modification Procedures."

1.3 SELECTION AND PURCHASE

A. At the earliest feasible date after Contract award, advise the Architect of the date when the final selection and purchase of each product or system described by an allowance must be completed in order to avoid delay in performance of the Work.

1. When requested by the Architect, obtain proposals for each allowance for use in making final selections; include recommendations that are relevant to performance of the Work.
2. Purchase products and systems as selected by the Architect from the designated service organization or supplier.

1.4 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

B. Submit invoices or delivery slips to indicate actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.5 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed for the Owner's purposes, and only by Contingency Fund Change Orders which designate amounts to be charged to the allowance.

1. The Contractor's related costs for products or equipment ordered by the Owner under the contingency allowance, including delivery, installation, taxes, insurance, equipment rental, and similar costs are not part of the Contract Sum.
2. Change Orders authorizing use of funds from the contingency allowance will not include the Contractor's related costs and reasonable overhead and profit margins. Contractor shall include in base bid, Contractor's overhead, profit, insurance, bond and other direct cost.
3. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order or transfer the remaining amounts to other allowances as directed by the Owner.

1.6 UNUSED MATERIALS

A. Return unused materials to the manufacturer or supplier for credit to the Owner, after installation has been completed and accepted.

B. Where it is not economically feasible to return unused material for credit and when requested by the Architect, prepare unused material for the Owner's storage, and deliver to the Owner's storage space as directed. Otherwise, disposal of excess material is the Contractor's responsibility.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect products covered by an allowance promptly upon delivery for damage or defects.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related construction activities.

3.3 SCHEDULE OF ALLOWANCES

A. **Allowance Number 1 – Owner's General Contingency Allowance / Construction Contingency:** For non-specific use for approved additional Project work upon the Owner's instruction. Approved dollar amount shall be included in the Base Proposal amount and listed separately in the Contractor's Schedule of Values..... **$77,000.00**

B. **Allowance Number 2 – Digital Antenna System:** For use in providing and installing antenna system as indicated and described in design documents provided by the Architect/Engineer after the Proposal period. Approved dollar amount shall be included in the Base Proposal amount and listed separately in the Contractor's Schedule of Values .....**$ 70,000.00**

END OF SECTION 01 21 00

SECTION 01 22 00 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and other Division 1 Specification Sections, apply to this Section. Refer to the following:

1. “Funds” as described and indicated in the Division 1 Section Modification Procedures.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for unit prices.

1. A unit price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract Documents are increased or decreased.
2. Unit prices include all necessary material, overhead, profit and applicable taxes.
3. Refer to individual Specification Sections for construction activities requiring the establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
4. Materials provided at “Unit price” costs are only to be used, or otherwise applied to the job, if and when directed by the Architect. Providing materials listed as “unit prices” below, shall not be done without prior involvement and prior approval of the Architect.
5. “Fund” materials shall not be used to meet requirements of doing the work for the job as indicated in the Construction Documents – “Fund” materials are to be used to supplement the requirements indicated in the Construction Documents. Adjustment to “Fund” accounts shall be based on “Unit Prices” indicated in this section.

B. Schedule: A "Unit Price Schedule" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods described under each unit price.

1. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

3.1 UNIT PRICE SCHEDULE (SEE PROPOSAL FORM)

A. Include in the Base Bid the following items and quantities at equivalent <u>UNIT PRICING PER LINE ITEM</u>:

1. All costs associated to provide two (2) additional communications/data outlets boxes at a distance of 100’, including but not limited to cover plates, devices, raceway, misc. connectors, and labor, as directed by the Architect.

2. All costs associated to provide three (3) 1P-20A circuits at a distance of 100' each. Each circuit shall include six (6) additional duplex outlets. Pricing shall include but not be limited to: circuit breakers, boxes, cover plates, devices, raceway, misc. connectors, and labor, as directed by the Architect.

3. All costs associated to provide four (4) 1P-20A circuits at a distance of 100' each, including but not limited to: circuit breakers, boxes, junction boxes, cover plates, devices, raceway, misc. connectors, and labor, as directed by the Architect for fire alarm system signal power, HVAC controls, etc.

4. All costs associated to provide one (1) 277V lighting 1P-20A circuits at a distance of 150' each. Pricing shall include but not be limited to: circuit breakers, boxes, cover plates, devices, raceway, misc. connectors, switches and labor, as directed by the Architect.

5. All costs associated to the cost equivalent of six (6) type "A" luminaires.

6. All costs associated to provide five (5) Exit sign luminaires of common type on this project. Each luminaire shall include fifty (50) foot of branch circuit. Pricing shall include but not be limited to: boxes, cover plates, raceway, misc. connectors, and labor, as directed by the Architect.

B. Each item shall be logged and accounted for as they are used during construction by the Construction Manager and Subcontractor.

C. ITEMS LISTED THAT ARE NOT USED DURING CONSTRUCTION SHALL BE OFFERED BACK TO THE OWNER AS A DEDUCT AT THE LINE ITEM UNIT PRICE.

END OF SECTION 01 22 00

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for Alternates.

1. Definition: An Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents.
2. Coordination: Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted Alternate is complete and fully integrated into the project.
3. Notification: Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to Alternates.
4. Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the Work described under each Alternate.

a. Include as part of each Alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

1. ALTERNATE #1 – WHITE NOISE SYSTEM IN WORKSTATION AREA. REFER TO TECHNOLOGY SPECIFICATIONS.
   A. IN ROOMS: OFFICE 180 132, OFFICE 180 130, HR WS 134, HR ADMIN 135, HALLWAY 100J, HALLWAY 100K, OFFICE 180 121, OFFICE 140 120 AND CAB CONF 119.
   B. IN ROOMS: FINANCE WS 150, HUDDLE 149, COMM WS 148 AND TLA WS 147

2. ALTERNATE #2 – PORTABLE HOOK UP FOR GENERATOR TO RUN THE BOARD ROOM/TRAINING 107, LARGE CONF 104, BREAK 102 AND THE MDF 144. REFER TO ELECTRICAL DRAWINGS.

3. ALTERNATE #3 - EXTENDED WARRANTY FOR MECHANICAL ROOF TOP UNITS.
   A. STANDARD RTU WARRANTIES (BASE BID)
      1-YEAR PARTS
      5-YEAR COMPRESSOR
      5-YEAR ALUMINIZED STEEL HEAT EXCHANGER (12.5-17.5 TON UNITS)
      1-YEAR ALUMINIZED STEEL HEAT EXCHANGER (20-25 TON UNITS)

10-YEAR STAINLESS STEEL HEAT EXCHANGER

B. EXTENDED WARRANTIES (ALTERNATE
   a. UP TO 10-YEAR PARTS / COMPRESSOR / LABOR
   b. 15 YEARS ON HEAT EXCHANGER (YHD/YHC)
   c. 20 YEARS ON HEAT EXCHANGER (HAX)

4. ALTERNATE #4 - SITE DRIVES ASPHALT (BASE BID) AND CONCRETE (ALTERNATE). REFER TO CIVIL DRAWINGS.

5. ALTERNATE #5 – PROVIDE UNDERGROUND SERVICE ENTRANCE CONDUIT. REFER TO ELECTRICAL DRAWINGS.

END OF SECTION 01 23 00

SECTION 01 25 13 - PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and other Division 1 Specification Sections, apply to this Section.

B. Section 01 33 00 “Submittals”.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling requests for substitutions made both prior to receipt of bids and after as herein specified.

B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."

C. Standards: Refer to Section "Reference Standards and Definitions" for applicability of industry standards to products specified.

D. Procedural requirements governing the Contractor's selection of products and product options are included under Section "Materials and Equipment."

1.3 DEFINITIONS

A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.

B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor 10 days prior to receipt of bids are considered requests for substitutions. The following are not considered substitutions:

1. Substitutions requested by Bidders during the bidding period, and accepted prior to award of Contract, are considered as included in the Contract Documents.
2. Revisions to Contract Documents requested by the Owner or Architect.
3. Specified options of products and construction methods included in Contract Documents.
4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

A. Substitution Request Submittal: Requests for substitution will be considered if received at least 10 days prior to bid date unless otherwise indicated. Requests received after commencement of the Work may be considered or rejected at the discretion of the Architect. Handle requests for substitutions, made both prior to and after receipt of Bids, the same way, unless otherwise indicated below or in the specific specification Section. Where submittal requirements are listed in specification Sections, comply with the submittal requirements within the specification Sections in lieu of those indicated below.

1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.

2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:

    a. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.
    b. Samples, where applicable or requested.
    c. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.
    d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors that will become necessary to accommodate the proposed substitution.
    e. A statement indicating the substitution's effect on the Anticipated Project Schedule and Contract Construction Schedule after award of contract compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
    f. Cost information, including a proposal of the net change, if any, from the specified product or assembly, or the contract sum.
    g. Certification by the Bidder or Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.

B. ENVIRONMENTAL AND HEALTH CERTIFICATIONS

1. Reference Section 01 33 00 “Submittals” for additional submittal requirements for certain materials indicated in the Materials and/or Finish Schedules regarding “Environmental and Health Certifications”. Such “E&H” certificates and labels are to be provided by the material manufactures and are to be included with the product submittals.

1.5 Architect's Action: If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance of the proposed substitution will be in the form of an Addendum which lists all prior approved products prior to award of contract and a change order after the award of contract.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: The Bidder's or Contractor's substitution request will be received and considered by the Architect when all of the mandatory conditions are satisfied and one or more of the optional conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.

    a. Mandatory Conditions:

        1) Submitted as required prior to bidding.
        2) Extensive revisions to Contract Documents are not required.
        3) Proposed changes are in keeping with the general intent of Contract Documents.
        4) The request is timely, fully documented and properly submitted.

b. Optional Conditions:

1) The request is directly related to an "or equal" clause or similar language in the Contract Documents.
2) The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
3) The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
4) A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.
5) The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Bidder or Contractor certifies that the substitution will overcome the incompatibility.
6) The specified product or method of construction cannot be coordinated with other materials, and where the Bidder or Contractor certifies that the proposed substitution can be coordinated.
7) The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Bidder or Contractor certifies that the proposed substitution provide the required warranty.
8) The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

B. Substitutions for Convenience: Architect will consider requests for substitution if received during the bid phase / prior to award of each issued package.

1. Conditions: Architect will consider Bidder's or Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted including payment for the fixed charge.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.2 FAILURE OF TIMELY ORDER

A. **The contractor is responsible for assuring the timely order of all materials specified. If a specified material, or color of material cannot be delivered by the contract completion date, due to failure to order the material in a timely manner, the contractor shall be responsible for supplying an equal or better material. The architect shall be the sole determinant of the approved substitute material. The contractor shall also be charged an amount equal to 5% of the value of the specified material. This amount shall be credited to the owner through a change order to the contract. The word "material", as used in this section, includes all items specified in the specifications or shown on the drawings.**

PART 3 - EXECUTION (Not Applicable)

PRODUCT AND MATERIAL SUBSTITUTION REQUEST FORM

(This substitution request form shall be used for Pre-Bid Substitution Requests or Post-Bid Substitution Requestsas specified in Division 1 Section "Product Substitutions".)

Project:

Substitution Request Number:

To:

From:

cc:

Date:

Re:

A/E Project Number:

Contract For:

Substitution approval is an acceptance of only the manufacturer and product for general conformance with the design concept reflected in the Contract Documents. The A/E has made no attempt to verify specific performance data, or to check the details of the proposed substitution as to special features, capacities, physical dimensions or code and/or regulatory compliance, all of which remain the responsibility of the person/entity submitting the proposed substitution.

Specification Title:

Description:

Section:

Page:

Article/Paragraph:

Proposed Substitution:

Manufacturer:

Address:

Phone:

Trade Name:

Model Number:

Installer:

Address:

Phone:

History: [ ] New product [ ] 2-5 years old [ ] More than 10 years old

Differences between proposed substitution and specified product:

Point-by-point comparative data attached – REQUIRED BY A/E

Reason for not providing specified item:

Similar Installation:

Project:

Architect:

Address:

Owner:

Date Installed:

Proposed substitution affects other parts of work: [ ] No [ ] Yes - Explain:

PRODUCT AND MATERIAL

SUBSTITUTION REQUEST FORM

(Continued)

Savings to Owner for accepting substitution: ($)

Proposed substitution changes Contract Time: No Yes If yes: Days added: or Days deducted:

Supporting Data Attached: [ ] Drawings [ ] Product Data [ ] Samples [ ] Tests [ ] Reports Other:

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs, related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted:

Signed by:

Firm:

Address:

Telephone:

Attachments:

A/E's REVIEW AND ACTION

[] Substitution rejected – Use specified materials.

[] Substitution Request received too late – Use specified materials.

[] Substitution approved – Make submittals in accordance with Division 1 Section "Submittals".

[] Substitution approved as noted – Make submittals in accordance with Division 1 Section "Submittals".

Additional Comments: [ ] Contractor [ ] Subcontractor [ ] Supplier [ ] Manufacturer [ ] A/E

Signed by: Date:

END OF SECTION 01 25 13

SECTION 01 26 00 – MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 1 Section "Submittals" for requirements for the Contractor's Construction Schedule.
2. Division 1 Section "Application for Payment" for administrative procedures governing applications for payment.
3. Division 1 Section "Product Substitutions" for administrative procedures for handling requests for substitutions made after award of the Contract.

C. Allowances: Refer to Division 1 Section “Allowances” for description of Work in this Section affected by allowances.

D. Unit Prices: Refer to Division 1 Section “Unit Prices” for description of Work in this Section affected by unit prices.

E. Alternates: Refer to Division 1 Section “Alternates” for description of Work in this Section affected by alternates.

1.3 DEFINITIONS

A. Fund: An account of a predetermined amount money credit or a predetermined amount of material credit, to be used exclusively at the Owner’s / Architect’s exclusive discretion on the project. Funds shall be modified through modification procedures included in this section. Funds may include, but are not limited to the following:

1. Steel Reinforcing Bar Fund (by the ton unless otherwise indicated). Subcontractors are not to place steel bars from this fund unless they are first directed. If they are not directed to use bars from the fund, the fund will be considered to be unused, and its full value intact.
2. Structural Steel Fund (by the ton unless otherwise indicated)

1.4 MINOR CHANGES IN THE WORK

A. The following are methods the Architect may employ, at his discretion, to affect minor changes to the work.

1. Instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Architect as part of a request for information on a Request for Interpretation Form as included in the Division 1 Section "Submittals".
2. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Architect on AIA form G710, Architect's Supplemental Instructions, or on a similar form of the Architect’s choosing.

3. Shop drawing review mark-ups indicating minor changes in the Work not involving an adjustment to the Contract Sum or Contract Time.
4. Sketches deemed appropriate from Design Team members (i.e. Architect, Engineers, and other Consultants representing other design disciplines) indicating minor changes in the Work not involving an adjustment to the Contract Sum or Contract Time.
5. Changes indicated by any means from the Design Team.

B. The General Contractor, Construction Manager or Construction Professional in charge of the overall construction for the project along with the Subcontractors, shall be responsible for following through with the indicated change in the work.

C. The previously mentioned methods may also be employed, at the Architect's discretion, to affect major changes to the work if in the opinion of the Architect, the methods are an acceptable means to convey the necessary information.

1.5 CHANGE ORDER PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Architect, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.

1. Proposal requests issued by the Architect are for information only. Do not consider them an instruction either to stop work in progress, or to execute the proposed change.
2. Unless otherwise indicated in the proposal request, within 20 days of receipt of the proposal request, submit to the Architect for the Owner's review an estimate of cost necessary to execute the proposed change.
3. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Furnish survey data to substantiate quantities and costs on Providers' letterheads, including, but not limited to, Subcontractors' letterheads.
4. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
5. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

B. Contractor-Initiated Change Order Proposal Requests: When latent or other unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Architect.

1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
2. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Furnish survey data to substantiate quantities and costs on Providers' letterheads, including, but not limited to, Subcontractors' letterheads.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Comply with requirements in Section "Product Substitutions" if the proposed change in the Work requires the substitution of one product or system for a product or system specified.

C. Proposal Request Form: Use AIA Document G 709 for Change Order Proposal Requests.

D. More Information/Detail Required: In addition to the information/detail indicated, there may be more information/detail required, depending on the specific circumstances encountered at the job. When directed by the Architect, provide additional information.

1.6 ALLOWANCES

A. Allowance Adjustment: Base each Change Order Proposal Request for an allowance cost adjustment solely on the difference between the actual purchase amount and the allowance,

multiplied by the final measurement of work-in-place, with reasonable allowances, where applicable, for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in the purchase amount only where indicated as part of the allowance.
2. When requested, prepare explanations and documentation to substantiate the margins claimed.
3. Submit substantiation of a change in scope of work claimed in the Change Orders related to unit-cost allowances.
4. The Owner reserves the right to establish the actual quantity of work-in-place by independent quantity survey, measure, or count.

1.7 FUNDS

A. Fund Adjustment: The "fund" monies are specifically for the Owner / Architect to use at their exclusive discretion – typically to improve the project (in their opinion) or to account for additional unforeseen construction cost or needs. The decision to use credits from any project "fund" is exclusively under the control of the Owner / Architect. The General Contractor / Construction Manager and Subcontractors will not be allowed to use "fund" credits for project work that was missed during the bid process, or that was not bid correctly by any Construction Professionals without the approval of the Owner / Architect prior to using the credit. Use of "fund" credit on the project requires involvement and approval of the Architect.

1. The General Contractor or Construction Manager shall monitor and record, for review and report to the Architect, the use of the money and the material from all funds. Unless otherwise indicated, a "fund" with unused money remaining in it, at the end of the project, shall be returned to the Owner by Change Order. A "fund" with unused material quantities remaining in it, at the end of the project, shall have its value determined by the designated "unit price" value (in the "Unit Prices" section) and its value transferred to the Owner by Change Order.

B. Base each Change Order Proposal Request for a "fund" cost adjustment solely on the difference between the actual purchase amount and the "fund", multiplied by the final measurement of work-in-place, with reasonable allowances, where applicable, for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in the purchase amount only where indicated as part of the "fund".
2. When requested, prepare explanations and documentation to substantiate the margins claimed.
3. Submit substantiation of work claimed in the Change Orders related to unit-cost.
4. The Owner reserves the right to establish the actual quantity of work-in-place by independent quantity survey, measure, or count.

1.8 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: When the Owner and Contractor are not in total agreement on the terms of a Change Order Proposal Request, the Architect may issue a Construction Change Directive on AIA Form G714, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. The Construction Change Directive will contain a complete description of the change in the Work and designate the method to be followed to determine change in the Contract Sum or Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.9 CHANGE ORDER PROCEDURES

A. Upon the Owner's approval of a Change Order Proposal Request, the Architect will issue a Change Order for signatures of the Owner and Contractor on AIA Form G701, as provided in the Conditions of the Contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 26 00

SECTION 01 29 00 – APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

B. The Contractor's Construction Schedule and Submittal Schedule are included in Division 1 Section "Submittals".

1.3 SCHEDULE OF VALUES

A. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:

    a. Contractor's construction schedule.
    b. Application for Payment form.
    c. List of subcontractors.
    d. Schedule of allowances.
    e. Schedule of alternates.
    f. List of products.
    g. List of principal suppliers and fabricators.
    h. Schedule of submittals.

2. Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than 10 days before the date scheduled for submittal of the initial Application for Payment.
3. Sub-Schedules: Where the Work is separated into phases that require separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
4. Format and Content: Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values.
5. Identification: Include the following Project identification on the Schedule of Values:

    a. Project name and location.
    b. Name of the Architect.
    c. Project number.
    d. Contractor's name and address.
    e. Date of submittal.

6. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:

    a. Generic name.
    b. Related Specification Section.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.

e. Name of supplier.
f. Change Orders (numbers) that have affected value.
g. Restocking Fees, if any. Do not include a column unless / until there are Restocking Fees.
h. Dollar value.
i. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.

7. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.
8. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.
9. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
10. Margins of Cost: Show line items for indirect costs, and margins on actual costs and list individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including its total cost.
11. Restocking Fees: There shall be no restocking fees charged by the General Contractor / Construction Manager to the Owner or Design Team members when the item(s) are returned due to item condition or supplying contractor (Subcontractor) or General Contractor / Construction Manager error. The General Contractor / Construction Manager shall provide a full refund to the Owner, less any applicable restocking fee, within the 30 days of receipt of the refund from the supplier / Manufacturer. The following shall apply to restocking fees:

    a. Restocking fees shall be limited to 10 percent maximum for restocking item(s) / products (premanufactured and ready to be bought from a supplier or manufacturer) in unopened original packaging still in sellable condition. If restocking cost associated including handling are higher than 10 percent, provide itemized cost report with handling support data to the Architect to review for confirmation of all associated costs.
    b. Where the cost to produce unique item(s) specifically for installation in the project, item(s) not sold as premade products (not premanufactured in predetermined form, ready to sell), exceeds 10 percent of the cost of the item(s), the cost to restock shall not be greater than the actual product material cost of the item(s) as well as any ancillary costs to produce and handle the item(s) incurred by the Manufacturer / supplier. Provide itemized cost report with support data to the Architect to review for confirmation of all associated costs with no more than 10 percent profit added.

12. Overhead and Profit: Show separate line item value for overhead and profit.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place shall be shown as separate line items in the Schedule of Values.

13. Schedule Updating: List Change Orders as a separate line item when Change Orders or Construction Change Directives result in a change in the Contract Sum.

14. **Break-Out Cost(s)**:

    a. For Owner's accounting purposes the undersigned agrees to provide a lump sum break- out cost in the proposed Schedule of Values (submitted within 10 days after award of Contract) for construction of the following rooms including all building construction, room finishes and equipment relating to the following area(s):
    BOARD ROOM / TRAINING 107, CHAIR STORAGE 108, CS CONFERENCE 109, CONTROL ROOM 110, HALLWAY 100C, SCHOOL FUEL 151, TOILET 152, TOILET 153, and STORAGE 154.
    Break-Out Cost shall be determined by actual estimating of construction, finishes, and equipment, and not based on square footage costs alone.

1.4 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.

1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.

B. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application or Payment is the period indicated in the Agreement. Modification to payment application times shall occur if agreed to by all concerned parties at the pre-construction meeting.

C. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for Payment.

D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.
2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

E. Transmittal: Submit 3 executed copies of each Application for Payment to the Architect by means ensuring receipt within 24 hours; one copy shall be complete, including waivers of lien and similar attachments, when required.

1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.

F. Waivers of Mechanics Lien: With each Application for Payment submit waivers of mechanics liens from subcontractors or sub-subcontractors and suppliers for the construction period covered by the previous application.

1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. The Owner reserves the right to designate which entities involved in the Work must submit waivers.

a. Waiver Delays: Submit each Application for Payment with the Contractor's waiver of mechanics lien for the period of construction covered by the application.

1.) Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of Work covered by the application who could lawfully be entitled to a lien.

b. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:

1. List of subcontractors.
2. List of principal suppliers and fabricators.
3. Schedule of Values.
4. Contractor's Construction Schedule (preliminary if not final).

5. Schedule of principal products.
6. Schedule of unit prices.
7. Submittal Schedule (preliminary if not final).
8. List of Contractor's staff assignments.
9. List of Contractor's principal consultants.
10. Copies of building permits.
11. Copies of authorizations and licenses from governing authorities for performance of the Work.
12. Initial progress report.
13. Report of pre-construction meeting.

H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Administrative actions and submittals that shall proceed or coincide with this application include:

1. Occupancy permits and similar approvals.
2. Warranties (guarantees) and maintenance agreements.
3. Test/adjust/balance records.
4. Maintenance instructions.
5. Meter readings.
6. Start-up performance reports.
7. Change-over information related to Owner's occupancy, use, operation and maintenance.
8. Final cleaning.
9. Application for reduction of retainage, and consent of surety.
10. Advice on shifting insurance coverages.
11. Final progress photographs.
12. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.

J. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:

1. Completion of Project closeout requirements.
2. Completion of items specified for completion after Substantial Completion.
3. Assurance that unsettled claims will be settled.
4. Assurance that Work not complete and accepted will be completed without undue delay.
5. Transmittal of required Project construction records to Owner.
6. Certified property survey.
7. Proof that taxes, fees and similar obligations have been paid.
8. Removal of temporary facilities and services.
9. Removal of surplus materials, rubbish and similar elements.
10. Change of door locks to Owner's access.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:

1. Coordination.
2. Administrative and supervisory personnel.
3. General installation provisions.
4. Cleaning and protection.

B. Field engineering is included in Division 1 Section "Field Engineering".

C. Progress meetings: coordination meetings and pre-installation conferences are included in Division 1 Section "Project Meetings".

D. Requirements for the Contractor's Construction Schedule are included in Division 1 Section "Submittals".

1.3 COORDINATION

A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.

1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

    a. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

4. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.
2. Installation and removal of temporary facilities.
3. Delivery and processing of submittals.

4. Progress meetings.
5. Project Close-out activities.

C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.

1. Show the interrelationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.
3. Comply with requirements contained in Division 1 Section "Submittals."
4. Refer to Division 22 Section “Plumbing”, Division 23 Section "Heating, Venting, And Air-Conditioning (HVAC)", and Division 26 Section "Electrical" for specific coordination Drawing requirements for mechanical and electrical installations.

B. Staff Names: Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.

1. Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

F. Recheck measurements and dimensions, before starting each installation.

G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.2 CLEANING AND PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Air contamination or pollution.
7. Water or ice.
8. Solvents.
9. Chemicals.
10. Light.
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.
15. Soiling, staining and corrosion.
16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. Electrical current.
20. High speed operation.
21. Improper lubrication.
22. Unusual wear or other misuse.
23. Contact between incompatible materials.
24. Destructive testing.
25. Misalignment.
26. Excessive weathering.
27. Unprotected storage.
28. Improper shipping or handling.
29. Theft.
30. Vandalism.

END OF SECTION 01 31 00

SECTION 01 31 19 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:

1. Pre-Construction Conference.
2. Pre-Installation Conferences.
3. Coordination Meetings.
4. Progress Meetings.

B. Construction schedules are specified in another Division 1 Section.

1.3 PRE-CONSTRUCTION CONFERENCE

A. Schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.

B. Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.

C. Agenda: Discuss items of significance that could affect progress including such topics as:

1. Tentative construction schedule.
2. Critical Work sequencing.
3. Designation of responsible personnel.
4. Procedures for processing field decisions and Change Orders.
5. Procedures for processing Applications for Payment.
6. Distribution of Contract Documents.
7. Submittal of Shop Drawings, Product Data and Samples.
8. Preparation of record documents.
9. Use of the premises.
10. Office, Work and storage areas.
11. Equipment deliveries and priorities.
12. Safety procedures.
13. First aid.
14. Security.
15. Housekeeping.
16. Working hours.
17. Work that will interfere with Owner's operations at the construction site or at adjacent Owner sites, including but not limited to planned power interruptions and unplanned, unforseseen/nonemergency power interruptions that become necessary as the Work progresses.

1.4 PRE-INSTALLATION CONFERENCES

A. Conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Architect of scheduled meeting dates.

B. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:

1. Contract Documents.
2. Options.
3. Related Change Orders.
4. Purchases
5. Deliveries.
6. Shop Drawings, Product Data and quality control Samples.
7. Possible conflicts.
8. Compatibility problems.
9. Time schedules.
10. Weather limitations.
11. Manufacturer's recommendations.
12. Compatibility of materials.
13. Acceptability of substrates.
14. Temporary facilities.
15. Space and access limitations.
16. Governing regulations.
17. Safety.
18. Inspection and testing requirements.
19. Required performance results.
20. Recording requirements.
21. Protection.

C. Record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Architect.

D. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

1.5 COORDINATION MEETINGS

A. Conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.

B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.6 PROGRESS MEETINGS

A. Conduct progress meetings at the Project sites once a month. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.

B. Attendees: In addition to representatives of the Owner and Architect, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.

D. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

1. Review the present and future needs of each entity present, including such items as:

a. Interface requirements.
b. Time.
c. Sequences.
d. Deliveries.
e. Off-site fabrication problems.
f. Access.
g. Site utilization.
h. Temporary facilities and services.
i. Hours of Work.
j. Hazards and risks.
k. Housekeeping.
l. Quality and Work standards.
m. Change Orders.
n. Documentation of information for payment requests.

E. Reporting: No later than 3 days after each progress meeting date, the contractor shall distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

1. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 31 19

SECTION 01 32 23 - FIELD ENGINEERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. General: This Section specifies administrative and procedural requirements for field engineering services, including, but not necessarily limited to, the following:

1. Land survey Work.

1.3 SUBMITTALS

A. Certificates: Submit a certificate signed by the Land Surveyor or Professional Engineer certifying that the location and elevation of improvements comply with the Contract Documents.

B. Final Property Survey: Submit 10 copies of the final property survey.

C. Project Record Documents: Submit a record of Work performed and record survey data as required under provisions of Division 1 Section "Submittals" and Division 1 Section "Project Closeout".

1.4 QUALITY ASSURANCE

A. Surveyor: Engage a Registered Land Surveyor registered in the State where the project is located, to perform land surveying services required.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. The Owner will identify existing control points and property line corner stakes.

B. Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks before proceeding to layout the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.

1. Do not change or relocate benchmarks or control points without prior written approval. Promptly report lost or destroyed reference points, or requirements to relocate reference points because of necessary changes in grades or locations.
2. Promptly replace lost or destroyed project control points. Base replacements on the original survey control points.

C. Establish and maintain a minimum of two permanent benchmarks on the site, referenced to data established by survey control points.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

D. Existing Utilities and Equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction.

1. Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer and water service piping.

3.2 PERFORMANCE

A. Working from lines and levels established by the property survey, establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to properly locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.

1. Advise entities engaged in construction activities, of marked lines and levels provided for their use.
2. As construction proceeds, check every major element for line, level and plumb.

B. Surveyor's Log: Maintain a surveyor's log of control and other survey Work. Make this log available for reference.

1. Record deviations from required lines and levels, and advise the Architect when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.
2. On completion of foundation walls, major site improvements, and other Work requiring field engineering services, prepare a certified survey showing dimensions, locations, angles and elevations of construction and sitework.

C. Site Improvements: Locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes and invert elevations by instrumentation and similar appropriate means.

D. Building Lines and Levels: Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels and control lines and levels required for mechanical and electrical Work.

E. Existing Utilities: Furnish information necessary to adjust, move or relocate existing structures, utility poles, lines, services or other appurtenances located in, or affected by construction. Coordinate with local authorities having jurisdiction.

F. Final Property Survey: Before Substantial Completion, prepare a final property survey showing significant features (real property) for the Project. Include on the survey a certification, signed by the Surveyor, to the effect that principal metes, bounds, lines and levels of the Project are accurately positioned as shown on the survey.

1. Recording: At Substantial Completion, have the final property survey recorded by or with local governing authorities as the official "property survey".

END OF SECTION 01 32 23

SECTION 01 33 00 – SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:

1. General Contractor's / Construction Manager's construction schedule.
2. Submittal schedule.
3. Daily construction reports.
4. Shop Drawings.
5. Product Data.
6. Samples.
7. Request for Interpretation and Contractor generated "Request for Information".
8. Environmental and Health Certificates or labels for certain materials as required.
9. Weekly submittal report.

B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:

1. Permits.
2. Applications for payment.
3. Performance and payment bonds.
4. Insurance certificates.
5. List of Subcontractors.

C. The Schedule of Values submittal is included in Section "Applications for Payment."

D. Inspection and test reports are included in Section "Quality Control Services."

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's and General Contractor's / Construction Manager's responsive action. Submittals may be rejected for not complying with requirements.

B. Informational Submittals: Written information that does not require Architect's and General Contractor's / Construction Manager's responsive action. Submittals may be rejected for not complying with requirements.

C. RFI: "Request For Interpretation" from General Contractor / Construction Manager seeking information, interpretation or clarification of the Contract Documents and not involving change in Contract Sum or Contract Time. General Contractor's / Construction Manager's RFI shall comply with the requirements of for the "Request For Interpretation" (RFI).

1. Improper RFI: RFI not prepared in accordance with requirements of this Section, including requirements for graphic solution, where appropriate.

2. Frivolous RFI: RFI that requests information that is clearly indicated on, or reasonably inferable from the Contract Documents.

D. Contractor: General Contractor, Construction Manager or other Lead Contracting Entity controlling the construction of the Project.

E. A Business Week: A business week, for this Project shall mean, 5 continuous days - Monday through Friday, not including weekend days (Saturday and Sunday). National holidays of country where project is located, which fall on any day, shall not be considered to be part of the business week.

F. A Business Day: Any of the days of the week, Monday through Friday, not including weekend days (Saturday and Sunday). National holidays of country where project is located, which fall on any day, shall not be considered to be part of the business week

1.4 SUBMITTAL PROCEDURES

A. General:

1. Prerequisite to Submittal: Prior to submitting anything, Contractor shall review and check each submittal for coordination with other Work of the Contract and for compliance with the Contract Documents. Mark-up each submittal's: obvious errors with appropriate corrections, omissions requiring additional information, note field dimensions, and make appropriate additional comments, notes and observations. Mark with approval stamp before submitting to Architect. Unreviewed submittals are subject to immediate rejection. All submittals should show some meaningful revision notes and comments – those which do not, will be presumed to have not been reviewed.

    a. Design Team Members will not review submittals received from Contractor that do not have Contractor's review and approval.

2. Submittals will be reviewed during the business week (Monday through Friday), not on weekends, nor on United States national holidays. Take into account these days, when no work will be performed by Members of the Design Team.
3. Unless otherwise indicated, or otherwise coordinated, submittals shall be complete as submitted. Incomplete and partial submittals will slow down the review process and cause delays for which claims of delay and requests for time extension will be rejected.
4. Electronic copies of: **1)** the Building Information Model (BIM) will be provided by Architect for Contractor's use in preparing submittals upon request, and upon execution of Architect's waiver form. The file format provided by the Architect is "AS-IS". It is the Contractor's responsibility to convert the file into their desired format. The Contractor shall solely be responsible for distribution of the appropriate files, which shall only be distributed to Subcontractors involved in the project.
5. Electronic copies of: **1)** CAD Drawings of the Contract Drawings will not be provided and **2)** the Contract Drawings, as individual files extracted from the BIM file, will not be provided by Architect for Contractor's use in preparing submittals.
6. "Construction Documents" include, but are not limited to, the drawings and specifications used for bidding, sealed / signed or unsealed / unsigned, utilized as instruments of service in the construction of the Project.

    a. Under no circumstance shall the Construction Professionals, i.e., the Contractor or any Subcontractor to the work, utilize drawings or specifications that have been included in the "Construction Documents" whether sealed / signed or unsealed / unsigned by the design team members, i.e., the Architect, any Engineer, Landscape Architect, or other project Consultant, 1) for submittal backgrounds in the preparation of job submittal requirements (Shop Drawing backgrounds, details, anything required to be submitted in providing the service of constructing the job) and / or 2) for submittals that may be required to be provided to the jurisdiction where the project resides (city, county, state, country, other jurisdiction), for any reason. Nor shall the sealed / signed or unsealed /

unsigned "Construction Documents" be used for any other purpose, by the project Construction Professionals or any other persons, except as instruments to inform the construction for which the Construction Documents were originally assembled.

7. Contractor RFIs and Architect RFIs shall be prepared and submitted using both Owner's Software, if any, AND Architect's "*NewForma*" software.
8. Submittals Management: Limit Submittals to the Architect to six (6) submittals per business day, with a maximum number submitted in any business week, starting on each Monday and ending on each Friday of the same week, to eighteen (18) submittals.

B. All Submittals shall be submitted electronically through the Architect's "Newforma Project Center" submittal software and portal - other submittal methods/systems will not be considered or allowed.

C. Submittals: Prepare and submit electronic Action Submittals and electronic Informational Submittals required by individual Specification Sections. Submit electronic documents in the Portable Document Format (PDF).

1. Submit electronic submittals to the Architect and Project Design Consultants using the methods indicated by the Architect.
2. Provide digital images of all submitted hard samples.
3. In addition to the digital submittals and re-submittals, provide a half-size printed hard copy (paper) of the drawings required in the following Sections, with each submittal (original submittals and re-submittals) – these hard copies are for review and will not be returned. Where indicated, provide the entire submittal on paper. Review of submittals requiring hard copies will only commence following the receipt of the hard copies.

    a. Division 3 Sections which include structural work: Cast-in-Place Concrete, Lightweight Concrete.
    b. Division 4 Section: Engineered Unit Masonry.
    c. Division 5 Sections which include structural work: Structural Steel, Steel Joists and Joist Girders, Steel Floor Decking, Steel Roof Decking and similar specification sections covering the same products and materials.
    d. Division 23: For all sections, provide the entire submittal and re-submittal on paper – these submittals and re-submittals will not be returned.

D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

    a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

3. Processing Time: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals. Time for review shall commence on Architect's receipt of submittal as indicated below. No extension of the Contract Time will be authorized because of failure to transmit submittals or resubmittals enough in advance of the Work to permit processing, including resubmittals. The processing times indicated below may not be applicable; any Contract specified time supersede time indicated below and shall be applicable with the conditions listed below, unless otherwise indicated. In the absence of a defined review time designated in the Contacts to the job, Owner-Architect Contract or Owner-Contractor Contract with any executed Contract modification documents, the time indicated in this specification section shall be applicable to the Project.

a. Initial review. Allow 14 calendar days from the arrival day of the submittal – submittals arriving prior to 12:00 P.M. will be noted as arriving on the day of their arrival and after this time as arriving the next day. When submittal procedures for a specification section include the requirement for submitting hard copies of drawings, or hard copies of any other part of the submittal, the submittal will be considered incomplete and it will not be logged, nor reviewed, until the hard copies are received. Logging of the submittal requiring hard copies will be as indicated above, only after the hard copies are received. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will advise the Contractor when a submittal being processed must be delayed for coordination. Review of submittals requiring hard copies will only commence following the receipt of the hard copies.

1) If an intermediate submittal is necessary, process the same as the initial submittal. The same requirements applied to initial reviews shall apply to intermediate submittal reviews.

b. Allow two weeks for reprocessing each submittal. 14 calendar days from the arrival day of the submittal – submittals arriving prior to 12:00 P.M. will be noted as arriving on the day of their arrival and after this time as arriving the next day. When submittal procedures for a specification section include the requirement for submitting hard copies of drawings, or hard copies of any other part of the submittal, the submittal will be considered incomplete and it will not be logged, nor reviewed, until the hard copies are received. Logging of the submittal requiring hard copies will be as indicated above, only after the hard copies are received. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will advise the Contractor when a submittal being processed must be delayed for coordination. Review of submittals requiring hard copies will only commence following the receipt of the hard copies.

c. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 20 business days for initial review of each submittal. When submittal procedures for a specification section include the requirement for submitting hard copies of drawings, or hard copies of any other part of the submittal, the submittal will be considered incomplete and it will not be logged, nor reviewed, until the hard copies are received. Logging of the submittal requiring hard copies will be as indicated above, only after the hard copies are received. Review of submittals requiring hard copies will only commence following the receipt of the hard copies.

E. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Provide a space approximately 4 inches x 5 inches on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
2. Submittals shall be complete with all the single specification section's contents and requirements for the applicable associated single specification section represented in the submittal. Submittals for any one specification section, to be considered complete, shall include the section requirements, which generally for many sections include, but are not limited to 1) Shop Drawings, 2) Product Data, 3) Samples, and 4) anything else indicted, all submitted at one time in one submittal. Do not submit partial submittal contents and requirements unless the process has been coordinated with the Architect in the field, who has specifically approved or accepted this method of submitting the submittal documents. Incomplete submittal documents and / or documents not in compliance with Architect's understanding / expectation of agreed upon variations from the submittal requirements, will be summarily rejected and marked "Revise and Resubmit" or marked similarly in an unambiguous manner that makes it clear that the submittal is being rejected. The manner of marking the documents is at the Architect's discretion, and the documents will not be reviewed.
3. Include the following information on the label for processing and recording action taken.

a. Project name.

b. Date.
c. Name and address of Architect.
d. Name and address of Contractor.
e. Name and address of subcontractor.
f. Name and address of supplier.
g. Name of manufacturer.
h. Number and title of appropriate Specification Section (one section only shall be submitted per each submittal) – Contractors and Subcontractors shall submit one section's submittal contents and requirements per submittal. Do not put more than one section's submittal contents and requirements into any one submittal. Each submittal shall cover only one section's contents and requirements.

1.) Drawing number and detail references, as appropriate.

F. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.

1. Record on the transmittal Record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal – include all the same information as was included for the original submittal and the following.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked "REVIEWED" or "REVIEWED, AS NOTED".

1.5 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

C. BIM Incorporation: Incorporate (General Contractor or Construction Manager shall incorporate) delegated-design drawing and data files into BIM established for Project.

1. Prepare delegated-design drawings in the following format: Same digital data software program, version, and operating system as original Drawings.

1.6 SUBMITTAL SCHEDULE

A. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule.

9. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Schedule job submittals to be in compliance with the maximum number of submittals per day and per week, as indicated in "Submittal Procedures", "General" paragraph. Submittals will be reviewed by Members of the Design Team during the business week (Monday through Friday), not on weekends, nor on United States national holidays. Take into account these days, when no work will be performed by Members of the Design Team, when creating the Submittal Schedule and generally when scheduling the project. Include additional time required for making corrections or revisions to submittals noted by Architect and Contractor and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as well as the Contractor's construction schedule.
2. Prepare the schedule in chronological order; include submittals required during the first 90 days of construction. Provide the following information:

a. Scheduled date for the first submittal.
b. Related Section number and title. Each specification sections' contents and requirements shall be in a dedicated submittal, that only covers that one specification section's submittal contents and requirements. Create the Submittal Schedule with the intent to be in compliance with this requirement. Submittal Schedule shall indicated what submittal applies to what specification section. - no submittal on the Submittal Schedule shall indicate that it pertains to more than one specification section.
c. Submittal category: Action or informational, if indicated.
d. Name of subcontractor.
e. Description of the part of the Work covered.
f. Scheduled date for resubmittal.

1.) Scheduled date the Architect's and Contractor's final release or approval.

g. Scheduled dates for purchasing.
h. Scheduled date of fabrication.
i. Scheduled dates for installation.
j. Activity or event number.

B. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

1. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

C. Distribution: Following response to initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.

1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

D. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.7 DAILY CONSTRUCTION REPORTS

A. Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Architect and Owner at weekly intervals:

1. List of subcontractors at the site.
2. Approximate count of personnel at the site.
3. High and low temperatures, general weather conditions.
4. Accidents and unusual events.
5. Meetings and significant decisions.
6. Stoppages, delays, shortages, losses.
7. Meter readings and similar recordings.
8. Emergency procedures.
9. Orders and requests of governing authorities.
10. Change Orders received, implemented.
11. Services connected, disconnected.
12. Equipment or system tests and start-ups.
13. Partial Completions, occupancies.
14. Substantial Completions authorized.

1.8 SHOP DRAWINGS

A. Submit newly prepared information, drawn to accurate scale: Cloud deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings. Shop drawings with plan backgrounds derived directly from the project's "Construction Documents" graphics (i.e., photocopied, photographed, etc.) will be REJECTED without review – Submit newly prepared information, drawn to accurate scale.

B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:

1. Dimensions.
2. Identification of products and materials included.
3. Compliance with specified standards.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.

C. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 inch x 11 inch but no larger than 36 inch x 48 inch.

D. Initial and intermediate submittals: Submit one copy for the Architect's review. Where required, submit paper copies. Cloud: 1) deviations from the Contract Documents, 2) revision deviations from the previous submittals.

E. Final Submittal: Submit one copy for the Architect's review. Where required, submit paper copies. The Contractor shall provide necessary final copies to be included in maintenance manuals. Cloud 1) deviations from the Contract Documents, 2) revision deviations from the previous submittals.

F. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

G. Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.

1. Preparation of coordination Drawings is specified in Division 1 Section "Project Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
2. Submit coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

1.9 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, compatibility statements / analysis / reports, and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

a. Manufacturer's printed recommendations.
b. Compliance with recognized trade association standards.
c. Compliance with recognized testing agency standards.
d. Application of testing agency labels and seals.
e. Notation of dimensions verified by field measurement.

1.) Notation of coordination requirements.

f. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed. In no instance does the Design Team want incompatible products / materials used in combination with each other, on the project.

1.) By submitting Product Data, the Subcontractor and the General Contractor / Construction Manager will be 1) agreeing that and 2) certifying that:

a) Compatibility of the submitted products / materials to be combined on the project with other products / materials, is checked within the products / materials submitted by the Subcontractor (Sub checks this)
b) Compatibility of the submitted products / materials is confirmed for compatibility outside of the submittal, with other products / materials submitted or provided by the other Subcontractors (GC / CM checks this), for the project.

2.) Since it is not known by the Design Professionals which products / materials will be provided for the actual construction, and it is not always clear what is compatible with what, it is necessary to review compatibility of all products / materials to be provided, prior to ordering and to commencement of construction.
3.) If an incompatibility is recognized, it shall be discussed with the Architect, so that the newly discovered incompatibility may be added to the specifications for the betterment of the Construction process for future projects.

B. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.

C. Submittals: Submit 2 copies of each required submittal; submit 4 copies where required for maintenance manuals. The Architect will retain one, and will return the other marked with action taken and corrections or modifications required.

1. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

D. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

1. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
2. Do not permit use of unmarked copies of Product Data in connection with construction.

1.10 SAMPLES

A. General: Submit through the submittal process, a sample of all Basis-of-Design (BOD) products and materials proposed to be provided on the job. Where a product or material other than the BOD is proposed to be provided, or a substitution is proposed to be provided in lieu of the BOD, a sample of the proposed product or material, with accompanying support data, shall be provided through the submittal process. The sample and accompanying support data shall be marked to clearly show that the proposed product or material is comparable to the BOD.

B. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.

1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect's Sample. Include the following:

a. Generic description of the Sample.
b. Sample source.
c. Product name or name of manufacturer.
d. Compliance with recognized standards.

1.) Availability and delivery time.

2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.

C. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.

1. Preliminary submittals will be reviewed and returned with the Architect's mark indicating selection and other action.

D. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; one will be returned marked with the action taken.

1. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
2. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

a. Sample sets may be used to obtain final acceptance of the construction associated with each set.

E. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.

a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.11 ARCHITECT'S ACTION

A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each architectural submittal, mark to indicate action taken, and return promptly.

1. Compliance with specified characteristics is the Contractor's responsibility.

B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. Architect's review is only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Approval of a specific item does not indicate approval of an assembly of which the item may be a component. Review does not constitute acceptance of deviations from the Contract Documents unless such deviations are clearly and prominently identified as such. Results of the Architect's review are indicated below. Final Action indicated on Architect's stamp governs. The stamp will be appropriately marked, as follows, to indicate the action taken:

1. Final Release: Where submittals are marked "REVIEWED", that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

2. Final-But-Restricted Release: When submittals are marked "REVIEWED, AS NOTED", that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

3. Returned for Resubmittal: When submittal is marked "REVISE AND RESUBMIT", do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.

a. Do not permit submittals marked "Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.

4. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "NOT REVIEWED".

1.12 REQUEST FOR INTERPRETATION

A. All contractor request for interpretation pertaining to all aspects of the construction documents and this project shall be submitted on the form at the end of this section, or on the Construction Specification Institute form, CSI Form 13.2A, "Request For Interpretation". The Architect shall review the Contractor's "Request For Interpretation" form for acceptance, if requested for use. RFIs submitted for problem solving and in general, shall contain and present the following, 1) a complete description of the issue under review, 2) information associated with the issue, but not the issue itself, which is necessary for a complete understanding of the issue, 3) variances from acceptable construction tolerance, including but not limited to: a) variances adjacent to the area with the issue and b) variances from the general requirements of the construction documents. All of these requirements are necessary for the Design reviewer to know, so that a most complete and most economical solution as possible, may be synthesized. The requirements for the Architects "RFI" shall also apply to the Contractors "RFI".

B. Improper RFI(s) / Frivolous RFI(s):

1. Improper and Frivolous RFIs will be returned unanswered, will be removed from General Contractor / Construction Manager's RFI log, and their assigned numbers will be reassigned to subsequent RFIs.
2. General Contractor's / Construction Manager's request, after notification by Architect that RFI is improper or frivolous - RFI will be processed with processing costs charged to Contractor as follows:

1.13 WEEKLY SUBMITTAL REPORT

A. At the beginning of each week, or as otherwise agreed to by the involved parties at an interval of one (1) week, Contractor shall provide a newly revised weekly report showing all outstanding submittals, including, but not limited to Product Submittals, RFIs, ASIs, etc. The submittals shall be prioritized to allow the Design Team Members to manage and complete review of the submittals with respect to submittal importance and timely relevance.

1. Include relevant notes for each submittal to communicate important design aspects to which the Design Team reviewers should make sure they direct their focus. If submittals are not prioritized, the submittals will likely be reviewed sequentially, based on their recorded submittal (arrival) time at the Architect's office.
2. Cary forward a submittal category to each report, once it is started, i.e., Product Submittals, RFIs, ASIs. If no submittal is outstanding, indicate "None at this time."
3. Prioritize submittals by listing them in their order of greatest need (scheduled importance), and add additionally comments if desired emphasize importance or need.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

ATTACHED RFI FORM BELOW:

REQUEST FOR INTERPRETATION
(R.F.I.)

PROJECT:

CONTRACTOR:

ARCHITECT: Stantec

THIS IS A FIELD AND/OR OFFICE REQUEST FOR INTERPRETATION TO SUPPLEMENT THE DESIGN DATA DEPICTED ON THE DRAWINGS OR IN THE SPECIFICATIONS. CHANGES TO THE CONTRACT DOCUMENTS, THE CONTRACT SUM, OR THE TIME FOR CONTRACT PERFORMANCE THAT MAY RESULT FROM THE REPLY TO THIS RFI SHALL BE PROCESSED IN ACCORDANCE WITH THE CHANGES CLAUSE OF THE CONTRACT, IF APPROPRIATE.

QUESTION:

Submitted by: _____

Drawing/Specification: _____

PROPOSED OR SUGGESTED SOLUTION:

Copies to:
_____
_____
_____
_____
_____
_____

Date: _____

R.F.I. No.:

END OF SECTION 01 33 00

SECTION 01 42 19 - REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and other Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. Indicated: The term indicated refers to graphic representations, notes, or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as shown, noted, scheduled, and specified are used to help the reader locate the reference. There is no limitation on location.

C. Directed: Terms such as directed, requested, authorized, selected, approved, required, and permitted mean directed by the Architect, requested by the Architect, and similar phrases.

D. Approved: The term approved, when used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the Conditions of the Contract.

E. Regulations: The term regulations includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

F. Furnish: The term furnish means supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. Install: The term install describes operations at the Project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. Provide: The term provide means furnish and install, complete and ready for the intended use.

I. Installer: An Installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. The term experienced, when used with the term Installer, means having a minimum of five previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.
2. Trades: Using terms such as carpentry is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as carpenter. It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
3. Assigning Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the Contractor has no choice or option. However, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

a. This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

J. Project site is the space available to the Contractor for performing construction activities either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

K. Testing Agencies: A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's MASTERFORMAT numbering system.

1. Text Subordination: Portions of the Specification may be subordinated to other portions in the following manner:

a. Certain Sections may be subordinate to other Sections or parts of other Sections. When that occurs, the degree of subordination is described in those Sections.
b. Paragraphs and lines of text are subordinate to article titles.
c. Paragraphs and lines of text that are indented from the left hand margin are subordinate to the preceding text that is either not indented or indented by a lesser amount.

2. Underscoring, Bold Letters and Bold Numbers are used strictly to assist the reader in scanning for key words. No emphasis or relative importance is intended for text where underscoring, bold letters and bold numbers are used.

B. Specification Content: This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

1. Abbreviated Language: Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words that are implied, but not stated, shall be interpolated, as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.

a. The words "shall be" are implied wherever a colon (:) is used within a sentence or phrase.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents.

C. Conflicting Requirements: Where compliance with two or more standards is specified and where the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different but apparently equal and other uncertainties to the Architect for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.
2. The Architect reserves the right to require the Contractor to submit copies of standards as necessary for enforcement of requirements.

E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations, as referenced in Contract Documents, are defined to mean the associated names. Names and addresses are subject to change and are believed, but not ensured, to be accurate and up to date as of the date of Contract Documents. If an abbreviation, or name, is not on the following list, refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

AA	Aluminum Association 900 19th St., NW, Suite 300 Washington, DC 20006	www.aluminum.org (202) 862-5100
AABC	Associated Air Balance Council 1518 K St., NW Washington, DC 20005	www.aabchq.com (202) 737-0202
AAMA	American Architectural Manufacturers Assoc. 1540 E. Dundee Road, Suite 310 Palatine, IL 60067	www.aamanet.org (847) 303-5664
AAN	American Association of Nurserymen 1250 I St., NW, Suite 500 Washington, DC 20005	(see ANLA) (202) 789-2900
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol St., Suite 249 Washington, DC 20001	www.aashto.org (202) 624-5800
AATCC	American Association of Textile Chemists and Colorists P.O. Box 12215 One Davis Dr. Research Triangle Park, NC 27709-2215	www.aatcc.org (919) 549-8141
ABMA	American Bearing Manufacturers Assoc.	www.abma-dc.org

	1200 19th St., Suite 300 Washington, DC 20036	(202) 367-1155
ABMA	American Boiler Manufacturers Association www.abma.com 950 North Glebe Rd., Suite 160 Arlington, VA 22203	(703) 522-7350
ACI	American Concrete Institute P.O. Box 19150 Detroit, MI 48219	www.aci-int.org (248) 848-3700
ACIL	American Council of Independent Laboratories 1629 K St., NW Washington, DC 20006	www.acil.org (202) 887-5872
ACPA	American Concrete Pipe Association 8618 Westwood Center Dr., Suite 105 Vienna, VA 22182	www.concrete-pipe.org (972) 506-7216
ADC	Air Diffusion Council 11 South LaSalle St., Suite 1400 Chicago, IL 60603	www.flexibleduct.org (312) 201-0101
AFBMA	Anti-Friction Bearing Manufacturers Assoc. (Now ABMA)	
AFPA	American Forest and Paper Association 1111 19th St., NW, Suite 800 Washington, DC 20036	(See AF&PA) (202) 463-2700
AF&PA	American Forest & Paper Association	www.afandpa.org
AGA	American Gas Assoc. 1515 Wilson Blvd. Arlington, VA 22209	www.aga.org (202) 824-7000
AGC	Associated General Contractors of America	www.agc.org (703) 548-3118
AHA	American Hardboard Assoc. 1210 W. Northwest Highway Palatine, IL 60067	www.ahardbd.org (847) 934-8800
AHAM	Association of Home Appliance Manufacturers 20 N. Wacker Dr., Suite 1500 Chicago, IL 60606	www.aham.org (202) 872-5955
AI	Asphalt Institute Research Park Dr. P.O. Box 14052 Lexington, KY 40512-4052	www.asphaltinstitute.org (859) 288-4960
AIA	The American Institute of Architects 1735 New York Ave., NW	www.e-architect.com

	Washington, DC 20006	(202) 626-7300
AIA	American Insurance Assoc. 1130 Connecticut Ave., NW, Suite 1000 Washington, DC 20036	www.aiadc.org (202) 828-7100
AIHA	American Industrial Hygiene Assoc. 2700 Prosperit Ave., Suite 250 Fairfax, VA 22031	www.aiha.org (703) 849-8888
AISC	American Institute of Steel Construction One East Wacker Dr., Suite 3100 Chicago, IL 60601-2001	www.aisc.org (800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute 1101 17th St., NW Washington, DC 20036-4700	www.steel.org (202) 452-7100
AITC	American Institute of Timber Construction 7012 S. Revere Pkwy, Suite 140 Englewood, CO 80112	www.aitc-glulam.org (303) 792-9559
ALA	American Laminators Association 419 Norton Building Seattle, WA 98104-1584	(See LMA) (206) 622-0666
ALI	Associated Laboratories, Inc. c/o HOH Chemicals 500 S. Vermont St. Palatine, IL 60067	www.associatedlabs.org (800) 685-0026
ALSC	American Lumber Standards Committee P.O. Box 210 Germantown, MD 20875	www.alsc.org (301) 972-1700
AMCA	Air Movement and Control Assoc. 30 W. University Dr. Arlington Heights, IL 60004-1893	www.amca.org (847) 394-0150
ANLA	American Nursery & Landscape Association (Formerly: AAN – American Association of Nurserymen)	www.amac.org (202) 789-2900
ANSI	American National Standards Institute 11 West 42nd St., 13th Floor New York, NY 10036	www.ansi.org (202) 293-8020
AOAC	AOAC International 2200 Wilson Blvd., Suite 400 Arlington, VA 22201-3301	www.aoac.org (703) 522-3032
AOSA	Association of Official Seed Analysts 201 N. 8th St., Suite 400 P.O. Box 81152 Lincoln, NE 68501-1151	www.aosaseed.com (402) 476-3852
APA	APA-The Engineered Wood Association (Formerly American Plywood Assoc.) P.O. Box 11700 Tacoma, WA 98411	www.apawood.org (253) 565-6600

API	American Petroleum Institute 1220 L St., NW Washington, DC 20005	www.api.org (202) 682-8000
ARI	Air-Conditioning and Refrigeration Institute 4301 Fairfax Dr., Suite 425 Arlington, VA 22203	www.ari.org (703) 524-8800
ARMA	Asphalt Roofing Manufacturers Assoc. Public Information Department 1156 – 15th Street, N.W., Suite 900 Washington, DC 20005	www.asphaltroofing.org (202) 207-0917
ASA	Acoustical Society of America Suite 1NO1 2 Huntington Quadrangle Melville, NY 11747 – 4502	http://asa.aip.org (516) 576-2360
ASC	Adhesive and Sealant Council 7974 Old Georgetown Road, Suite 500 Bethesda, Maryland 20814	www.ascouncil.org (301) 986-9700
ASCA	Architectural Spray Coaters Association 895 Doncaster Drive Paulsboro, NJ 08066	www.ascassoc.com (856) 848-6120
ASCE	American Society of Civil Engineers 345 East 47th St. New York, NY 10017-2398	www.asce.org (703) 295-6300 (800) 548-2723
ASHE	American Society for Healthcare Engineering One North Franklin, 28th Floor Chicago, IL 60606	www.ashe.org (312) 422-3800 (800) AHA-2626
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers 1791 Tullie Circle, NE Atlanta, GA 30329-2305	www.ashrae.org (404) 636-8400 (800) 527-4723
ASME	American Society of Mechanical Engineers International 345 East 47th St. New York, NY 10017	www.asme.org (800) 843-2763 (212) 591-7722
ASPA	American Sod Producers Assoc. (Now TPI)	
ASPE	American Society of Plumbing Engineers 8614 Catalpa Avenue, Suite 1007 Chicago, IL 60656-1116	www.aspe.org (773) 693-2773
ASSE	American Society of Sanitary Engineering P.O. Box 40362 Bay Village, OH 44140	www.asse-plumbing.org (440) 835-3040
ASTM	American Society for Testing and	www.astm.org

	Materials 100 Barr Harbor Dr. West Conshohocken, PA 19428	 (610) 832-9585
ATIS	Alliance for Telecommunications Industry Solutions 1200 G St., NW, Suite 500 Washington, DC 20005	www.atis.org (202) 628-6380
AWCMA	American Window Covering Manufacturers Assoc. (Now WCMA)	
AWI	Architectural Woodwork Institute 46179 Westlake Drive, Suite 120 Potomic Falls, VA 20165	www.awinet.org (571) 323-3636
AWPA	American Wood Preservers' Assoc. www.awpa.com P.O. Box 286 Woodstock, MD 21163-0286	 (817) 326-6300
AWPB	American Wood Preservers' Bureau (This organization is now defunct.)	
AWS	American Welding Society 550 LeJeune Rd., NW Miami, FL 33126	www.aws.org (800) 443-9353 (305) 443-9353
AWWA	American Water Works Assoc. 6666 W. Quincy Ave. Denver, CO 80235	www.awwa.org (800) 926-7337 (303) 794-7711
BANC	Brick Association of North Carolina P.O. Box 13290 Greensboro, NC 27415-3290	 (910) 273-5566
BHMA	Builders Hardware Manufacturers Assoc. www.buildershardware.com 355 Lexington Ave., 17th Floor New York, NY 10017-6603	 (212) 297-2122
BIA	Brick Institute of America 11490 Commerce Park Dr. Reston, VA 22091-1525	www.bia.org (703) 620-0010
BIFMA	The Business and Institutional Furniture Manufacturer's Association International 2680 Horizon Dr., SE, Suite A1 Grand Rapids, MI 49546-7500	www.bifma.com (616) 285-3963
CAGI	Compressed Air and Gas Institute c/o Thomas Associates, Inc. 1300 Sumner Ave. Cleveland, OH 44115-2851	www.cagi.org (216) 241-7333
CAUS	Color Association of the United States www.colorassociation.com	

	315 West 39th Street, Studio 507 New York, NY 10018	(212) 947-7774
CBM	Certified Ballast Manufacturers Assoc. 1422 Euclid Ave., Suite 402 Cleveland, OH 44115-2851	(216) 241-0711
CCC	Carpet Cushion Council www.carpetcushion.org P.O. Box 546 Riverside, CT 06878	(203) 637-1312
CCFSS	Center for Cold-formed Steel Structures	www.umr.edu/~ccfss (573) 341-4471
CDA	Copper Development Association Inc. 260 Madison Av., 16th Floor New York, NY 10016	www.copper.org (212) 251-7200 (800) 232-3282
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com c/o Thomas Associates, Inc. 1300 Sumner Ave. Cleveland, OH 44115-2851	(216) 241-7333
CGA	Compressed Gas Assoc. 1725 Jefferson Davis Highway, Suite 1004 Arlington, VA 22202-4100	www.cganet.com (703) 412-0900
CGSB	Canadian General Standards Board www.pwgsc.gc.ca/cgsb	(819) 956-0425
CIMA	Cellulose Insulation Manufacturers Association	www.cellulose.org (888) 881-2462
CISCA	Ceiling and Interior Systems Construction Assoc. 579 W. North Ave., Suite 301 Elmhurst, IL 60126	www.cisca.org (630) 584-1919
CISPI	Cast Iron Soil Pipe Institute 5959 Shallowford Rd., Suite 419 Chattanooga, TN 37421	www.cispi.org (423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute 1776 Massachusetts Ave., NW, Suite 500 Washington, DC 20036	www.chainlinkinfo.org (301) 569-2583
CPA	Composite Panel Association (Formerly: National Particleboard Association)	www.pbmdf.com (301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association	www.cppa-info.org (800) 510-2772
CRI	Carpet and Rug Institute P.O. Box 2048 Dalton, GA 30722-2048	www.carpet-rug.com (800) 882-8846 (706) 278-3176

CRSI	Concrete Reinforcing Steel Institute 933 N. Plum Grove Rd. Schaumburg, IL 60173-4758	www.crsi.org (847) 517-1200
CSA	CSA International (Formerly: IAS – International Approval Services)	www.csa-international.org (416) 747-4000
CSI	Construction Specifications Institute	www.csinet.org (800) 689-2900
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)	www.cti.org (281) 583-4087
CTIOA	Ceramic Tile Institute of America 12061 West Jefferson Blvd. Culver City, CA 90230 – 6219	www.ctia.org (310) 574-7800
DHI	Door and Hardware Institute 14170 Newbrook Dr. Chantilly, VA 22021-2223	www.dhi.org (703) 222-2010
DIPRA	Ductile Iron Pipe Research Assoc. 245 Riverchase Parkway East, Suite O Birmingham, AL 35244	www.dipra.com (205) 402-8700
DLPA	Decorative Laminate Products Assoc. 13924 Braddock Rd. Centreville, VA 22020	 (800) 684-3572
ECSA	Exchange Carriers Standards Assoc. (Now ATIS)	
EIA/TIA	Electronic Industries Alliance/Telecommunications Industry 2001 Pennsylvania Ave., NW Washington, DC 20006-1813	www.eia.org (703) 907-7500
EIMA	EIFS Industry Manufacturers Assoc. www.eifsfacts.com 2759 State Road 580, Suite 112 Clearwater, FL 34621	 (800) 294-3462 (770) 968-7945
EJMA	Expansion Joint Manufacturers Assoc. 25 N. Broadway Tarrytown, NY 10591	www.ejma.org (914) 332-0040
ETL	ETL SEMKO Testing Laboratories, Inc. 420 North Dorothy Drive Richardson, Texas 75081	www.etlsemko.com (972) 238-5591
FCI	Fluid Controls Institute www.fluidcontrolsinstitute.org c/o Thomas Associates, Inc. 1300 Sumner Ave. Cleveland, OH 44115-2851	 (216) 241-7333
FCICA	Floor Covering Installation Contractors Assoc. (Formerly Floor Covering Installation	

	Board) P.O. Box 948 Dalton, GA 30722-0948	(706) 226-5488
FGMA	Flat Glass Marketing Assoc. (Now GANA)	
FM	Factory Mutual 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062	(See FMG) (617) 762-4300
FMG	FM Global (Formerly: FM – Factory Mutual System)	www.fmglobal.com (401) 275-3000
FTI	Facing Tile Institute P.O. Box 8880 Canton, OH 44711	 (216) 488-1211
GA	Gypsum Association 810 First St., NE, Suite 510 Washington, DC 20002	www.gypsum.org (202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com/gana (Formerly: FGMA – Flat glass Marketing Association) 3310 SW Harrison St. Topeka, KS 66611-2279	 (785) 271-0208
GRI	Geosynthetic Research Institute	www.drexel.edu/gana (215) 895-2343
GTA	Glass Tempering Division of Glass Association of North America (See GANA)	
HEI	Heat Exchange Institute www.heatexchange.org 1300 Sumner Ave. Cleveland, OH 44115-2851	 (216) 241-7333
HI	Hydraulic Institute 9 Sylvan Way Parsippany, NJ 07054-3802	www.pumps.org (888) 786-7744 (973) 267-9700
HI	Hydronics Institute P.O. Box 218 35 Russo Place Berkeley Heights, NJ 07922	www.gamanet.org (908) 464-8200
HMA	Hardwood Manufacturers Assoc. 400 Penn Center Blvd. Pittsburgh, PA 15235	www.hardwood.org (412) 829-0770
HPVA	Hardwood Plywood and Veneer Assoc. 1825 Michael Farraday Dr. P.O. Box 2789 Reston, VA 22090-0789	www.hpva.org (703) 435-2900

HPW	H.P. White Laboratory, Inc. www.hpwhite.com	
		(410) 838-6550
IBD	Institute of Business Designers 341 Merchandise Mart	
	Chicago, IL 60654	(312) 467-1950
ICEA	Insulated Cable Engineers Association, Inc. P.O. Box 440	www.icea.net
	South Yarmouth, MA 02664	(508) 394-4424
ICRI	International Concrete Repair Institute (The)	www.icri.org (703) 450-0116
IEC	International Electrotechnical Commission (Available from ANSI)	www.iec.ch
	11 West 42nd St., 13th Floor	41-22-919-02-11
	New York, NY 10036	(212) 642-4900
IEEE	Institute of Electrical and Electronic Engineers 345 E. 47th St.	www.ieee.org
	New York, NY 10017	(212) 419-7900
IESNA	Illuminating Engineering Society of North America 120 Wall St., Floor 17	www.iesna.org
	New York, NY 10005-4001	(212) 248-5000
IGCC	Insulating Glass Certification Council c/o ETL Testing Laboratories, Inc. P.O. Box 2040 Route 11, Industrial Park	www.igcc.org
	Cortland, NY 13045	(315) 646-2234
ILI	Indiana Limestone Institute of America Stone City Bank Building, Suite 400	www.iliai.com
	Bedford, IN 47421	(812) 275-4426
IMSA	International Municipal Signal Assoc. www.imsafety.org 165 E. Union St.	
	Newark, NY 14513 – 0539	(315) 331-2182
IRI	Industrial Risk Insurers P.O. Box 5010	www.industrialrisk.com
	85 Woodland St. Hartford, CT 06102-5010	(800) 243-8308 (860) 520-7300
ISA	Instrument Society of America P.O. Box 12277 67 Alexander Dr.	www.isa.org
	Research Triangle Park, NC 27709	(919) 549-8411
ITS	Intertek Testing Services	www.itsglobal.com (800) 345-3851

KCMA	Kitchen Cabinet Manufacturers Assoc. 1899 Preston White Dr. Reston, VA 22091-4326	www.kcma.org (703) 264-1690
LGSI	Light Gage Structural Institute P.O. Box 866301 Plano, TX 75086-6301	www.loseke.com (972) 370-0967
LIA	Lead Industries Association, Inc. 295 Madison Ave. New York, NY 10017	www.leadinfo.com (212) 578-4750
LMA	Laminating Materials Association (Formerly: ALA – American Laminators Association)	www.lma.org (201) 664-2700
LPI	Lightning Protection Institute 3365 N. Arlington Heights Rd., Suite J Arlington Heights, IL 60004	www.lightning.org (847) 577-7200 (800) 488-6864
LSGA	Laminated Safety Glass Association (See GANA)	
MBMA	Metal Building Manufacturer's Assoc. c/o Thomas Associates, Inc. 1300 Sumner Ave. Cleveland, OH 44115-2851	www.mbma.com (216) 241-7333
MCA	Metal Construction Association www.metalconstruction.org	(312) 201-0193
MCAA	Mechanical Contractors Association of America 1385 Piccard Dr. Rockville, MD 20850-4329	www.mcaa.org (301) 869-5800
MFMA	Maple Flooring Manufacturers Assoc. 60 Revere Dr., Suite 500 Northbrook, IL 60062	www.maplefloor.org (847) 480-9138
MFMA	Metal Framing Manufacturers Association	www.sba.com (312) 644-6610
MGPHO	Medical Gas Professional Healthcare Organization, Inc www.mgpho.org	(877) 238-5157
MHIA	Material Handling Industry of America	www.mhia.org (800) 345-1815
MIA	Marble Institute of America 30 Eden Alley, Suite 201 Columbus, OH 43215	www.marble-institute.com (614) 228-6194
MIA	Masonry Institute of America www.masonryinstitute.org 386 Beech Avenue, Suite #4 Tarrence, CA 90501	(310) 328-4400

ML/SFA	Metal Lath/Steel Framing Assoc. (A Division of the NAAMM) 11 South LaSalle St., Suite 1400 Chicago, IL 60603	(See SSMA) (312) 201-0101
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry 127 Park St., NE Vienna, VA 22180-4602	www.mss-hq.com (703) 281-6613
NAA	Tree Care Industry Association (formerly National Arborist Assoc.) 3 Perimeter Road, Unit 1 Manchester, NH 03103	www.natlab.com (800) 733-2622
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org 11 South LaSalle St., Suite 1400 Chicago, IL 60603	 (312) 332-0405
NAAMM	North American association of Mirror Manufacturers (See GANA)	
NAIMA	North American Insulation Manufacturers Assoc. 44 Canal Center Plaza, Suite 310 Alexandria, VA 22314	www.naima.org (703) 684-0084
NAMI	National Accreditaion and Management Institute, Inc.	(304) 258-5100
NAPA	National Asphalt Pavement Assoc. www.hotmix.com NAPA Building 5100 Forbes Blvd. Lanham, MD 20706-4413	 (888) HOT-MIXX
NAPF	National Association of Plastic Fabricators (Now DLPA)	
NAPM	National Association of Photographic Manufacturers (See PIMA)	
NBGQA	National Building Granite Quarries Assoc., Inc. c/o Rock of Ages 369 N. State St. Concord, NH 03301	www.nbgqa.com (800) 557-2848 (603) 225-8397
NBHA	National Builders Hardware Assoc. (Now DHI)	
NCMA	National Concrete Masonry Assoc. 2302 Horse Pen Rd. Herndon, VA 22071-3499	www.ncma.org (703) 713-1900
NCPI	National Clay Pipe Institute P.O. Box 759	www.ncpi.org

	253-80 Center St. Lake Geneva, WI 53147	(414) 248-9094
NCRPM	National Council on Radiation Protection and Measurements 7910 Woodmont Ave., Suite 400 Bethesda, MD 20814 - 3095	www.ncrp.com (301) 657-2652
NCSPA	National Corrugated Steel Pipe Association 13140 Coit Road, Suite 320 LB120 Dallas, Texas 75240	www.ncspa.org (972) 850-1907
NCTA	National Cable Television Association	www.ncta.com (202) 775-3669
NEBB	National Environmental Balancing Bureau	www.nebb.org (301) 977-3698
NEC	National Electrical Code (Available from NFPA)	
NECA	National Electrical Contractors Assoc. 3 Bethesda Metro Center, Suite 1100 Bethesda, MD 20814-5372	www.necanet.org (301) 657-3110
NEII	National Elevator Industry, Inc. 1677 County Road 64 P.O. Box 838 Salem, New York 12865 - 0838	www.neii.org (518) 854-3100
NELMA	Northeastern Lumber Manufacturers Assoc. 272 Tuttle Rd. P.O. Box 87A Cumberland Center, ME 04021	www.nelma.org (207) 829-6901
NEMA	National Electrical Manufacturers Assoc. 2101 L St., NW, Suite 300 Washington, DC 20037	www.nema.org (703) 841-3200
NETA	International Electrical Testing Assoc. P.O. Box 687 Morrison, CO 80465-1526	www.netaworld.org (303) 697-8441
NFPA	National Fire Protection Assoc. One Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101	www.nfpa.org (617) 770-3000 (800) 344-3555
NFPA	National Forest Products Assoc. (Now AF&PA)	
NFRC	National Fenestration Rating Council	www.nfrc.org (301) 589-6372
NGA	National Glass Association	www.glass.org (703) 442-4890

NHLA	National Hardwood Lumber Assoc. www.natlhardwood.org P.O. Box 34518 Memphis, TN 38184-0518	 (800) 933-0318 (901) 377-1818
NKCA	National Kitchen Cabinet Assoc. (Now KCMA)	
NLGA	National Lumber Grades Authority 103-4400 Dominion St. Burnaby, BC V5G 4G3 CANADA	www.nlga.org (604) 524-2393
NOFMA	National Oak Flooring Manufacturers Assoc. P.O. Box 3009 Memphis, TN 38173-0009	www.nofma.org (901) 526-5016
NPA	National Particleboard Assoc. 18928 Premiere Ct. Gaithersburg, MD 20879-1569	(See CPA) (301) 670-0604
NPCA	National Paint and Coatings Assoc. 1500 Rhode Island Ave., NW Washington, DC 20005	www.paint.org (202) 462-6272
NRCA	National Roofing Contractors Assoc. O'Hare International Center 10255 W. Higgins Rd., Suite 600 Rosemont, IL 60018-5607	www.nrca.net (800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association	www.nrmca.org (888) 846-7622
NSA	National Stone Association www.aggregates.org	 (800) 342-1415
NSF	NSF International (Formerly National Sanitation Foundation) 3475 Plymouth Rd. P.O. Box 130140 Ann Arbor, MI 48113-0140	www.nsf.org (800) 673-6275 (734) 769-8010
NSSEA	National School Supply and Equipment Assoc. 8300 Colesville Rd., Stc. 250 Silver Spring, MD 20910	www.nssea.org (301) 495-0240
NTMA	National Terrazzo and Mosaic Assoc. 3166 Des Plaines Ave., Suite 132 Des Plaines, IL 60018	www.ntma.com (800) 323-9736 (703) 779-1022
NWMA	National Woodwork Manufacturers Assoc. (Now NWWDA)	
NWWDA	National Wood Window and Door Assoc. 1400 E. Touhy Ave., #G54 Des Plaines, IL 60018	(See WCMA) (708) 299-5200 (800) 223-2301

PATMI	Power Actuated Tool Manufacturers' Institute, Inc. 1603 Boone's Lick Road St. Charles, MO 63301	www.patmi.org (636) 947-6610
PCA	Portland Cement Assoc. www.portcement.org 5420 Old Orchard Rd. Skokie, IL 60077-1083	 (847) 966-6200
PCI	Precast/Prestressed Concrete Institute 175 W. Jackson Blvd. Chicago, IL 60604	www.pci.org (312) 786-0300
PDCA	Painting and Decorating Contractors of America	www.pdca.com (800) 332-7322
PDI	Plumbing and Drainage Institute c/o Sol Baker 1106 W. 77th St., South Dr. Indianapolis, IN 46260	www.pdionline.org (800) 589-8956 (508) 230-3516
PEI	Porcelain Enamel Institute www.porcelainenamel.com 3700 Mansell Road, Suite 220 Alpharetta, Georgia 30022	 (770) 281-8980
PGI	PVC Geomembrane Institute 205 North Mathews Avenue Urbana, Illinois 61801	//pgi-tp.ce.uiuc.edu (217) 333-3929
PIMA	Photographic & Imaging Manufacturers Association (Formerly: NAPM – National association of Photographic Manufacturers)	www.pima.net (914) 698-7603
PIMA	Polyisocyanurate Insulation Manufacturers Association 515 King Street, Suite 420 Alexandria, Virginia 22314	www.pima.org (703) 684-1136
RCSC	Research Council on Structural Connections www.boltcouncil.org	 (800) 644-2400
RFCI	Resilient Floor Covering Institute 401 East Jefferson Street, Suite 102 Rockville, MD 20850	www.rfci.com (301) 340-8580
RIS	Redwood Inspection Service 405 Enfrente Dr., Suite 200 Novato, CA 94949	www.calredwood.org (415) 382-0662
RMA	Rubber Manufacturers Assoc. 1400 K St., NW Washington, DC 20005	www.rma.org (800) 220-7620 (202) 682-4800
SAE	SAE International 400 Commonwealth Dr. Warrendale, PA 15096-0001	www.sae.org (724) 776-4841

SDI	Steel Deck Institute P.O. Box 9506 Canton, OH 44711	www.sdi.org (847) 462-1930
SDI	Steel Door Institute 30200 Detroit Rd. Cleveland, OH 44145-1967	www.steeldoor.org (440) 889-0010
SEFA	Scientific Equipment and Furniture Assoc. 1028 Duchess Dr. McLean, VA 22102	www.sefalabfurn.com (843) 689-6878
SGCC	Safety Glazing Certification Council c/o ETL Testing Laboratories U.S. Route 11, Industrial Park P.O. Box 2040 Cortland, NY 13045	www.sgcc.org (315) 646-2234
SHLMA	Southern Hardwood Lumber Manufacturers Assoc. (Now HMA)	
SIGMA	Sealed Insulating Glass Manufacturers www.sigmaonline.org/aigma Assoc. 401 N. Michigan Ave. Chicago, IL 60611	 (312) 644-6610
SJI	Steel Joist Institute 1205 48th Avenue North, Suite A Myrtle Beach, SC 29577-5424	www.steeljoist.org (803) 449-0487
SMA	Screen Manufacturers Assoc. 2850 South Ocean Boulevard, #114 Palm Beach, Florida 33480 - 6205	www.smacentral.org (561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Assoc. 4201 Lafayette Center Dr. P.O. Box 221230 Chantilly, VA 22022-1230	www.smacna.org (703) 803-2980
SPFA	Spray Polyurethane Foam Alliance www.sprayfoam.org	 (800) 523-6154
SPI	The Society of the Plastics Industry	www.plasticsindustry.org ((202) 974-5200
SPIB	Southern Pine Inspection Bureau 4709 Scenic Highway Pensacola, FL 32504-9094	www.spib.org (850) 434-2611
SPRI	SPRI (Formerly Single Ply Roofing Institute) 175 Highland Ave. Needham, MA 02194	www.spri.org (781) 444-0242

SSIUS	Specialty Steel Industry of North America 3050 K St., NW Washington, DC 20007	www.ssina.com (800) 982-0355 (202) 342-8630
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA – Metal Lath/Steel Framing Association)	www.ssma.com (312) 456-5590
SSPC	SSCP: The Society for Protective Coatings	www.sspc.org (800) 837-8303
SSPC	Steel Structures Painting Council (The Society for Protective Coatings) 40 24th Street, 6th Floor Pittsburgh, PA 15222 - 4656	www.sspc.org (412) 281-2331
SSPMA	Sump and Sewage Pump Manufacturers Assoc. P.O. Box 647 Northbrook, IL 60065-0647	www.sspma.org (708) 559-9233
STI	Steel Tank Institute 570 Oakwood Rd. Lake Zurich, IL 60047	www.steeltank.com (847) 438-8265
SWI	Steel Window Institute c/o Thomas Associates, Inc. 1300 Sumner Ave. Cleveland, OH 44115-2851	www.steelwindows.com (216) 241-7333
SWPA	Submersible Wastewater Pump Assoc. 1866 Sheridan Road, Suite 201 Highland Park, IL 60035-2545	www.swpa.org (847) 681-1868
SWRI	Sealant, Waterproofing, and Restoration Institute	www.swrionline.org (816)472-7974
TCA	Tile Council of America www.tileusa.com 511 Westinghouse Rd. Pendleton, SC 29670 P.O. Box 1787 Clemson, SC 29633	 (864) 646-8453
TIA/EIA	Telecommunications Industry association/Electronic Industries Alliance www.tiaonline.org	 (703) 907-7700
TIMA	Thermal Insulation Manufacturers Assoc. (Now NAIMA)	
TPI	Truss Plate Institute 583 D'Onofrio Dr., Suite 200 Madison, WI 53719	www.tpinst.org (608) 833-5900
TPI	Turfgrass Producers International (Formerly American Sod Producers Assoc.) 1855-A Hicks Rd. Rolling Meadows, IL 60008	www.turfgrasssod.org (847) 705-9898 (800) 405-8873
UFAC	Upholstered Furniture Action Council	www.ufac.org

		(336) 885-5065
UL	Underwriters Laboratories 333 Pfingsten Rd. Northbrook, IL 60062-2096	www.ul.com (800) 704-4050 (847) 272-8800
UNI	Uni-Bel PVC Pipe Assoc. 2655 Villa Creek Dr., Suite 155 Dallas, TX 75234	www.uni-bell.org (972) 243-3902
USITT	United States Institute for Theatre Technology, Inc.	www.culturenet.ca/usitt (800) 938-7488
USP	U.S. Pharmacopeia (Formerly U.S. Pharmacopoeial Convention) 12601 Twinbrook Pkwy Rockville, MD 20852	www.usp.org (800) 822-8772 (301) 881-0666
WA	Wallcoverings Assoc. 401 N. Michigan Ave. Chicago, IL 60611-4267	www.wallcoverings.org (312) 644-6618
WASTEC	Waste Equipment Technology Association	www.wastec.org (800) 424-2869
WCLIB	West Coast Lumber Inspection Bureau P.O. Box 23145 Portland, OR 97281	www.wclib.org (800) 283-1486 (503) 639-0651
WCMA	Wood Components Manufacturer's Association www.woodcomponents.org 1000 Johnson Ferry Road, Suite A-130 Marrietta, Georgia 30068	 (770) 565-6660
WCMA	Window Covering Manufacturers Assoc. www.windowcoverings.org 355 Lexington Ave., 17th Floor New York, NY 10017	 (800) 506-4653 (212) 661-4261
WIC	Woodwork Institute of California 3164 Industrial Blvd. P.O. Box 980247 West Sacramento, CA 95798-0247	www.wicnet.org (916) 372-9943
WMMPA	Wood Molding & Millwork Producers Assoc. www.wmmpa.com P.O. Box 25278 Portland, OR 97225	 (800)550-7889 (530) 661-9591
WRI	Wire Reinforcement Institute www.wirereinforcementinstitute.org 942 Main Street, Suite 300 Hartford, CT 06103	 (800) 552-4974
WSC	Water Systems Council www.watersystemscouncil.org 1101 30th Street N.W., Suite 500 Washington, D.C. 20007	 (202) 625-4387

WSFI	Wood and Synthetic Flooring Institute (Now MFMA)	
WWCCA	Western Wall and Ceiling Contractors' Assoc. www.wwcca.org (Formerly Western Lath, Plaster, Drywall Industries Assoc.) 2286 North State College Boulevard Fullerton, CA 92831	(800) 903-WALL
WWPA	Western Wood Products Assoc. Yeon Building 522 SW 5th Ave. Portland, OR 97204-2122	www.wwpa.org (503) 224-3930
WWPA	Woven Wire Products Assoc. 1641 East Higgins Lake Drive Roscommon, MI 48653	www.wovenwire.org (517) 821-6621

F. Federal Government Agencies: Names and titles of Federal Government standards- or specification-producing agencies are often abbreviated. The following abbreviations and acronyms referenced in the Contract Documents indicate names of standards- or specification-producing agencies of the Federal Government. Names and addresses are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the date of the Contract Documents.

CE	Corps of Engineers (U.S. Department of the Army) Chief of Engineers General Information Referral 20 Massachusetts Ave., NW Washington, DC 20314	www.usace.army.mil (202) 761-0660
CFR	Code of Federal Regulations (Available from the Government Printing Office) 732 N. Capitol St., NW Washington, DC 20401 (Material is usually published first in the "Federal Register.")	www.gpoaccess.gov (202) 512-0000
CPSC	Consumer Product Safety Commission East West Towers 4330 East-West Hwy Bethesda, MD 20814	www.cpsc.gov (800) 638-2772
CS	Commercial Standard (U.S. Department of Commerce) Government Printing Office Washington, DC 20402	www.commerce.gov (202) 512-0000
DOC	Department of Commerce 14th St. and Constitution Ave., NW Washington, DC 20230	www.doc.gov (202) 482-2000
DOT	Department of Transportation 400 Seventh St., SW Washington, DC 20590	www.dot.gov (202) 366-4000

EPA	Environmental Protection Agency 401 M St., SW Washington, DC 20460	www.epa.gov (202) 260-2090
FAA	Federal Aviation Administration (U.S. Department of Transportation) 800 Independence Ave., SW Washington, DC 20591	www.faa.gov (202) 366-4000
FCC	Federal Communications Commission 1919 M St., NW Washington, DC 20554	www.fcc.gov (202) 418-0190
FDA	Food and Drug Administration 5600 Fishers Lane Rockville, MD 20857	www.fda.gov (888) 463-6332
FHA	Federal Housing Administration (U.S. Department of Housing and Urban Development) 451 Seventh St., SW Washington, DC 20410	www.hud.gov (202) 708-1112
FS	Federal Specification Unit (Available from GSA) 470 East L'Enfant Plaza, SW, Suite 8100 Washington, DC 20407	 (202) 755-0325
GSA	General Services Administration F St. and 18th St., NW Washington, DC 20405	www.gsa.gov (202) 708-5082
HUD	Department of Housing and Urban Development	www.hud.gov (202) 708-1112
LBNL	Lawrence Berkeley National Laboratory	www.lbl.gov (510) 486-5605
MIL	Military Standardization Documents (U.S. Department of Defense) Defense Printing Service 700 Robbins Ave., Building 4D Philadelphia, PA 19111	 (215) 697-2179
NIST	National Institute of Standards and Technology (U.S. Department of Commerce) Building 101, #A1134 Rte. I-270 and Quince Orchard Rd. Gaithersburg, MD 20899	www.nist.gov (301) 975-6478
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor) 200 Constitution Ave., NW Washington, DC 20210	www.osha.gov (202) 693-1999
PS	Product Standard of NBS	www.commerce.gov

	(U.S. Department of Commerce) Government Printing Office Washington, DC 20402	(202) 512-0000
RUS	Rural Utilities Service (Formerly Rural Electrification Administration) (U.S. Department of Agriculture) 14th St. and Independence Ave., SW Washington, DC 20250	(See USDA) (202) 720-9560
TRB	Transportation Research Board	www.nas.edu/trb (202) 334-2934
USDA	U.S. Department of Agriculture 14th St. and Independence Ave., SW Washington, DC 20250	www.usda.gov (202) 720-2791
USPS	U.S. Postal Service 475 L'Enfant Plaza, SW Washington, DC 20260-0010	www.usps.com (202) 268-2000

G. GOVERNING REGULATIONS/AUTHORITIES

1. The Architect has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.

1.5 SUBMITTALS

A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 42 19

SECTION 01 43 39 – MOCKUPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Mockup Requirements: Requirements for constructing field mockups.
2. Requirements for mockups are supplemental to requirements for samples and field samples as specified in individual specification sections.
3. Purpose of Mockups:

    a. Verify selections made under sample submittals
    b. Demonstrate aesthetic effects and, where indicated, qualities of materials and execution
    c. Review coordination, testing, or operation
    d. Demonstrate interface between dissimilar materials
    e. Demonstrate compliance with specified installation tolerances.

B. Related Requirements:

1. Divisions 2 through 35 Sections for specific mockup requirements.
2. Division 01 Section – Quality Requirements: Quality assurance requirements.

1.3 DEFINITIONS

A. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are not Samples.

1.4 SUBMITTALS

A. Mockup Plan: Detailed, dimensioned plans and elevations showing mockup size, and items and materials that will be included in proposed mockup.

B. Mockups shall not be fabricated until after acceptance of required submittals for all finish materials to be incorporated into the mockups. Project schedule shall take into account early submittal of these components to the University's Representative.

C. Submit shop drawings for the mockup that integrate shop drawings of each finish material and footings and bracing. Clearly identify components and materials to be integrated into the assembly

D. Prior to construction of mockups, provide material samples as specified in the respective Specification Sections included as part of the mockups.

E. Submit structural calculations as required to ensure the structural integrity of the mockup. The calculations shall be signed by a licensed State of Texas structural or civil engineer and shall be submitted to the Owner's Representative for review.

1.5 QUALITY ASSURANCE

A. A. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Pre-Construction Conference: Prior to the construction of the mockup, a conference will be called by the Construction Manager at the Site for the purpose of reviewing the requirements, and intent of mockup. The conference shall be attended by the Architect, Construction Manager, Owner, Contractor, and person supervising this phase of the Work.
2. Build mockups in location and of size indicated or, if not indicated, as directed by Architect or Owner Representative
3. Notify Architect and University Representative seven days in advance of dates and times when mockups will be constructed.
4. Mockups shall be complete in all respects and shall represent the final complete assemblies.
5. Demonstrate the proposed range of aesthetic effects and workmanship.

1.6 SCHEDULING AND ORDERING

A. Schedule of Mockups: Include the construction of the mockups in the Contractor's Construction Schedule.

1. After award of all subcontracts for components and materials of the mockup systems, and on basis of preliminary approval of materials and variations to proposed design of mockup(s), construct full-scale mockups for review of designs and construction.
2. Notification: Notify Architect 7 days in advance of dates and times when mockups will be constructed.
3. Allow time for Architect's review and adjustments to mockup prior to approval.
4. Do not place orders for construction materials, and do no fabrication until mockups are accepted.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Mockups: Before installing portions of the Work requiring mockups, build mockups to comply with the following requirements:

1. Use materials, including accessories, fabrication and installation methods identical with those indicated for Work. Simulate actual construction conditions as accurately as possible.
2. Mockup shall be used to evaluate the various components, including but not limited to workmanship, weatherability, aesthetic of finishes and relationship between various installed components. Interior components will include supporting assemblies and trim for finishes as indicated in individual sections.
3. Work performed on the mockup shall be in accordance with the Contract Documents. Changes or modifications made due to actual job conditions shall be approved by Architect.

B. Extent and Size of Mockups:

1. Items in rooms, and rooms: As dictated by confines of room layout, or as required to fully demonstrate range of materials and relationship between materials.
2. Items not in rooms: As indicated on drawings or within individual specification sections.

C. Materials: Mockup shall be comprised of the materials and systems indicated on Drawings and as specified in individual specification sections

PART 3 - EXECUTION

3.1 GENERAL

A. Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

3.2 INSTALLATION

A. Build mockups in location indicated, and of size and profile indicated or, if not indicated, as directed by the Architect.

B. Notify the Architect and Construction Manager of 7 days in advance of dates and times when mockups will be constructed and able to be inspected.

C. Employ supervisory personnel to oversee mockup construction. Employ same workers that will be employed during the construction of Project.

D. Demonstrate the proposed range of aesthetic effects and workmanship.

E. At walls, assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals and finishes.

F. Commence the Work after mockup has been inspected and accepted in writing by the Architect.

3.3 ACCEPTANCE

A. Acceptance: Obtain Architect's written acceptance of mockups before starting work, fabrication, or construction. Acceptance of mockup does not relieve the contractor and subcontractor of the responsibility to comply with the contract documents.

1. Allow five working days for initial review and each re-review of each mockup.
2. Obtain Architect’s written acceptance for each mockup.
3. Do not complete production of materials for final Project site erection until Architect’s acceptance of mockup has been obtained.
4. Where mockup is rejected, replace, rebuild and or modify mockup as directed by Architect.

B. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

3.4 MAINTENANCE

A. Maintain and protect mockups in original undisturbed, "as initially constructed / accepted" condition during construction.

3.5 REMOVAL

A. Upon completion of the project, demolish and remove mockups and dispose of in a legal manner, and as indicated in individual specification sections.

1. Colored concrete mockup may remain in place as part of the final construction if allowed by and coordinated with the Architect in field.
2. Mockups may become a part of the final construction if allowed by and coordinated with the Architect in the field.

3.6 MOCKUP SCHEDULE

A. Provide mockups of the following items:

1. Exterior wall assemblies.
2. Colored concrete.
3. Interior and exterior handrails.
4. Interior wall finishes.
5. Interior masonry walls.

3.7 PRECONSTRUCTION TESTING

A. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

a. Provide test mockups representative of proposed products and construction.
b. Submit test mockups in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Provide sizes and configurations of test mockups to adequately demonstrate capability of products to comply with performance requirements.
d. Build site-assembled test mockups when required in individual specification Sections, using installers who will perform same tasks for Project.
e. When testing is complete, remove test mockups; do not reuse products on Project.

END OF SECTION 01 43 39

SECTION 01 45 00 - QUALITY CONTROL SERVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for quality control services.

B. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor. They do not include Contract enforcement activities performed by the Architect.

C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.

D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.

1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.
2. Inspections, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.
3. Requirements for the Contractor to provide quality control services required by the Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 RESPONSIBILITIES

A. Contractor Responsibilities: The Contractor shall provide inspections, tests and similar quality control services, specified in individual Specification Sections and required by governing authorities, except where they are specifically indicated to be the Owner's responsibility, or are provided by another identified entity; these services include those specified to be performed by an independent agency and not by the Contractor. Costs for these services shall be included in the Contract Sum.

1. The Contractor shall employ and pay an independent agency, to perform specified quality control services specified in PART 1 - GENERAL, QUALITY ASSURANCE. The cost for these services is not borne by the testing allowance.
2. The Owner will engage the services of an independent agency to perform inspections and tests specified in PART 3 - EXECUTION, QUALITY CONTROL, QUALITY CONTROL TESTING DURING CONSTRUCTION or FIELD QUALITY CONTROL. Payment for these services will be made from the Inspection and Testing Allowance, as authorized by Change Orders.

    a. Where the Owner has engaged a testing agency or other entity for testing and inspection of a part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless otherwise agreed in writing with the Owner.

3. Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.

a. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

4. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:

a. Providing access to the Work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.
b. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
c. Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.
d. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
e. Security and protection of samples and test equipment at the Project site.

B. Owner Responsibilities: The Owner will provide inspections, tests and similar quality control services specified to be performed by independent agencies and not by the Contractor, except where they are specifically indicated as the Contractor's responsibility or are provided by another identified entity. Costs for these services are not included in the Contract Sum.

1. The Owner will employ and pay for the services of an independent agency, testing laboratory or other qualified firm to perform services which are the Owner's responsibility.

C. Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections shall cooperate with the Architect and Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.

1. The agency shall notify the Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
3. The agency shall not perform any duties of the Contractor.

D. Coordination: The Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. Additionally, Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

1.4 SUBMITTALS

A. The independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Architect, in duplicate, unless the Contractor is responsible for the service. If the Contractor is responsible for the service, submit a certified written report of each inspection, test or similar service through the Contractor, in duplicate.

1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
2. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:

a. Date of issue.
b. Project title and number.
c. Name, address and telephone number of testing agency.
d. Dates and locations of samples and tests or inspections.
e. Names of individuals making the inspection or test.
f. Designation of the Work and test method.
g. Identification of product and Specification Section.
h. Complete inspection or test data.
i. Test results and an interpretation of test results.
j. Ambient conditions at the time of sample-taking and testing.
k. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
l. Name and signature of laboratory inspector.
m. Recommendations on retesting.

1.5 QUALITY ASSURANCE

A. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.

1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.

PART 2 – PRODUCTS (Not Applicable).

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching."

B. Protect construction exposed by or for quality control service activities, and protect repaired construction.

C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION 01 45 00

SECTION 01 50 00 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.

B. Temporary utilities which may be required include but are not limited to:

1. Water service and distribution.
2. Temporary electric power and light.
3. Telephone service.
4. Storm and sanitary sewer.

C. Temporary construction and support facilities which may be required include but are not limited to:

1. Temporary heat.
2. Storage sheds and field offices.
3. Temporary roads and paving.
4. Sanitary facilities, including drinking water.
5. Dewatering facilities and drains.
6. Temporary enclosures.
7. Hoists.
8. Temporary Project identification signs and bulletin boards.
9. Waste disposal services.
10. Rodent and pest control.
11. Construction aids and miscellaneous services and facilities.

D. Security and protection facilities which may be required include but are not limited to:

1. Temporary fire protection.
2. Barricades, warning signs, lights.
3. Sidewalk bridge or enclosure fence for the site.
4. Environmental protection.

E. Refer to drawing at end of this Section for Temporary Site Sign.

1.3 SUBMITTALS

A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.

B. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within 15 days of the date established for commencement of the Work.

1.4 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations if authorities having jurisdiction, including but not limited to:

1. Building Code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police, Fire Department and Rescue Squad rules.
5. Environmental protection regulations.

B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library, "Temporary Electrical Facilities."

1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.
2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.

B. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry."

1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.
2. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.
3. For fences and vision barriers, provide exterior type, minimum 3/8" thick plywood.
4. For safety barriers, sidewalk bridges and similar uses, provide minimum 5/8 inch thick exterior plywood.

C. Paint: Comply with requirements of Division 9 Section "Painting."

1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.
2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.

D. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

E. Water: Provide potable water approved by local health authorities.

F. Open-Mesh Fencing: Provide 11 gage, galvanized 2 inch, chain link fabric fencing 6 feet high with galvanized barbed wire top strand and galvanized steel pipe posts, 1-1/2 inch I.D. for line posts and 2-1/2 inch I.D. for corner posts. Provide privacy slat screening or other visual screening for all of the temporary fencing.

2.2 EQUIPMENT

A. General: Provide new equipment; if acceptable to the Architect, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

B. Water Hoses: Provide 3/4 inch heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.

C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.

G. Temporary Offices: Provide prefabricated or mobile units with lockable entrances, operable windows and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.

H. Temporary Storage Sheds: Provide prefabricated or mobile units with lockable entrances. Provide heated units on foundations adequate for normal loading.

I. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.

J. First Aid Supplies: Comply with governing regulations.

K. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.

1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.
4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Architect, and will not be accepted as a basis of claims for a Change Order.

B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.

1. Sterilization: Sterilize temporary water piping prior to use.

C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.

1. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.

D. Temporary Lighting: Wherever overhead floor or roof deck has been installed, provide temporary lighting with local switching.

1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

E. Temporary Telephones: Provide temporary telephone service for use by all personnel engaged in construction activities. Where field offices are required, provide temporary telephone service consisting of a minimum of two separate telephone lines (one line dedicated for facsimile machine) in the field office for use by personnel engaged in construction activities throughout the construction period. Provide internet access for email in the field office.

1. At each telephone, post a list of important telephone numbers.

F. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner.

1. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.
2. Connect temporary sewers to the municipal system as directed by the sewer department officials.
3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.
4. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.3 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access.

1. Maintain temporary construction and support facilities until Final Completion. Remove prior to final application for payment. Where temporary construction or facilities interfere with the Owner's use or occupation of the Work after Substantial Completion, remove, relocate, or modify temporary construction and facilities as required to permit Owner's use and occupancy.

B. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.

C. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

D. Heating Facilities: Except where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.

E. Field Offices: Provide insulated, weathertight temporary offices of sufficient size to accommodate required office personnel at the Project site. Keep the office clean and orderly for use for small progress meetings. Furnish and equip offices as follows:

1. Provide with at least one toilet room with running water, connected to the sanitary sewer.
2. Furnish with at least two desks and chairs, a 4 drawer file cabinet, plan table and plan rack, a 6 shelf bookcase, conference table and chairs, fax machine if required by Owner, and a desktop computer with internet connection and printer.

F. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service.

G. Temporary Paving: Construct and maintain temporary roads and paving to adequately support the indicated loading and to withstand exposure to traffic during the construction period. Locate temporary paving for roads, storage areas and parking where the same permanent facilities will be located. Review proposed modifications to permanent paving with the Architect.

1. Paving: Provide Asphaltic Concrete Paving" for construction and maintenance of temporary paving.
2. Coordinate temporary paving development with subgrade grading, compaction, installation and stabilization of subbase, and installation of base and finish courses of permanent paving.
3. Install temporary paving to minimize the need to rework the installations and to result in permanent roads and paved areas that are without damage or deterioration when occupied by the Owner.
4. Extend temporary paving in and around the construction area as necessary to accommodate delivery and storage of materials, equipment usage, administration and supervision.

H. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best service the Project's needs.

1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.

I. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.

J. Drinking Water Fixtures: Provide drinking water fountains where required to for compliance with regulations and health codes, including paper supply.

K. Dewatering Facilities and Drains: For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division 32 and Division 33 Sections. Where feasible, utilize the same facilities. Maintain the site, excavations and construction free of water.

L. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.
3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood-framed construction.
4. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use UL-labeled fire-retardant treated material for framing and main sheathing.

M. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

N. Project Identification and Temporary Signs: Display no signs without approval of the Architect. Do not permit installation of unauthorized signs.

O. Project Identification Signs: Engage an experienced sign painter to apply graphics. Refer to drawing at end of this Section for Temporary Site Sign.

1. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.

P. Temporary Exterior Lighting: Install exterior yard and sign lights so that signs are visible when Work is being performed.

Q. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

R. Rodent and Pest Control: Before deep foundation Work has been completed, retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches and other pests. Employ this service to perform extermination and control procedures at regular intervals so the Project will be relatively free of pests and their residues at Substantial Completion. Perform control operations in a lawful manner using environmentally safe materials.

S. Stairs (if required): Until permanent stairs are available (or may not be a part of the building design), provide temporary stairs where ladders are not adequate. Cover finished permanent stairs with a protective covering of plywood or similar material so finishes will be undamaged at the time of acceptance.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer as requested by the Architect.

B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."

1. Fire Lanes: The General Contractor shall provide and maintain temporary "all-weather" emergency vehicle access adjacent to roads designated by the Contract Documents as Fire Lanes, as required by the authorities having jurisdiction until complete construction of all fire lanes. Fire lanes shall be maintained and remain accessible at all times.
2. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
3. Store combustible materials in containers in fire-safe locations.
4. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
5. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

C. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.

D. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.

E. Enclosure Fence: When excavation begins, install an enclosure fence with lockable entrance gates. Locate where indicated, or enclose the entire site or the portion determined sufficient to

accommodate construction operations. Install in a manner that will prevent people, dogs and other animals from easily entering the site, except by the entrance gates.

1. Provide open-mesh, chain-link fencing with posts set in a compacted mixture of gravel and earth.

F. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.

1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

G. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.5 OPERATION, TERMINATION AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

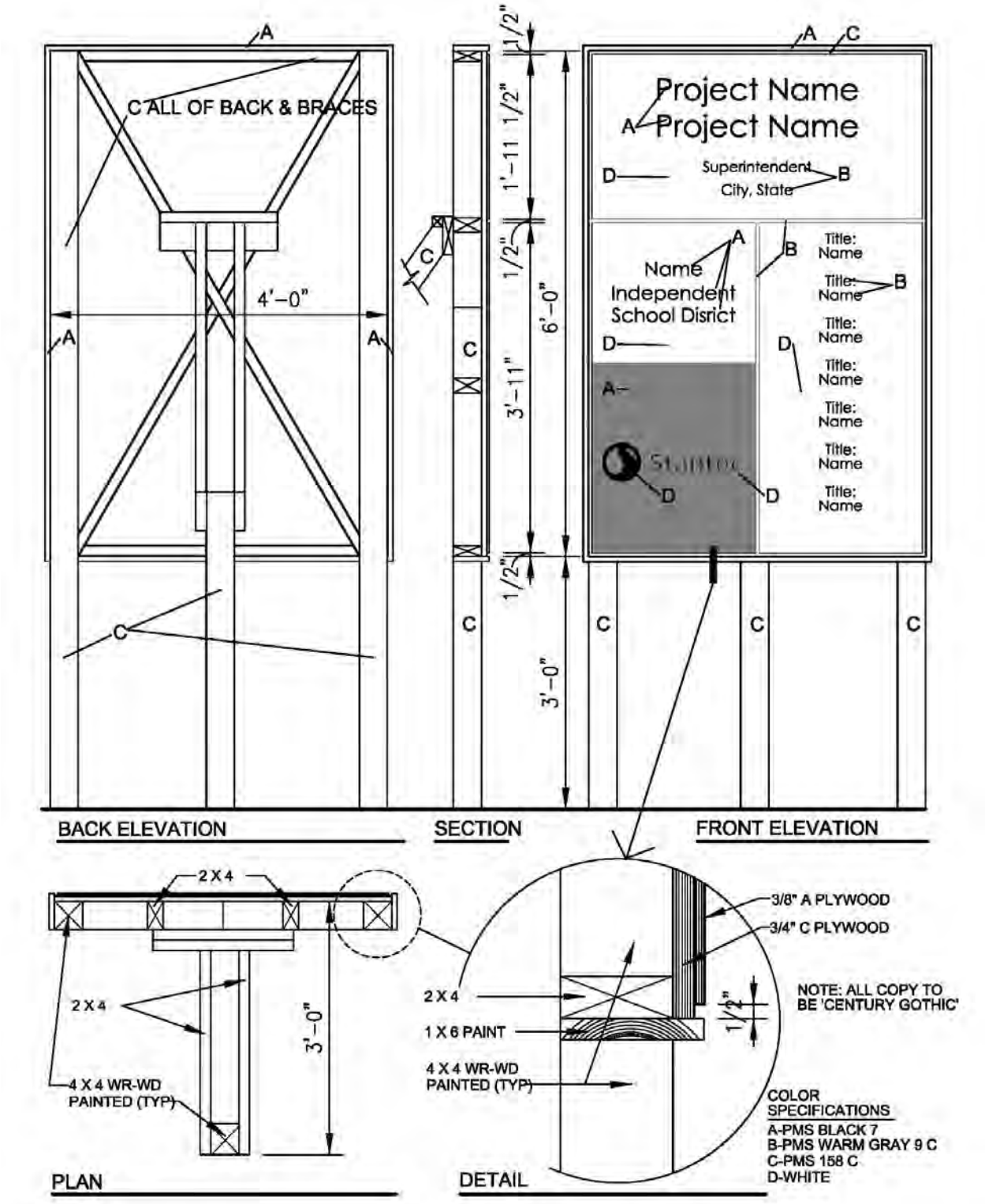
B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24 hour day basis where required to achieve indicated results and to avoid possibility of damage.
2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

C. Termination and Removal: Unless the Architect requires that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves the right to take possession of Project identification signs.
2. Remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt or other petrochemical compounds, and other substances which might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances and elsewhere when used during construction, as required by the governing authority, Architect and or the Owner.
3. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:

a. Replace air filters and clean inside of ductwork and housings.
b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.



END OF SECTION 01 50 00

SECTION 01 57 15 - DUST CONTROL

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

B. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.

1.02 SUMMARY

A. A. Perform all Work required to prevent and control dust in accordance with all applicable Federal, State, and local laws and regulations concerning the prevention and control of dust pollution.

B. B. Contractor furnish all the labor, equipment, materials, and means required, and carry out proper and efficient measures wherever and as often as necessary to reduce the dust nuisance to persons, and to prevent damage by dust originating from operations to vehicles, buildings, existing vegetation or any other properties. Contractor shall be liable for any damage resulting from dust originating from operations during this Project.

C. C. Contractor shall prepare a Dust Control Plan, as described within this Section, for Owner review and approval.

1.03 REFERENCE STANDARDS

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

C. The Contractor shall be responsible at all times for compliance with applicable laws and regulations pertaining to dust control and opacity monitoring at the Site, including but not limited to those contained in Title 30 of the Texas Administrative Code (TAC), Chapter 111 (30 TAC §111.111, 30 TAC §111.143, 30 TAC §111.145, 30 TAC §111.147, and 30 TAC §111.149), as hereafter amended.

1.04 QUALITY ASSURANCE

A. In addition to providing the Dust Control Plan, the Contractor shall provide for Owner review a copy of the daily check list on which Contractor Representatives will document the performance of the activities contained in the Dust Control Plan.

PART 2 - PRODUCTS

2.01 DUST CONTROL PLAN

A. Prior to beginning construction, the Contractor shall provide a written Dust Control Plan to the Owner for review.

©2022 Gil Engineering Associates, Inc.

B. Dust Control Plan shall include, but not be limited to, a description of the control processes that the Contractor will implement in order to address the following:

1. How grading operations will be handled/suspended when winds exceed 30 miles per hour.

2. How water will be applied to all surfaces prior to, and if necessary during, excavation.

3. How water or a covering will be applied to all particulate materials contained in open-bodied trucks, trailers or other vehicles transporting particulate matter prior to operation of the vehicle, in order to prevent dust from becoming airborne during transportation.

4. How water or a covering will be applied to all stockpiles of particulate material to prevent dust from becoming airborne during high windy conditions.

5. How transfer processes involving free fall of soil or other particulate matter will be performed in order to minimize free fall distance and thus reduce dust emissions.

6. How and when water will be applied to unpaved surfaces, including commercial roads, or any other surface that can create airborne dust in order adequately to control dust emissions.

7. How and when ground cover on the construction site will be reestablished prior to final occupancy.

8. The designated routes within the job site that will be used by vehicles transporting soil or other materials to and from the site.

9. How soil, sand, dirt and any other particulate matter will be removed from vehicle tires and undercarriages prior to leaving the site, in order to prevent trackout on the adjacent public roads.

10. The maximum speed limit on unpaved roads through the site, and how and where speed limit signs will be posted along the haul road routes so that they are visible to vehicles entering and leaving the site.

11. How and when soil, sand and other particulate material deposited or emitted onto any public thoroughfare near construction will be removed.

12. How dust control systems and/or devices, including; but not limited to water application systems, filter replacement, or daily removal of excess dust from containment areas, will be maintained.

PART 3 - EXECUTION

3.01 DOCUMENT AVAILABILITY

©2022 Gil Engineering Associates, Inc.

A. The Contractor shall make the Dust Control Plan and the Daily Dust Control Checklist available at the job site for periodic review, inspection and copying by Owner's representatives, regulatory agencies including but not limited to EPA and TCEQ, and other persons legally permitted to review them.

END OF SECTION 31 11 00

©2022 Gil Engineering Associates, Inc.

SECTION 01 60 00 – MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

B. Standards: Refer to Section "Reference Standards and Definitions" for applicability of industry standards to products specified.

1. Administrative procedures for handling requests for substitutions made after award of the Contract are included under Section "Product Substitutions."
2. Since the Owner is a governmental entity or an organization which may be exempted from the sales and use taxes on certain tangible personal property, the Contractor shall be responsible for:

    a. Determining whether such governmental entity or organization is exempt from such taxes under the Contract Documents.
    b. Determining whether your purchase of any tangible personal property for use in the performance of this contract is exempt.
    c. Obtaining any sales tax exemption certificate from the Owner.
    d. Properly issuing any sales tax exemption certificate to a seller or supplier that the sale of any item of tangible personal property qualifies for an exemption.Maintaining any records required by the laws of the State of Texas or by any valid rules and/or regulations of the Comptroller of Public Accounts of the State of Texas. Payment of any legally assessed penalties or fines for improper use of any exemption Certificate.

1.3 DEFINITIONS

A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.

1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
2. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
3. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
4. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

1.4 SUBMITTALS

A. Product List Schedule: Prepare a schedule showing products specified in a tabular form acceptable to the Architect. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.

1. Coordinate the product list schedule with the Contractor's Construction Schedule and the Schedule of Submittals.

B. Form: Prepare the product listing schedule with information on each item tabulated under the following column headings:

1. Related Specification Section number.
2. Generic name used in Contract Documents.
3. Proprietary name, model number and similar designations.
4. Manufacturer's name and address.
5. Supplier's name and address.
6. Installer's name and address.
7. Projected delivery date, or time span of delivery period.

C. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of an initial product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.

1. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.

D. Completed Schedule: Within 60 days after date of commencement of the Work, submit 3 copies of the completed product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.

E. Architect's Action: The Architect will respond in writing to the Contractor within 2 weeks of receipt of the completed product list schedule. No response within this time period constitutes no objection to listed manufacturers or products, but does not constitute a waiver of the requirement that products comply with Contract Documents. The Architect's response will include the following:

1. A list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.5 QUALITY ASSURANCE

A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.

1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources that produce products that possess these qualities, to the fullest extent possible.

B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.

D. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.

E. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:

1. Name of product and manufacturer.
2. Model and serial number.
3. Capacity.
4. Speed.
5. Ratings.

F. Accessibility: All materials, products and accessories shall only be provided in ADA-compliant versions. When material, equipment and products are not specifically named or specified, only provide ADA-compliant material, equipment and products. Non-ADA-compliant versions of products that are mistakenly installed, shall be removed and replaced with ADA-compliant versions, with the burden of the cost for the change paid by members of the Contracting Team (General Contractor, Construction Manager, Subcontractors). The provided replacement installation shall be completed solely to the satisfaction of the Architect in the field. If directed by the Architect in the field, the unsatisfactory installation shall be neatly demolished and disposed of, and new installations shall be provided or modified, until the Architect accepts the installation as meeting the specification and project aesthetic requirements. The Architect is the sole judge of aesthetic issues, appearance issues, and remediated appearance issues on the project. Members of the Contracting Team shall comply with directions from the Architect related to these issues.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.

1. The drawings and specifications represent a minimum level of performance and appearance for materials, equipment and products used on the job, including the ability and suitability to receive the indicated warranty. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete and warrantable installation and for the intended use and effect. If something is necessary for a complete and warrantable installation, provide it even if it is not indicated. An item's necessity is implied by its required warranty, and an accessory item's necessity is implied by its required system warranty. Where a product is specified and all details for the product / material / system are not indicated or specified, provide a warrantable option for the parts not explicitly covered, to be included within the bid, to make it complete. There shall be no additional cost incurred by the Owner or anybody associated with the project, for a complete and warrantable system when such warranty is specified.

    a. Variations that Propose to Change Appearance: Where a warranty is explicitly required (the specification is a "performance specification" regarding the warranty), bid a product capable of being warrantied for the job conditions and meeting the indicated aesthetic depictions and descriptions (drawings and notes / text) of the Construction Documents. Where a manufacturer's standard warranty will not allow for installation of a product(s) or material(s) as indicated, and providing a standard warranty would force a change to the building aesthetic or the building appearance, instead of providing the indicated standard warrantable solution, provide your bid with a warrantable product solution beyond what is specified in this Project Manual, to achieve the desired appearance depicted / indicated, and additionally the warranty required. This may require additional requirements: work, materials, products, accessories, Engineering or other efforts on the Contractor's or Subcontractor's part, which are not explicitly indicated. Provide these additional requirements as part of your original bid with no additional cost to the Owner after the initial bid – no additional fees or cost shall be requested of anybody involved in the project for the additional requirements: work, materials, products, accessories, Engineering or other efforts to provide the required work and associated required warranty.

2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Appearance of Products: Substitution colors different from the Color Schedule, or Finish Schedule, Interior Finish Schedule, other table of finish materials included on the Construction Documents, or other finish designations included in the drawings, will not be allowed nor ignored. If the Manufacturer is not able to match the color, texture or other indicated or inherent aesthetic characteristic, do not bid the product or material. Products provided by Manufacturers listed in the specifications shall match the colors of the Basis-of-Design products listed In the Construction Documents.

B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:

1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.
2. Semiproprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
3. Where products or manufacturers are specified by name, accompanied by the term "or equal," or "or approved equal" comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
4. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning substitutions to obtain approval for use of an unnamed product.
5. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a

product or assembly that provides the characteristics and otherwise complies with Contract requirements.

6. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.

    a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

7. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
8. Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.

    a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning substitutions for selection of a matching product in another product category, or for noncompliance with specified requirements.

9. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, the Architect will select the color, pattern and texture from a manufacturer whose product complies with any other specified requirements, at the sole discretion of the Architect. Where there is a conflict in the color lines indicated (colors, patterns, textures) in the “Construction Documents” (“Specifications”, “Drawings” and “Color Schedule” or “Finish Schedule”), i.e. the “standard” line colors versus the: 1) “premium” line, 2) “custom” line or 3) similar more costly lines of colors, the most costly line of colors indicated, shall be bid and provided. Substitution colors different from the Color Schedule, or Finish Schedule, Interior Finish Schedule, other table of finish materials included on the Construction Documents, or other finish designations included in the drawings, will not be allowed. The Architect shall be the sole determiner of allowed substitute materials for bidding and construction.
10. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection, and for procedures required for processing such selections.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.

    1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01 60 00

SECTION 01 73 29 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for cutting and patching.

B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1. Requirements of this Section also apply to mechanical and electrical installations, as well as Work specified in Divisions 2 through 33. Refer to Division 22, Division 23, and Division 26 Sections for other requirements and limitations applicable to cutting and patching plumbing, mechanical, and electrical installations.

1.3 SUBMITTALS

A. Cutting and Patching Proposal: Where approval of procedures for cutting and patching is required before proceeding, submit a proposal describing procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal:

1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
3. List products to be used and firms or entities that will perform Work.
4. Indicate dates when cutting and patching is to be performed.
5. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
6. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations to show how reinforcement is integrated with the original structure.
7. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

1.4 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:

a. Foundation construction.
b. Bearing and retaining walls.

c. Structural concrete.
d. Structural steel.
e. Lintels.
f. Structural decking.
g. Miscellaneous structural metals.
h. Equipment supports.
i. Piping, ductwork, vessels and equipment.
j. Structural systems of special construction in Division 13.

B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:

a. Shoring, bracing, and sheeting.
b. Primary operational systems and equipment.
c. Air or smoke barriers.
d. Water, moisture, or vapor barriers.
e. Membranes and flashings.
f. Fire protection systems.
g. Noise and vibration control elements and systems.
h. Control systems.
i. Communication systems.
j. Conveying systems.
k. Electrical wiring systems.
l. Special construction specified by Division 13 Sections.

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

1. If possible retain the original installer or fabricator to cut and patch the following categories of exposed Work, or if it is not possible to engage the original installer or fabricator, engage another recognized experienced and specialized firm:

a. Matched-veneer woodwork.
b. Preformed metal panels.
c. Window wall system.
d. Acoustical ceilings.
e. Finished wood flooring.
f. Carpeting.
g. Aggregate wall coating.
h. Wall covering.
i. HVAC enclosures, cabinets or covers.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 - EXECUTION

3.1 INSPECTION

A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

1. Before proceeding, meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

1. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
2. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.3 PERFORMANCE

A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.

1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
4. Comply with requirements of applicable Sections of Division-2 where cutting and patching requires excavating and backfilling.
5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.
4. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken containing the patch, after the patched area has received primer and second coat.
5. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.4 CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 01 73 29

SECTION 01 77 00 – PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract,and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Inspection procedures.
2. Project record document submittal.
3. Operating and maintenance manual submittal.
4. Submittal of warranties.
5. Final cleaning.
6. Demonstration and training videos.

B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 33.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request (exceptions on the first item below will not be allowed).

1. If required, prepare Operating and Maintenance Instructions and Manuals and Demonstration and Training Videos for the areas of the building changing possession at the time of Substantial Completion. Operating and Maintenance Instructions and Manuals and Demonstration and Training Videos must be given to the Owner prior to the issuance of the Certificate of Substantial Completion.
2. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documents for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
3. If 100 percent completion cannot be shown, include a list of incomplete items (Contractor's "Punch List" (Final Punch List) is acceptable), the value of incomplete construction, and reasons the Work is not complete.
4. Advise Owner of pending insurance change-over requirements.
5. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
6. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
7. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.
8. Submit to Owner one copy of the Material Safety Data Sheet Manual.
9. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable. Extra materials include but are not necessarily limited to those listed in the "Summary of Extra Materials" following this Section.

10. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
11. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.

B. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Architect will repeat inspection when requested, and assured by the Contractor in writing, that the Work has been substantially completed.
2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Architect.
4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.
5. Submit consent of surety to final payment.
6. Submit Notice of Termination as required in Division 1 Section “Erosion and Sediment Control”.
7. Submit a final liquidated damages settlement statement.
8. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
9. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

B. Reinspection Procedure: The Architect will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.

1. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If necessary, reinspection will be repeated.
3. Should the Architect perform reinspections, due to failure of the Work to comply with the claims of status of completion made by the Contractor, the Owner shall compensate the Architect for additional services; and the Owner shall deduct the amount of the compensation from the final payment to the Contractor.

1.5 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with colored erasable pencil; use other colors to distinguish between variations in separate categories of the Work; use the following color code:

    a. Red for Architectural Work.
    b. Blue for Structural Work.
    c. Green for Plumbing Work.
    d. Orange for HVAC Work.
    e. Brown for Electrical Work.
    f. Black for other written notations.

2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
3. Note related Change Order numbers where applicable.
4. At completion of project, transfer all Project Record Data to one complete set of mylar sepias using mylar compatible colored pencils or ink. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Deliver one complete set of mylar sepias of all drawings to the Architect for the Owner's records. The cost of printing the mylar sepias shall be paid by the Contractor.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.

1. Upon completion of the Work, submit record Specifications to the Architect for the Owner's records.

D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in the actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.

1. Upon completion of mark-up, submit complete set of record Product Data to the Architect for the Owner's records.

E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Architect and the Owner's personnel to determine which of the submitted Samples have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.

F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect for the Owner's records.

G. Record Electronic Drawings: Comply with the following:

1. Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected Electronic Drawings of the Contract Drawings, as follows:

   a. Format: Portable Document Format (PDF), program, version, and operating system as the original Contract Drawings.
   b. Incorporate changes and additional information previously marked on Record Prints. Delete, redraw, and add details and notations where applicable.
   c. Refer instances of uncertainty to Architect for resolution.
   d. Architect will furnish Contractor one set of Electronic Drawings of the Contract Drawings for use in recording information. By receipt of the Electronic Drawings of the Contract Drawings from the Architect, the Contractor acknowledges and agrees to the following:

      1.) Electronic Drawings released to the Contractor are for the express purpose of documenting changes or deviations from the original Contract Drawings and Specifications and creating Record Electronic Drawings. Record Electronic Drawings are prepared by the Contractor, not the Architect.
      2.) The Architect makes no representations as to the accuracy or completeness of Electronic Drawings or Record Electronic Drawings as they relate to the Contract Drawings.
      3.) The Architect makes no representation as to the compatibility of Electronic Drawings with the hardware or software of the Contractor or others.

   e. Organize electronic information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each electronic file.
   f. Identification: As follows:

      1.) Project name.
      2.) Date.
      3.) Designation "PROJECT RECORD DRAWINGS."
      4.) Name of Architect.
      5.) Name of Contractor.

   g. Number of Copies: Submit copies of Record Electronic Drawings as follows:

      1.) Submit two sets of Record Electronic Drawing electronic files, two sets of Record Electronic Drawing plots, and two copies printed from record plots. Plot and print each Drawing, whether or not changes and additional information were recorded. Contractor shall be responsible for all reproduction costs.
      2.) Electronic Media: CD-ROM.

   h. Upon completion of the Work, submit Record Electronic Drawing files, plots, and prints to the Architect for the Owner's records.

H. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 2 inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. **Locate the warranty information in its own set of binders.** Include the following types of information:

1. Emergency instructions.
2. Spare parts list.
3. Wiring diagrams.
4. Recommended "turn around" cycles.
5. Inspection procedures.
6. Shop Drawings and Product Data.

7. Fixture lamping schedule.
8. Copies of warranties. **Warranties shall be placed together in their own binder / document.**

    a. **Provide a "Summary of Warranties", located at the front of the Warranties Manual document / binder. The Summary shall contain at minimum, the following information, presented in a column / row format (suggest a spreadsheet), and in the form indicated:**

        1) **Number and name (in that order) of warrantied product or material specification section. There may be more than one warrantied product for a particular specification section.**
        2) **Place the information in order by division and then by section number within each division, all in sequential order, smallest to largest. Give each division its own set of pages, starting each new division with on a new page.**
        3) **The identifying name of the item with a warranty.**
        4) **Length of warranty. Warranties shall be specified in months of warranty period from the date of Substantial Completion.**
        5) **Product manufacturer "company" name, with employee contact names where applicable or possible, with current company phone numbers and addresses to facilitate inquiries on the warrantied products.**
        6) **There shall be a note at the top of the Summary indicating that the warranties commence at the date of substantial completion, and the actual date of Substantial Completion for the project shall be indicated.**

I. Demonstration and Training Videos: Submit two copies of each video within seven days of recording.

1. Identification: On each copy provide an applied label with the following information:

    a. Name of Project.
    b. Name and address of photographer.
    c. Name of Architect (and Construction Manager when applicable).
    d. Name of Contractor.
    e. Date video was recorded.
    f. Description of video content including description of subject building equipment and/ or systems, and general description of training or procedures covered.

PART 2 - PRODUCTS

2.1 CLEANING AGENTS

A. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property, or that might damage finished surfaces.

2.2 VIDEO MEDIA

A. Video Format: Provide high-quality DVD (Digital versatile disc) in color. Submit video discs in jewel cases.

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation

and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Fuels.
7. Identification systems.
8. Control sequences.
9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements and similar continuing commitments.

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Start-up.
2. Shut down.
3. Emergency operations.
4. Noise and vibration adjustments.
5. Safety procedures.
6. Economy and efficiency adjustments.
7. Effective energy utilization.

C. Demonstration and Training Videos: Record instruction of Owner's personnel in the operation and maintenance of equipment and systems. Edit videos to remove noninstructional conversation. Photographer shall select vantage points to best show equipment, systems, and procedures demonstrated.

1. Contractor may, with Owner’s written approval and in compliance with other requirements, provide manufacturer’s standard demonstration and training videos in lieu of on-site custom recorded video.

3.2 FINAL CLEANING

A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
2. Remove labels that are not permanent labels.
3. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
4. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
6. Clean the site, including landscape development areas, of rubbish, litter and foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

C. Pest Control: Engage an experienced exterminator to make a final inspection, and rid the Project of rodents, insects and other pests.

D. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

1. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

SUMMARY OF EXTRA MATERIALS

SECTION	TITLE	REQUIREMENT	COMMENTS
07 42 93	METAL SOFFIT PANELS	Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents. Furnish full lengths of soffit in a quantity equal to 2 percent of amount installed.	
08 71 00	DOOR HARDWARE	Furnish one extra blank key for each lock.	
09 30 13	CERAMIC TILE	Deliver extra materials to Owner. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.	
09 51 13	ACOUSTICAL PANEL CEILINGS	Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents. Acoustical Ceiling Units: Full-size units equal to 2.0 percent of amount installed. Suspension System Components: Quantity of each exposed component equal to 2.0 percent of amount installed.	
09 54 23	LINEAR METAL CEILINGS	Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents. Linear Metal Ceiling Units.: Full-size units equal to 2.0 percent of amount installed. Suspension System Components: Quantity of each exposed component equal to 2.0 percent of amount installed.	
09 65 13	RESILIENT WALL BASE AND ACCESSORIES	Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents. Furnish not less than 10 linear feet (3 linear m) for each 500 linear feet (150 linear m) or fraction thereof, of each different type, color, pattern, and size of resilient product installed. Deliver extra materials to Owner.	
09 65 13.33	METAL FLOORING ACCESSORIES	Deliver extra materials to Owner. Furnish extra materials matching products installed as described below, packaged with protective covering for storage, and identified with labels clearly describing contents. Furnish not less than 10 linear feet for each 500 linear feet or fraction thereof of each different type and color of resilient wall base installed.	

09 65 19	RESILIENT FLOOR TILE	Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.	
09 65 66	RESILIENT ATHLETIC FLOORING	Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Furnish not less than 1 box for each 50 boxes or fraction thereof, of each type, color, pattern, and size of tile flooring installed. Furnish not less than 10 linear feet (3 linear m) in roll form for each 500 linear feet (150 linear m) or fraction thereof, of each type, color, and pattern of sheet and mat flooring installed. Deliver extra materials to Owner.	
09 68 16	CARPET	Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Carpet: Full-width rolls equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd. (8.3 sq. m).	
09 72 00	WALL COVERINGS	Furnish extra materials described below, before installation begins, that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents. Rolls of Wall Covering Material: Full-size units equal to 5 percent of amount of each type installed.	
09 77 23	ACOUSTICAL WALL PANELS	Deliver extra materials to Owner. Furnish extra materials described below matching products installed, packaged with protective covering for storage and identified with appropriate labels: Acoustical Wall Panels: Furnish quantity of full size units equal to 2.0 percent of the amount installed.	
09 91 00	PAINTING (PROFESSIONAL LINE PRODUCTS)	Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner. Quantity: Furnish Owner with an additional 3 percent, but not less than 1 gal. (3.8 L) or 1 case, as appropriate, of each material and color applied.	

09 96 00	HIGH-PERFORMANCE COATINGS	Furnish extra high-performance coating materials from the same production run as materials applied and in quantities described below. Package coating materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Quantity: Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.785 L) or 1 case, as appropriate, of each material and color applied.	
09 96 53	ELASTOMERIC COATINGS	Furnish extra elastomeric coating materials from the same production run as the materials applied in quantities described below. Package materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to the Owner. Quantity: Furnish the Owner with an additional 5 percent, but not less than 1 gal. (3.8 L) or 1 case, as appropriate, of each color applied.	
10 14 33	MARQUEE SIGNBOXES	Deliver extra typographic characters to Owner. Furnish extra characters that are packaged with protective covering for storage, and are identified with labels describing contents. Extra typographic characters: Provide full set of characters, including upper and lower case letters, and numbers, for Owner's use. Provide quantities of each character as recommended by manufacturer for the intended use of the signbox.	
10 21 23	CUBICLE CURTAINS AND TRACK	Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Curtain Carriers and Track End Caps: Full-size units equal to 5 percent of amount installed for each size indicated, but not less than 10 units. Curtains: Full-size units equal to 5 percent of amount installed for each size indicated, but not less than 2 units.	
10 56 13	METAL STORAGE SHELVING	After completion of work, deliver not less than 2 of each type, color, and pattern of metal storage shelving, exclusive of material required to properly complete installation. Furnish 2% of accessory components as scheduled. Furnish replacement materials from same production run as materials installed. Package replacement materials with protective covering, identified with appropriate labels.	
12 21 13	HORIZONTAL LOUVER BLINDS	Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Horizontal Louver Blinds: Before installation begins, for each size, color, texture, pattern, and gloss indicated, full-size units equal to 5 percent of amount installed.	
12 32 16	MANUFACTURED PLASTIC-LAMINATE-FACED CASEWORK	Furnish complete touchup kit for each type and finish of institutional casework provided. Include scratch fillers, stains, finishes, and other materials necessary to perform permanent repairs to damaged casework finish. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.	

		Five (5) each door hinges. Five (5) each door pulls. Five (5) each door catches.	
14 21 00	ELEVATORS	Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months' full maintenance service by skilled employees of the elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Provide parts and supplies as used in the manufacture and installation of original equipment. Perform maintenance, including emergency callback service, during normal working hours. Include 24-hour-per-day, 7-day-per-week emergency callback service. Response Time: Two hours or less. Continuing Maintenance Proposal: Provide a continuing maintenance proposal from Installer to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.	

END OF SECTION 01 77 00

SECTION 01 78 00 - WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies general administrative and procedural requirements for warranties required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.

1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
2. General closeout requirements are included in Division 1 Section "Project Closeout."
3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions 2 through 33.
4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

C. Separate Prime Contracts: Where separate Prime Contracts have been executed for a job, each prime Contractor is responsible for independent, separate and unique warranties related to its own Contract.

D. Warranty Coverage: Warranties shall not cover less than all the specified product design requirements, and warranties shall comply with or exceed the applicable Code engineering requirements as well. Comply with differing requirements of different standards indicated so that all requirements of multiple standards and codes indicated are met. Only warranties matching the indicated design requirements, all of them simultaneously, will be considered valid. Do not leave out compliance with all indicated requirements. Incomplete and deficient warranties will be rejected, and providers unable or unwilling to provide modified compliant warranties, will have their products rejected during submittals.

1.3 DEFINITIONS

A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner. *Special Warranties shall be single source unless otherwise stated. Where a Manufacturer's warranty is required, it shall be the lead Construction Profession's responsibility, typically the General Contractor or Construction Manager, to confirm and coordinate any of the product manufacturer requirements necessary to acquire the full specified warranty.*

1.4 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect. All warranties shall have signatures notarized, or if not signed, they shall be accompanied by a notarized letter from the submitting party.

1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the Work.

B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.

C. Forms for special warranties are included at the end of this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or the Contractor and subcontractor, supplier or manufacturer. Submit a draft to the Owner through the Architect for approval prior to final execution.

1. Refer to individual Section of Divisions 2 through 33 for specific content requirements, and particular requirements for submittal of special warranties.

D. Form of Submittal: At Final Completion compile two copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual. Confirm with the Owner, prior to document assembly, that the Owner wants a hard

copy, electronic copy, or both. Hard copies shall be as indicated below – electronic copies shall match the hard copies for content. Supply the Architect with an electronic copy.

1. Bind warranties in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 inch by 11 inch paper.

    a. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.
    b. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES", the Project title or name, and the name of the Contractor.

2. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not applicable).

PART 3 - EXECUTION

3.1 SUMMARY OF WARRANTIES

A. Contractor to provide their own “SUMMARY OF WARRANTIES” based on the table at the end of this Section. The “SUMMARY OF WARRANTIES” shall include products and installations to be installed in the job. Warranties may include, but are not limited to, those indicated in the sample below. The listed sections below are examples only.

SUMMARY OF WARRANTIES				
SECTION NUMBER	**SECTION TITLE**	**WARRANTY REQUIREMENT**	**WARRANTY PERIOD**	**COMMENTS**
07 13 26	SELF-ADHERING SHEET WATERPROOFING	Special Manufacturer's Warranty: Written warranty, signed by waterproofing manufacturer agreeing to replace waterproofing material that does not comply with requirements or that does not remain watertight during specified warranty period. *Warranty does not include failure of waterproofing due to failure of substrate prepared and treated according to requirements or formation of new joints and cracks in substrate exceeding 1/16 inch (1.6 mm) in width.	Five (5) years from date of Substantial Completion	
07 42 93	METAL SOFFIT PANELS	General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.		
		Special Project Warranty: Submit a written warranty, executed by siding manufacturer, agreeing to repair or replace siding that fails in materials or workmanship within the specified warranty period. Failures include, but are not limited to, cracking, deforming, fading, or otherwise deteriorating beyond normal weathering. Fading is defined as loss of color, after cleaning with product recommended by manufacturer, of more than 4 color-difference units as measured according to ASTM D 2244.	Twenty (20) years from date of Substantial Completion	

07 50 50	MODIFIED ASPHALT BITUMINOUS ROOFING	General Warranty: The warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.		
		Standard Roofing Manufacturer's Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.	As indicated from date of Substantial Completion	
		Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering Work of this Section, including all components of roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, and walkway products.	Two (2) years from date of Substantial Completion	
07 92 00	JOINT SEALANTS	General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.		
		Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.	Two (2) years from date of Substantial Completion	

		Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.	Five (5) years from date of Substantial Completion	
		Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:		
		*Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.		
		*Disintegration of joint substrates from natural causes exceeding design specifications.		
		*Mechanical damage caused by individuals, tools, or other outside agents.		
		*Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.		
08 14 16	FLUSH WOOD DOORS	Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42 by 84 inch (1067 by 2134 mm) section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3 inch (0.25 mm in a 75 mm) span.	Life of installation	
		*Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.		

		*Warranty shall be in effect during the following period of time from date of Substantial Completion:		
08 41 13	ALUMINUM FRAMED ENTRANCES AND STOREFRONTS	General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the contract Documents and shall be in addition to, and run concurrent with, other warranties made by the contractor under requirements of the Contract Documents.	Two (2) years from date of Substantial Completion	
		Special Warranty: Submit a written warranty executed by the Manufacturer agreeing to repair or replace components of aluminum-framed systems that do not comply with requirements, or that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:		
		*Structural failures including, but not limited to, excessive deflection.		
		*Noise or vibration caused by thermal movements.		
		*Deterioration of metals, metal finishes, and other materials beyond normal weathering.		
		*Failure of operating components to function normally.		
		*Adhesive or cohesive sealant failures.		
		*Water leakage through fixed glazing and framing areas.		
		*Glazing breakage.		
		Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes fail within specified warranty period. Warranty does not include normal weathering.	Five (5) years from date of Substantial Completion	
08 44 13	GLAZED ALUMINUM CURTAIN WALLS	General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the contract Documents and shall be in addition to, and run concurrent with, other	Two (2) years from date of Substantial Completion	

		warranties made by the contractor under requirements of the Contract Documents.		
		Special Warranty: Submit a written warranty executed by the Manufacturer agreeing to repair or replace components of aluminum-framed systems that do not comply with requirements, or that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:		
		*Structural failures including, but not limited to, excessive deflection.		
		*Noise or vibration caused by thermal movements.		
		*Deterioration of metals, metal finishes, and other materials beyond normal weathering.		
		*Failure of operating components to function normally.		
		*Adhesive or cohesive sealant failures.		
		*Water leakage through fixed glazing and framing areas.		
		*Glazing breakage.		
		Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes fail within specified warranty period. Warranty does not include normal weathering.	[Five (5) years] [Ten (10) years] [Twenty (20) years] from date of Substantial Completion	
08 80 00	GLAZING	General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.		
		Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form, made out to Owner and signed by coated-glass manufacturer agreeing to replace coated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the	Ten (10) years from date of Substantial Completion	

		nearest shipping point to Project site, within specified warranty period indicated below.		
		Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form, made out to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.	Ten (10) years from date of Substantial Completion	
08 83 00	MIRRORS	General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.		
		Manufacturer's Special Warranty for Mirrors: Written warranty, made out to Owner and signed by mirror manufacturer agreeing to replace mirror units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below:	Five (5) years from date of manufacture	
09 68 16	CARPET	General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.		
		Special Carpet Warranty: Written warranty, signed by carpet manufacturer agreeing to replace carpet that does not comply with requirements or that fails within specified warranty period. Warranty does not include deterioration	<Insert number> years from date of Substantial Completion	

		or failure of carpet due to unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.		
09 96 53	ELASTOMERIC COATINGS	General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.		
		Elastomeric Coating Warranty: Submit a written warranty, executed by the manufacturer, agreeing to repair or replace elastomeric coatings that fail within the specified warranty period. Failures include, but are not limited to, water penetration through the coating.	Five (5) years from the date of Substantial Completion	
10 11 00	VISUAL DISPLAY UNITS	General Warranty: The special porcelain enamel chalkboard and markerboard warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.		
		Porcelain Enamel Chalkboard and Markerboard Warranty: Submit a written warranty executed by manufacturer agreeing to replace porcelain enamel chalkboards and markerboards that do not retain their original writing and erasing qualities, become slick and shiny, or exhibit crazing, cracking, or flaking within the specified warranty period, provided the manufacturer's written instructions for handling, installation, protection, and maintenance have been followed.	Fifty (50) years from date of Substantial Completion	

10 28 00	TOILET AND BATH ACCESSORIES	Special Project Warranty: Provide manufacturer's written warranty against silver spoilage of mirrors, agreeing to replace any mirrors that develop visible defects within warranty period.	Five (5) years	
10 51 13	METAL LOCKERS	Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period. Failures include, but are not limited to, the following:	Ten (10) years from date of Substantial Completion	
		*Structural failures.		
		*Faulty operation of latches and other door hardware.		
		*Damage from deliberate destruction and vandalism is excluded.		
10 56 13	METAL STORAGE SHELVING	Special Project Warranty: Submit a written warranty, executed by the Contractor, Installer and the Manufacturer, agreeing to repair or replace shelving units which fail in materials or workmanship within the specified warranty period. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.	Two (2) years after the date of Substantial Completion	
11 66 00	ATHLETIC EQUIPMENT	Protective Padding Contractor shall agree to repair or replace any defective material or Work. This guarantee shall also include any loss of adhesion, resiliency or delaminating. This guarantee does not cover the damage caused by sharp or burning objects. This product is not intended to replace established management practices, but to supplement them in order to provide a safe environment for the end user, owner and client. Guarantee for this Work shall be signed by both the Sub-Contractor and the General Contractor.	One (1) year from the date of project completion	

11 66 00	ATHLETIC EQUIPMENT	Warranty for Scoring Equipment: Provide 5 year parts coverage from date of Substantial Completion. Provide toll-free service coordination technical phone support during normal business hours.	Five (5) years – provide longer warranty where indicated.	
12 32 16	MANUFACTURED PLASTIC-LAMINATE-FACED CASEWORK	Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of phenolic institutional casework that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:	Five (5) years from date of Substantial Completion	
		*Delamination of components or other failure of glue bond.		
		*Warping of components.		
		*Failure of operating hardware.		
		*Deterioration of finishes.		
14 21 23.16	MACHINE ROOM-LESS ELEVATORS	Special Project Warranty: Provide special project warranty, signed by Contrac-tor, Installer, and Manufacturer, agreeing to replace, repair, or restore defective materials and workmanship of elevator work during warranty period. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have against the Contractor under the Contract Documents.	Twelve (12) months starting on date of Substantial Completion	
		"Defective" is hereby defined to include, but not by way of limitation, operation or control system failures, performances below required mini-mums, excessive wear, unusual deterioration or aging of materials or finishes, unsafe conditions, the need for excessive maintenance, abnormal noise or vibration, and similar unusual, unexpected, and unsatisfactory conditions.		

31 31 16	TERMITE CONTROL	General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.		
		Special Warranty: Written warranty, signed by applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.	Five (5) years from date of Substantial Completion	

END OF SECTION 01 78 00

SECTION 02 42 13.10 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Demolition of portions of existing buildings, site structures, sidewalks and paving indicated on the Drawings and as required to accommodate new construction and renovations.
2. Removal and protection of existing fixtures, materials, and equipment items.

B. Related Sections:
1. Cutting concrete floors and masonry walls for piping, ducts, and conduits is included with the work of the respective fire suppression, plumbing, mechanical and electrical specification sections in Divisions 21 through 28.
2. Cutting holes in roof deck for installation of new plumbing penetrations is provided under Division 22.
3. Cutting holes in roof deck for installation of new rooftop HVAC equipment is provided under Division 23.
4. Cutting holes in roof deck for installation of new electrical penetrations is provided under Division 26.
5. Remodeling construction work and patching are included within the respective sections of technical specifications, including removal of materials for reuse and incorporation into remodeling or new construction.
6. Relocation of pipes, conduits, ducts, and other mechanical and electrical work is provided under their respective Sections.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or recycled.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.

C. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or recycled.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
1. Schedule indicating proposed sequence of operations for selective demolition work to Owner's Representative for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
a. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
b. Coordinate with Owner's continuing occupation of portions of existing building and with Owner's partial occupancy of completed new addition.
2. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. Deliver copies of digital files to the Owner and Architect prior to start of work.

1.4 JOB CONDITIONS

A. Occupancy: Owner may occupy portions of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities that will affect Owner's normal operations.

B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.

C. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

D. Partial Demolition and Removal: Owner maintains first right of salvage. Items indicated to be removed but of salvageable value to Contractor, and not required to be salvaged for Owner, may be removed from structure as work progresses. Transport salvaged items from site as they are removed.
   1. Storage or sale of removed items on site will not be permitted.

E. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.
   1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of building.
   2. Erect temporary covered passageways as required by authorities having jurisdiction.
   3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.
   4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
   5. Protect floors with suitable coverings when necessary.
   6. Construct temporary insulated dustproof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks.
   7. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
   8. Remove protections at completion of work.

F. Damages: Promptly repair damages caused to adjacent facilities by demolition work.

G. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
   1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

H. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Utilize fire-resistive blankets to protect adjacent materials and maintain portable fire suppression devices during flame-cutting operations.

I. Explosives: Use of explosives will not be permitted.

J. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.
   1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
   2. Maintain fire protection services during selective demolition operations.

K. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.
   1. Cease operations and notify Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

B. Cover and protect furniture, equipment, and fixtures from soiling or damage when demolition work is performed in areas where such items have not been removed.

C. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.
   1. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dust-proof partitions of minimum 4-inch studs, 5/8-inch drywall (joints taped) on occupied side, 1/2-inch fire-retardant plywood on demolition side. Fill partition cavity with sound-deadening insulation.
   2. Provide weatherproof closures for exterior openings resulting from demolition work.

D. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.
   1. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover.

3.2 DEMOLITION

A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
   1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
   2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.
   3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
   4. Demolish foundation walls to a depth of not less than 12 inches below existing ground surface. Demolish and remove below-grade wood or metal construction. Break up below-grade concrete slabs.
   5. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.
   6. Completely fill below-grade areas and voids resulting from demolition work. Provide fill consisting of approved earth, gravel, or sand, free of trash and debris, stones over 6 inches in diameter, roots, or other organic matter.
   7. Completely remove any indicated slabs-on-grade and related foundations. Where drilled footings are encountered, remove footings to 24" below existing grade, and stake locations.

B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative in written, accurate detail. Pending receipt of directive from Owner's Representative, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.3 SALVAGED MATERIALS

A. Salvaged Items: Owner maintains first right of salvage. When directed by Architect or

Owner, carefully remove indicated items, clean, store, and turn over to Owner and obtain receipt.

3.4 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site.

B. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

C. Burning of removed materials is not permitted on project site.

3.5 CLEANUP AND REPAIR

A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.

B. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

SECTION 02 41 13 - SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Permits.

B. Site conditions.

C. Materials, equipment, and facilities.

D. Preservation of reference markers.

E. Demolition.

F. Removal.

G. Salvage.

H. Disposal of removed materials and debris.

1.02 RELATED SECTIONS

A. Section 31 11 01 - Site Preparation,

1.03 QUALIFICATIONS

A. Demolition Firm: Company specializing in performing the work of this Section with minimum of 3 years' experience.

1.04 REGULATORY REQUIREMENTS

A. Conform to applicable code for demolition of structures, safety of adjacent structures, dust control, runoff control, disposal, relocation of fire line, removal of existing equipment, etc.

B. Obtain required permits from authorities.

C. Notify affected utility companies before starting work and comply with their requirements.

D. Do not close or obstruct roadways, sidewalks, and/or hydrants without Owner's permission.

E. Conform to applicable regulatory procedures if hazardous or contaminated materials are discovered,

1.05 SCHEDULING

A. Contractor shall provide a demolition removal procedures list and schedule for approval by Owner prior to beginning any demolition work.

B. Contractor shall perform all work required to provide access to bus lane and complete all

©2022 Gil Engineering Associates, Inc.
Engineers ◦ Planners ◦ Surveyors

such work on or before dates given by Owner when school activities are scheduled.

1.06 EXISTING CONSTRUCTION LIMITS AND PROTECTION

A. Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide temporary shoring and bracing for support of building components to prevent settlement or other movement. Provide protective measures to control accumulation and migration of dust and dirt in all work areas. Remove dust, dirt, and debris from work areas daily

1.07 TREES

A. Protect trees within the project site which might be damaged during demolition or deconstruction, and which are indicated to be left in place, by the details as shown in the drawings. Erect and secure fencing from the dripline of individual trees or follow the outer perimeter of branches or clumps of trees. Replace any tree designated to remain that is damaged during the work under this contract with like-kind or as approved by the Engineer.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

A. Comply with excavating, backfilling, and compacting procedures for soils used as backfill material to fill basements, voids, depressions or excavations resulting from demolition or deconstruction of structures

B. Fill Material: Shall consist of select fill free of organics, stones greater than 3 inches and free of debris. Compacted fill shall be placed in accordance with TxDOT Item 247 Type A, Grade 1. This shall be for areas not covered in building or pavements. Fill material under building or pavements shall conform to the requirements in Section 31 00 00 EARTHWORK.

C. Proposed fill material must be sampled and tested by an approved soil testing laboratory, as follows:

PART 3 - EXECUTION

3.01 PREPARATION

A. provide, erect, and maintain temporary barriers and security devices at locations necessary for the continued safety of the administration staff and faculty.

B. Protect existing landscaping materials, appurtenances, structures and pavement, which are not to be demolished.

C. Prevent movement or settlement of adjacent structures. Provide bracing and shoring if required.

©2022 Gil Engineering Associates, Inc.
Engineers ◦ Planners ◦ Surveyors

D. Mark location of utilities. The utility locations shown on the drawings are from questionable sources and Record drawings (NOT from "as-builts") and represents the best information available. The Contractor shall be responsible for locating all utilities, and for repairs of any damaged utilities.

3.02 GENERAL REQUIREMENTS

A. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the Engineer. Do not interrupt existing utilities serving facilities occupied and used by the Owner except when approved in writing and then only after temporary utility services have been approved and provided. Do not begin demolition or deconstruction work until all utility disconnections have been made. Shut off and cap utilities.

3.03 UTILITY SERVICE

A. Maintain existing utilities indicated to stay in service and protect against damage during demolition and deconstruction operations. Prior to start of work, utilities serving each area of alteration or removal will be shut off by the Contractor and disconnected and sealed by the Contractor. Notify local utility provider of shut off for each meter so that the account for the meter can be closed.

3.04 DISCONNECTING EXISTING UTILITIES

A. Remove existing utilities uncovered by work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Engineer and Local Utility Provider. When utility lines are encountered but are not indicated on the drawings, notify the Engineer prior to further work in that area. Remove meters and related equipment and deliver to the local utility provider in accordance with instructions of the Engineer.

3.05 PAVING AND SLABS

A. Remove sawcut concrete and asphaltic concrete paving and slabs including aggregate base to full depth below existing adjacent or new finish grade. Provide neat sawcuts at limits of pavement removal as indicated. Pavement and slabs designated to be recycled and utilized in this project shall be moved, ground and stored as directed by the Engineer. Pavement and slabs not to be used in this project shall be removed from the Site at Contractor's expense.

3.06 CONCURRENT EARTH-MOVING OPERATIONS

A. Do not begin excavation, filling, and other earth-moving operations that are sequential to demolition or deconstruction work in areas occupied by structures to be demolished or deconstructed until all demolition and deconstruction in the area has been completed and debris removed. Fill holes, open basements and other hazardous openings.

3.07 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent structures and occupancies.

B. Cease operations immediately if adjacent structures appear to be in danger. Notify

©2022 Gil Engineering Associates, Inc.

Owner or Architect/Engineer. Do not resume operations until directed.

C. Conduct operations with minimum interference to public or private accesses. Maintain protected egress and access at all times (except when allowed during vacation periods as allowed by Owner).

D. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon or limit access to their property.

E. Sprinkle Work with water to minimize dust. Provide hoses and water connections for this purpose. Dust control shall conform to the requirements in Section 01 57 15 DUST CONTROL.

3.08 DEMOLITION

A. Disconnect remove, cap and identify designated utilities within demolition areas.

B. Remove concrete slabs on grade.

C. Remove materials to be re-installed or retained in manner to prevent damage.

D. Backfill areas excavated open pits and holes caused as a result of demolition, with the fill material stipulated in this section. Place all fill in lifts not to exceed 8 inches loose measure, and/or compacted thickness to exceed 6 inches. All fill material shall be compacted to at least 95% of ASTM D-698 max. dry density at a moisture content between -2 and +3 percent of optimum moisture.

E. Rough grade and compact areas affected by demolition to maintain site grades and contours.

F. Remove demolished materials from site.

G. Do not burn or bury materials on site. Leave site in clean condition.

H. Remove temporary work.

3.09 SCHEDULES

A. Items to be removed, stored, and protected for re-installation:

1. Existing memorial plaques one at flagpole. One near small tree. Any other significant memorial items.

B. Items to be removed by Owner.

1. Other equipment as designated by Owner. Owner hereby reserves the right to select salvaged and/or demolished items for re-use elsewhere.

C. Items to be protected:

1. Existing trees and shrubs (except as designated for removal on drawings).

©2022 Gil Engineering Associates, Inc.

2. Existing utilities to remain.

3. Existing fences and gates to remain.

4. Existing sidewalks.

END OF SECTION 02 41 13

©2022 Gil Engineering Associates, Inc.

SECTION 02 41 16 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of buildings and site improvements.
2. Abandoning in-place or Removing below-grade construction, as indicated.
3. Disconnecting, capping or sealing, and abandoning in-place site utilities.
4. Salvage, the removal and safe storage, of existing items for reused by Owner or recycled.

B. Related Requirements:

1. Section 01 10 00 "Summary" for use of the premises and phasing requirements.
2. Section 01 32 00 "Construction Progress Documentation" for preconstruction photographs taken before building demolition.
3. Section 02 41 19 "Selective Demolition" for partial demolition of buildings, structures, and site improvements.
4. Section 31 10 00 "Site Clearing" for site clearing and removal of above- and below-grade site improvements not part of building demolition.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and either deliver to Owner ready for reuse or store for installation in project, whichever is required or otherwise indicated. Include fasteners or brackets needed for reattachment elsewhere.

1.3 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be demolished.
2. Review structural load limitations of existing structures.
3. Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review and finalize protection requirements.
5. Review procedures for noise control and dust control.
6. Review procedures for protection of adjacent buildings.
7. Review items to be salvaged and returned to Owner.

1.5 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

B. Schedule of Building Demolition Activities: Indicate the following:

1. Detailed sequence of demolition work, with starting and ending dates for each activity.
2. Temporary interruption of utility services.
3. Shutoff and capping or re-routing of utility services.

C. Predemolition Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Comply with Section 013233 "Photographic Documentation." Submit before the Work begins.

D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.7 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

1.8 FIELD CONDITIONS

A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.

B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.

1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.

a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

C. On-site storage or sale of removed items or materials is not permitted.

1.9 COORDINATION

A. Arrange demolition schedule so as not to interfere with Owner's on-site operations and operations of adjacent occupied buildings.PRODUCTS

1.10 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

1.11 SOIL MATERIALS

A. Satisfactory Soils: Comply with requirements in Section 312000 "Earth Moving."

PART 2 - EXECUTION

2.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.

D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

F. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations. Comply with Section 013233 "Photographic Documentation.

2.2 PREPARATION

A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

B. Salvaged Items: Comply with the following:

1. Clean salvaged items of dirt and demolition debris.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to storage area designated by Owner or indicated on Drawings.
5. Protect items from damage during transport and storage.

2.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Utilities to be Disconnected: Locate, identify, disconnect, and seal or cap off utilities serving buildings and structures to be demolished.

1. Owner will arrange to shut off utilities when requested by Contractor.
2. Arrange to shut off utilities with utility companies.
3. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
4. Cut off pipe or conduit a minimum of 24 inches (610 mm) below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
5. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

2.4 PROTECTION

A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.

B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of demolition.

C. Existing Utilities to Remain: Maintain utility services to remain and protect from damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.

a. Provide at least 72 hours' notice to occupants of affected buildings if shutdown of service is required during changeover.

D. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Section 015000 "Temporary Facilities and Controls."

1. Protect adjacent buildings and facilities from damage due to demolition activities.
2. Protect existing site improvements, appurtenances, and landscaping to remain.
3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.

E. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

2.5 DEMOLITION, GENERAL

A. General: Demolish indicated buildings and site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
2. Maintain fire watch during and for at least one hour after flame-cutting operations.
3. Maintain adequate ventilation when using cutting torches.
4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Explosives: Use of explosives is not permitted.

2.6 DEMOLITION BY EXPLOSIVES: Not Allowed

2.7 DEMOLITION BY MECHANICAL MEANS

A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.

C. Salvage: Items to be removed and salvaged are indicated on Drawings.

D. Below-Grade Construction: Abandon foundation walls and other below-grade construction. Cut below-grade construction flush with grade.

E. Below-Grade Construction: Demolish foundation walls and other below-grade construction.

1. Remove below-grade construction, including but limited to, basements, foundation walls, piers and tops of piers and footings, to at least 60 inches (1524 mm) below grade and to deeper depths indicated. "Grade" means: 1) the "existing building grade" where there is no new construction or new grading of the ground indicated to occur, and, 2) the "new building grade" at locations coinciding with indicated new construction and indicated new grading.

F. Existing Utilities: Demolish existing utilities and below-grade utility structures that are within 5 feet (1.5 m) outside footprint indicated for new construction. Abandon utilities outside this area.

G. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures.

Hydraulic Elevator Systems: Demolish and remove elevator system, including cylinder, plunger, well assembly, steel well casing and liner, oil supply lines, and tanks.

2.8 SITE RESTORATION

A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials according to backfill requirements in Section 31 20 00 "Earth Moving.

B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

2.9 REPAIRS

A. Promptly repair damage to adjacent buildings caused by demolition operations.

2.10 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.] [and recycle or dispose of them according to Section 01 74 19 "Construction Waste Management and Disposal."

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Do not burn demolished materials.

2.11 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

1. Clean roadways of debris caused by debris transport.

END OF SECTION 02 41 16

SECTION 03 01 30.71 - CONCRETE REHABILITATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Removal of deteriorated concrete and subsequent patching and rebuilding.
2. Epoxy crack injection.
3. Corrosion-inhibiting treatments.
4. Composite structural reinforcement.

B. Related Sections include the following:

1. Division 1 Section "Selective Demolition."
2. Division 3 Section "Cast-In-Place Concrete".
3. Division 7 Section "Water Repellents" for clear penetrating and film-forming water repellents applied to concrete.
4. Division 7 Section "Sprayed Fire-Resistive Materials" for fireproofing applied to composite structural reinforcement.

1.3 SUBMITTALS

A. Product Data: Include material descriptions, chemical composition, physical properties, test data, and mixing and application instructions.

1. Include Material Safety Data Sheets, if applicable.

B. Shop Drawings: For formwork and temporary shoring and supports, prepared by or under the supervision of a qualified professional engineer. Design and engineering of formwork and temporary shoring and supports are Contractor's responsibility. Indicate proposed schedule and sequence for removal of formwork and temporary shoring and supports].

C. Samples: Cured samples of patching materials.

D. Product Certificates: Signed by manufacturers certifying that products furnished comply with requirements and are recommended by manufacturer for uses indicated.

E. Qualification Data: For installers, manufacturers, and testing agency to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1. For products required to be installed by workers approved by product manufacturers, include letters of acceptance by product manufacturers certifying that installers are approved to apply their products.

F. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of bonding agents, and [epoxy adhesives with requirements indicated.

G. Rehabilitation program for each phase of the rehabilitation process, including protection of surrounding materials and Project site during operations. Describe in detail the materials, methods, equipment, and sequence of operations to be used for each phase of the Work.

1. If alternative materials and methods to those indicated are proposed for any phase of rehabilitation work, submit substitution request complying with Division 1 Section "Product Requirements" and provide a written description of proposed materials and methods, including evidence of successful use on other comparable projects, and a testing program to demonstrate their effectiveness for this Project.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: In addition to other requirements in Division 1 Section "Quality Requirements," retain installers that employ workers trained and approved by manufacturer to apply concrete patching and rebuilding materials and epoxy crack injection materials.

B. Manufacturer Qualifications: In addition to other requirements in Division 1 Section "Quality Requirements," manufacturers shall have factory-trained representatives who are available for consultation and Project site inspection at no additional cost.

C. Source Limitations: Obtain [concrete patching and rebuilding materials,] [epoxy crack injection materials,] [and] [composite structural reinforcement materials] through one source from a single manufacturer.

D. Source Limitations: Obtain each of the following through one source from a single manufacturer:

1. Concrete patching and rebuilding materials.
2. Epoxy crack injection materials.
3. Composite structural reinforcement materials.

E. Mockups: Prior to concrete rehabilitation Work, construct mockups for concrete removal and patching, and epoxy crack injection to demonstrate aesthetic effects as well as qualities of materials and execution. Mockups shall be built by the Subcontractor responsible for the Project Work. Build mockups to comply with the following requirements, using all conditions and materials indicated for the completed Work.

1. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Architect.
2. Notify Architect 7 days in advance of the dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before start of concrete rehabilitation Work.
5. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original and unopened containers, labeled with type and name of products and manufacturers.

B. Comply with manufacturer's written instructions for minimum and maximum temperature requirements and other conditions for storage.

C. Store cementitious materials off the ground, under cover, and in a dry location.

D. Store aggregates covered and in a dry location, where grading and other required characteristics can be maintained and contamination avoided.

1.6 PROJECT CONDITIONS

A. Environmental Limitations for Epoxies: Do not apply when air and substrate temperatures are outside limits permitted by manufacturer. During hot weather, cool epoxy components before mixing, store mixed products in shade, and cool unused mixed products to retard setting. Do not apply to wet substrates unless approved by manufacturer.

1. Use only Class A epoxies when substrate temperatures are below or are expected to go below 40 deg F (5 deg C) within 8 hours.
2. Use only Class A or B epoxies when substrate temperatures are below or are expected to go below 60 deg F (16 deg C) within 8 hours.
3. Use only Class C epoxies when substrate temperatures are above 60 deg F (16 deg C).

B. Cold-Weather Requirements for Cementitious Materials: Do not apply unless air temperature is between 40 and 90 deg F (5 and 32 deg C) and will remain so for at least 48 hours after completion of Work.

C. Cold-Weather Requirements for Cementitious Materials: Comply with the following procedures:

1. When air temperature is below 40 deg F (5 deg C), heat patching material ingredients and existing concrete to produce temperatures between 40 and 90 deg F (5 and 32 deg C).
2. When mean daily air temperature is between 25 and 40 deg F (minus 4 and plus 5 deg C), cover completed Work with weather-resistant insulating blankets for 48 hours after repair.
3. When mean daily air temperature is below 25 deg F (minus 4 deg C), provide enclosure and heat to maintain temperatures above 32 deg F (0 deg C) within the enclosure for 48 hours after repair.

D. Hot-Weather Requirements for Cementitious Materials: Protect repair work when temperature and humidity conditions produce excessive evaporation of water from patching materials. Provide artificial shade and wind breaks, and use cooled materials as required. Do not apply to substrates with temperatures of 90 deg F (32 deg C) and above.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

1. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent:

a. MasterEmaco P 124, BASF Construction Chemicals – Building Systems (Sonneborn) 800-433-9517 www.buildingsystems.basf.com
b. CORR-BOND, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
c. SurePoxy HMEPL, Kaufman Products, Inc. 800-637-6372 www.kaufmanproducts.net
d. Armatec 110 EpoCem, Sika Corporation, USA 800-933-7452 www.sikaconstruction.com
e. Sto Bonding and Anti-Corrosion Agent, Sto Corp. 800-221-2397 www.stocorp.com

2. Epoxy Bonding Agent:

a. MasterEmaco ADH 327, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com

b. MasterEmaco ADH 330, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
c. Sure-Anchor Epoxy (J-50), Dayton Superior 888-977-9600 www.daytonsuperior.com
d. EUCO #452 EPOXY SYSTEM, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
e. Nitobond Epoxy Gel 400C, Fosroc International Limited +971 4 3313101 www.fosroc.com
f. SurePoxy HM EPL, Kaufman Products, Inc. 800-637-6372 www.kaufmanproducts.com
g. Sikadur 35 Hi-Mod LV, Sika Corporation, USA 800-933-7452 www.sikaconstruction.com
h. Sto Epoxy Adhesive, Sto Corp. 800-221-2397 www.stocorp.com
i. Pro-Poxy 204, Unitex 800-821-5846 www.unitex-chemicals.com

3. Latex Bonding Agent, Type II:

a. MasterEmaco A 660, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
b. Day-Chem Ad Bond (J-40), Dayton Superior 888-977-9600 www.daytonsuperior.com
c. FLEX-CON, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
d. SureBond, Kaufman Products, Inc. 800-637-6372 www.kaufmanproducts.net

4. Epoxy Crack Injection Adhesive:

a. [MasterInject 1500, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
b. MasterInject 1700, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
c. Sure-Inject (J-56), Dayton Superior 888-977-9600 www.daytonsuperior.com
d. EUCOPOXY INJECTION RESIN, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
e. Nitobond ULV 300, Fosroc Inernational Limted +971 4 3313101 www.fosroc.com
f. SurePoxy HM-SLV, Kaufman Products, Inc. 800-637-6372 www.kaufmanproducts.com
g. Sikadur 35 Hi-Mod LV LPL, Sika Corporation, USA 800-933-7452 www.sikaconstruction.com
h. Sto Epoxy Binder, Sto Corp. 800-221-2397 www.stocorp.com
i. Pro-Poxy 100 LV, Unitex 800-821-5846 www.unitex-chemicals.com

2.2 BONDING AGENTS

A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Product that consists of water-insensitive epoxy adhesive, portland cement, and water-based solution of corrosion-inhibiting chemicals that forms a protective film on steel reinforcement.

B. Epoxy Bonding Agent: ASTM C 881, Type II.

1. Thin Film Open Time: Not less than two hours.

C. Latex Bonding Agent: ASTM C 1059, Type II.

2.3 CONCRETE

A. Concrete Materials and Admixtures: Comply with Division 3 Section "Cast-In-Place Concrete".

B. Form-Facing Materials: Comply with Division 3 Section "Cast-In-Place Concrete".

C. Preplaced Aggregate: Washed aggregate complying with ASTM C 33, Class 5S, with 95 to 100 percent passing a 1-1/2 inch (37.5 mm) sieve, 40 to 80 percent passing a 1 inch (25 mm) sieve, 20 to 45 percent passing a 3/4 inch (19 mm) sieve, 0 to 10 percent passing a 1/2 inch (12.5 mm) sieve, and 0 to 2 percent passing a 3/8 inch (9.5 mm) sieve.

D. Preplaced Aggregate: Washed aggregate complying with ASTM C 33, Class 5S, with 100 percent passing a 1-1/2 inch (37.5 mm) sieve, 95 to 100 percent passing a 1 inch (25 mm) sieve, 40 to 80 percent passing a 3/4 inch (19 mm) sieve, 0 to 15 percent passing a 1/2 inch (12.5 mm) sieve, and 0 to 2 percent passing a 3/8 inch (9.5 mm) sieve.

E. Fine Aggregate for Grout Used with Preplaced Aggregate: Fine aggregate complying with ASTM C 33, but with 100 percent passing a No. 8 (2.36 mm) sieve, 95 to 100 percent passing a No. 16 (1.18 mm) sieve, 55 to 80 percent passing a No. 30 (0.6 mm) sieve, 30 to 55 percent passing a No. 50 (0.3 mm) sieve, 10 to 30 percent passing a No. 100 (0.15 mm) sieve, 0 to 10 percent passing a No. 200 (0.075 mm) sieve and having a fineness modulus of 1.30 to 2.10.

F. Grout Fluidifier for Grout Used with Preplaced Aggregate: ASTM C 937.

G. Portland Cement for Grout Used with Preplaced Aggregate: ASTM C 150.

H. Pozzolans for Grout Used with Preplaced Aggregate: ASTM C 618.

2.4 MISCELLANEOUS MATERIALS

A. Epoxy Crack Injection Adhesive: ASTM C 881, Type I, IV, Grade 3.

B. Epoxy Capping Adhesive: Product manufactured for use with crack injection adhesive by same manufacturer.

2.5 MIXES

A. Mix products in clean containers according to manufacturer's written instructions.

1. Add clean silica sand and coarse aggregates to products only as recommended by manufacturer.
2. Do not add water, thinners, or additives unless recommended by manufacturer.
3. When practical, use manufacturer's premeasured packages to ensure that materials are mixed in proper proportions. When premeasured packages are not used, measure ingredients using graduated measuring containers; do not estimate quantities or use shovel or trowel as unit of measure.
4. Do not mix more materials than can be used within recommended open time. Discard materials that have begun to set.

B. Concrete: Comply with Division 3 Section “Cast-In-Place Concrete”.

C. Grout for Use with Preplaced Aggregate: Proportion according to ASTM C 938. Add grout fluidifier to mixing water followed by cementitious materials and then fine aggregate.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Notify Architect seven days in advance of dates when areas of delaminated concrete and reinforcing bars will be located.

B. Locate areas of delamination using hammer or chain drag sounding and mark boundaries. Mark areas for removal by simplifying and squaring off boundaries of delaminated areas as directed by Architect.

C. Locate at least three reinforcing bars using a pachometer, and drill test holes to determine depth of cover. Calibrate pachometer, using depth of cover measurements, and verify depth of cover in removal areas using pachometer.

3.2 PREPARATION

A. Protect people, motor vehicles, equipment, surrounding construction, Project site, plants, and surrounding buildings from injury resulting from concrete rehabilitation work.

1. Erect temporary protective covers over pedestrian walkways and at points of entrance and exit for people and vehicles that must remain in operation during course of concrete rehabilitation work. Construct covers of tightly fitted, 3/4 inch (19 mm) exterior-grade plywood supported at 16 inches (405 mm) o.c. and covered with asphalt roll roofing.
2. Protect adjacent equipment and surfaces by covering them with heavy polyethylene film and waterproof masking tape or a liquid strippable masking agent. If practical, remove items, store, and reinstall after potentially damaging operations are complete.
3. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
4. Dispose of runoff from wet operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

B. Shoring: Install temporary supports before beginning concrete removal.

C. Concrete Removal: Saw-cut perimeter of areas indicated for removal to a depth of at least 1/2 inch (12.7 mm). Make cuts perpendicular to concrete surfaces and no deeper than cover on reinforcing. Remove loose and deteriorated concrete by breaking up and dislodging from reinforcing.

1. Remove concrete between cuts to a depth of at least 1/2 inch (12.7 mm).
2. Where half or more of the perimeter of reinforcing bar is exposed, bond between reinforcing bar and surrounding concrete is broken, or reinforcing bar is corroded, remove concrete from entire perimeter of bar to provide at least a 3/4 inch (19 mm) clearance.
3. Test areas where concrete has been removed by tapping with hammer and remove additional concrete until unsound concrete is completely removed.
4. Provide fractured aggregate surfaces with a profile of at least 1/8 inch (3 mm) that are approximately perpendicular or parallel to original concrete surfaces. At columns and walls, make top and bottom surfaces level.
5. Thoroughly clean removal areas of loose concrete, dust, and debris.

D. Reinforcing Bar Preparation: Remove loose and flaking rust from reinforcing bars by abrasive blast cleaning or wire brushing until only tightly bonded light rust remains.

1. Where section loss of reinforcing bar is more than 25 percent, or 20 percent in 2 or more adjacent bars, cut bars and remove and replace as directed by Architect. Remove additional concrete as necessary to provide at least a 3/4 inch (19 mm) clearance at existing and replacement bars. Splice replacement bars to existing bars according to ACI 318, by lapping, welding, or using mechanical couplings.

3.3 APPLICATION

A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Apply to reinforcing bars and concrete by stiff brush or hopper spray according to manufacturer's written instructions. Apply to reinforcing bars in two coats, allowing first coat to dry two to three hours before applying second coat. Allow to dry before placing patching mortar or concrete.

B. Epoxy Bonding Agent: Apply to reinforcing bars and concrete by brush, roller, or spray according to manufacturer's written instructions, leaving no pinholes or other uncoated areas. Apply to

reinforcing bars in at least two coats, allowing first coat to dry before applying second coat. Apply patching mortar or concrete while epoxy is still tacky. If bonding agent dries, recoat before placing patching mortar or concrete.

C. Latex Bonding Agent, Type II: Mix with portland cement and scrub into concrete surface according to manufacturer's written instructions. If bonding agent dries, recoat before placing patching mortar or concrete.

D. Concrete: Place according to Division 3 Section "Cast-In-Place Concrete" and as follows:

1. Apply epoxy-modified, cementitious bonding and anticorrosion agent or epoxy bonding agent to reinforcing and concrete substrate.
2. Apply latex bonding agent to concrete substrate.
3. Use vibrators to consolidate concrete as it is placed.
4. At unformed surfaces, screed concrete to produce a surface that when finished with patching mortar will match required profile and surrounding concrete.
5. Where indicated, place concrete by form and pump method.

    a. Design and construct forms to resist pumping pressure in addition to weight of wet concrete. Seal joints and seams in forms and junctions of forms with existing concrete.
    b. Pump concrete into place, releasing air from forms as concrete is introduced. When formed space is full, close air vents and pressurize to 14 psi (96 kPa).

6. Wet-cure concrete for not less than seven days by leaving forms in place or keeping surfaces continuously wet by water-fog spray or water-saturated absorptive cover.
7. Fill placement cavities with dry-pack mortar and repair voids with patching mortar. Finish to match surrounding concrete.

E. Epoxy Crack Injection: Comply with manufacturer's written instructions and the following:

1. Clean areas to receive capping adhesive of oil, dirt, and other substances that would interfere with bond, and clean cracks with oil-free compressed air or low-pressure water to remove loose particles.
2. Place injection ports as recommended by epoxy manufacturer, spacing no farther apart than thickness of member being injected. Seal injection ports in place with capping adhesive.
3. Seal cracks at exposed surfaces with a ribbon of capping adhesive at least 1/4 inch (6 mm) thick by 1 inch (25 mm) wider than crack.
4. Inject cracks wider than 0.003 inch (0.075 mm) to a depth of 8 inches (200 mm) or to a width of less than 0.003 inch (0.075 mm), whichever is less.
5. Inject epoxy adhesive, beginning at widest part of crack and working toward narrower parts. Inject adhesive into ports to refusal, capping adjacent ports when they extrude epoxy. Cap injected ports and inject through adjacent ports until crack is filled.
6. After epoxy adhesive has set, remove injection ports and grind surfaces smooth.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to sample materials and perform tests specified in Division 3 Section "Cast-In-Place Concrete" and as follows:

1. Grouted Preplaced Aggregate: Tested for compressive strength of grout according to ASTM C 942.

    a. Testing Frequency: 1 sample for each 25 cu. yd. (19 cu. m) of grout or fraction thereof, but not less than 1 sample for each day's work.

2. Epoxy Crack Injection: Core drilled samples to verify proper installation.

a. Testing Frequency: 3 samples from mockup and 1 sample for each 100 feet (30 m) of crack injected.
b. Where samples are taken, fill holes with epoxy mortar.

END OF SECTION 03 01 30.71

SECTION 03 24 00 – SYNTHETIC MACRO FIBER REINFORCEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies synthetic macro fiber reinforcement used in concrete for slab-on-grade construction as well as in concrete for composite steel floor deck construction.

B. Referenced standards include the following:

1. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of American Concrete Institute (ACI) and American Society for Testing and Materials (ASTM) documents:

a. ACI 305.1, Specification for Hot Weather Concreting
b. ACI 306.1, Standard Specification for Cold Weather Concreting
c. ACI 308.1, Specification for Curing Concrete
d. ACI 544.2R, Measurement of Properties of Fiber Reinforced Concrete
e. ASTM C 94, Standard Specifications for Ready-Mixed Concrete
f. ASTM C 494, Standard Specification for Chemical Admixtures for Concrete
g. ASTM C 1609-05, Standard Test Method for Flexural Performance of Fiber-Reinforced Concrete (Using Beam with Third-Point Loading)
h. ASTM C 1116, Standard Specification for Fiber-Reinforced Concrete and Shotcrete
i. ASTM C1399-04, Obtaining Average Residual Strength of Fiber Reinforced Concrete
j. JCI-SF4, Method of Tests for Flexural Strength and Flexural Toughness of Fiber Reinforced Concrete
k. ASTM D3822-01, Standard Test Method for Tensile Properties of Single Textile Fibers ASTM E 119, Fire Tests of Building Construction and Materials
l. ANSI/SDI-C1.0 Standard for Composite Steel Floor Deck
m. ASTM E 119, Fire Tests of Building Construction and Materials

C. Related Sections include the following:

1. Division 3 Section "Cast-In-Place Concrete" for formwork; material, fabrication, and installation requirements for steel reinforcement; and field quality control.

2. Division 3 Section “Special Concrete Floor Finishes” for exposed architecturally finished concrete floors.

3. Division 7 Section "Joint Sealants" for elastomeric joint sealants in contraction and other joints in cast-in-place architectural concrete.

4. Division 32 Section “Portland Cement Concrete Paving” for concrete pavement and flatwork finishes.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's product data, use limitations and recommendations for each material.

B. Performance Data: Fiber manufacturer to provide data that verifies fiber performance in concrete based on testing as outlined in Section 2.3.A.2 substantiating compliance with performance requirements as specified herein.

C. Submit certification from manufacturer indicating synthetic fibers meet the requirements of ASTM C 1116, Paragraph 4.1.3, Type III.

D. Samples: Submit samples of synthetic macro fiber for review.

1.4 QUALITY ASSURANCE

A. Materials: For all admixtures required for the work of this Section, provide materials which are the products of one manufacturer.

B. Pre-Construction Conference: A pre-construction conference shall be held at least two weeks prior to commencement of field operations to establish procedures to maintain optimum placement conditions for work as specified in this section and to coordinate this work with related and adjacent work. Agenda for meeting shall include mix designs, handling, placing, finishing, and curing the cast-in-place concrete. Pre-construction conference shall include Engineer, Contractor, Ready Mix Supplier, Concrete Finisher, and Representative of the synthetic macro fiber manufacturer.

C. Manufacturer's Representative: A representative of the manufacturer for the synthetic macro fibers shall be notified at least 72 hours prior to project start-up to be available during initial synthetic macro fiber concrete placement. Engineer may waive requirement for manufacturer's representative if Contractor provides sufficient evidence that producer and finisher have adequate experience with fiber reinforced concrete.

D. Trial Mix: Provide a minimum 4 cubic yard (3 cubic meter) trial mix containing proposed concrete design mix to be placed and finished at the job site in location acceptable to the Engineer. Engineer may waive requirement for trial mix if Contractor provides sufficient evidence that producer and finisher have adequate experience with fiber reinforced concrete.

1.5 PROJECT CONDITIONS

A. Perform work according to ACI guidelines as referenced in Section 1.2.B.1.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Grace Construction Products
W. R. Grace & Co.-Conn.
62 Whittemore Avenue
Cambridge, MA 02140
Telephone: 877-4AD-MIX1 (877-423-6491)
www.graceconstruction.com

B. Propex Operating Company, LLC

1110 Market Street, Suite 300
(P.O. Box 22788)
Chattanooga, TN 37402
Telephone: 800-621-1273
www.fibermesh.com

2.2 MATERIALS

A. Synthetic Macro Fiber Reinforcement: Provide synthetic macro fibers complying with the following requirements:

1. Synthetic macro fibers shall meet the requirements of ASTM C 1116, Paragraph 4.1.3, Type III.

2. Synthetic macro fibers shall be monofilament, non-fibrillating, made of virgin polyolefin.

3. Synthetic macro fibers shall have a minimum length of 1.38" (35 mm).

4. Synthetic macro fibers shall have a maximum length of 2.0" (50 mm).

5. Synthetic macro fibers shall have a L/D aspect ratio (length divided by the equivalent diameter of the fiber) between 85 and 100.

6. Synthetic macro fibers shall have a W/T ratio (width divided by the thickness) between 10 and 15.

7. Synthetic macro fibers shall have a minimum tensile strength of 87 ksi (600 MPa) or breaking tenacity of 655 mN/tex measured according to ASTM D3822-01.

8. Synthetic macro fibers shall have a minimum initial modulus (calculated using the slope within the first 10% of the ultimate stress on the stress versus strain curve) of 1,523 ksi (10.5 GPa) measured according to ASTM D3822-01.

9. Synthetic macro fibers shall have a minimum chord modulus or elastic modulus (calculated using the slope between 0% and 25% of the ultimate stress on the stress versus strain curve) of 1,378 ksi (9.5 GPa) measured according to ASTM D3822-01.

10. Synthetic macro fibers shall be:

    a. Grace STRUX® 90/40 synthetic fiber reinforcement
    b. Fibermesh® 650 synthetic fiber reinforcement

2.3 CONCRETE MATERIALS

A. Slab-on-Grade construction:

1. Synthetic macro fiber addition rate for the specified concrete construction strength, f'c, of 4,000 psi and a slab thickness of five (5) inches shall be:

    a. Grace STRUX® 90/40 at 3.5 lbs/cy
    b. Fibermesh® 650 at 4.0 lbs/cy

2. The addition rate to achieve the slab-on-grade concrete required minimum equivalent flexural strength, $f_{e3}^{req'd.}$, shall be determined from the manufacturer's addition rate charts

provided manufacturer supplies data that verifies fiber performance in concrete based on testing as outlined in section 2.3.A.3.

3. Synthetic macro fiber concrete with a recommended addition rate shall be tested using the concrete compressive strength as designated in Section 2.3.A.1 in accordance with ASTM C1609-05[1] up to a final beam deflection of 0.12" (3 mm). [Note: Analysis of the load deflection curve shall be performed according to JCI-SF4]. Each concrete test specimen shall have a cross-section of 6" x 6" (150 mm x 150 mm) and a minimum length of 20" (500 mm) and a span of 18" (450 mm). A minimum of five (5) specimens shall be tested to determine the minimum equivalent flexural strength, f_{e3}^{min}. For acceptance of the fiber and its addition rate, f_{e3}^{min} shall meet or exceed $f_{e3}^{req'd}$.

   The minimum equivalent flexural strength, $f_{e3}^{min.}$, shall be derived as follows:

$$f_{e3}^{\min} = \left[\left(f_{e3,mean} \right) - \left(S_p \bullet \frac{t_{10}}{n^{0.5}} \right) \right] \text{ , where}$$

   $f_{e3,mean}$ = mean value of the equivalent flexural strength, f_{e3}, for all test specimens

   S_p = standard deviation of the equivalent flexural strength, f_{e3}, results for all tests

   t_{10} = student t distribution at 10% fractile (see table below)

   n = number of specimens tested

n	2	3	4	5	6	7	8	9	10	11	12
t_{10}	1.886	1.638	1.533	1.476	1.440	1.415	1.397	1.383	1.372	1.363	1.356

$$f_{e3} = \left[\frac{T_b}{\delta_{tb}} \bullet \frac{L}{bd^2} \right] \text{ , where}$$

   f_{e3} = equivalent flexural strength (psi) [MPa] for one test specimen as defined in JCI-SF 4.
   T_b = flexural toughness (lb*inches) [N*mm]
   d_{tb} = deflection of L/150 of span, L (inches) [mm]
   [i.e., d_{tb} = 0.12" (3 mm) for a span of 18" (450 mm)]
   b = width of failed cross-section (inches) [mm]
   d = depth of failed cross-section in (inches) [mm]

   The equivalent flexural strength, f_{e3} (as), of each single test shall be reported.

[1] **NOTE**: In case a closed-loop testing machine as required in ASTM C1609-05 is not available, a modified ASTM C1399-04 test shall be conducted. Each concrete test specimen shall have a cross-section of 6" x 6" (150 mm x 150 mm), a minimum length of 20" (500 mm), and a span of 18" (450 mm) when placed in the testing apparatus. During the initial loading, a steel plate shall be placed underneath the beam to pre-crack the specimen. After a crack has been initiated, the beam shall be unloaded and the steel plate removed. The cracked beam shall then be placed back in the testing apparatus. The load shall be applied again in the displacement controlled mode. The load and deflection of the beam shall be recorded until a deflection of 0.12" (3 mm) is reached. The equivalent flexural strength, f_{e3}, shall be calculated as follows:

$$f_{e3} = \left[\left[(P_A + P_B + P_C + P_D + P_E + P_F + P_G + P_H + P_I + P_J + P_K)/11 \right] * \left(\frac{L}{bd^2} \right) \right]$$

where,

P_A, P_B, P_C, P_D, …, P_K: loads in lbs (N) at reloading beam deflections of 0.02", 0.03", 0.04", 0.05", …, 0.12" (0.50 mm, 0.75 mm, 1.0 mm, 1.25 mm, …, 3.0 mm).

B. Composite Steel Floor Deck construction:

1. Synthetic macro fiber addition rate for the specified concrete construction strength, f'c, of 4,000 psi and a slab thickness of not less than three (3) inches but not greater than six (6) inches (height of concrete above deck flute) shall be:

   a. Grace STRUX® 90/40 at 4.0 lbs/cy
   b. Fibermesh® 650 at 4.0 lbs/cy

C. Additional Concrete Admixtures: Additional concrete admixtures conforming to ASTM C 494 or equivalent standards shall be used as required including the following:

1. Type A Water-reducing admixture

2. Type C Accelerating admixture

3. Type D Water-reducing and retarding admixture

4. Type F Water-reducing, high-range admixture

5. Type G Water-reducing, high-range and retarding admixture

6. Shrinkage Reducing Admixture

2.4 MIXING AND DISPENSING

A. Mixing and dispending shall be followed per the manufacturer's recommendations and instructions and shall be followed strictly. Failure to follow strict instructions may yield undesired strength and/or finishing of concrete.

2.5 MATERIAL STORAGE AND HANDLING

A. Fibers shall be supplied in "concrete ready bags", wrapped in moisture-proof packaging and stored in a clean, cool, and dry location to prevent exposure to moisture before introduced to concrete mix.

B. Do not store in direct sunlight.

C. Keep packaging sealed until ready for use.

PART 3 - EXECUTION

3.1 CONCRETE PLACING, FINISHING, AND CURING

A. Concrete Placing: Fiber-reinforced concrete can be placed using conventional methods including tailgating, pumping, and conveying. In pumping applications, it is required that the pump hopper is equipped with functioning vibrators to assure displacement of the concrete around the hopper grates.

B. Concrete Finishing: Conventional finishing techniques and equipment can be used when finishing fiber reinforced concrete. Where exposed concrete or polished concrete floors are required per the architectural floor finish schedule, the contractor shall follow the recommendations of the manufacturer for a "fiber-free surface." General recommendations are as follows (but not limited to):

1. During the screeding process: It is recommended using vibratory screeds which help move the mix that may generally be stiffer due to the addition of the fiber reinforcement.

2. During the floating process: It is recommended using "pan-style" floats as they have been shown to be best at pushing fibers down in the paste. Best results with power troweling have been shown when the process begins as late as possible with more, rather than less, total finishing time on the slab.

C. Curing: Comply with ACI 308.1 "Specification for Curing Concrete", ACI 305.1 "Specification for Hot Weather Concreting" and ACI 306.1 "Standard Specification for Cold Weather Concreting".

3.2 PROTECTION

A. Protect completed work from damage and construction operations throughout finishing and curing operations. Contractor shall be responsible for repair of unprotected concrete which includes, but is not limited to, the removal and replacement of sections of damaged concrete to the extent deemed necessary by the Architect and/or the Engineer of Record.

END OF SECTION 03 24 00

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE (BUILDING CONCRETE)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

B. Cast in place concrete includes the following:

1. Slabs on grade
2. Equipment pads and bases

C. Related Requirements:

1. Section 03 30 01 "Cast-in-Place Concrete" for civil flat work
2. Section 03 35 00 "Concrete Finishing" for specialty concrete floor finishes
3. Division 09 for requirements relating to specified floor coverings, finishing, and curing of interior concrete floor slabs
4. Section 31 20 00 "Earth Moving" for drainage fill under slabs-on-grade

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference prior to any work beginning by trade. Time, date and location as determined by a construction manager.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete Subcontractor.
e. Special concrete finish Subcontractor.

2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, vapor-retarder installation, steel reinforcement installation, concrete repair procedures, and concrete protection.

1.5 ACTION SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections. In addition to Division 1 requirements, provide one half-size hard copy (paper) of any drawings submitted in the electronic files.

B. Product Data: For each type of product.

C. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments. Designs shall be submitted a minimum of 48 hours prior to the placement of any concrete. Submit properties of mixtures for each class of concrete including:

1. Mixture Identification by class
2. Specified compressive strength, f'_c, that is applicable for the class
3. Specified exposure class in Part 2, "PRODUCTS", Article "CONCRETE MIXTURES, GENERAL"
4. Documentation of strength test records of similar class of concrete used to establish standard deviation in accordance with ACI 318, when test records exist
5. Required average compressive strength, f'_{cr}, for each class of concrete
6. Documentation of f'_{cr} of proposed mixtures(s)
7. Intended placement method
8. Slump or slump flow
9. Air content
10. Density
11. Water/cement ratio (w/cm), when specified
12. Documentation supporting other specified requirements of concrete mixtures
13. Nominal maximum aggregate size or Size number
14. Type and information about the ingredient materials proposed for use including:

    a. Cementitious Materials
    b. Aggregates
    c. Admixtures
    d. Water
    e. Fibers, color pigments, and other additions

15. Amounts of mixing water to be withheld for later addition at Project site.

D. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Comply with CRSI's "Manual of Standard Practice" and ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures." Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement. Original contract drawings shall not be reproduced for use as a portion of the Shop drawing.

E. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Submit original shop drawings indicating the proposed construction joint locations to the Architect/Engineer at least 14 days prior to beginning formwork on the portion of the building in question.

1.6 INFORMATIONAL SUBMITTALS

A. Information submittals are mandatory submittals by the sub-contractor to the General Contractor, Construction Manager and Design Professional which are not returned but kept for the project record.

B. Material certificates in lieu of material laboratory test reports when permitted by Architect/Engineer. For each of the following, material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements.

1. Cementitious materials.
2. Admixtures. Provide certification that chloride content complies with specification requirements.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Fiber reinforcement.
6. Waterstops.
7. Curing compounds.
8. Floor and slab treatments.
9. Bonding agents.
10. Adhesives.
11. Vapor retarders. Certificate shall include permeance ratings expressed in grains of water vapor per square foot per hour per inch of mercury.
12. Semirigid joint filler.
13. Joint-filler strips.
14. Repair materials.

C. Material Test Reports: For the following, from a qualified testing agency:

1. Aggregates: Include sieve analysis, dry rodded unit weight of coarse aggregate, and the specific gravities of both fine and coarse aggregates.

D. Field quality control reports: The independent testing laboratory shall submit laboratory test reports for concrete materials directly to the Architect/Engineer with copy to others in accordance with the provisions of section 014000 "Quality Requirements." State in each report whether or not the test specimens comply with the specified requirements, and indicate any deviations therefrom.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

2. Person responsible for developing concrete mixture proportions certified as NRMCA Concrete Technologist Level 2, or equivalent. Requirement waived if individual is a licensed professional engineer in the jurisdiction of the Work.

C. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.

D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M.

E. Floor Finish Sample Panels: Cast concrete sample panels to demonstrate the range of formed surface finishes provided by Part 3 "EXECUTION", Article "FINISHING FLOORS AND SLABS". Mockups shall be built by the Subcontractor responsible for the Project Work. Build mockups to comply with the following requirements, using all conditions and materials indicated for the completed Work.

1. Produce a minimum of one full-scale panel of each finish type listed in the specification, approximately 48 by 48 by 6 inches minimum.
2. Locate panels as indicated or, if not indicated, as directed by Architect/Engineer.
3. Obtain Architect/Engineer's approval of samples before construction of concrete with a finish floor surface.
4. Maintain field sample panels during construction in an undisturbed condition as a standard for judging the completed Work.
5. Demolish and remove field sample panels when directed.

F. Mockups: Cast concrete [slab-on-grade] panels to demonstrate typical joints, surface finish, texture, tolerances, floor treatments, and standard of workmanship. Mockups shall be built by the Subcontractor responsible for the Project Work. Build mockups to comply with the following requirements, using all conditions and materials indicated for the completed Work.

1. Build panel approximately 200 sq. ft. for slab-on-grade in the location indicated or, if not indicated, as directed by Architect.
2. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Architect/Engineer.
3. Notify Architect/Engineer 7 days in advance of the dates and times when mockups will be constructed.
4. Obtain Architect/Engineer's approval of mockups before construction of slab-on-grade.
5. When directed, demolish and remove mockups from Project site.
6. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

G. Materials and installed work may require testing and retesting at any time during progress of Work. Tests, including retesting of rejected materials for installed Work, shall be done at Contractor's expense.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: When the manufacturer does not comply with all requirements of Part 1, Quality Assurance, Manufacturer Qualifications, engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures. The manufacturer is permitted to engage a qualified independent testing agency to perform specific tests for project submittals. The contractor is responsible for the cost of the preconstruction testing service.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

1.10 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for more than one day in a row, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
4. Removal of formwork shall be delayed during cold weather to assure adequate structural strength, unless approved strength accelerating measures are taken.
5. Contractor shall provide to the Architect/Engineer a written description of procedures to be used for cold weather concreting in accordance with Part 1, "ACTION SUBMITTALS". The details should include, but not be limited to, the following:

    a. Procedures for protecting the subgrade from frost and the accumulation of ice or snow on reinforcement or forms prior to placement.
    b. Methods for temperature protection during placement.
    c. Types of covering, insulation, housing, or heating to be provided.
    d. Curing methods to be used during and following the protection period.
    e. Use of strength accelerating admixtures.
    f. Methods for verification of in-place strength.
    g. Procedures for measuring and recording concrete temperatures.
    h. Procedures for preventing drying during dry, windy conditions.

B. Hot-Weather Placement: Comply with ACI 301 and 305.1 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.
3. Provide submittals required by ACI 305.1 in accordance with Part 1, "ACTION SUBMITTALS".
4. Water Reducing and Retarding Compound: The manufacturer of the mixture shall submit in writing to the Architect/Engineer and the Contractor, special recommendations for quantities to be used under various temperature and job conditions to assure that the concrete can be maintained at a uniform consistency while in the mixer truck and sufficiently workable between lifts to prevent the occurrence of lift lines with the specified placement and consolidation techniques, and as approved by the Architect/Engineer. Assure that the proper admixture and dosage is used during hot weather (mix temperature over 90 deg F.) to prevent slump loss from plant to site.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
   1. ACI 301.
   2. ACI 318
   3. ACI 117.

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

   1. Plywood, metal, or other approved panel materials.
   2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

      a. High-density overlay, Class 1 or better.
      b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
      c. Structural 1, B-B or better; mill oiled and edge sealed.
      d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

E. Form-Release Agent: Commercially formulated form-release agent with a maximum of 450 g/l volatile organic compounds (VOCs) that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.

   1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

F. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

   1. Furnish units that leave no corrodible metal closer than 1 1/2 inch to the plane of exposed concrete surface.
   2. Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.
   3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

G. Expanded polystyrene (EPS) and Extruded polystyrene (XPS) Forms: Complies with ASTM D6817 / D6817M, treated to resist insects and suitable for below grade applications; EPA registered treatment, meeting requirements of ICC ES AC239, and recognized in an ISS ES report.

   1. Products: Subject to compliance with requirements, product which may be incorporated in the Work include, but are not limited to, the following:

a. Foam-Control EPS; 952-892-0809; www.geofoam.com
b. InsulFoam GF; 403-248-6616; www.insulfoam.com
c. Atlas EPS; 616-878-1568; www.atlaseps.com
d. DOW Building Solutions; 800-583-2583; www.building.dow.com
e. Owens Corning; 800-438-7465; commercial.owenscorning.com/products
f. Kingspan; 800-241-4402; www.trustgreenguard.com/insulation-board
g. Substitutions: Section 01 60 00-Product Requirements

2. Minimum material requirements for EPS and XPS foams:

a. Size: Largest practicable sizes.
b. Thickness: As indicated.
c. Density: As indicated (1.15 lb/cu. ft, min.)
d. Compressive Strength: As indicated (5.8 psi at 1% deformation, min.)
e. Deformation: 1% maximum.

3. Connector Plates: Manufacturer's galvanized or stainless steel plates with two-sided multi-barbed design, capable of piercing geofoam and resisting lateral movement between blocks during installation.

4. Lateral Holding Strength: 60 lbs.

2.3 STEEL REINFORCEMENT

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

C. Low-Alloy-Steel Reinforcing Bars, including Deformed Bar Anchors: ASTM A 706/A 706M, deformed.

D. Plain-Steel Wire: ASTM A 1064/A 1064M, as drawn.

E. Deformed-Steel Wire: ASTM A 1064/A 1064M.

F. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.

G. Deformed-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, flat sheet.

2.4 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Epoxy-Coated Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, ASTM A 775/A 775M epoxy coated.

C. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 775M.

D. Zinc Repair Material: ASTM A 780/A 780M.

E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire or plastic according to CRSI's "Manual of Standard Practice," and as follows:

1. For slabs on grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

2.5 CONCRETE MATERIALS

A. Regional Materials: Concrete shall be manufactured within 100 miles of Project site from aggregates and cementitious materials that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles of Project site.

B. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

C. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M, Type I, or Type I/II. Type III cement may be used in lieu of Type I at contractor's option, when acceptable to the Architect/Engineer.
2. Fly Ash: ASTM C 618, Class F

D. Normal-Weight Aggregates: ASTM C 33/C 33M, coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: As indicated in Section 2.13 "CONCRETE MIXTURES FOR BUILDING ELEMENTS".
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
3. For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling. Do not use aggregates containing soluble salts or other substrates such as iron sulfides, pyrite, marcasite or ocher which can cause stains on exposed concrete surfaces.
4. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Architect/Engineer.
5. Alkali Silica Reactivity: Aggregate shall be considered non-reactive with a documented satisfactory service record for a minimum ten year period used in concrete with similar cementitious material or with an alkali (Na_2O eq.) content in concrete equal or higher than that in the proposed mixture. In the absence of service record the aggregate shall be tested and will be considered non-reactive if it passes on of the following two requirements – ASTM C1260 14-day expansion less than or equal to 0.10% or ASTM C1293 1-year expansion less than or equal to 0.040%. For aggregate that do not meet these criteria, mitigation measures shall apply in accordance with Part 2, "PRODUCTS", Article "CONCRETE MIXTURES, GENERAL".

E. Air-Entraining Admixture: ASTM C 260/C 260M.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. MasterAir VR 10 or MasterAir AE 200; BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us

b. Eucon Air Mix or Eucon Air series; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
c. Darex AEA or Daravair series; W. R. Grace & Co.-Conn; 866-333-3726; www.graceconstruction.com
d. Sika AEA series of Sika Air series; Sika Corporation, USA; 800-933-7452; www.sikaconstruction.com

F. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

a. Products: Subject to compliance with requirements, product which may be incorporated in the Work include, but are not limited to, the following:

1) MasterPozzolith or MasterPolyheed; BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us
2) Eucon WR or Eucon MR; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
3) WRDA series; W. R. Grace & Co.-Conn; 866-333-3726; www.graceconstruction.com
4) Plastocrete 161; Sika Corporation, USA; 800-933-7452; www.sikaconstruction

2. Retarding Admixture: ASTM C 494/C 494M, Type B.

a. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

a. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

1) MasterSet R 961; BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us
2) Eucon Retarder 75; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
3) Daratard 17; W. R. Grace & Co.-Conn 866-333-3726; www.graceconstruction.com
4) Plastiment; Sika Corporation, USA; 800-933-7452; www.sikaconstruction.com
5) Metco WR; Metalcrete Industries; 800-526-5602; www.metalcreteindustries.com

4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

a. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

a. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

1) Super P; Anti-Hydro International, Inc.; 800-777-1773; www.anti-hydro.com

2) MasterRheobuild 1000; BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us
3) Eucon 37; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
4) Daracem series or ADVA series; W. R. Grace & Co.-Conn; 866-333-3726; www.graceconstruction.com
5) Superslump; Metalcrete Industries; 800-526-5602; www.metalcreteindustries.com
6) Sikament series; Sika Corporation, USA; 800-933-7452; www.sikaconstruction.com

6. Water Reducing, Accelerating Admixture: ASTM C 494, Type E.

a. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

1) MasterSet FP 20; BASF Construction Chemicals – Building Systems; 722-8899; www.master-builders-solutions.basf.us
2) ACCELGUARD 80; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
3) Daraset series; W. R. Grace & Co.-Conn ; 866-333-3726; www.graceconstruction.com
4) Q-Set; Dayton Superior; 888-977-9600; www.daytonsuperior.com
5) Accel Set; Metalcrete Industries; 800-526-5602; www.metalcreteindustries.com SikaSet NC; Sika Corporation, USA; 800-933-7452; www.sikaconstruction.com

7. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

a. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

G. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C 494/C 494M, Type C.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. MasterLife CI 30; BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us
b. Eucon BCN or Eucon CIA; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
c. DCI or DCI-S; W. R. Grace & Co.-Conn; 866-333-3726; www.graceconstruction.com
d. Sika CNI; Sika Corporation, USA; 800-933-7452; www.sikaconstruction.com

H. Water: ASTM C 94/C 94M and potable.

2.6 WATERSTOPS

A. Flexible Rubber Waterstops: CE CRD-C 513, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

a. Williams Products, Inc.; 800-521-9594; www.williamsproducts.net
2. Profile: Flat dumbbell without center bulb at construction joints.
3. Dimensions: Minimum of 4 inches by 3/16 inch thick at cold joints; nontapered.

B. Flexible PVC Waterstops: CE CRD-C 572, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

a. Greenstreak; 800-325-9504; www.greenstreak.com
b. Vinylex Corporation;800-325-3602; www.vinylexwaterstop.com
1. Profile: Flat dumbbell without center bulb at construction joints.
2. Dimensions: Minimum of 4 inches by 3/16 inch thick at cold joints; nontapered.

C. Preformed Plastic Adhesive Waterstops: Federal Specification SS S 210A. It shall be supplied in extruded form of suitable cross section and of a size to seal the joint areas of concrete sections. The plastic waterstop shall be protected by a suitable removable two piece wrapper. The two piece wrapper shall be so designed that one half may be removed longitudinally without disturbing the other half, to facilitate application of the sealing compound.

1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include; but are not limited to, the following:

a. Waterstop-RX; CETCO; 800-527-9948; www.cetco.com
b. Synko Flex, Henry Company 800-486-1278 www.henry.com
c. Ram Nex, K.T. Snyder Company, Inc.

D. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.

2.7 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Provide manufacturer's recommended mastics and gusset tape at all joints, to create a continuous membrane.
2. <Products for Slab-on-Grade: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

a. VB-350; Inteplast Group; 877-535-0555; www.barrierbac.com
b. VaporBlock Plus; Raven Industries Inc.; 605-335-0174; www.ravenefd.com
c. 15 mils thick Stego Wrap; Stego Industries, LLC; 877-464-7834; www.stegoindustries.com
d. 15 mils thick Perminator; W.R. Meadows, Inc.; 800-342-5976; www.wrmeadows.com
e. Polyethylene sheet not less than 15 mils thick (must provide proof of compliance with ASTM E 1745).>

B. Bituminous Vapor Retarder: 110-mil- thick, semiflexible, seven-ply sheet membrane consisting of reinforced core and carrier sheet with fortified asphalt layers, protective weathercoating, and removable plastic release liner. Furnish manufacturer's accessories, including bonding asphalt, pointing mastics, and self-adhering joint tape.

1. Product: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

    a. Premoulded Membrane Vapor Seal with Plasmatic Core; W.R. Meadows, Inc.; 800-342-5976; www.wrmeadows.com

2. Water-Vapor Permeance: 0.0011 grains/h x sq. ft. x inches Hg; ASTM E 154.
3. Tensile Strength: 140 lbf/; ASTM E 154.
4. Puncture Resistance: 90 lbf; ASTM E 154.

2.8 CHEMICAL HARDENERS

A. Colorless aqueous solution containing a blend of magnesium fluosilicate and zinc fluosilicate combined with a wetting agent, containing not less than 2 lbs. of fluosilicates per gal.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

    a. MasterKure HD 300WB; BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us
    b. Surfhard; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
    c. Liqui-Hard; W.R. Meadows, Inc. 800-342-5976; www.wrmeadows.com

2. VOC Content: Liquid floor treatments shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.9 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components complying with ASTM C 309, Type I-D, Class A; odorless; that penetrates, hardens, and densifies concrete surfaces.

1. Provide material that has a maximum volatile organic compound (VOC) rating of 350 mg per liter.
2. Do not use curing compound on recessed slab areas which receive paver tile, quarry tile, ceramic tile or terrazzo finish floor material. These areas shall be water cured only.
3. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

    a. A-H 3 Way Sealer WB Anti-Hydro International, Inc. 800-777-1773; www.anti-hydro.com
    b. MasterKure CC series BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us
    c. Cure and Seal series; Dayton Superior; 888-977-9600; www.daytonsuperior.com
    d. Eucocure VOX; Euclid Chemical Company;800-321-7628; www.euclidchemical.com
    e. Seal N Kure; Metalcrete Industries; 800-526-5602; www.metalcreteindustries.com
    f. CS-309-25; W.R. Meadows, Inc.; 800-342-5976; www.wrmeadows.com

4. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.10 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. MasterKure ER 50; BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us
b. Aquafilm series; Dayton Superior; 888-977-9600; www.daytonsuperior.com
c. Eucobar; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
d. E-Con; LATICRETE International, Inc.; 800-243-4788; www.laticrete.com
e. Waterhold; Metalcrete Industries; 800-526-5602; www.metalcreteindustries.com
f. Evapre; W.R. Meadows, Inc.; 800-342-5976; www.wrmeadows.com

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. MasterKure CC Series; BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us
b. Cure and Seal series Dayton Superior 888-977-9600 www.daytonsuperior.com
c. Aqua-Cure VOX; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
d. Dress & Seal WB; LATICRETE International, Inc.; 800-243-4788; www.laticrete.com
e. Metcure; Metalcrete Industries; 800-526-5602; www.metalcreteindustries.com
f. Vocomp-20;W.R. Meadows, Inc.; 800-342-5976; www.wrmeadows.com

2. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.11 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 according to ASTM D 2240.

C. Bonding Agent: ASTM C 1059/C 1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Polyvinyl Acetate (Interior Only):

1) PVA Bonding Agent J41; Dayton Superior; 888-977-9600; www.daytonsuperior.com
2) Tammsweld; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
3) Weld-Crete; Larsen Products Corp.; 800-633-6668; www.larsenproducts.com
4) Herculox; Metalcrete Industries; 800-526-5602; www.metalcreteindustries.com
5) Intralok; W.R. Meadows, Inc.; 800-342-5976; www.wrmeadows.com

b. Acrylic or Styrene Butadiene:

1) MasterEmaco A 660; BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us
2) Acrylic Bonding Agent J40; Dayton Superior; 888-977-9600; www.daytonsuperior.com
3) SBR Latex; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
4) Daraweld C; W. R. Grace & Co.-Conn; 866-333-3726; www.graceconstruction.com
5) Everbond; LATICRETE International, Inc.; 800-243-4788; www.laticrete.com
6) Acrylpave; Metalcrete Industries; 800-526-5602; www.metalcreteindustries.com
7) Acry-Lok; W.R. Meadows, Inc.; 800-342-5976; www.wrmeadows.com

D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

1. Types I and II, at nonload bearing applications] and [Types IV and V, at load bearing applications, for bonding hardened or freshly mixed concrete to hardened concrete.
2. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. MasterInject 1500; BASF Construction Chemicals – Building Systems; 800-722-8899; www.master-builders-solutions.basf.us
b. Sure Bond J58; Dayton Superior; 888-977-9600; www.daytonsuperior.com
c. Euco Epoxy System #452; Euclid Chemical Company; 800-321-7628; www.euclidchemical.com
d. Epobond; LATICRETE International, Inc.; 800-243-4788; www.laticrete.com
e. Metco Hi Mod Epoxy; Metalcrete Industries; 800-526-5602; www.metalcreteindustries.com
f. Sikadur 32 Hi-Mod; Sika Corporation, USA; 800-933-7452; www.sikaconstruction.com
g. Stonset Primer; Stonhard; 800-257-7953; www.stonhard.com
h. Rezi-Weld 1000; W.R. Meadows, Inc.; 800-342-5976; www.wrmeadows.com

E. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

F. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

2.12 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.13 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures. Use qualified testing agency to develop supplementary performance test data for additional requirements identified in this specification.

B. Cementitious Materials - Unless otherwise indicated in the Contract Documents or as indicated below, concrete mixtures may use any cementitious materials listed in PART 2 section “Concrete Materials”.

1. Cementitious materials other than Portland cement shall not exceed the ACI 318 limits for the designated exposure classifications of each mix class.

C. Limit water-soluble, chloride-ion content in hardened concrete to following limits depending on the exposure category assigned to the structural member identified in this section of the specification or in the contract documents, whichever is more stringent. The limits are stated in terms of chloride ions in percent by weight of cement.

1. Prestressed and post-tensioned concrete for all exposure categories – 0.06%
2. Reinforced in Exposure Category C0 – 1.00%
3. Reinforced in Exposure Category C1 – 0.30%
4. Reinforced in Exposure Category C2 – 0.15%

D. Admixtures: Use admixtures according to manufacturer's written instructions.]

1. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

E. Air Content: Provide total air content for each class of concrete based on the nominal maximum size of aggregate and the assigned exposure class for resistance to freezing and thawing indicated in 2.12. Concrete for members categories as Exposure Category F0 should be non-air entrained, unless noted otherwise on the Contract Documents.

Nominal Maximum Aggregate Size, inch	Total Air Content (%)	
	Exposure Class F2 and F3	Exposure Class F1
3/8	6.0 to 9.0%	4.5 to 7.5%
1/2	5.5 to 8.5%	4.0 to 7.0%
3/4	4.5 to 7.5%	3.5 to 6.5%
1	4.5 to 7.5%	3.0 to 6.0%
1-1/2	4.0 to 7.0%	3.0 to 6.0%
2	3.5 to 6.5%	2.5 to 5.5%
3	3.0 to 6.0%	2.0 to 5.0%

F. Slump – Provide documentation in submittal prior to commencement of Work of target slump or slump flow value for each class of concrete. Consistency of concrete shall be established to facilitate placement with minimized potential for segregation.

G. Alkali silica reactivity – For structural concrete members that will be moist in service and when it is determined as per Section 2.2B that the aggregate source used needs to include mitigative measures, submit documentation demonstrating that the proposed cementitious materials used with the aggregates by ASTM C1567 tests with an expansion after 14 days of exposure less than or equal to 0.1%.

H. The installer and manufacturer shall coordinate to establish properties of fresh concrete to facilitate placement and finishing with reduced potential for segregation and bleeding. Factors shall include but are not limited to slump or slump flow, setting time, method of placement, rate of placement, hot and cold weather placement, curing, and concrete temperature. Selection of fresh concrete properties shall be notified to the Engineer of Record in the submittal.

I. Contractor shall indicate reportable changes in sources of materials and quantities when such changes are necessary to ensure constructability, performance of concrete and compliance with the specification requirements. The contractor is permitted to make minor adjustments less than the reportable deviations noted in the original submittal to concrete mixtures to ensure uniformity of concrete without a re-submittal for review or approval.

2.14 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

B. Identification: Deliver all reinforcement to the project site bundled, tagged and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.

C. Rejected Materials: Reinforcing with any of the following defects will not be permitted in the work:

1. Bar lengths, depths, and bends exceeding the specified fabrication tolerances. Bends or kinks not indicated on drawings or final shop drawings.

2. Bars with reduced cross section due to excessive rusting or other cause.

2.15 CONCRETE MIXING

A. General: Concrete may be mixed at batch plants or it may be transit mixed as specified herein. Batch plants must comply with the requirements of ACI 304, with sufficient capacity to produce concrete of the quality specified, in quantities required to meet the construction schedule. All plant facilities are subject to the acceptance of the Architect/Engineer. Plant facilities shall be calibrated by testing agencies specifically qualified for this as frequently as necessary to insure accuracy to plus or minus 0.4% of the total capacity of the components of the plant, but at a frequency not to exceed 6 months.

B. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, furnish batch ticket information, and as specified, provided the quantity and rate of delivery will permit unrestricted progress of the work in accordance with the placement schedule. Discharge of the concrete shall be completed within l l/2 hours after water is added to the mix or by the time the drum has revolved 300 times, whichever occurs first.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

C. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
3. Do not exceed the catalog rating or nameplate capacity for a total volume of materials used per batch.
4. Equip the mixer with automatic controls, or semi-automatic controls, if acceptable, for proportioning materials and the proper measured quantities.
5. Do not exceed 30 minutes total elapsed time between intermingling of damp aggregates and cement to the discharge of the completed mix.
6. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support assumed values of live load, dead load, weight of moving equipment operated on formwork, concrete mix, height of concrete drop, vibrator frequency, ambient temperature, foundation pressures, stresses, lateral stability, and other factors pertinent to safety of the structure during construction.

B. Construction loads, including reshoring loads, on in place construction shall at no time exceed the live load for which the in place construction was designed. If the contractor is uncertain about the design live loads, it shall be his responsibility to obtain these from the Architect/Engineer.

C. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

D. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.

E. Construct forms tight enough to prevent loss of concrete mortar.

F. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

G. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

H. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

I. Chamfer exterior corners and edges of permanently exposed concrete.

J. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

K. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

L. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

M. Coat contact surfaces of forms with an approved, nonresidual, low-VOC form-release agent, according to manufacturer's written instructions, before placing reinforcement.

1. Do not allow excess form coating material to accumulate in forms or come into contact with in place concrete surfaces against which fresh concrete will be placed. Apply according to manufacturer's instructions.
2. Coat steel forms with a nonstaining, rust preventative material. Rust stained steel formwork is not acceptable.

3.2 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Anchor bolts shall be set with securely fastened templates, and the threaded area shall be protected from concrete laitance. Anchor bolts shall be accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

a. Where conduit, pipe, or other items are to be embedded in concrete beams, slabs, or columns, they shall be placed not closer than the diameter of the largest of the

adjacent items and with a net reduction in the concrete area (of a 12 inch wide strip in slabs) not in excess of 9% without prior approval of the Engineer. The location of such embedded items shall generally be at the middle or centroid of the member.

3. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike off templates or compacting type screeds.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

1. Formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place may be removed after cumulatively curing at not less than 50 deg F for 14 days (336 hours) and after the concrete has achieved at least 70 percent of its 28-day design compressive strength on the basis of laboratory cured cylinders representative of concrete location or members. Contact the SEOR for form removal procedure of concrete placed during cold weather procedures, placed during hot weather procedures, or containing a retarding admixture.
2. Formwork removal prior to meeting the requirements above requires submission of in-place average compressive strength greater than 70% f'c to the SEOR prior to form removal. Determine potential compressive strength of in place concrete by testing two 6 x 12 or three 4 by 8 field cured specimens representative of concrete location or members. Field cured samples shall be taken at the same intervals and locations as the laboratory cured cylinders. Refer to Division 3, Section "Field Quality Control" for field cured cylinder requirements. Formwork removal earlier than 4 days after placement will not be permitted.
3. Form facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 SHORING AND RESHORING INSTALLATION

A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.

1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.

B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.

C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

D. Keep reshores in place a minimum of 15 days after placing upper tier, or longer, if required, until concrete has attained its required 28 day strength and heavy loads due to construction operations have been removed.

3.5 VAPOR-RETARDER INSTALLATION

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches and seal with manufacturer's recommended tape.

B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder according to manufacturer's written instructions.

3.6 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved by Architect/Engineer to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Provide sufficient numbers of supports and of strength to carry the reinforcement. Do not place reinforcing bars more than 2 inches beyond the last leg of any continuous bar support. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.7 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Locate construction joints, if required, but not shown so as to divide the slab into areas not in excess of 6000 sq. ft.(as close to square in configuration as possible), unless otherwise accepted by the Architect/Engineer. Con-form to slab placement, where shown. Before adjacent pour is made, the surface shall be roughened to an amplitude of a minimum of 1/4 inch except at exposed surfaces.

2. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete. Bulkheads designed and accepted for this purpose may be used for slabs. Keyways are to be horizontal or vertical as directed by the Architect/Engineer. Install preformed plastic adhesive waterstops in the keyway of all construction joints where vinyl, bulb type waterstops are not detailed.
4. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
6. Space vertical joints in walls as indicated in the Construction Documents. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
7. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface, dislodge aggregates, and before concrete develops random contraction cracks, but not longer than 12 hours after slab finishing.
2. Formed Contraction Joints: Insert premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, at least 7 days remove inserts and clean groove of loose debris.
3. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
4. If joint pattern is not shown, provide joints not exceeding 15 feet in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays).

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Joint fillers and sealants are specified in Division 7 Section "Joint Sealants."

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.8 WATERSTOP INSTALLATION

A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.

B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

3.9 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed. Notify other trades to permit installation of their work. Notify the Architect/Engineer and Testing Laboratory 24 hours before placing concrete.

B. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

C. Do not use concrete which becomes non plastic and unworkable, or does not meet the requirements quality control limits, or which has been contaminated by foreign materials. Do not use re-tempered concrete. Remove rejected concrete from the project site and dispose of in an acceptable location.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

E. Concrete Conveying: Handle concrete from the point of delivery and transfer to the concrete conveying equipment and to the locations of final deposit as rapidly as practical by methods which will prevent segregation and loss of concrete mix materials.

1. Provide mechanical equipment of such size and design for conveying concrete to insure a continuous flow of concrete at the delivery end. Provide run ways above top of finished slab in all places for wheeled concrete conveying equipment for the concrete delivery point to the locations of final deposit. Do not wheel concrete directly over steel reinforcement. Keep interior surfaces of conveying equipment, including chutes, free of hardened concrete, debris, water, snow, ice, and other deleterious materials.

F. Pumping Concrete: The Contractor may at his option use pumping machines for placing the concrete subject to the following requirements:

1. If for pumping requirements the mix design is other than specified, the Contractor shall furnish to the Architect/Engineer a mix for approval not less than 15 days prior to the time required for its use. The laboratory will make and test this mix design. After the results of these tests are noted and approval is received, this mix can be used. Cost of this laboratory work shall be paid by the Contractor.
2. Whenever concrete is placed by pumping, it is recommended a second pump complete with sufficient pipes and hose for a complete and independent set up, or other placement equipment, be at the job prior to any placing of concrete. The Contractor shall be responsible for any corrective work which results from equipment breakdown.

G. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have

begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

H. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

I. Bonding: Roughen surfaces of set concrete at all joints, except where bonding is obtained by use of a concrete bonding agent. Clean surfaces of laitance, coatings, loose particles, and foreign matter. Roughen surfaces in a manner to expose bonded aggregate uniformly and to not leave laitance, loose particles of aggregate, or damaged concrete at the surface.

3.10 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or another similar system .

C. Rubbed Finish: Apply the following to smooth-formed-finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix 1 part portland cement to 1-1/2 parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.11 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.

1. Apply scratch finish to monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and where indicated.

2. After placing slabs, finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:

a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 17; and of levelness, F(L) 15.

3. Slope surfaces uniformly to drains where required.

C. Float Finish: After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Uniformly slope surfaces to drains. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand bed terrazzo; and where indicated.

2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:

a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 17; and of levelness, F(L) 15.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or another thin film-finish coating system.
2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:

a. Surfaces receiving wood flooring:
1) Specified overall values of flatness, F(F) 60; and of levelness, F(L) 40; with minimum local values of flatness, F(F) 40; and of levelness, F(L) 27; for slabs-on-grade and suspended slabs that are shored during construction.
2) Specified overall values of flatness, F(F) 60; with minimum local values of flatness, F(F) 40; for suspended slabs that are not shored during construction.

b. Surfaces receiving ceramic tile:
   1) Specified overall values of flatness, F(F) 60; and of levelness, F(L) 40; with minimum local values of flatness, F(F) 40; and of levelness, F(L) 27; for slabs-on-grade and suspended slabs that are shored during construction.

c. Surfaces receiving polished concrete:
   1) Specified overall values of flatness, F(F) 45; and of levelness, F(L) 30; with minimum local values of flatness, F(F) 30; and of levelness, F(L) 20; for slabs-on-grade and suspended slabs that are shored during construction.
   2) Specified overall values of flatness, F(F) 45; with minimum local values of flatness, F(F) 30; for suspended slabs that are not shored during construction.

d. All other floor surfaces:
   1) Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade and suspended slabs that are shored during construction.
   2) Specified overall values of flatness, F(F) 35; with minimum local values of flatness, F(F) 24; for suspended slabs that are not shored during construction.

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thinset method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

G. Chemical Hardener Finish: On concrete floors which remain exposed and as directed apply chemical hardener finish to interior concrete floors. Apply liquid chemical hardener after complete curing and drying of the concrete surface. Dilute liquid hardener with water (parts of hardener/water as follows), and apply in 3 coats; first coat, 1/3 strength; second coat, 1/2 strength; third coat, 2/3 strength. Evenly apply each coat, and allow 24 hours for drying between coats.

1. Apply proprietary chemical hardeners, in accordance with manufacturer's printed instructions.

2. After final coat of chemical hardener solution is applied and dried, remove surplus hardener by scrubbing and mopping with water.

3.12 MISCELLANEOUS CONCRETE ITEM INSTALLATION

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases as indicated on the Contract Documents.
3. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate.
4. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
5. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

3.13 CONCRETE PROTECTING AND CURING

A. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.

C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than three days with the following materials:

   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 4-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 3 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.

   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
   b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
   c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies does not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions, followed by shading or moist curing adequate to keep temperature of the concrete at 80 degrees F or below during the curing period. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

5. Temperature of Concrete During Curing: When the atmospheric temperature is 85 degrees F. and above, or during other climatic conditions which will cause too rapid drying of the concrete, make arrangements before the start of concrete placing for the installation of wind breaks or shading, and for fog spraying, wet sprinkling, or moisture retaining covering. Protect the concrete continuously for the concrete curing period. Provide hot weather protection complying with the requirements of Part 1 "GENERAL", Article "FIELD CONDITIONS".

6. Protection from Mechanical Injury: During the curing period, protect concrete from damaging mechanical disturbances including load stresses, heavy shock, excessive vibration, and from damage caused by rain or flowing water. Protect all finished concrete surfaces from damage by subsequent construction operations. Concrete trucks, cranes, or excessive concentrations of loads will not be permitted on any slab without prior written approval of the Architect/Engineer during the curing period or subsequent construction.

7. Sealer and Dustproofer: Apply a second coat of specified curing and sealing compound only to surfaces given a first coat.

3.14 LIQUID FLOOR TREATMENT APPLICATION

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Do not apply to concrete that is less than seven days' old or as prescribed by the manufacturer (whichever is greater).
3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.

B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

3.15 JOINT FILLING

A. Joint fillers and sealants are specified in Division 7 Section "Joint Sealants."

3.16 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/4 inch in any dimension to solid concrete. Limit cut depth to 1 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
5. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval. Under no circumstances will "dusting" of wet concrete during finishing operations be allowed.

3.17 SOURCE QUALITY CONTROL

A. Concrete Batch Facility: The testing laboratory shall perform inspections of the concrete batching facility at intervals not to exceed one per 1,000 cubic yards of concrete placed or at least one

each six months. The inspection shall include verification of the calibration of scales, aggregate analysis of the current stockpiles, verification of batching procedures, and compliance with the original mix design. First inspection shall take place before any concrete is placed. The cost of each inspection shall be paid by the testing allowance.

1. Test results will be reported in writing to Architect, Structural Engineer, ready mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7 day tests and 28 day tests. If any breaks are below specified or expected strengths, the Testing Laboratory shall report any visible anomalies.

3.18 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

1. The testing laboratory shall monitor concrete properties at time of placement and report to the Contractor any deviation from the project specifications. It shall be the responsibility of the Contractor to control the concrete and comply with the project specifications. If the Contractor cannot adequately control the quality of the concrete, then the Architect/Engineer shall direct the testing laboratory to control the concrete. The cost of this service shall be paid for by the Contractor.

B. Perform testing and inspections as indicated on the Contract Documents.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof. One specimen tested at 7 days, three specimens tested at 28 days, and one specimen retained in reserve for additional testing if required. Where 6 x 12 cylinders are used, the cylinder count may be revised to four.

    a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231/C 231M, pressure method, for normal-weight concrete; ASTM C 173/C 173M, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
5. Unit Weight: ASTM C 567/C 567M, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
6. Compression Test Specimens: ASTM C 31/C 31M.

a. Cast and laboratory cure one set of five standard cylinder specimens for each composite sample.
b. For pumped concrete, one set of compression test cylinders shall be obtained at both the point of discharge and point of placement.

7. Curing of Compression Test Specimens: After preparation of the test cylinders, to prevent evaporation of water from the unhardened concrete, cover the cylinders immediately after finishing with a non-reactive plate or impervious plastic sheeting. Protect the outside surface of cardboard molds from any source of water for the first 24 hours after casting. Field curing procedures for test cylinders for 28 day compressive strengths are not the same as those for determining strength for form removal time.

   a. For test cylinders for 28 days compressive strength determination, during the first 24 hours after molding, store all test cylinders under conditions that maintain the temperature immediately adjacent to the cylinders in the range of 60 to 80 degrees F. and prevent loss of moisture from the specimens. If the Architect/Engineer or testing laboratory have questions concerning the storage temperature, they may require that the contractor provide a temperature record of the cylinders by means of maximum minimum thermometers. At the end of 20 hours plus or minus four hours, cylinders are to be transported to the laboratory, removed from the molds, and placed in a moist condition at 73.4 plus or minus 3 degrees F. until the moment of testing.
   b. Cure test cylinders to be used for determining strength for form removal time as nearly as practical in the same manner as the concrete in the structure. Cylinders shall be stored in or on the structure as near the point of use as possible, and as far as is practical, with the same exposure to the elements. Remove test cylinders from field storage and store in lime water at 73.4 plus or minus 3 degrees F. for 24 hours plus or minus 4 hours immediately before testing.
   c. Cylinders shipped from the field to the laboratory shall be packed in sturdy wood boxes or other suitable containers surrounded by wet sawdust or other suitable packing material and shall be protected from freezing during shipment.

8. Compressive-Strength Tests: ASTM C 39/C 39M; test one laboratory-cured specimens at 7 days, three specimens at 28 days, and retain one specimen in reserve for additional testing if required.

   a. Test one set of three field-cured specimens at 7 days and one set of three specimens at 28 days. Where 6 x 12 cylinders are used, the cylinder count may be revised to four.
   b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
   c. If the compressive strength tests fail to meet the minimum requirements specified, the concrete represented by such tests will be considered deficient in strength and subject to additional testing as herein specified.

9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
11. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 48 hours of finishing.

E. Formed Concrete Dimensional Tolerances: Formed concrete having any dimension smaller than required, and outside the specified tolerance limits, will be considered deficient in strength and subject to additional testing as herein specified.

1. Formed concrete having any dimension greater than required will be rejected if the appearance or function of the structure is adversely affected, or if the larger dimensions interfere with other construction. Repair, or remove and replace rejected concrete as required to meet the construction conditions. When permitted, accomplish the removal of excessive material in a manner to maintain the strength of the section without affecting function and appearance.

F. Strength of Concrete Structures: The strength of the concrete structure in place will be considered potentially deficient if it fails to comply with any of the requirements which control the strength of structure, including the following conditions:

1. Failure to meet compressive strength test requirements.
2. Concrete which differs from the required dimensions or location in such a manner to reduce strength.
3. Concrete subjected to damaging mechanical disturbances, particularly load stresses, heavy shock, and excessive vibration.
4. Poor workmanship and quality control likely to result in deficient strength.

3.19 PROTECTION OF LIQUID FLOOR TREATMENTS

A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 03 30 00

SECTION 03 31 00 - CONCRETE CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies cutting and patching of existing concrete floor slabs including new cast-in-place concrete, formwork, reinforcing, mix designing, placement procedures, and finishes.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 02 -7 00 – Selective Demolition.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

B. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others if requested by Architect/Engineer. Vapor retarder data shall be submitted and shall include perm ratings expressed in “grains / (ft squared x hr x in.Hg)”.

C. Shop drawings for reinforcement detailing fabricating, bending, and placing concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, bent bar diagrams, and arrangement of concrete reinforcement. Include special reinforcing required for openings through concrete structures. Include all special reinforcement on elevation drawn at a scale of not less than 1/4" to 1'-0". Original contract drawings shall not be reproduced for use as a portion of the Shop drawing.

D. Shop Drawings; Construction Joints: Submit original shop drawings indicating the proposed construction joint locations to the Architect/Engineer at least 14 days prior to beginning formwork on the portion of the building in question.

E. Concrete Mix Design: Submit mix designs and aggregate analysis of each class of concrete. Designs shall be submitted a minimum of 48 hours prior to the placement of any concrete.

1. Mix designs shall include material proportions, material weights, material sources, manufacturer's data on any admixture used, and proof that the design meets the requirements of this specification.
2. Proof shall include the water/cement ratio, slump, and the compressive strengths from concrete test cylinders. Substantive data may be taken from historical records or independent laboratory tests.
3. Manufacturer's data shall include recommended dosages.

4. Aggregate analysis shall include the sieve analysis, dry rodded unit weight of coarse aggregate, and the specific gravities of both fine and coarse aggregates.

F. Material certificates in lieu of material laboratory test reports when permitted by Architect/Engineer. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

G. Testing Reports: The independent testing laboratory shall submit laboratory test reports for concrete materials directly to the Architect/Engineer with copy to others in accordance with the provisions of section 01400 "Quality Control Services." State in each report whether or not the test specimens comply to the specified requirements, and indicate any deviations therefrom.

1.5 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified:

1. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
2. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, & Placing Concrete"
3. ACI 305 "Hot Weather Concreting".
4. ACI 306 "Recommended Practice for Cold Weather Concreting"
5. ACI 311 "Recommended Practice for Concrete Inspection"
6. ACI 318 "Building Code Requirements for Reinforced Concrete."
7. ACI 347 "Recommended Practice for Concrete Formwork"
8. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."

B. Mix designs: Test in accordance with the requirements of PART 2 - PRODUCTS, article "PROPORTIONING AND MIX DESIGNS".

C. Materials and installed work may require testing and retesting at any time during progress of Work. Tests, including retesting of rejected materials for installed Work, shall be done at Contractor's expense.

PART 2 - PRODUCTS

2.1 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Steel Wire: ASTM A 82, plain, cold-drawn steel.

C. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.

D. Deformed-Steel Welded Wire Fabric: ASTM A 497.

E. Deformed Bar Anchors: ASTM A 706.

F. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI specifications.

1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
2. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).

2.2 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I. Type III cement may be used in lieu of Type I at contractor's option, when acceptable to the Architect/Engineer.

1. Use one brand of cement throughout Project unless otherwise acceptable to Architect.
2. Fly Ash: ASTM C 618, Class F.
3. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33 and as specified. Provide aggregates from a single source for exposed concrete.

1. For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling. Do not use aggregates containing soluble salts or other substrates such as iron sulfides, pyrite, marcasite or ocher which can cause stains on exposed concrete surfaces.
2. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Architect/Engineer.

C. Water: Potable.

D. Admixtures, General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions.

E. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. MB-VR or Micro-Air, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
b. Air-Tite, Cormix International Ltd. +66 2 917 3955-8 www.cormix.com
c. Air-Mix or Perma-Air, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
d. Darex AEA or Daravair, Grace Construction Products, W.R. Grace & Co. 866-333-3726 www.graceconstruction.com
e. Sika AER, Sika Corporation, USA 800-933-7452 www.sikaconstruction.com
f. Sealtight AEA, W.R. Meadows, Inc. 817-834-1969 www.wrmeadows.com

F. Water-Reducing Admixture: ASTM C 494, Type A.

1. Products: Subject to compliance with requirements, product which may be incorporated in the Work include, but are not limited to, the following:

a. Pozzolith Normal or Polyheed, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
b. Chemtard, ChemMasters Corp. 800-486-7866 www.chemmasters.net
c. PSI N, Cormix International Ltd. +66 2 917 3955-8 www.cormix.com
d. Eucon WR-75, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
e. WRDA, Grace Construction Products, W.R. Grace & Co. 866-333-3726 www.graceconstruction.com
f. Metco W.R., Metalcrete Industries 800-526-5602 www8.inetba.com
g. Prokrete-N, Prokrete Industries
h. Plastocrete 161, Sika Corporation, USA 800-933-7452 www.sikaconstruciton.com

G. High-Range Water-Reducing Admixture: ASTM C 494, Type F or Type G.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Super P, Anti-Hydro International, Inc. 800-777-1773 www.anti-hydro.com
b. Rheobuild or Polyheed, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
c. Cormix 200, Cormix International Ltd. +66 2 917 3955-8 www.cormix.com
d. Eucon 37, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
e. WRDA 19 or Daracem, Grace Construction Products, W.R. Grace & Co. 866-333-3726 www.graceconstruction.com
f. Superslump, Metalcrete Industries 800-526-5602 www8.inetba.com
g. PSPL, Prokrete Industries
h. Sikament 300, Sika Corporation, USA 800-933-7452 www.sikaconstruciton.com

H. Water-Reducing, Accelerating Admixture: ASTM C 494, Type E.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Pozzutec 20, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
b. Lubricon NCA, Cormix International Ltd. +66 2 917 3955-8 www.cormix.com
c. Q-Set, Dayton Superior 888-977-9600 www.daytonsuperior.com
d. Accelguard 80, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
e. Daraset, Grace Construction Products, W.R. Grace & Co. 866-333-3726 www.graceconstruction.com
f. Accel-Set, Metalcrete Industries 800-526-5602 www8.inetba.com

I. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Pozzolith R, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
b. PSI-R Plus, Cormix International Ltd. +66 2 917 3955-8 www.cormix.com
c. Eucon Retarder 75, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
d. Daratard-17, Grace Construction Products, W.R. Grace & Co. 866-333-3726 www.graceconstruction.com
e. Protard, Prokrete Industries.
f. Plastiment, Sika Corporation, USA 800-933-7452 www.sikaconstruction.com

2.3 RELATED MATERIALS

A. Waterstops: Provide flat, dumbbell-type or centerbulb-type waterstops at construction joints and other joints as indicated. Size to suit joints.

1. For Expansion joints: Provide 6"x3/8"x3/4" split flange center bulb type waterstops, minimum.
2. For Cold joints: Provide 4"x3/16"x1/2" dumbbell type, endbell style, minimum.

B. Rubber Waterstops: Corps of Engineers CRD-C 513.

1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

a. Meadow Burke 877-518-7665 www.meadowburke.com
b. Progress Unlimited, Inc. 800-777-7664 www.progress-unlimited.com
c. Williams Products, Inc. 800-423-1456 www.williamsproducts.com

C. Polyvinyl Chloride Waterstops: Corps of Engineers CRD-C 572.

1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

a. Greenstreak 800-325-9504 www.greenstreak.com
b. Meadow Burke 877-518-7665 www.meadowburke.com
c. Progress Unlimited, Inc. 800-777-7664 www.progress-unlimited.com
d. The Schlegel Group 585-427-7200 www.schlegel.com
e. Vinylex Corporation 800-624-4435 www.vinylex.com
f. W.R. Meadows, Inc. 817-834-1969 www.wrmeadows.com

D. Preformed Plastic Adhesive Waterstops: Federal Specification SS-S-210A. It shall be supplied in extruded form of suitable cross-section and of a size to seal the joint areas of concrete sections. The plastic waterstop shall be protected by a suitable removable two-piece wrapper. The two-piece wrapper shall be so designed that one-half may be removed longitudinally without disturbing the other half, to facilitate application of the sealing compound.

1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include; but are not limited to, the following:

a. Waterstop-RX, American Colloid Company 800-276-2737 www.colloid.com
b. Synko-Flex, Henry Company 800-486-1278 www.henry.com
c. Ram-Nex, K.T. Snyder Company, Inc.

E. Vapor Retarder: Provide vapor retarder that is resistant to deterioration when tested according to ASTM E 154 and is in compliance with ASTM E 1745 (class A) as follows:

1. Polyethylene sheet not less than 10 mils thick (must provide proof of compliance with ASTM E 1745).
2. Submittals shall indicate vapor retarder Permeance (Perm Rating) expressed in the following terms: grains/(ft^2 *hr * in.Hg).
3. Provide manufacturer's recommended mastics and gusset tape at all joints, to create a continuous membrane.
4. Products: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

a. VB-250 and VB-350, Barrier-Bac, Inc. 877-535-0555 www.barrierbac.com
b. 10 mils or 15 mils thick Vapor Block or 16 mils Dura Skrim D16WB, Raven Industries Inc. 605-336-2750 www.ravenind.com
c. 10 mils or 15 mils thick Stego Wrap, Stego Industries, LLC 281-367-0040 www.stegoindustries.com
d. 10 mils or 15 mils thick Perminator, by W.R. Meadows, Inc. 817-834-1969 www.wrmeadows.com
e. Polyethylene sheet not less than 10 mils thick (must provide proof of compliance with ASTM E 1745).

F. Chemical Hardener: Colorless aqueous solution containing a blend of magnesium fluosilicate and zinc fluosilicate combined with a wetting agent, containing not less than 2 lbs. of fluosilicates per gal.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Saniseal, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
b. Lapidolith, BASF Construction Chemicals – Building Systems (Sonneborn) 800-433-9517 www.buildingsystems.basf.com
c. Surfhard, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
d. Burk-O-Lith, Meadow Burke 877-518-7665 www.meadowburke.com
e. Liqui-Hard, W.R. Meadows, Inc. 817-834-1969 www.wrmeadows.com

G. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

H. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.

1. Waterproof paper.
2. Polyethylene film.
3. Polyethylene-coated burlap.

I. Liquid Membrane-Forming Curing Compound: Liquid-type membrane-forming curing compound complying with ASTM C 309, Type I-D, Class A. Moisture loss not more than 0.55 kg/sq. meter when applied at 200 sq. ft./gal.

1. Provide material that has a maximum volatile organic compound (VOC) rating of 350 mg per liter.
2. Do not use curing compound on recessed slab areas which receive paver tile, quarry tile, ceramic tile or terrazzo finish floor material. These areas shall be water cured only.
3. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. A-H 3 Way Sealer, Anti-Hydro International, Inc. 800-777-1773 www.anti-hydro.com
b. Masterkure, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
c. Kure-N-Seal, BASF Construction Chemicals – Building Systems (Sonneborn) 800-433-9517 www.buildingsystems.basf.com
d. Sealco 309, Cormix International Ltd. +66 2 917 3955-8 www.cormix.com
e. Conspec #1, Dayton Superior 888-977-9600 www.daytonsuperior.com
f. Day-Chem Cure and Seal, Dayton Superior 888-977-9600 www.daytonsuperior.com
g. Eucocure, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
h. L&M Cure R, L&M Construction Chemicals, Inc. 800-362-3331 www.lmcc.com
i. Spartan-Cote, Meadow Burke 877-518-7665 www.meadowburke.com
j. Seal N Kure, Metalcrete Industries 800-526-5602 www.metalcrete.com
k. Stontop CS2, Stonhard 800-257-7953 www.stonhard.com
l. Horn Clear Seal, Tamms 800-862-2667 www.tamms.com
m. CS-309, W.R. Meadows, Inc. 817-834-1969 www.wrmeadows.com

J. Water-Based Acrylic Membrane Curing Compound (SEALER): ASTM C 309, Type I, Class B.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Masterkure, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
b. Sealco – VOC, Cormix International Ltd. +66 2 917 3955-8 www.cormix.com
c. Highseal, Dayton Superior 888-977-9600 www.daytonsuperior.com
d. Safe Cure and Seal, Dayton Superior 888-977-9600 www.daytonsuperior.com
e. Aqua-Cure, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
f. Dress & Seal WB, L&M Construction Chemicals, Inc. 800-362-3331 www.lmcc.com
g. Metcure, Metalcrete Industries 800-562-5602 www.metalcrete.com

h. Stontop CS1, Stonhard 800-257-7953 www.stonhard.com
i. Vocomp-20, W.R. Meadows, Inc. 817-834-1969 www.wrmeadows.com

K. Evaporation Control: Monomolecular film-forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Confilm, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
b. Aquafilm, Dayton Superior 888-977-9600 www.daytonsuperior.com
c. Eucobar, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
d. E-Con, L&M Construction Chemicals, Inc. 800-362-3331 www.lmcc.com
e. Waterhold, Metalcrete Industries 800-562-5602 www.metalcrete.com
f. Evapre, W.R. Meadows, Inc. 817-834-1969 www.wrmeadows.com

L. Bonding Agent: Polyvinyl acetate or acrylic base.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Polyvinyl Acetate (Interior Only):

1.) Ready Bond, Dayton Superior 888-977-9600 www.daytonsuperior.com
2.) Superior Concrete Bonder, Dayton Superior 888-977-9600 www.daytonsuperior.com
3.) Euco Weld, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
4.) Weld-Crete, Larsen Products Corp. 800-633-6668 www.larsenproducts.com
5.) Everweld, L&M Construction Chemicals, Inc. 800-362-3331 www.lmcc.com
6.) Herculox, Metalcrete Industries 800-562-5602 www.metalcrete.com
7.) Intralok, W.R. Meadows, Inc. 817-834-1969 www.wrmeadows.com

b. Acrylic or Styrene Butadiene:

1.) Acryl-Set, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
2.) Sonocrete, BASF Construction Chemicals – Building Systems (Sonneborn) 800-433-9517 www.buildingsystems.basf.com
3.) Day-Chem Ad Bond, Dayton Superior 888-977-9600 www.daytonsuperior.com
4.) Strong Bond, Dayton Superior 888-977-9600 www.daytonsuperior.com
5.) SBR Latex, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
6.) Daraweld C, Grace Construction Products, W.R. Grace & Co. 866-333-3726 www.graceconstruction.com
7.) Everbond, L&M Construction Chemicals, Inc. 800-362-3331 www.lmcc.com
8.) Acrylic Bondcrete, Meadow Burke 877-518-7665 www.meadowburke.com
9.) Acrylpave, Metalcrete Industries 800-562-5602 www.metalcrete.com
10.) Stonlock LB2, Stonhard 800-257-7953 www.stonhard.com
11.) Hornweld, Tamms 800-862-2667 www.tamms.com
12.) Acry-Lok, W.R. Meadows, Inc. 817-834-1969 www.wrmeadows.com

M. Epoxy Adhesive: ASTM C 881, two-component material suitable for use on dry or damp surfaces. Provide material type, grade, and class to suit Project requirements.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Concresive Standard Liquid, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
b. R-600 Series, Dayton Superior 888-977-9600 www.daytonsuperior.com
c. Resi-Bond (J-58), Dayton Superior 888-977-9600 www.daytonsuperior.com
d. Spec-Bond 100, Dayton Superior 888-977-9600 www.daytonsuperior.com
e. Euco Epoxy System #452 or #620, Euclid Chemical Company 800-321-7628 www.euclidchemical.com
f. Epabond, L&M Construction Chemicals, Inc. 800-362-3331 www.lmcc.com
g. Burke Epoxy M.V., Meadow Burke 877-518-7665 www.meadowburke.com
h. Metco Hi-Mod Epoxy, Metalcrete Industries 800-562-5602 www.metalcrete.com
i. Sikadur 32 Hi-Mod, Sika Corporation, USA 800-933-7452 www.sikaconstruction.com
j. Stonset LV5, Stonhard 800-257-7953 www.stonhard.com
k. Epoxtite Binder 2390, Tamms 800-862-2667 www.tamms.com
l. Rezi-Weld 1000, W.R. Meadows, Inc. 817-834-1969 www.wrmeadows.com

2.4 PROPORTIONING AND DESIGNING MIXES

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use an independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

B. The testing laboratory shall perform an aggregate analysis for each type of aggregate used. The aggregate analysis shall be performed on current stockpiles, and shall include sieve analysis, specific gravities, and the dry rodded unit weight of absorption on coarse aggregates. Sieve analysis for coarse aggregate shall include all sieve sizes for each class of coarse aggregate. An additional test shall be performed for every 300 yards of concrete placed, and a new aggregate analysis shall be performed whenever a new source of material is used.

C. Submit written reports to Architect/Engineer of each proposed mix for each class of concrete at least 15 days prior to start of Work. Do not begin concrete production until proposed mix designs have been reviewed by Architect/Engineer.

D. Design mixes to provide normal weight concrete with the following properties as indicated on drawings and schedules:

1. 4,000-psi, 28-day compressive strength

a. 6.0 sacks of cement per cu. yard of concrete (minimum)

2. 3,000-psi, 28-day compressive strength

a. 5.5 sacks of cement per cu. yard of concrete (minimum)

3. Cement content may be reduced by 1/2 sack per cu. yd. when an approved water reducing admixture or high range water reducing admixture, conforming to the requirements of this specification, is used. This water reducing admixture shall be used in accordance with the manufacturer's recommendations, provided that mix tests yield concrete of not less than the specified strength, and such reduction of cement is accepted in writing by the Architect/Engineer.

E. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:

1. All concrete: W/C 0.50.
2. Subjected to freezing and thawing: W/C 0.50.
3. Subjected to deicers/watertight: W/C 0.40.
4. Subjected to brackish water, salt spray, or deicers: W/C 0.40.

F. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

1. Ramps and sloping surfaces: Not more than 3 inches.
2. Reinforced foundation systems: Not less than 1 inch and not more than 5 inches.
3. Concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8 inches after adding admixture to site-verified 2 to 3 inch slump concrete.
4. Drilled Piers: Not less than 5 inch and not more than 6 1/2 inches.
5. Other concrete: Not less than 1 nor more than 5 inches.

G. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Architect/Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect/Engineer before using in Work.

2.5 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 20% max.
2. Ground Granulated Blast-Furnace Slag: 25 percent.

2.6 ADMIXTURES

A. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.

B. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).

C. Use high-range water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs, architectural concrete, parking structure slabs, concrete required to be watertight, and concrete with water-cement ratios below 0.50.

D. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus or minus 1-1/2 percent within the following limits:

1. All concrete: 3 percent to 5 percent.
2. Concrete structures and slabs exposed to freezing and thawing, deicer chemicals, or hydraulic pressure:

a. 4.5 percent (moderate exposure); 5.5 percent (severe exposure) for 1-1/2-inch maximum aggregate.
b. 4.5 percent (moderate exposure); 6.0 percent (severe exposure) for 1-inch maximum aggregate.
c. 5.0 percent (moderate exposure); 6.0 percent (severe exposure) for 3/4-inch maximum aggregate.
d. 5.5 percent (moderate exposure); 7.0 percent (severe exposure) for 1/2-inch maximum aggregate.

3. Other concrete not exposed to freezing, thawing, or hydraulic pressure, or to receive a surface hardener: 2 to 4 percent air.

E. Use admixtures for water reduction and set accelerating or retarding in strict compliance with manufacturer's directions.

2.7 CONCRETE MIXING

A. General: Concrete may be mixed at batch plants or it may be transit-mixed as specified herein. Batch plants must comply with the requirements of ACI 304, with sufficient capacity to produce concrete of the quality specified, in quantities required to meet the construction schedule. All plant facilities are subject to the acceptance of the Architect/Engineer. Plant facilities shall be calibrated by testing agencies specifically qualified for this as frequently as necessary to insure accuracy to plus or minus 0.4% of the total capacity of the components of the plant, but at a frequency not to exceed 6 months.

B. Job-Site Mixing: Mix concrete materials in appropriate drum-type batch machine mixer. For mixers of 1 cu. yd. or smaller capacity, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released. For mixers of capacity larger than 1 cu. yd., increase minimum 1-1/2 minutes of mixing time by 15 seconds for each additional cu. yd. Do not exceed the catalog rating or nameplate capacity for a total volume of materials used per batch. Equip the mixer with automatic controls, or semi-automatic controls, if acceptable, for proportioning materials and the proper measured quantities. Do not exceed 30 minutes total elapsed time between intermingling of damp aggregates and cement to the discharge of the completed mix.

1. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.

C. Ready-Mixed Concrete: Comply with requirements of ASTM C 94, and as specified, provided the quantity and rate of delivery will permit unrestricted progress of the work in accordance with the placement schedule. Discharge of the concrete shall be completed within l-l/2 hours after water is added to the mix or by the time the drum has revolved 300 times, whichever occurs first.

1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

2.8 FABRICATION OF REINFORCEMENT

A. General: Shop-fabricate reinforcing bars to conform to the required shapes and dimensions, with fabrication tolerances complying with ACI 315. In case of fabricating errors, do not re-bend or straighten reinforcement in a manner that will injure or weaken the material.

B. Identification: Deliver all reinforcement to the project site bundled, tagged and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.

C. Rejected Materials: Reinforcing with any of the following defects will not be permitted in the work:

1. Bar lengths, depths, and bends exceeding the specified fabrication tolerances. Bends or kinks not indicated on drawings or final shop drawings.
2. Bars with reduced cross-section due to excessive rusting or other cause.

PART 3 - EXECUTION

3.1 GENERAL

A. Coordinate the installation of joint materials, vapor retarder/barrier, and other related materials with placement of forms and reinforcing steel.

3.2 CUTTING AND PATCHING OF EXISTING SLABS

A. Determine location of grade beams, footings, underground utilities and other below-slab installations prior to cutting of existing slab. Determine most efficient route for new utility installations that will avoid underground conflicts.

B. Neatly cut full depth of existing slab using concrete saws with diamond tipped blades. Avoid cutting through existing wiring, piping, or foundations.

C. Thoroughly clean exposed edges of cut slab and allow to dry.

D. Drill holes in edges of cut slab for snug installation of minimum 5/8" diameter steel bars at maximum 12" centers. Holes shall be drilled minimum 4" deep.

E. Coat ends of bars in 2-part epoxy adhesive and drive tight fully into pre-drilled holes and with a minimum of 12" projecting into new slab area. Wire tie projecting bars to new reinforcing grid.

F. Place vapor retarder on undisturbed subgrade and work perimeter under edges of existing slab a minimum of 2" all around. Lap any required membrane seams 6" and tape.

G. Place reinforcing grid on specified support chairs and wire-tie bars projecting from concrete edges to new reinforcing grid.

H. Coat exposed edges of existing concrete with specified bonding agent just prior to placing new concrete.

I. Place, cure, and finish new concrete as specified below. Finish of new concrete to match adjacent.

3.3 INSTALLING EMBEDDED ITEMS

A. General: Set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.

B. Anchor bolts shall be set with securely fastened templates, and the threaded area shall be protected from concrete laitance.

C. Hole Forms for Slabs: Install "hole forms" in concrete structures where railing posts are indicated on drawings.

D. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.4 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work. Notify the Architect/Engineer and Testing Laboratory 24 hours before placing concrete.

B. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.

1. Do not use concrete which becomes non-plastic and unworkable, or does not meet the requirements quality control limits, or which has been contaminated by foreign materials. Do not use retempered concrete. Remove rejected concrete from the project site and dispose of in an acceptable location.
2. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.

C. Concrete Conveying: Handle concrete from the point of delivery and transfer to the concrete conveying equipment and to the locations of final deposit as rapidly as practical by methods which will prevent segregation and loss of concrete mix materials.

1. Provide mechanical equipment of such size and design for conveying concrete to insure a continuous flow of concrete at the delivery end. Provide run-ways above top of finished slab in all places for wheeled concrete conveying equipment for the concrete delivery point to the locations of final deposit. Do not wheel concrete directly over steel reinforcement. Keep interior surfaces of conveying equipment, including chutes, free of hardened concrete, debris, water, snow, ice, and other deleterious materials.

D. Pumping Concrete: The Contractor may at his option use pumping machines for placing the concrete subject to the following requirements:

1. If for pumping requirements the mix design is other than specified, the Contractor shall furnish to the Architect/Engineer a mix for approval not less than 15 days prior to the time required for its use. The laboratory will make and test this mix design. After the results of these tests are noted and approval is received, this mix can be used. Cost of this laboratory work shall be paid by the Contractor.
2. Whenever concrete is placed by pumping, it is recommended a second pump complete with sufficient pipes and hose for a complete and independent set up, or other placement equipment, be at the job prior to any placing of concrete. The Contractor shall be responsible for any corrective work which results from equipment breakdown.

E. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.

1. Consolidate concrete during placement operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.
2. Bring slab surfaces to correct level with a straightedge and strike off. Use bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
3. Maintain reinforcing in proper position on chairs during concrete placement.

F. Bonding: Roughen surfaces of set concrete at all joints, except where bonding is obtained by use of a concrete bonding agent. Clean surfaces of laitance, coatings, loose particles, and foreign matter. Roughen surfaces in a manner to expose bonded aggregate uniformly and to not leave laitance, loose particles of aggregate, or damaged concrete at the surface.

3.5 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

3.6 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 72 hours.

B. Curing Methods: Cure concrete by curing compound, by moist curing, by moisture-retaining cover curing, or by combining these methods, as specified.

1. Provide moisture curing by the following methods:
   a. Keep concrete surface continuously wet by covering with water.
   b. Use continuous water-fog spray.
   c. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4 inch lap over adjacent absorptive covers.

2. Provide moisture-retaining cover curing as follows:
   a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3. Apply curing compound on exposed interior slabs and on exterior slabs, walks, and curbs as follows:
   a. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions, followed by shading or moist curing adequate to keep temperature of the concrete at 80 degrees F or below during the curing period. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
   b. Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.

C. Protection from Mechanical Injury: During the curing period, protect concrete from damaging mechanical disturbances including load stresses, heavy shock, excessive vibration, and from damage caused by rain or flowing water. Protect all finished concrete surfaces from damage by subsequent construction operations. Concrete trucks, cranes, or excessive concentrations of loads will not be permitted on any slab without prior written approval of the Architect/Engineer during the curing period or subsequent construction.

D. Sealer and Dustproofer: Apply a second coat of specified curing and sealing compound only to surfaces given a first coat.

3.7 CONCRETE EVALUATIONS:

A. Evaluation of Quality Control Tests: The concrete quality control testing as herein before specified will be evaluated by the following criteria:

1. Do not use concrete delivered to the final point of placement which has a slump or total air content outside the values specified.
2. If the compressive strength tests fail to meet the minimum requirements specified, the concrete represented by such tests will be considered deficient in strength and subject to additional testing as herein specified.

3.8 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. General: An independent testing agency shall perform tests and to submit test reports.

1. The testing laboratory shall monitor concrete properties at time of placement and report to the Contractor any deviation from the project specifications. It shall be the responsibility of the Contractor to control the concrete and comply with the project specifications. If the Contractor cannot adequately control the quality of the concrete, then the Architect/Engineer shall direct the testing laboratory to control the concrete. The cost of this service shall be paid for by the Contractor.

B. Sampling and testing for quality control during concrete placement may include the following, as directed by Architect/Engineer.

C. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

1. Slump: ASTM C 143; one test at point of discharge for each concrete load, and for each set of compression test specimens.
2. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each set of compression tests specimens.
3. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.
4. Compression Test Specimen: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
5. Compressive-Strength Tests: ASTM C 39; for each class of concrete poured in any one day, one set for each day's pour exceeding 5 cu. yd. plus additional sets for each 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

D. When the concrete test cylinders are representing suspended structural members, at the contractor's option, two additional cylinders shall be made for the purposes of determining concrete strength for form removal in accordance with the provisions outlined in this section.

E. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

F. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 psi.

G. Curing of Compression Test Specimens: After preparation of the test cylinders, to prevent evaporation of water from the unhardened concrete, cover the cylinders immediately after finishing with a non-reactive plate or impervious plastic sheeting. Protect the outside surface of cardboard molds from any source of water for the first 24 hours after casting. Field curing procedures for test cylinders for 28 day compressive strengths are not the same as those for determining strength for form removal time.

1. For test cylinders for 28 days compressive strength determination, during the first 24 hours after molding, store all test cylinders under conditions that maintain the temperature immediately adjacent to the cylinders in the range of 60 to 80 degrees F. and prevent loss of moisture from the specimens. If the Architect/Engineer or testing laboratory have questions concerning the storage temperature, they may require that the contractor provide a temperature record of the cylinders by means of maximum-minimum thermometers. At the end of 20 hours plus or minus four hours, cylinders are to be transported to the laboratory, removed from the molds, and placed in a moist condition at 73.4 plus or minus 3 degrees F. until the moment of testing.
2. Cure test cylinders to be used for determining strength for form removal time as nearly as practical in the same manner as the concrete in the structure. Cylinders shall be stored in or on the structure as near the point of use as possible, and as far as is practical, with the same exposure to the elements. Remove test cylinders from field storage and store in lime water at 73.4 plus or minus 3 degrees F. for 24 hours plus or minus 4 hours immediately before testing.
3. Cylinders shipped from the field to the laboratory shall be packed in sturdy wood boxes or other suitable containers surrounded by wet sawdust or other suitable packing material and shall be protected from freezing during shipment.

H. Concrete Batch Facility: The testing laboratory shall perform inspections of the concrete batching facility at intervals not to exceed one per 1,000 cubic yards of concrete placed or at least one each six months. The inspection shall include verification of the calibration of scales, aggregate analysis of the current stockpiles, verification of batching procedures, and compliance with the original mix design. First inspection shall take place before any concrete is placed. The cost of each inspection shall be paid by the testing allowance.

1. Test results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests. If any breaks are below specified or expected strengths, the Testing Laboratory shall report any visible anomalies.

I. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

J. Additional Tests: The testing agency will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect/Engineer. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

END OF SECTION

SECTION 03 35 36 - POLISHED CONCRETE FLOOR TOPPING SYSTEM

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Polished concrete floor system including:
   1. Surface preparation.
   2. High strength exposed aggregate topping slab
   3. Grind and polish floor to specified finish.

1.2 RELATED REQUIREMENTS

A. Section 03 31 00 – Concrete cutting and Patching: Concrete finish at floor patching.

B. Section 07 92 00 - Joint Sealants.

1.3 REFERENCE STANDARDS

A. ASTM C1090/C1090M - Standard Test Method for Measuring Changes in Height of Cylindrical Specimens of Hydraulic-Cement Grout; 2015.

B. ASTM C307 - Standard Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacings; 2003 (Reapproved 2012).

C. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2016.

D. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2016a.

E. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

F. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019, with Editorial Revision (2020).

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

B. Comply with manufacturer's written recommendations for sequencing construction operations.

1.5 SUBMITTALS

A. See Division 01 for submittal requirements.

B. Product Data: Submit product data, including surface preparation and installation instructions.

C. Shop Drawings: Include the following:
   1. Areas to receive overlay surfacing and polishing.
   2. Typical layout including dimensions and floor grinding schedule.
   3. Plan view of floor and joint pattern layout for both existing and overlay.

D. Test Reports: Indicate compliance with performance requirements.

E. Specimen Warranty.

F. Manufacturer's Instructions: Indicate application procedures and interface with related materials.

G. Installer's Project References: Submit installer's list of successfully completed polished concrete floor system projects, including project name and location, name of architect, and type and quantity of polished concrete floor system installed.

H. Maintenance Data: Include maintenance and cleaning instructions for polished concrete floor

system.

I. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Installer's Qualifications: Company specializing in performing the work of this section with minimum five years of experience.
1. Manufacturer-trained and certified.

1.7 MOCK-UP

A. Mock-Up: Provide 100 sf mock-up to demonstrate methods of obtaining consistent visual appearance.

B. Construct at least one month before start of actual work, using materials and methods to be used in actual work.

C. Locate where directed.

D. Mock-up may remain as part of the Work.

E. Accepted mock-up constitutes visual standard for work.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage:
1. Store materials in clean, dry area indoors.
2. Keep materials from freezing.

C. Handling: Protect materials during handling and application to prevent contamination or damage.

1.9 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Provide twenty-year manufacturer warranty that polished surfaces will remain water repellent, dustproof, hardened, abrasion and food stain resistant.

PART 2 - PRODUCTS

2.1 DESCRIPTION

A. Sustainability Characteristics:
1. Toxicity/IEQ:
a. Coatings, sealers: VOC compliant.

2.2 MANUFACTURERS

A. Polished Concrete Topping System:
1. Basis of Design: CTS Cement Manufacturing Corp: Rapid Set TRU PC; www.ctscement.com
2. Substitutions: See Division 01

2.3 CONCRETE TOPPING SYSTEM

A. Topping: Two-component hydraulic cement-based, self-leveling topping overlay *Rapid Set TRU PC*, for interior or exterior concrete floors and suitable for polishing to specified sheen by dry grinding and polishing with various size grit metal-bonded and resin-bonded diamonds.

1. Additives:
   a. Densifier: Topping system manufacturer's proprietary additive for maximum surface density.
   b. Aggregates and Coloring Agent: Topping system manufacturer's proprietary natural aggregates and dyes required to match approved color sample. Fine and coarse aggregates shall conform to ASTM C33/C33M. and be provided from a single source.

B. Substrate Primer: Topping system manufacturer's 100% solids, no VOC, fast-curing *Rapid Set TXP* interior epoxy primer designed for use with cementitious overlays,

C. Water: Potable.

D. Performance Requirements: Non-shrink cementitious polishable overlay that has been selected, manufactured and installed to achieve the following:
1. Finished Topping Thickness: Uniform 1/2 inch.
2. Tensile Strength: 210 psi minimum after 7 days, per ASTM C307
3. Compressive Strength: 5,000 psi after 24 hours, per ASTM C1090/C1090M

2.4 INSTALLATION EQUIPMENT

A. Floor Grinder: Model as determined by installer to perform required grinding and polishing of concrete floor.
1. Type: Multi-orbital, planetary-action, opposing-rotational, diamond-headed floor grinder.
2. Grinding Pressure: Minimum 600 pounds head pressure.
3. Maximum RPM: 1,750.
4. Head: 3-head system contours to floor surface.

B. Edge Grinding and Polishing Equipment: Hand-held or walk-behind machines with dust extraction attachments and pads which produces same results, without noticeable differences, as field grinding and polishing equipment.

C. Burnishing Equipment: High speed walk-behind or ride-on machines capable of generating 1000 to 2000 revolutions per minute and with sufficient head pressure of not less than 20 pounds to raise floor temperature by 20 degrees F.

D. Diamond Tooling: Type as determined by installer to perform grinding and polishing to achieve specified finish and sheen.

E. Edge Grinding and Polishing Equipment: Hand-held or walk-behind machines with dust extraction attachments and pads which produces same results, without noticeable differences, as field grinding and polishing equipment

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that concrete substrate conditions, which have been previously installed under other sections are acceptable for product installation in accordance with manufacturer's instructions prior to installation of concrete finishing materials.

1. Verify concrete slab has a minimum compressive strength of 3000 psi and a minimum density of 100 pcf (pounds per cubic foot).

B. Notify Architect of conditions that would adversely affect installation or subsequent use.

C. Do not begin surface preparation or installation until unacceptable conditions are corrected.

D. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer.

E. Verify Concrete Slab Performance Requirements:

1. Verify any concrete patching is cured to 28-day and achieved 3000 psi compressive strength.

2. Verify floor is free of curing membrane, bond-breaker, concrete laitance and will absorb

water in compliance with absorbency test.

3. Verify that existing concrete sub-floor surfaces are ready for floor topping installation by testing for moisture vapor emission rate and alkalinity according to ASTM F710 and ASTM F1869 procedures; obtain instructions if test results are not within limits recommended by concrete topping system manufacture (less than or equal to 10 lbs./1000 hours, and relative humidity less than or equal to 100%).
4. Perform relative humidity testing using in situ probes, ASTM F2170. Proceed with installation only after substrates are within required limits of concrete topping manufacturer.

3.2 SURFACE INSPECTION AND PREPARATION

A. Protection: the following:

1. Protect surrounding areas and adjacent surfaces from accumulation of dust from shot blasting, grinding, or polishing.
2. Do not use permanent markers or clear coat chalk lines.
3. Do not use highly adhesive tape or other adhesive products that may affect adhesion or finish.

B. Prepare surfaces as required by manufacturer. Mechanically shotblast substrate surface to ensure proper adhesion of floor topping. Prepared surface shall be ICRI CSP 3 to 5. Do not acid-etch.

1. Clean Surfaces: Remove dirt, dust, debris, oil, grease, curing agents, bond breakers, paint, coatings, and other surface contaminants which could adversely affect installation of polished concrete floor topping system.
2. Apply finishing system manufacturer's recommended epoxy primer to substrate to ensure maximum adhesion.

C. Where recommended by system manufacturer, place divider/terrazzo strips. Level and set strips to appropriate heights prior to pouring the overlay.

D. Pin or otherwise mark all existing joint locations to ensure they can be located and re-sawn after placement of topping.

E. Prime the prepared concrete slab in accordance with manufacturer's published procedures and recommendations.

3.3 INSTALLATION

A. Comply with manufacturer's printed instructions.

B. Set form work to finish elevation.

C. Machine-mix components of floor topping mix in strict accordance with manufacturer's strict printed directions. Adjust water content as recommended by manufacturer to achieve specified sheen.

D. Placement: Immediately upon completion of mixing pour entire mix onto concrete substrate and spread with squeegee to the appropriate coverage rate for specified finish thickness. For uniform application, back roll perpendicular to squeegee application using a 1/2" nap roller.

1. After spreading, immediately broadcast clean, dry silica sand to rejection. Vacuum-remove loose sand atter 4-hour cure.

E. Grinding and Polishing:

1. Provide consistent color and finish in all contiguous areas using equipment and materials as recommended by the system manufacturer.
2. Diamond polish floor surfaces with power disc machines.

1) Sequence with coarse to fine grit by dry or wet method using incrementally finer grit polishing until achieving level of polish and sheen that matches approved sample and floor mockup.
2) Locate demarcation line between polished surfaces and other finishes.
3) Polish as required to achieve level of polish to match approved mockup.
    1) Polish all surfaces to uniform level of sheen using final grit of 800 or finer as required for selected sheen.

F. Final Polished Concrete Floor Finish:

1. Aggregate Exposure Class D - Large Aggregate Finish: Remove not more than 1/4 inch of concrete surface by grinding and polishing resulting in majority of exposure displaying large aggregate with no, or small amount of, fine aggregate at random locations.

2. Finished Gloss Level 2 - Low to Medium Gloss Appearance:
    a. Procedure: Not less than four step process with full refinement of each diamond tool with one application of densifier.
    b. Specular Gloss Measurement:
        1) Reflective Clarity Reading: 20-55 per ASTM D5767 prior to the application of any sealers.
        2) Reflective Sheen Reading: Not less than 15-25 per ASTM D523 prior to the application of sealers.

3.4 FIELD QUALITY CONTROL

A. See Division 01 for additional requirements.

B. Inspect completed polished concrete floor system with Owner, Contractor, Architect, and Installer.

C. Review procedures with Architect to correct unacceptable areas of completed polished concrete floor system.

3.5 CLEANING

A. Clean excess material from surrounding areas and all tools immediately, before material cures. If materials have cured, remove using mechanical methods that will not damage the substrate.

3.6 PROTECTION AFTER INSTALLATION

A. Protect completed polished concrete floor system from damage until Substantial Completion.
    1. Do not allow vehicle and pedestrian traffic on unprotected floor.
    2. Do not allow construction materials, equipment, and tools on unprotected floor.

B. Immediately remove mortar splatter, spilled liquids, oil, grease, paint, coatings, and other surface contaminants which could adversely affect completed polished concrete floor system.

C. Repair damaged areas of completed polished concrete floor system to satisfaction of Architect.

END OF SECTION

SECTION 04 05 03 - MASONRY MORTARING AND GROUTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes mortar and grout for masonry.

B. Related Sections:
1. Section 01 40 00 – Quality Requirements: Materials Testing.
2. Section 04 20 00 - Unit Masonry Assemblies.
3. Section 08 11 13 - Standard Steel Frames: Grouting steel door frames.

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 530 - Building Code Requirements for Masonry Structures.
2. ACI 530.1 - Specifications for Masonry Structures.

B. ASTM International:
1. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar.
2. ASTM C150 - Standard Specification for Portland Cement.
3. ASTM C206 - Standard Specification for Finishing Hydrated Lime.
4. ASTM C270 - Standard Specification for Mortar for Unit Masonry.
5. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.
6. ASTM C476 - Standard Specification for Grout for Masonry.
7. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
8. ASTM C1019 - Standard Test Method for Sampling and Testing Grout.
9. ASTM C1314 - Standard Test Method for Constructing and Testing Masonry Prisms Used to Determine Compliance with Specified Compressive Strength of Masonry.
10. ASTM C1357 - Standard Test Method for Evaluating Masonry Bond Strength.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal requirements.

B. Samples: Submit two samples of each type of colored mortar, illustrating mortar color and range; including white color mortar to match existing structural glazed tile joints.

C. Design Data: Submit design mix when Property specification of ASTM C270 is to be used, required environmental conditions, and admixture limitations.

D. Test Reports:
1. Submit reports on mortar indicating conformance of mortar to property requirements of ASTM C270.
2. Submit reports on grout indicating conformance of grout to property requirements of ASTM C476.
3. Include descriptions of types and proportions of mortar and grout ingredients.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 and ACI 530.1.

B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.

C. Preconstruction Testing Services: Provide Material Certificates in lieu of testing, unless otherwise directed by Architect. If Material Certificates are unavailable, notify the Architect immediately

upon discovery. Engage a qualified independent testing agency to perform preconstruction testing indicated below if directed by the Architect. Payment for these services will be made by the Owner except in the case of retesting for substandard materials and in the case of first time testing for substandard materials where Material Certificates were submitted as part of the Quality Control procedures for the job. Where considered appropriate by the Architect/Engineer, Prism Test shall be used where completed masonry assemblies are built with potentially substandard materials. Testing of built assemblies determined to contain substandard materials, shall be at the Contractor's expense.

D. Material Certificates (non-load bearing walls): Material Certificates proving compliance with the test below (except the Prism Test) are usually available from manufacturers. Certificates indicating compliance are acceptable to satisfy Quality Control requirements for the individual materials listed when used in masonry assemblies. Use this method of Quality Control in lieu of Prism Test unless total cost of Certificate acquisition is greater than the Prism Tests.
   1. Mortar Test (Property Specification): For each mix required, per ASTM C780.
   2. Grout Test (Compressive Strength): For each mix required, per ASTM C1019 with minimum compressive strength of 2,500 psi.
   3. Prism Tests (required for load bearing walls, conditionally allowed for non-load bearing walls): At the Contractors option, with agreement of the Architect/Engineer, Prism Tests may be used to confirm non-load bearing masonry assembly compressive strength in lieu of Material Certificates.
      a. Prism Test: For each type of reinforced wall construction indicated, per ASTM C1314.
      b. Prepare one set of prisms for testing at 7 days and one set for testing at 28 days.
      d. Fabricate concrete masonry prisms with height-to-thickness ratio of not less than 1.33 nor more than 3.0.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F.

C. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

PART 2 - PRODUCTS

2.1 COMPONENTS

A. Portland Cement: ASTM C150, Type I, gray or white color as required to produce mortar color indicated.

B. MASONRY CEMENT SHALL NOT BE USED.

C. Mortar Aggregate: ASTM C144, standard masonry type.

D. Hydrated Lime: ASTM C206, Type S.

E. Grout Aggregate: ASTM C404, fine and coarse.

F. Water: Clean and potable.

G. Mortar Color: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.
   1. Manufacturers:
      a. "SGS Mortar Colors"; Solomon Grind-Chem Service, Inc., www.solomoncolors.com
      b. "True Tone Mortar Colors"; Davis Colors, A Subsidiary of Rockwood Industries, Inc., www.daviscolors.com

H. Water Repellent Admixture: Liquid water repellent mortar admixture intended for use with exterior decorative concrete masonry units containing integral water repellent.
   1. Manufacturers:
      a. Mortar Tite; Addiment Inc., www.addiment.com
      b. Dry-Block Mortar Admixture; W. R. Grace & Co., www.grace.com
      c. Rheopel; Master Builders., www.masterbuilders.com
      d. RainBloc for Mortar; ACM Chemistries, Inc., www.acmchem.com

I. Calcium chloride is not permitted.

J. AIR ENTRAINING ADMIXTURES SHALL NOT BE USED.

K. ANTIFREEZING ADMIXTURES SHALL NOT BE USED.

2.2 MIXES

A. Mortar Mixes:
   1. Mortar for Reinforced CMU Walls: ASTM C270, Type S using Proportion specification.
   2. Mortar for Face Brick and Unreinforced CMU Walls: ASTM C270, Type N using Proportion specification.

B. Mortar Mixing:
   1. Thoroughly mix mortar ingredients in accordance with ASTM C270 in quantities needed for immediate use.
   2. Achieve uniformly damp sand immediately before mixing process.
   3. Add mortar color to achieve uniformity of mix and coloration. Limit mineral-oxide pigments to no more than 10 percent of cement content by weight.
   4. Re-temper only within two hours of mixing.

C. Grout Mixes:
   1. Grout for Load Bearing and Non-Load Bearing Masonry: Strength as indicated on Drawings; mixed in accordance with ASTM C476.
   2. Application:
      a. Coarse Grout: For grouting spaces with minimum 4 inches dimension in every direction.
      b. Fine Grout: For grouting other spaces.

D. Grout Mixing:
   1. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Request inspection of spaces to be grouted.

3.2 INSTALLATION

A. Install mortar in accordance with Section 04 20 00.

B. Low-Lift Grouting:
   1. Use Low-Lift grouting technique for all walls and bond beams.
   2. Provide minimum clear dimension of 2 inches and clear area of 8 sq. in. in vertical cores to be grouted.
   3. Place vertical reinforcement prior to laying of CMU. Extend above elevation of maximum pour height as required for splicing. Support in position at vertical intervals not exceeding 192 bar diameters nor 10 ft.
   4. Place horizontal beam reinforced as the masonry units are laid.

5. Lay CMU to maximum pour height. Do not exceed 5 foot height, or if bond beam occurs below 5 foot height stop pour at course below bond beam.
6. Pour grout using chute or container with spout. Rod or vibrate grout during placing. Place grout continuously; do not interrupt pouring of grout for more than one hour. Terminate grout pours 1-1/2 inches below top course of pour.
7. Bond Beams: Stop grout in vertical cells 1-1/2 inches below bond beam course. Place horizontal reinforcing in bond beams; lap at corners and intersections as shown. Place grout in bond beam course before filling vertical cores above bond beam.

3.3 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Testing Frequency:
1. One set of prism tests for every 5,000 S.F. of completed wall area.
2. One set of mortar tests in accordance with ASTM C780 for aggregate ratio and water content, air content, consistency, and compressive strength, for every 25 C.Y. mortar.
3. One set of grout tests in accordance with ASTM C780 for compressive strength and slump, for every 25 C.Y. grout.

END OF SECTION

SECTION 04 05 23
THROUGH-WALL AND WALL SUBSTRATE FLASHING SYSTEM

PART 1 - GENERAL

1.1 GENERAL

A. Contractor shall review American Concrete Institute 530.1 mandatory specification checklist for additional requirements necessary for specific project.

B. Flashing system shall be provided and installed by a qualified waterproofing contractor.

C. It is the intent of this specification that the new work will provide a watertight facility (restricted to the location where work is to be performed). The attached specifications describe the minimum acceptable standards of construction and finish.

D. Contractor shall water test all through-wall flashings once veneer is twelve inches (12") above installed flashing. Coordinate test with Architect and Consultant.

E. Manufacturer of cloak flashing shall have a representative inspect the installed work a minimum of one time per week for the duration of the installation. The representative shall not be the installer.

F. All vertical flashing to be installed full height of the vertical surface in shingle fashion.

G. Refer to all aluminum window, curtain wall and storefront specifications for flashing to window coordination.

H. The basis of design intent is to have windows installed, flashed, and water tested prior to veneer installation.

I. Provide and maintain a photo manifest of all flashing installed throughout the project showing the floor plan locations where the flashing has been installed. Keep on file in the job trailer at all times for reference.

1.2 QUALITY ASSURANCE

A. At a scheduled pre-construction meeting with all trades, contractor shall review flashing for the project and how the flashing shall be sequenced with the following: below grade waterproofing, air and vapor system, window installation, sealant installation, relief angles and roofing.

B. Material Manufacturer's Inspection Paid for By Contractor: Minimum of one inspection per week during installation, shall be made during Project schedule by authorized representative of product system manufacturer to ensure that said Project is installed in accordance with manufacturer's requirements. Manufacturer shall provide a written report to the Owner's representative within five days of each inspection stating acceptance of Contractor procedures and outlining items of non-compliance with manufacturer's requirements.

C. Contractor shall provide a photo manifest of through-wall installation, including all starts, stops, and transitions in plane. Photos shall be documented and located on a floor plan for reference.

1.3 SUBMITTALS

A. Shop Drawings: Contractor shall provide from the manufacturer a review of the flashing design for the project. Submittals are to include letters of compatibility for all components being in contact with other components. Item to be included are flashing membranes, sealants, tapes, primers, fluid applied barrier, termination bar, point mastics etc.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened containers and rolls with all labels intact and legible including labels indicating appropriate warnings, storage conditions, lot numbers, and usage instructions. Materials damaged in shipping or storage shall not be used.

B. Manufacturer's packaging and/or roll plastic is not acceptable for exterior storage. Tarpaulin with grommets shall be minimum acceptable for exterior coverings. All materials stored as above shall be a minimum of four inches (4") off the substrate, and the tarpaulin tied off with rope.

C. Deliver materials in sufficient quantity to allow continuity of work.

D. Handle and store material in such a manner as to avoid damage.

E. Protect materials against damage by construction traffic.

F. Storage: All materials should be stored under cover to avoid site damage. During cool weather construction, store materials inside at 50° F or higher.

G. The proper storage of materials is the sole responsibility of the contractor and damaged materials shall be discarded, removed from the project site, and replaced prior to application.

1.5 SITE CONDITIONS

A. Job Condition Requirements: Coordinate the work of the contractor with the work to be performed by the Owner's personnel, to ensure proper sequencing of the entire work. The contractor shall follow local, state, and federal regulations, safety standards, and codes. When a conflict exists, use the stricter document.

B. Protection of Work and Property:
1. Work: The contractor shall maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. He shall provide and maintain at all times any OSHA required danger signs, guards, and/or obstructions necessary to protect the public and his workmen from any dangers inherent with or created by the work in progress. All federal, state, and city rules and requirements pertaining to safety and all EPA standards, OSHA standards, NESHAP regulations shall be fulfilled by the contractor as part of his proposal.
2. Property: Protect existing planting and landscaping as necessary or required to provide and maintain clearance and access to the work of this contract. Examples of two categories or degrees of protection are generally as follows: a) removal, protection, preservation, or replacement and replanting of plant materials; b) protection of plant materials in place, and replacement of any damage resulting from the contractor's operations.

C. Damage to Work of Others: The contractor shall repair, refinish, and make good any damage to the building or landscaping resulting from any of his operation. This shall include, but is not limited to, any damage to plaster, tile work, wall covering, paint, ceilings, floors, or any other finished work. Damage done to the building, equipment, or grounds shall be repaired at the successful contractor's expense holding the Owner harmless from any other claims for property damage and/or personal injury.

D. Measurements: It will be the contractor's responsibility to obtain and/or verify any necessary dimensions by visiting the job site, and the contractor shall be responsible for the correctness of same. Any drawings supplied are for reference only.

E. Cleaning and Disposal of Materials:
1. Contractor shall keep the job clean and free from all loose materials and foreign matter. Contractor shall take necessary precautions to keep outside walls clean.
2. All waste materials, rubbish, etc., shall be removed from the Owner's premises as accumulated. Rubbish shall be carefully handled to reduce the spread of dust. At completion, all work areas shall be left clean and all contractor's equipment and materials removed from the site.
3. Debris shall be deposited at an approved disposal site.

1.6 WARRANTY

A. Flashing Manufacturer: Project shall be installed in such a manner that the flashing material manufacturer will furnish a written ten (10) year materials warranty from the date of substantial completion of the completed project.

PART 2 – PRODUCTS

2.1 BUILT-IN FLASHING MEMBRANE

A. The built-in flashing membrane shall be 40 mil flexible sheet material, consisting of a blend of elastomeric and thermal plastic polymers~~,~~ The membrane shall be reinforced with synthetic fibers, calendered into sheet form, rolled and cut to width.

B. Flashing Cloaks shall be pre-formed, three dimensional flexible units used for all exterior, interior corners, level changes, stop ends, and special applications.

Physical Properties		
Elongation	175%	ASTM D412
Tensile Strength	650 psi	ASTM D412
Tear Strength	280 psi	ASTM D624
Low Temperature Flexibility	-25° F Pass	ASTM D146
Water Absorption	Less than 0.1%	ASTM D471

2.2 RELATED MATERIALS FOR SURFACE ADHERED FLASHING MEMBRANE

A. Asphalt Primer: Shall be a two-sided, self-adhering tape used to seal the top of cloaks against the back-up wythe. Adhesive may be used as an alternative.

B. Substrate Primer:

Physical Properties		
Solids by Weight	68%	
Viscosity	758 cps	
Weight per Gallon	9.3 lbs.	
Elongation	>656% no Breakage, Exceeded Travel of Instron	ASTM D 2370
Tensile Strength	85.1 psi	ASTM D 2370
pH	10	
Hardness Shore A	59	
Peel Strength	Aluminum No Fail at 4.60 pli Concrete No Fail at 3.86 pli	

C. Mastic: Shall be used at all laps and joints, and top terminations.

2.3 WALL DRAINAGE SYSTEM FOR FLASHING INSTALLATION INTO EXISTING WALL

A. Collection device shall be a dovetail shaped material to place in the cavity of brick masonry walls for collecting mortar droppings above the level of the weep holes and flashing. The 90% open weave construction material shall be High Density Polyethylene (HDPE) mesh for thickness of 0.4 – 1.0 inch, or recycled polyester mesh for 2.0 inch thickness.

B. Material shall not oxidize, rot, promote mold or fungus, or react with other common building materials such as mortar, cement, asphalt, modified bitumen, PVC, copper, or galvanized metal; shall be Mortar Net, or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions for compliance with requirements for installation tolerances and other specific conditions.

3.2 GENERAL

A. Laying Masonry Walls: Use an inverted lintel CMU or fully grouted hollow CMU as a base for flashing at sills, floor joints, and other similar conditions.

B. Preparation: All sharp protrusions and mortar droppings must be removed from the substrate, and the surface must be clean and dry.

C. Where brick work occurs above the roof elevation, provide solid protection of the existing roof system until work is complete.

D. Flashing shall be fully supported when crossing the cavity except at sill and coping locations.

E. Flashing shall be fully adhered around all wall penetrations prior to veneer installation.

F. Grout Cant strip shall be installed at back of brick ledge to provide positive slope for new membrane flashing.

G. Taper Cant down where preformed pieces are to be installed.

3.3 INSTALLATION OF THROUGH-WALL FLASHING IN EXISTING WALLS

A. To install continuous flashing in existing walls, remove alternate sections of masonry in two to five feet (2-5') lengths. The flashing shall be installed in these sections and the masonry replaced. Alternately temporary braces may be installed as longer sections of brickwork are removed. The flashing shall then be installed in these sections. The lengths of flashing shall be lapped a minimum of six inches (6") with an end dam at each joint, and be completely sealed to function properly. The opening shall then be filled as described in Brick Replacement. The replaced masonry shall be properly cured (five to seven days) before the intermediate masonry sections or supports are removed.

3.4 BRICK REMOVAL

A. At locations indicated, remove bricks that are damaged, spalled, or deteriorated. Carefully demolish or remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
   1. When removing single bricks, remove material from center of brick and work toward outside edges.

B. Support and protect remaining masonry that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

C. Notify Structural Engineer and/or Project Manager of unforeseen detrimental conditions including voids, cracks, bulges, and loose masonry units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.

D. Remove in an undamaged condition as many whole bricks as possible.

1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.
2. Store brick for reuse, as indicated.
3. Deliver cleaned brick not required for reuse to Owner's Agent, unless otherwise directed.

E. Clean bricks surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.

3.5 INSTALLATION OF ADHERED FLASHING MEMBRANE

A. Priming: All flashing substrates shall be primed. Flashing primer shall be applied with a brush, roller or sprayed. Coverage is approximately 400 square feet per U.S. gallon (3.78L). Drying time may vary depending on temperature, humidity, and air movement; drying time should be approximately 45 minutes.

B. Flashing System Installation: Starting at a corner, mount cloak to substrate flashing adhesive. Cut surface adhered membrane into workable sections (8'-10'). Remove the release sheet and adhere the membrane to the inner leaf of construction lapping the membrane onto the cloak four inches (4"). Use firm hand pressure and a steel roller to totally adhere membrane in place. Stop membrane three-eighths inch (3/8") from front face of masonry.

C. Termination Bar: The surface-adhered membrane shall be installed using a termination bar for additional attachment to the inner leaf (optional).

D. Full joint perforated Weeps shall be provided immediately above all flashing at 24-inch centers. A minimum of two baffle weeps shall be installed above any wall opening. Weeps shall be seated on the flashing and NOT on the mortar bed.

E. Flashing membrane shall be installed eight inches (8") above finished grade level or finished roof height.

F. Stop end Flashing cloaks shall be installed at all windows, door heads, sills, and through-wall starts, stops, steps, etc.

G. Enveloped vertical flashing at wall openings shall extend onto the window unit one inch (1"). The door/window frame shall be installed with the flashing extending onto the back of the frame.

H. Enveloped vertical flashing shall be installed at all abutments of dissimilar exterior wall treatments: inside and outside nineties (90°), etc.

I. Cleaning: Flashing membrane shall not be damaged by cavity cleaning after installation. Precautions to be taken during subsequent work are:
1. Use of cavity battens to prevent mortar droppings;
2. Removal of droppings before they harden;
3. Never use implements such as steel rods for cleaning the cavity; and
4. Inspection of cavity flashing for damage as the work proceeds.

3.6 INSTALLATION OF WALL DRAINAGE SYSTEM INTO EXISTING WALL CAVITY

A. Collection device shall be placed vertically on top of the flashing inside the wall cavity where it shall catch and permanently suspend mortar droppings above the level of the weep holes and flashing. The dovetail shape shall prevent mortar droppings from forming a continuous dam and shall allow water and air to rapidly and easily move through the material to the weeps.

3.7 BRICK REPLACEMENT

A. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.

B. Lay replacement brick with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C 67 initial rates of absorption (suction) of more than 30 g/30 sq. in. per min. Use wetting methods that ensure that units are nearly saturated but surface is dry when laid. Maintain joint width for replacement units to match existing joints.
   1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.

3.8 FLASHING MEMBRANE ADHESIVE

A. Application:
   1. Flashing adhesive shall be applied to clean, dry and relatively smooth surfaces.
   2. When joint two (2) pieces of flashing membrane, or joining flashing membrane to Cloaks:
      a) Apply two (2) one-fourth inch (1/4") beads of adhesive approximately one-half inch (1/2") and one and one-half inch (1-1/2"), respectively, from the edge of the bottom membrane along the entire width of the bottom membrane. Overlap the top membrane over the bottom membrane two inches (2") and roll lap with steel hand roller, causing excess to extrude the entire length of the overlap.
   3. Do not remove excess adhesive.

B. Safety, Storage and Handling: Keep container tightly closed when not in use. Store at room temperature. Clean up tools and hands with waterless hand cleaner.

3.9 SUBSTRATE PRIMER

A. Surface Preparation: Areas to be primed should be dry.

B. Application: Substrate primer may be applied using a soft roller or brush. It can be removed from masonry with soapy water while wet and a solvent-based cleaner if dry (mineral spirits or citrus cleaner).

C. Coverage: Depending on the condition of the surface, coverage may vary from as little as 150 square feet to 200 square feet per gallon.

D. Caution:
   1. Substrate primer should not be applied when temperatures are below 40° F or when rain is imminent.
   2. Keep substrate primer from freezing.
   3. During hot weather, the product should be stored in a cool shaded area.
   4. Do not thin this product.
   5. Curing rates will vary depending on the ambient temperature relative humidity, wind speed, sky condition and the proper rate of application. Generally speaking, Substrate primer will dry within 15 to 30 minutes when applied at 70° F or above. At 50° F, on a cloudy day, cure time may be extended to as much as one hour.
   6. Check several places on primed area for dryness prior to proceeding with the flashing application.

END OF SECTION 04 05 23

SECTION 04 20 00 - UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section. Where included, the Requirements of this Section also apply to masonry Work specified in Division 4 Section "Engineered Unit Masonry"

1.2 SUMMARY

A. Section Includes:

1. Concrete masonry units.
2. Mortar and grout.
3. Cast stone shapes.
4. Steel reinforcing bars.
5. Masonry-joint reinforcement.
6. Ties and anchors.
7. Embedded flashing.
8. Miscellaneous masonry accessories.

B. Products Installed but not Furnished under This Section:
1. Steel shelf angles for supporting unit masonry.
2. Cavity wall insulation.

C. Related Requirements:

1. Division 4 Section covering "Engineered Unit Masonry".
2. Division 4 Section covering “Adhered Manufactured Stone Veneer”.
3. Division 5 Section covering “Metal Fabrications” for loose steel lintels.
4. Section 07 21 00 "Thermal Insulation" for cavity wall insulation.
5. Section 07 62 00 "Sheet Metal Flashing and Trim" for exposed sheet metal flashing< and for furnishing manufactured reglets installed in masonry joints.

1.3 DEFINITIONS

A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 REFERENCES

A. The following standards shall be met for the project where the applicable materials are indicated to be used on the project.

B. ASTM C 150 - Portland Cement

C. ASTM C 270 - Mortar for Unit Masonry

D. ANSI A41.1 - Building Code Requirements for Masonry

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.

2. Review compatibility of materials and methods as described below.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Provide a Compatibility Report that confirms that all Masonry related products to be used on the Project, have been verified for compatibility with all other products (Masonry or otherwise) where the products will touch each other or be placed within close proximity.
      a. Show in the report, via a "Compatibility Table", the products coming into intimate contact with each other, and that they have been determined to be compatible for adhesion and performance.
      b. Compatibility with the following, but not limited to the items listed, shall be confirmed: air / water barrier materials, any vapor retarders that are in contact, insulation, sheathing surfaces, insulation board, and sealants.
      c. Non-compatible products shall not be combined.

B. Shop Drawings: For the following:

   1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
   2. Cast Stone Trim Units: Show sizes, profiles, and locations of each stone trim unit required.
   3. Reinforcing Steel: Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315.
   4. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
   5. Ledge Flashing Plans, Elevations, and Details: Indicate locations of vertical offsets and end dams, changes in flashing materials, and built-up or prefabricated assemblies.
   6. Provide building elevation drawings showing Masonry Expansion Joint and Control Joint locations.
   7. Marking of Fire Rated and Smoke Rated Walls: Submit a plan based on rated walls indicated on the Code Review. Submit as a part of the masonry submittal, and at the same time as other masonry related submittals.

C. Samples for Initial Selection:
   1. Weep hole inserts.

D. Samples for Verification: For each type and color of the following:
   1. Weep hole inserts.
   2. Accessories embedded in masonry.

1.7 INFORMATIONAL SUBMITTALS

A. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.

   1. Submittal is for information only. Receipt of list does not constitute approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.

B. Qualification Data: For testing agency.

C. Material Certificates: For each type and size of the following:

1. Masonry units.

    a. Include material test reports substantiating compliance with requirements.
    b. 50 cycles of freezing and thawing according to ASTM C 67.
    c. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.

2. Cementitious materials. Include name of manufacturer, brand name, and type.
3. Mortar admixtures.
4. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
5. Grout mixes. Include description of type and proportions of ingredients.
6. Reinforcing bars.
7. Joint reinforcement.
8. Anchors, ties, and metal accessories.

D. Mix Designs: For each type of mortar. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

E. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to TMS 602/ACI 530.1/ASCE 6.

F. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

G. Cleaning Procedures: Detailed description of methods, materials, equipment and site cleanup procedures to be used.

1.8 QUALITY ASSURANCE

A. Sample Panels: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 01 40 00 "Quality Requirements" for mockups.

1. Build sample panels for each type of exterior wall, interior wall which do not get painted in sizes approximately 60 inches long by 48 inches high by full thickness.
2. Build sample panels facing south.
3. Where masonry is to match existing, build panels adjacent and parallel to existing surface.
4. Clean one-half of exposed faces of panels with masonry cleaner indicated.
5. Protect approved sample panels from the elements with weather-resistant membrane.
6. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.

    a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless Architect specifically approves such deviations in writing.

B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mockup as shown on Drawings, or if not indicated, build mockup of typical exterior walls.

    a. Include typical exterior wall with example of door and window openings – leave one side of wall open to show layering of materials and construction.
    b. Include a sealant-filled joint at least 16 inches long in each mockup.
    c. Include lower corner of window opening, framed with masonry trim required for the project, at upper corner of exterior wall mockup. Provide mockup openings for each type of required masonry trim which is not smooth faced. Make opening approximately 12 inches wide by 16 inches high.
    d. Include through-wall flashing installed for a 24-inch length in corner of exterior wall mockup approximately 16 inches down from top of mockup, with a 12-inch length of flashing left exposed to view (omit masonry above half of flashing).
    e. Include studs of kind required on project (both metal and wood if required), sheathing, water-resistive air barrier sheathing joint-and-penetration treatment, veneer anchors, flashing, cavity drainage material, and weep and vent holes in exterior masonry-veneer wall mockup. The materials used in the mockups shall be the products accepted for use on the project.

2. Where masonry is to match existing, erect mockups adjacent and parallel to existing surface.
3. Clean one-half of exposed faces of mockups with masonry cleaner as indicated.
4. Protect and maintain (keep clean) accepted mockups from the elements with a weather-resistant membrane. The mockup will act as a standard for judging the completed Work
5. Review of mockups is not limited to color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; and aesthetic qualities of workmanship.

    a. Approval of mockups is also for other material and construction qualities.
    b. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
    c. Mockups will in all cases represent the level of workmanship to be provided, including the extent of excess mortar to be cleaned from completed masonry assemblies, inside and outside.

6. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion if allowed by and coordinated with the Architect in the field.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store in a manner to prevent leaching of naturally occurring earth salts or other undesirable materials.

C. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.

D. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.10 FIELD CONDITIONS

A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover a minimum of 24 inches down both sides of walls, and hold cover securely in place.
2. Where one wythe of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe, and hold cover in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work and will be within 20 feet (6 m) vertically and horizontally of a walking surface.

C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.

1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

2.3 CONCRETE MASONRY UNITS

A. Indigenous Materials: CMUs shall be manufactured within 500 miles of Project site from aggregates and cement that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site. If materials are transported by rail or water, the distance transported by rail or water shall be multiplied by 0.25 to determine the distance to Project site. 2012 IgCC

B. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide bullnose units for outside corners unless otherwise indicated.
3. Where ceramic tile is indicated as the finish material, use square edged units for outside corners and jamb conditions.

C. CMUs: ASTM C 90 (load-bearing) or ASTM C129 (for nonload-bearing)

1. Unit Compressive Strength: Provide units of compressive strength as indicated in Division 4 Section "Reinforced Masonry" but not less than a minimum average net-area compressive strength of 2150 psi.
2. Density Classification: Normal weight ASTM C33, <125 lb / Cubic Foot) unless otherwise indicated.
3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
4. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.
5. Colors: Natural gray.

D. Single Wythe Concrete Masonry Unit Drainage System - Basis-of-Design is *BlockFlash* by Mortar Net): Pan is a high density polyethylene composition .0625 inch thick with (7.94) perimeter flange, with a weep spout opening and a 45 degrees drip edge that extends 1.0 inches from the outer flange. Integrated web spacer/bridge unit is a high density polyethylene 0.0625 inch thick that overlapped the adjacent pan and extends from face shell to face shell. Bridge is removable for corner installation. Drainage Matte is an open weave polyester mesh (7x16 inch) installed in each CMU cell above the pan.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

a. BlockFlash by Mortar Net, Mortar Net USA Ltd. 800-664-6638 www.mortarnet.com]

2.4 CONCRETE LINTELS

A. General: Provide one of the following:

B. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs matching adjacent CMUs in color, texture, and density classification, with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

2.5 CAST STONE: ASTM C1364, architectural cast stone units fabricated by dry casting method, with fine grained texture, simulating natural cut stone.

A. Reinforce units as indicated and as required by ASTM C1364. Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches of material.

B. Curing: Cure units to develop concrete quality, and to minimize appearance blemishes including non-uniformity, staining, or surface cracking.
1. Colors and Textures: As selected by Architect from manufacturer's full range for these characteristics.

C. Size(s} and Configuration(s): As indicated.

D. Mortar Color: White with integral water repellant.

2.6 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C 114.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of Portland cement (ASTM C 150, Type I, II, or III as indicated above) and hydrated lime (ASTM C 207, Type S) containing no other ingredients.

D. Colored Cement Mortar Products: Packaged blend made from Portland cement, hydrated lime, sand aggregate and mortar pigments, all complying with specified requirements, and containing no other ingredients.

1. Colored / Un-Colored Portland Cement-Lime / Sand Mix: Comply with ASTM C 1714. Subject to compliance with requirements, products which may be incorporated in the Work include the following. Provide custom colors where the proposed manufacturer does not have colors matching the Basis-of-Design colors.

a. Portland Cement/Lime and Sand Mortar, Spec Mix, Inc. 888-773-2649 www.specmix.com/
b. AMX 400, Portland Cement/Lime and Sand Mortar, Amerimix, an Oldcastle company 888-313-0755 www.amerimix.com/

2. Formulate blend as required to produce custom color indicated or, if not indicated, as selected from manufacturer's standard colors.
3. Pigments shall not exceed 10 percent of Portland cement by weight. Carbon black content shall be less than 2 percent by weight.

E. Aggregate for Mortar: ASTM C 144.

1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.

2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
3. White-Mortar Aggregates: Natural white sand or crushed white stone.
4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

F. Aggregate for Grout: ASTM C 404.

G. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer. Subject to compliance with requirements, products which may be incorporated in the Work include the following

1. RainBloc for Mortar, ACM Chemistries 877-226-1766 www.acmchem.com
2. Mortar Tite, Addiment Inc. 800-458-3090 www.addiment.com
3. Rheopel, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
4. Dry-Block Mortar Admixture, Grace Construction Products, W.R. Grace & Co. 866-333-3726 www.graceconstruction.com]

H. Water: Potable.

2.7 REINFORCEMENT

A. Uncoated-Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.

B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated. Basis of Design:

1. RB Rebar Positioners and RB-Twin Rebar Positioners by Hohmann & Barnard company 800-645-0616 www.h-b.com, or comparable product by another manufacturer.

C. Masonry-Joint Reinforcement, General: ASTM A 951/A 951M.

1. Interior Walls: Mill- galvanized carbon steel.
2. Exterior Walls: Hot-dip galvanized carbon or Stainless steel.
3. Wire Size for Side Rods: 0.148-inch (3.77-mm) diameter.
4. Wire Size for Cross Rods: 0.148-inch (3.77-mm) diameter.
5. Wire Size for Veneer Ties: 0.148-inch (3.77-mm) diameter.
6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches (407 mm) o.c.
7. Provide in lengths of not less than 10 feet (3 m), with prefabricated corner and tee units.

D. Masonry-Joint Reinforcement for Vertically Unreinforced Single-Wythe Masonry (CMU). for Vertically Unreinforced Collar-Jointed, Multiwythe Masonry, and all walls without Air Spaces: Truss type with side rods at each wall face.

E. Masonry-Joint Reinforcement for Vertically Unreinforced Multiwythe Masonry with an Air Space Between Wythes: Truss or Ladder designs as follow. Where horizontal joints do not align between the different wall wythes, use the truss design:

1. Adjustable (two-piece) type, truss design in the backing wythe , with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections having a maximum horizontal play of 1/16 inch and maximum vertical adjustment of 1-1/4 inches. Size ties to extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face. Ties have hooks or clips to engage a continuous horizontal wire in the facing wythe.

2. Ladder type with one side rod at each face shell of hollow masonry units more than 4 inches (100 mm) wide, plus one side rod at each wythe of masonry 4 inches (100 mm) wide or less.

F. Masonry-Joint Reinforcement for Vertically Reinforced (steel bars) Multiwythe Masonry with an Air Space Between Wythes: Ladder design with perpendicular cross rods spaced not more than 16 inches o.c. and number of side rods as follows. Where horizontal joints do not align between the different wall wythes, use the pintle-and-eye Ladder design.

1. Ladder type with one side rod at each face shell of hollow masonry units more than 4 inches (100 mm) wide, plus one side rod at each wythe of masonry 4 inches (100 mm) wide or less.]

2.8 TIES AND ANCHORS

A. General: Ties and anchors shall extend into veneer to within 1 inch of exterior masonry face but with at least a 5/8-inch cover on outside face.

B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated. Stainless Steel may be substituted for any metal material listed.

1. Mill-Galvanized, Carbon-Steel Wire (for Interior only): ASTM A 82/A 82M, with ASTM A 641/A 641M, Class 1 coating.
2. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M, with ASTM A 153/A 153M, Class B-2 coating.
3. Stainless-Steel Wire: ASTM A 580/A 580M, Type 304.
4. Galvanized-Steel Sheet (for Interior only): ASTM A 653/A 653M, Commercial Steel, G60 zinc coating.
5. Steel Plates, Shapes, and Bars (for Rigid Anchors): ASTM A 36/A 36M.

C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches (100 mm) wide.

1. Z-shaped ties with ends bent 90 degrees to provide hooks not less than 2 inches (50 mm) long may be used for masonry constructed from solid units.
2. Where wythes do not vertically align or, are of different materials, use adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches (32 mm).
3. Wire: Fabricate from 3/16-inch- (4.76-mm-) diameter, hot-dip galvanized steel wire. Mill-galvanized wire ties may be used in interior walls unless otherwise indicated.

D. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch- (6.35-mm-) diameter, wire. Mill-galvanized wire may be used at interior walls unless otherwise indicated.
2. Tie Section: Triangular-shaped wire tie made from 0.187-inch- (4.76-mm-) diameter, hot-dip galvanized steel wire. Mill-galvanized wire may be used at interior walls unless otherwise indicated.

E. Adjustable Masonry-Veneer Anchors:

1. General: Provide anchors that allow vertical adjustment but resist a 100-lbf load in both tension and compression perpendicular to plane of wall without deforming or developing play in excess of 1/16 inch.
2. Fabricate sheet metal anchor sections and other sheet metal parts from 0.075-inch thick steel sheet, galvanized after fabrication.
3. Fabricate wire ties from 0.187-inch diameter, hot-dip galvanized-steel wire unless otherwise indicated.

4. Two-piece assemblies that permit vertical or horizontal differential movement between wall and framework parallel to, but resist tension and compression forces perpendicular to, plane of wall; consisting of wire tie section and metal anchor section for attachment over sheathing to metal studs and complying with the following requirements.

5. Wire Ties for Cold-Formed Metal Frame Stud Assemblies:

   a. Wire Size: 0.1875 inch diameter.
   b. Wire Tie Shape: Triangular.
   c. Wire Tie Length: As required to extend within 1 inch of masonry veneer face.

      1) Heckmann Building Products, Inc. 800-621-4140 www.heckmannbuildingprods.com Paragraph below describes Hohmann & Barnard DW-10-X assembly with legs that penetrate through the felts and sheathing to the steel studs.

6. Anchor Sections for Concrete Masonry Unit Assemblies:

   a. Provide anchor manufacturer's standard Ladder Style Adjustable Joint Reinforcement with Eyes and Pintles and manufactured to fit in masonry joints.

      1) Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

         a) For projects where masonry joints align at all masonry throughout the entire job, the following may be provided (Contractor's option) - #270 Ladder Adjustable Eye-Wire, Hohmann & Barnard, Inc. 800-645-0616 www.h-b.com If some masonry joints align and some do not, use the #270-ML indicated below and do not use the "#270".]
         b) For projects where masonry joints both align and do not align, only provide the following; provide this product at both instances of alignment - #270-ML Ladder Adjustable Eye-Wire, Hohmann & Barnard, Inc. 800-645-0616 www.h-b.com]Fasteners in "Polymer-Coated, Steel Drill Screws for Steel Studs" Subparagraph below are for steel studs from 0.033 to 0.112 inch (0.8 to 2.8 mm) thick.

7. Polymer-Coated, Steel Drill Screws for Steel Studs: ASTM C 954 except manufactured with hex washer head and neoprene or EPDM washer, No. 10 diameter by length required to penetrate steel stud flange with not less than three exposed threads, and with organic polymer coating with salt-spray resistance to red rust of more than 800 hours according to ASTM B 117.

2.9 EMBEDDED FLASHING MATERIALS

A. Flexible Flashing: Use the following, at the locations indicated, unless otherwise indicated:

1. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy.

   a. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

      1) Elvaloy Flashing: Thru-wall flashing made with DuPont Elvaloy and premium adhesive backing:

         a) DuPont Thru-Wall Flashing, E. I. du Pont de Nemours and Company
         b) Flex-Flash, Hohmann and Barnard, Inc. Hohmann & Barnard, Inc. 800-645-0616 www.h-b.com

c) Cloaked Flashing System (ELVALOY 40 mil SHEET), Hyload, Inc. 800-457-4056 www.hyloadflashing.com

b. Monolithic Sheet: Elastomeric thermoplastic flashing, 0.040 inch thick. For use as an accessory to the adhesive backed product. Do not apply with Rubberized-Asphalt adhesive if adjacent to or in contact with flexible vinyl products and wall components (PVC).

c. Self-Adhesive Sheet: Elastomeric thermoplastic flashing, 0.025 inch thick, with a 0.015-inch thick coating of adhesive. For use at bottoms of walls and as additionally indicated. If Rubberized-Asphalt adhesive is used, it shall not be used adjacent to or in contact with flexible vinyl products and wall components (PVC).

d. Self-Adhesive Sheet with Stainless Steel Drip Edge: Elastomeric thermoplastic flashing, 0.025 inch thick, with a 0.015 inch thick coating of rubberized-asphalt adhesive. Where flashing extends to face of masonry, rubberized-asphalt coating is held back approximately 1-1/2 inches from edge. Do not use where sealant will be applied to the flashing (where it daylights), at the face of the wall. Do not apply flashing adjacent to or in contact with flexible vinyl products and wall components (PVC.

1) Color: Gray.]

e. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.

2. EPDM Flashing (Elastomeric Flashing): Sheet flashing product made from ethylene-propylene-diene terpolymer, complying with ASTM D 4637/D 4637M, 0.040 inch thick.

B. Application: Unless otherwise indicated, use the specified products at the following locations:

1. Where flashing is fully concealed, including flexible elastomeric thermoplastic flashing products which are indicated to be trimmed at the face of the wall into which they are installed, Use types of flashing as follows and at locations indicated.

a. At Bottoms of Walls: Elastomeric Thermoplastic Flashing as embedded flashing at bottoms of walls, at bottom of elevated walls (above mortar set on metal through-wall flashing), and as additionally indicated.

b. At Tops of Walls: Asphalt Coated Copper Flashing as embedded flashing where flashing will be required to conform to irregular shapes like at the top of walls under masonry coping or under a cast stone bench surface. Use Asphalt coated copper only where flashing is fully concealed in masonry at installed locations. Use additionally as indicated.

c. At Vertical Expansion Joints, Control Joints, Substrate Changes: EPDM Flashing as a joint bridging flashing. This product is only to be used for bridging vertical wall joints.

C. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

D. Termination Bars for Flexible Flashing: Aluminum sheet 0.064 inch by 1-1/2 inches with a 3/8-inch sealant flange at top.

2.10 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.

B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

C. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D 226/D 226M, Type I (No. 15 asphalt felt).

D. Weep/Cavity Vent Products: Use the following unless otherwise indicated:

1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch less than depth of outer wythe, in grey color where uncolored mortar is used. Color as selected by Architect from manufacturer's full line of colors where colored mortar is used..

a. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

1) Quadro-Vent, Hohmann & Barnard, Inc. 800-645-0616 www.h-b.com
2) York Weep Vents, by York Manufacturing, Inc. 800-551-2828 www.yorkmfg.com
3) CellVent, by Mortar Net USA Ltd. 800-664-6638 www.mortarnet.com]

2. Weep/Vent: One-piece, flexible UV-resistant polyester, flame retardant, full height and width of head joint and depth 1/8 inch less than depth of outer wythe, in grey color where uncolored mortar is used. Color as selected by Architect from manufacturer's full line of colors where colored mortar is used.

a. Characteristics:

1) 100% post consumer recycled material
2) Qualifies for LEED credits
3) Meets AATCC Test Method 30 (Anti-fungal/Anti-rot)
4) Zero Microbial Activity
5) 3/8 inch x 2-1/2 inch x 3-1/2 inch.
6) Custom sizes where required.

b. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following. Comparable products, in the opinion of the Architect, by other manufacturers, will be allowed.

1) Mortar Trap Weep Vents, Hohmann & Barnard, Inc. 800-645-0616 www.h-b.com
2) Weep/Vent by Mortar Net USA Ltd. 800-664-6638 www.mortarnet.com
3) Comparable product by Advanced Building Products, Inc. 800-252-2306 www.advancedflashing.com
4) Comparable product by CavClear Products, a Division of Archovations, Inc. 715-381-5773 www.cavclear.com,

E. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Mortar Break DT (dove-tail shape), Advanced Building Products, Inc. 800-252-2306. www.advancedflashing.com
b. Mortar Net (trapezoidal shape), Mortar Net USA Ltd. 800-664-6638 www.mortarnet.com
c. Comparable to the products listed above, a trapezoidal or dove-tail design by CavClear Products, a Division of Archovations, Inc. 715-381-5773 www.cavclear.com

2. Configuration: Provide one of the following:

a. Strips, full depth of cavity and at least 10 inches high, with dovetail-shaped / trapezoidal notches approximately 7 inches deep (+/- 2 inch) that prevent clogging of the cavity with mortar droppings. Other comparable products providing similar performance, in the sole opinion of the Architect, will be accepted.

2.11 MASONRY CLEANERS

A. General: Subcontractors option is to use the least damaging method of cleaning. Preference is to use the first option below (Detergent Cleaner), but with care to not abrade the masonry surfaces with brushes used for the cleaning. If the method yields unacceptable results, the second method will be required (Acidic Cleaner).

B. Job-Mixed Detergent Solution: Solution of 1/2 cup (0.14 L) dry measure tetrasodium polyphosphate and 1/2 cup (0.14 L) dry measure laundry detergent dissolved in 1 gal. (4 L) of water.

C. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include the following:

a. Diedrich Technologies, Inc. 800-323-3565 www.diedrichtechnologies.com or Hohmann & Barnard, Inc. 631-234-0600 www.h-b.com/
b. EaCo Chem, Inc. 800-313-8505 www.eacochem.com
c. PROSOCO Incorporated 800-255-4255 www.prosoco.com

2.12 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use Portland cement-lime mortar unless otherwise indicated.
3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated.

1. For masonry below grade or in contact with earth, use Type M.
2. For reinforced masonry, use Type N. CMU lintels, door jambs and window jambs are to be reinforced with Type S mortar.
3. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; and for other applications where another type is not indicated, use Type N.
4. For interior nonload-bearing partitions, Type O may be used instead of Type N.

D. Pigmented Mortar: Use colored cement product. Do not add pigments to colored cement products.

1. Pigments shall not exceed 10 percent of Portland cement by weight.
2. Mix mortar to match Architect's sample.
3. Application: Use pigmented mortar for exposed mortar joints with the following units as indicated:
    a. Cast-stone trim units.

E. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
2. Proportion grout in accordance with ASTM C 476, paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/ C143M.

F. Integral Water Repellent for Mortar: Provide integral water repellent for exterior walls and where indicated.

1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested according to ASTM E 514/E 514M as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24 hours, shall show no visible water or leaks on the back of test specimen.
2. Subject to compliance with requirements, products which may be incorporated in the Work include the following:

    a. RainBloc, ACM Chemistries 877-226-1766 www.acmchem.com
    b. Rheopel, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com
    c. Dry-Block, Grace Construction Products, W.R. Grace & Co. 866-333-3726 www.graceconstruction.com

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
2. Verify that foundations are within tolerances specified.
3. Verify that reinforcing dowels are properly placed.
4. Verify that substrates are free of substances that impair mortar bond.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Provide and coordinate the use of system compatible adhesives and sealants in contact with the selected air barrier system.
1. Confirm that compatibility of materials, as indicated in the “Compatibility Report”, has not changed since the Compatibility Report was issued, prior to commencing work.

3.2 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this and other Sections.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.

D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet or 1/2-inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet 1/4 inch in 20 feet or 1/2-inch (maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet or 1/2-inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet or 1/2-inch maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet or 1/2-inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet or 1/2-inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm) except due to warpage of masonry units within tolerances specified for warpage of units.
8. For lines and surfaces (surface planes) do not vary from a straight line by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2 inch (12 mm) maximum.

3.4 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond to match existing; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

D. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar before laying fresh masonry.

E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

H. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

I. Build non load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.

1. Install compressible filler in joint between top of partition and underside of structure above.
2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c. unless otherwise indicated.
3. Wedge nonload-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches fihnal position.
4. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 078443 "Joint Firestopping."

3.5 MORTAR BEDDING AND JOINTING

A. Maintain joint widths shown, except for minor variations required to maintain bond alignment. Unless otherwise indicated, lay walls with 3/8-inch joints.

B. Where weep holes are indicated or required, provide weep vents in head joints, unless use of open head joints or different venting devices is otherwise indicated.

C. Where vent holes at tops of walls are indicated, or required, provide weep vents in head joints, unless use of open head joints or different venting devices is otherwise indicated. Align vents at tops of walls with vents at bottoms of walls.

D. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

E. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

F. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners or jambs to shift adjacent stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.

3.6 COMPOSITE MASONRY

A. Bond wythes of composite masonry together as follows:

1. Masonry-Joint Reinforcement: Installed in horizontal mortar joints.

a. Where bed joints of both wythes align, use truss-type reinforcement extending across both wythes.
b. Where bed joints of wythes do not align, use adjustable-type (two-piece-type) truss reinforcement.

B. Bond wythes of composite masonry together using bonding system indicated on Drawings.

C. Collar Joints: Solidly fill collar joints by parging face of first wythe that is laid and shoving units of other wythe into place, or after each course is laid, fill vertical longitudinal joint between wythes solidly, and with mortar for the following masonry Work:

1. Exterior walls (where indicated), except cavity walls.

D. Corners: Provide interlocking masonry unit bond in each wythe and course at corners unless otherwise indicated.

1. Provide continuity with masonry-joint reinforcement at corners by using prefabricated L-shaped units as well as masonry bonding.

E. Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, bond walls together as follows:

1. Provide continuity with masonry-joint reinforcement by using prefabricated T-shaped units.
2. Intersecting Load bearing Walls: If carried up separately, block or tooth ver¬tical joint with 8 inch maximum offsets and provide rigid steel anchors spaced not more than 4 feet o.c. vertically, or omit blocking and provide rigid steel anchors at not more than 2 feet o.c. vertically. Form anchors of galvanized steel not less than 1 1/2 inch x 1/4 inch x 2 feet long with ends turned up not less than 2 inches or with cross pins. If used with hollow masonry units, embed ends in mortar filled cores.

3.7 CAVITY WALLS

A. Bond wythes of cavity walls together as follows:

1. Masonry-Joint Reinforcement: Installed in horizontal mortar joints.

a. Where indicated and bed joints of both wythes align, use ladder-type reinforcement extending across both wythes.

b. Where bed joints of wythes do not align, use adjustable-type (two-piece-type) reinforcement.

c. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable-type (two-piece-type) reinforcement to allow for differential movement regardless of whether bed joints align.

2. Masonry-Veneer Anchors: Comply with requirements for anchoring masonry veneers.

B. Bond wythes of cavity walls together using bonding system indicated on Drawings.

C. Keep cavities clean of mortar droppings and other materials during construction. Do not allow the formation of mortar bridges. Do not allow mortar or other materials to block drainage paths or weepholes. Do not allow mortar or other materials to accumulate on flashings, ties, or other cavity elements. Follow recommendations of BIA Technical Note 21C and other workmanship standards indicated or required. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Strike joints facing cavities flush. Remove mortar which has dropped to the bottom of the cavity during construction activities.

D. Installing Cavity Wall Insulation: Where dampproofing is not utilized as an adhesive for application of board cavity- wall insulation, place small dabs of adhesive, spaced approximately 12 inches (300 mm) o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.

1. Fill cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.]

E. Tie exterior wythe to back-up with continuous horizontal joint reinforcing, installed in mortar joints at not more than 16 inches o.c. vertically and in the joint below the top-most veneer masonry unit.

F. Provide weep holes in exterior wythe of cavity wall located immediately above ledges and flashing, spaced 2 feet o.c., unless otherwise indicated.

3.8 CAVITY AND WALL WEATHERPROOFING: Reference Section 07 27 26 Fluid-Applied Air Barrier Membrane

3.9 ANCHORED MASONRY VENEERS

A. Anchor masonry veneers to wall framing with masonry-veneer anchors to comply with the following requirements:

1. Fasten screw-attached anchors through sheathing to wall framing with metal fasteners of type indicated. Fasten the anchors with the maximum number of fasteners that the anchors were designed to use.
2. Embed tie sections in masonry joints. Provide not less than 2 inch air space between back of masonry veneer wythe and face of sheathing.
3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
4. Space anchors as indicated, but not more than 16 inches o.c. vertically and 16 inches o.c. horizontally, with not less than one anchor for each 1.33 sq. ft. of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 16 inches around perimeter.

B. Provide not less than the indicated inches of airspace between back of masonry veneer and face of closest sheathing or insulation.

1. Keep airspace clean of mortar droppings and other materials during construction. Bevel beds away from airspace, to minimize mortar protrusions into airspace. Do not attempt to trowel or remove mortar fins protruding into airspace.

3.10 MASONRY-JOINT REINFORCEMENT (Horizontal)

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches. Reinforce walls with continuous horizontal joint reinforcing.

1. Space reinforcement not more than 16 inches o.c unless otherwise indicated.
2. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.
3. For parapets, space reinforcement at 8 inches o.c. vertically, unless otherwise indicated. Start the reinforcement below any anchor support point so that the anchor has reinforcement in the joints immediately above and below the location where the anchor attaches to structure.]

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

C. Provide continuity at wall intersections by using prefabricated T-shaped units.

D. Provide continuity at corners by using prefabricated L-shaped units.

3.11 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete, to comply with the following:

1. Provide an open space not less than 1 inch wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
3. Space anchors as indicated, but not more than 16 inches o.c. vertically and 16 inches o.c. horizontally.

3.12 CONTROL AND EXPANSION JOINTS

A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement. Build in related items as the masonry Work progresses. Provide vertical and horizontal expansion, control and isolation joints in masonry where shown; and if not shown, provide control and isolation joints as recommended by BIA and NCMA and as follows:

1. Interior Partitions: Provide vertical expansion joints 25 foot on center spacing horizontally (maximum).
2. Exterior Cavity Walls:

   a. Field: Provide vertical expansion joints as indicated but no less than 20-ft. on center spacing horizontally.
   b. Corners: Provide vertical expansion joints in both walls at each side of corners, 4 foot on center spacing from corners, unless a different spacing / location of expansion joints adjacent to corners, is specifically indicated. Coordinate masonry expansion joint locations with the Architect in the field if expansion joint locations conflict with windows (joint termination at window) or other architectural elements. The cumulative length of walls at both sides of the corner to the nearest masonry expansion joint in the walls, when added together, shall in no instance exceed 20 foot.

3. At exterior windows only, at concrete masonry unit sills and lintels, provide control joints in alignment with the outside ends of the sill/lintel continuous vertically.
4. Veneer Construction: Provide horizontal pressure relieving joints at each story as recommended by BIA Technical Note 28B current edition. Verify locations of steel shelf angles with Architect/Engineer.

B. Form control joints in concrete masonry using one of the following methods:

1. Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.
2. Install preformed control-joint gaskets designed to fit standard sash block.
3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake out joint for application of sealant.
4. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.

C. Provide horizontal, pressure-relieving joints by either leaving an airspace or inserting a compressible filler of width required for installing sealant and backer rod specified in Section 07 92 00 "Joint Sealants," but not less than 3/8 inch.

1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.

3.13 LINTELS

A. Install steel lintels where indicated.

B. Provide masonry lintels where shown and where openings of more than 24 inches for block-size units are shown without structural steel or other supporting lintels.

1. For hollow concrete masonry unit walls, use specially formed U-shaped lintel units with reinforcement bars placed as shown filled with coarse grout.]

C. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

3.14 FLASHING, WEEP HOLES, AND CAVITY VENTS

A. General: Install embedded flashing and weep holes where indicated and in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, so as to divert water to the exterior. Install cavity vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.

B. Install flashing as follows unless otherwise indicated:

1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, as recommended by flashing manufacturer. Extend flashings through exterior face of masonry and turn down to form drip 1/4 inch in length when finished.
2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 4 inches and through inner wythe to within 1/2 inch of the interior face of wall in exposed masonry. Where interior face of wall is to receive furring or framing, carry flashing completely through inner wythe and turn flashing up approximately 2 inches on interior face. At heads and sills turn up ends not less than 2 inches to form an end dam as recommended by BIA and illustrated in BIA Technical Note 7, Figure 21, November 2017 edition.
3. At junction between flashing, and air and water barrier, lap flashing over air and water barrier, and apply termination bar over top of flashing. Apply compatible silicone sealant at joint between air and water barrier and flashing.
4. At masonry-veneer walls, extend flashing through veneer, across airspace behind veneer, and up face of sheathing at least 8 inches with upper edge tucked under water-resistive barrier / air barrier, lapping at least 4 inches Fasten upper edge of flexible flashing to sheathing through termination bar.

5. At masonry walls intersecting with roofs, provide elastic sheet flashing as indicated on the drawings and herein specified with steps, lapped joints set in compatible adhesive, and end dams. Before proceeding with the masonry Work, notify the Architect. Only after the Architect has witnessed the flashing Work in place shall the Contractor continue the masonry Work.
6. At lintels and shelf angles, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.
7. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.
8. Install flashing to comply with manufacturer's installation requirements.

C. Install single-wythe CMU flashing system in bed joints of CMU walls where indicated to comply with manufacturer's written instructions. Install CMU cell pans with upturned edges located below face shells and webs of CMUs above and with weep spouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell pans at CMU webs and extend from face shell to face shell.

D. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.

E. Install weep holes in exterior wythes and veneers in head joints of first course of masonry immediately above embedded flashing.

1. Use specified weep/cavity vent products installed per manufacturer's instructions, to form weep holes.
2. Space weep holes 24 inches o.c. maximum and closer where indicated.

F. Place cavity drainage material in cavities / airspace behind veneers to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.

G. Install cavity vents in head joints in exterior wythes at spacing indicated. Use specified weep/cavity vent products to form cavity vents.

H. If installing Rubberized-Asphalt Materials, do not install them adjacent to or in contact with flexible vinyl products (PVC). Maintain separation between these two dissimilar materials.

I. Bottom Of Walls: Trim non-metal flashing products in a straight and attractive line and at a consistent distance from the face of masonry at the exterior face of the wall into which they are installed, unless otherwise indicated.

3.15 REINFORCED UNIT MASONRY INSTALLATION

A. General: For nonstructural applications such as wall openings, doors and windows.

B. Refer to Division 4 Section "Reinforced Unit Masonry" for installation requirements applicable to reinforced unit masonry other than opening, door and window jambs, heads and sills.]

C. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.

2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.

D. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

E. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 60 inches.

3.16 INSTALLATION OF EMBEDDED (THROUGH-WALL) FLASHING IN EXISTING MASONRY VENEER OR CAVITY WALLS

A. General: To install continuous flashing in existing masonry walls, remove alternate sections of outer wythe (exterior and exposed to view) in 2 feet to 5 feet lengths, in accordance with BIA and NCMA recommendations. Support and protect remaining masonry that surrounds removal area - maintain any flashing, reinforcement, lintels, and adjoining construction in an undamaged condition. Flashing and drainage material shall be installed in these sections of walls, and the masonry placed back into its original position to match the original pattern of the masonry, if any, unless otherwise indicated on the drawings. Alternately, temporary braces may be installed to allow for longer sections of masonry walls to be accessed. At joints, the flashing shall be lapped a minimum of 6 inches, and shall be completely sealed to function properly. Provide end dams at step-ups in substrates, ledges and other steps. Replace masonry as described for new construction in other paragraphs of this specification and as described below.

B. Installation of Wall Drainage System:

1. Wall drainage device shall be placed vertically on top of the flashing inside the wall cavity where it shall catch and permanently suspend mortar droppings above the level of the weep holes and flashing.

3.17 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage independent testing laboratory inspectors to perform tests and inspections and prepare reports. Payment for initial testing services will be made by the Owner.

B. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense. Comply with requirements for qualification and acceptance of testing laboratory specified in Part 1 for preconstruction testing service.

C. Inspections: Special inspections according to Level B in TMS 402/ACI 530/ASCE 5.

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
3. Place grout only after inspectors have verified proportions of site-prepared grout.

D. Testing Prior to Construction: One set of tests.

E. Testing Sand: During progress of mixing and placing mortar on job, take one sand specimen per 25 cubic yards of mortar and test in accordance with ASTM C117 and ASTM C136.

F. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C 67 for compressive strength.

G. Mortar Test (Property Specification) for Job Site Mortar: For each mix provided, according to ASTM C 780. Test mortar for compressive strength.

H. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019 with minimum compressive strength of 2,500 psi.

I. Prism Test: For each type of construction provided, according to ASTM C 1314 at 7 days and at 28 days.

1. Prism Test: For each type of wall construction indicated, per ASTM C 1314.
2. Fabricate concrete masonry prisms with height to thickness ratio of not less than 1.33 and not more than 3.0.]

3.18 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C. In-Progress Cleaning: Clean unit masonry as work progresses daily, by dry brushing to remove mortar fins and smears before tooling joints. Do not allow excess mortar lumps or smears to harden on the finished surfaces of masonry. Remove green mortar with burlap or dry cloth. Harsh cleaning methods after walls have been erected may mar the surface of the Work. Pressure washing is not allowed for in-progress cleaning.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape. For Acidic Cleaners use protection for adjacent materials which is appropriate and recommended by the cleaner manufacturer.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. If the Detergent Cleaning method is used on the CMU, clean the concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.
6. If a proprietary acidic cleaner is used, apply the cleaner according to manufacturer's written instructions. Prior to using an Acidic Cleaner, verify local air and water pollution prevention requirements and coordinate requirements with work to be performed.
7. Clean stone trim to comply with stone supplier's written instructions.
8. Clean limestone units to comply with recommendations in ILI's "Indiana Limestone Handbook."
9. Do not use high-pressure washing methods (greater than 700 psi as described in BIA Technical Notes No. 20) on single wythe construction, or on concrete masonry incorporating integral or applied water repellents.

E. MARKING OF FIRE RATED AND SMOKE RATED WALLS: All rated walls including, but not limited to elevator shaft walls, corridor partitions, smoke partitions, horizontal exit enclosures, and fire walls must be permanently marked above ceilings as follows:

1. RATED FIRE WALL – x-HR - PROTECT ALL OPENINGS"
2. RATED SHAFT ENCLOSURE WALL– x-HR - PROTECT ALL OPENINGS AGAINST SMOKE AND FIRE
3. RATED FIRE PARTITION WALL – x-HR - PROTECT ALL OPENINGS AGAINST SMOKE AND FIRE
4. Refer to code review sheet for wall locations and hourly ratings. Letters shall be minimum 3 inches in height, 3/8 inch in stroke and painted red, if red is a contrasting color to the wall paint, and in another contrasting color if red does not contrast with the wall color. Provide one time per structural bay (less than or equal to 30 foot wide), or at large bays (more than 30 foot wide), more than once at intervals not more than 30 foot on center. For walls which do not extend for a full bay, provide at least once. At ends of walls, provide markings within 15 foot of the end of each wall. The "x" in "x-HR" represents the hourly rating of the wall – when applying wall markings, utilize the corresponding wall's hourly rating for the "x" in "x-HR" in the wall marking.

3.19 MASONRY WASTE DISPOSAL

A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.

1. Crush masonry waste to less than 4 inches in each dimension.
2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Section 312000 "Earth Moving."
3. Do not dispose of masonry waste as fill within 18 inches of finished grade.

C. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.

D. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 04 20 00

SECTION 04 73 00 – ADHERED MANUFACTURED STONE VENEER

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
   1. Manufactured calcium-silicate stone masonry veneer adhered to cement board backing.
   2. Sealant filled expansion joints in manufactured stone masonry.

B. Related Sections:
   1. Section 04 05 03 - Masonry Mortaring and Grouting: Mortar and grout for adhered masonry veneer.
   2. Section 06 10 53 – Miscellaneous Rough Carpentry: Cement board backer for adhered masonry veneer.
   3. Section 07 90 00 - Joint Protection: Requirements for backer rod and sealant at control and expansion joints.

1.2 REFERENCES

A. American Society for Testing and Materials
   1. ASTM C73-14 – Standard Specification for Calcium Silicate Brick (Sand-Lime Brick).

B. American Concrete Institute:
   1. ACI 530 - Building Code Requirements for Masonry Structures.
   2. ACI 530.1 - Specifications for Masonry Structures.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal requirements.

B. Product Data:
   1. Submit data for manufactured stone masonry and related accessories.
   2. Submit data for cleaning solutions, including detailed description of methods, materials, equipment and site cleanup procedures to be used. Provide with letters of approval from manufacturer regarding the compatibility of proposed use of products together for cleaning purposes.

C. Samples:
   1. Submit four samples of each type of stone masonry to illustrate color, texture and extremes of color range. Furnish additional samples when necessary to fully illustrate the complete range of variable materials.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 Building Code Requirements for Masonry Structures and ACI 530.1 Specification for Masonry Structures.

1.5 QUALIFICATIONS

A. Installer: Company specializing in performing Work of this section with minimum three years' documented experience in installations of similar systems.

1.6 MOCKUP

A. Section 01 40 00 - Quality Requirements: Mockup requirements.

B. Construct mockup minimum 4 ft. x 4 ft. unless detailed otherwise in the drawings, including masonry, mortar and accessories, structural backup, flashings, wall insulation, and weeps.
   1. Structural backup wall to consist of cold formed metal framing and fiber cement backer board.
   2. Include a sealant-filled control joint.

3. Omit masonry above flashing to leave a 12-inch length of the flashing exposed to view.
4. Clean face of mockup with masonry cleaner using methods anticipated for the work.

C. Furnish removable cover to protect completed mock-up from rain or other environmental or site conditions that may alter its appearance.

D. Locate in well-lit area where approved Architect/Engineer.

E. Remove mockup when directed by Architect/Engineer, unless part of permanent construction.

1.7 PRE-INSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Accept masonry units and accessories on site. Inspect for damage.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F.

C. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

1.10 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Coordinate work with work of other trades built into or adjoining masonry work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Manufactured Stone Masonry Units: Thin manufactured stone masonry units pressure-formed and autoclaved, with fine grained texture, simulating natural cut stone in custom shapes and sizes as indicated.
1. Type: Calcium silicate *thin CSMU* masonry units meeting requirements of ASTM C73, Grade SW; solid units that have been pressure-formed and autoclaved to standard and special shapes.
2. Basis of Design: Arriscraft International, www.arriscraft.com
3. Size: as indicated in the drawings.
4. Curing: Cure units to develop concrete quality, and to minimize appearance blemishes including non-uniformity, staining, or surface cracking.
5. Color(s) and Texture(s): As scheduled by the Architect.
6. Mortar Color: As selected by the Architect.
7. Full Mortar Joints required

B. Mortar and Grout: As specified in Section 04 05 03.

2.2 FLASHING MATERIALS

A. Embedded:
1. Stainless Steel: Reference Section 07 62 00 Sheet Metal Flashing and Trim for material requirements.
2. Flexible Flashing: Reference Section 07 11 00 Dampproofing and Flexible Flashing.

B. Exposed
   1. Stainless Steel: Reference Section 07 62 00 Sheet Metal Flashing and Trim for material requirements.
   2. Pre-Coated galvanized steel or aluminum sheet: Not allowed for embedment in masonry.

2.3 ACCESSORIES

A. Expansion Joint Filler: ASTM D1056, Grade 2A1, closed cell neoprene; oversized 50 percent to joint width; self-expanding.

B. Cleaning Solutions:
   1. Job-Mixed Detergent Solution: Solution of 1/2-cup (0.14-L) dry measure tetrasodium polyphosphate and 1/2-cup (0.14-L) dry measure laundry detergent dissolved in 1 gal. (4 L) of water.
   2. Proprietary Acidic Cleaner: Standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry and pigmented mortar surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
   3. Manufacturers:
      a. AHI Supply, www.ahi-supply.com.
      b. Diedrich Technologies, Inc., www.diedrichtechnologies.com.
      c. EaCo Chem, Inc., www.eacochem.com.
      d. ProSoCo, Inc., www.prosoco.com.
      e. Substitutions: Section 01 60 00 - Product Requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: coordination and project conditions.

B. Verify field conditions are acceptable and are ready to receive manufactured stone masonry work.

C. Verify items provided by other sections of work are properly sized and located.

D. Verify built-in items are in proper location, and ready for roughing into masonry work.

3.2 PREPARATION

A. Direct and coordinate placement of metal anchors supplied to other sections.

B. Furnish temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent support.

3.3 INSTALLATION

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimensions.

C. Thin-Set Veneer:
   1. Apply thin veneer units to installed cement board using Type S bonding mortar. Moisten cement board where necessary to prevent desiccation of the bonding mortar. Do not trowel and areal larger than can be completed within 10-minutes.
   2. Butter the back side of thin veneer units with bonding mortar and press into place.
   3. Allow installation to set a minimum of 24-hours before mortaring joints with Type N Portland cement mortar. Tool joint when mortar is thumb-print hard.
   4. Remove excess mortar as work progresses.
   5. Do not shift or tap units after mortar has achieved initial set. Where adjustment is required, remove mortar and replace.
   6. Perform job site cutting of units with motor-driven saws to assure straight, clean,

unchipped edges. Prevent broken masonry unit corners or edges. Where possible, use full-size units without cutting.

7. Install cut units with cut surfaces and edges concealed.
8. Select and arrange exposed units to produce a uniform blend of color shades and textures. Mix units from several pallets or cubes as they are placed.

D. Stain Prevention: As work progresses, prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
   1. Protect base of walls from rain-splashed mud and from mortar splatter by coverings spread on ground and over wall surface.
   2. Protect sills, ledges, and projections from mortar droppings.
   3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
   4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

E. Protection of manufactured stone masonry units: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

3.4 EMBEDDED FLASHINGS

A. Flexible Flashings: Ensure flexible flashing is properly installed at or above shelf angles, , ledges and other obstructions to the downward flow of water in the wall so as to divert such water to the exterior.

B. Sheet Metal Flashings: Coordinate with Division 7 section Sheet Metal Flashing and Trim for sheet metal flashings to be built-in to masonry work. Install metal flashing at metal panel and manufactured stone veneer interface as indicated in the drawings. Only specified stainless steel is approved to be built-in to masonry work unless otherwise specifically approved in writing by the Architect.

C. Lap end joints of flashings minimum 6 inches and seal watertight.

3.5 LOOSE LINTELS

A. Install loose galvanized steel lintels for manufactured stone masonry unis for openings more than 12 inches wide.

B. Maintain minimum 8-inch bearing on each side of opening.

3.6 MISCELLANEOUS

A. Control and Expansion Joints: Continue masonry control and expansion joints through manufactured stone masonry units.

B. Cutting and Fitting:
   1. Cut and fit for chases, pipes, conduit, sleeves, grounds, and other items penetrating masonry. Coordinate with other sections of work to provide correct size, shape, and location.
   2. Obtain Architect/Engineer's approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.7 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Remove excess mortar and mortar smears as work progresses.

C. Replace defective mortar. Match adjacent work.

D. Clean soiled surfaces with cleaning solution.

E. Use non-metallic tools in cleaning operations.

3.8 DEFECTIVE CONSTRUCTION

A. Correct defects appearing in the finished work for a period of one year after the date of Substantial Completion.

B. Defects shall include, but not be limited to, cracking, separating of mortar, cracking, discoloration, or deterioration of masonry units, efflorescence in masonry units or joints, and water penetration through manufactured stone masonry or joints under normal exposure.

3.9 PROTECTION OF FINISHED WORK

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect exposed external corners subject to damage.

C. Protect base of walls from mud and mortar splatter.

D. Protect masonry and other items built into masonry walls from mortar droppings and staining caused by mortar.

E. Protect tops of masonry work with waterproof coverings secured in place without damaging masonry. Provide coverings where masonry is exposed to weather when work is not in progress.

END OF SECTION

SECTION 051200 - STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Structural steel.
2. Field-installed shear connectors.
3. Shop and Field Welding.
4. Galvanizing.
5. Prime Painting.

B. Related Requirements:

1. Section 053100 "Steel Decking" for field installation of shear connectors through deck.

1.3 DEFINITIONS

A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

1.4 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference prior to any work beginning by trade. Time, date and location as determined by a construction manager.

1.6 ACTION SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections. In addition to Division 1 requirements, provide one half-size hard copy (paper) of any drawings submitted in the electronic files.

B. Product Data: For each type of product.

C. Shop drawings prepared under supervision of a Registered Professional Structural Engineer licensed in the state in which the project is constructed, including complete details and schedules for fabrication and assembly of structural steel members, procedures, and diagrams.
   1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
   2. Include embedment Drawings.
   3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
   4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.
   5. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed as work of other Sections.
   6. Original contract documents shall not be reproduced for use as a portion of the Shop Drawings.

D. Delegated-Design Submittal: For structural-steel connections indicated to comply with design loads, include analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Fabricator, professional engineer and testing agency.

B. Welding certificates.

C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

D. Mill test reports for structural steel, including chemical and physical properties.

E. Product Test Reports: For the following:

   1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
   2. Direct-tension indicators.
   3. Tension-control, high-strength, bolt-nut-washer assemblies.
   4. Shear stud connectors.
   5. Shop primers.

F. Survey of existing conditions.

G. Source quality-control reports.

H. Field quality-control and special inspection reports.

1.8 QUALITY ASSURANCE

A. Source Limitations:
   1. Steel shapes shall be domestically milled and manufactured. Foreign milled steel shall not be used.
   2. To the greatest extent possible steel shapes shall be manufactured with recycled material and shall be manufactured locally or within the State of Texas.

B. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD[, or is accredited by the IAS Fabricator Inspection Program for Structural Steel (AC 172).

C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
   1. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests.
   2. If recertification of welders is required, retesting will be Contractor's responsibility.

   3. Welders and welding operators performing work on bottom-flange, demand-critical welds shall pass the supplemental welder qualification testing, as required by AWS D1.8/D1.8M. FCAW-S and FCAW-G shall be considered separate processes for welding personnel qualification.

D. Comply with applicable provisions of the following specifications and documents:

   1. AISC 303.
   2. AISC 341 and AISC 341s1.
   3. AISC 360.
   4. RCSC's "Specification for Structural Joints Using High-Strength Bolts."

E. Correct deficiencies in structural steel work that inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as necessary to reconfirm any non-compliance of original work and to show compliance of corrected work.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site at such intervals to ensure uninterrupted progress of work.

B. Deliver anchor bolts and anchorage devices, which are to be embedded in cast in place concrete or masonry, in ample time to not to delay work.

C. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

   1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

D. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

   1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
   2. Clean and relubricate bolts and nuts that become dry or rusty before use.
   3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Connections: Provide details of connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand loads indicated and comply with other information and restrictions indicated.
   1. Select and complete connections using schematic details indicated and AISC 360 . Details shown are typical; similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at site whenever possible without causing delay in the work.

      a. Promptly notify Architect/Engineer whenever design of members and connections for any portion of structure are not clearly indicated.

   2. Use Load and Resistance Factor Design; data are given at factored-load level.

B. Moment Connections: Type FR, fully restrained.

2.2 STRUCTURAL-STEEL MATERIALS

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than [50] percent.

B. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than the following:

   1. W-Shapes: 60 percent.
   2. Channels and Angles: 60 percent.
   3. Plate and Bar: 25 percent.
   4. Cold-Formed Hollow Structural Sections: 25 percent.
   5. Steel Pipe: 25 percent.
   6. All Other Steel Materials: 25 percent.

C. W-Shapes: ASTM A 992/A 992M, Grade 50.

D. Channels, Angles, M, S-Shapes: ASTM A 36/A 36M.

E. Plate and Bar: ASTM A 36/A 36M

F. Cold-Formed Hollow Structural Sections: ASTM A 500/A 500M, Grade C, structural tubing.

G. Steel Pipe: ASTM A 53/A 53M, Type E or Type S, Grade B.
   1. Finish: Black except where indicated to be galvanized.

H. Welding Electrodes: Comply with AWS requirements.

2.3 BOLTS, CONNECTORS, AND ANCHORS

A. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade C, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers; all with plain finish.
   1. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with plain finish.

B. High-Strength Bolts, Nuts, and Washers: ASTM A 490, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers with plain finish.
   1. Direct-Tension Indicators: ASTM F 959, Type 490, compressible-washer type with plain finish.

C. Zinc-Coated High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers.

   1. Finish: Hot-dip or mechanically deposited zinc coating.
   2. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with mechanically deposited zinc coating finish.

D. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, heavy-hex head assemblies consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers.

   1. Finish: Mechanically deposited zinc coating.

E. Shear Connectors: ASTM A 108, Grades 1015 through 1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.

F. Unheaded Anchor Rods: F 1554, Grade 55

   1. Configuration: Straight, unless otherwise indicated.
   2. Nuts: ASTM A 563 heavy-hex carbon steel.
   3. Plate Washers: ASTM A 36/A 36M carbon steel.
   4. Washers: ASTM F 436, Type 1, hardened carbon steel.
   5. Finish: Plain, unless otherwise indicated on the Contract Documents.

G. Headed Anchor Rods: ASTM F 1554, Grade 55, straight.

   1. Nuts: ASTM A 563 heavy-hex carbon steel.
   2. Plate Washers: ASTM A 36/A 36M carbon steel.
   3. Washers: ASTM F 436, Type 1, hardened carbon steel.
   4. Finish: Plain, unless otherwise indicated on the Contract Documents.

H. Threaded Rods: ASTM A 36/A 36M.

   1. Nuts: ASTM A 563 hex carbon steel.
   2. Washers: ASTM A 36/A 36M carbon steel.
   3. Finish: Plain, unless otherwise indicated on the Contract Documents.

I. Clevises and Turnbuckles: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1035.

J. Eye Bolts and Nuts: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1030.

K. Sleeve Nuts: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1018.

2.4 PRIMER

A. Primer: Exposed structural steel shall comply with Section 099113 "Exterior Painting," Section 099123 "Interior Painting," and Section 099600 "High-Performance Coatings."

B. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

C. Galvanizing Repair Paint: ASTM A 780/A 780M.

2.5 GROUT

A. Grout for use under steel bearing or base plates shall be a high strength, non bleeding, non shrink grout of high durability, as specified in Division 3 section "Non-shrink Grout".

2.6 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.

1. Camber structural-steel members where indicated.
2. Fabricate beams with rolling camber up.
3. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
4. Mark and match-mark materials for field assembly.
5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.

C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.

D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 1, "Solvent Cleaning" and SSPC-SP 2, "Hand Tool Cleaning."

F. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.

1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.7 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened, unless otherwise indicated on the Contract Documents.
2. All bolts shall have threads excluded from the shear plane.
3. Torque wrenches shall be used to tighten high strength fasteners unless prior written approval has been obtained from the Architect/Engineer.
4. If for any reason a high strength bolt has to be removed after being stressed to "Proof Load", it shall not be reused.

B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

2.8 SHOP PRIMING

A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
2. Surfaces to be field welded.
3. Surfaces of high-strength bolted, slip-critical connections.
4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
5. Galvanized surfaces.

B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."
3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."

C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 2 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

1. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

D. Structural steel delivered to the job site showing evidence of rust, mill scale, spatter, slag or flux deposits shall be either returned to the shop for proper cleaning and repriming, or sand blasted clean and reprimed at the job site.

2.9 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.

1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.

B. Minimize distortion and warpage of steel members being galvanized by following recommendations according to ASTM A 384/A 384 M.

1. Do not apply galvanizing using double- dip or progressive processes without Architect's or Engineer's written approval.
2. Galvanize lintels and exposed plates, angles, tubes, shelf angles and rolled shapes attached to structural-steel frame and located in exterior walls.

2.10 SOURCE QUALITY CONTROL

A. General: Materials and fabrication procedures are subject to inspection and tests in mill, shop, and field, conducted by a qualified inspection agency. Such inspections and tests will not relieve Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements.

1. Promptly remove and replace materials or fabricated components that do not comply.

B. Testing Agency: Owner will engage a qualified testing agency to perform shop tests and inspections.
1. Testing agency shall conduct and interpret tests, state in each report whether test specimens comply with requirements, and specifically state any deviations therefrom.

2. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

A. Bolted Connections: Inspect and test shop-bolted connections according to RCSC's "Specification for Structural Joints Using High-Strength Bolts."

1. Verify that gaps of installed Direct Tension Indicators are less than gaps specified in ASTM F 959, Table 2.

B. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M. In addition to visual inspection, provide non-destructive testing as indicated by AISC 360 and the contract documents, whichever is more stringent. Test and inspect field welds according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

1. Liquid Penetrant Inspection: ASTM E 165.
2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
3. Ultrasonic Inspection: ASTM E 164.
4. Radiographic Inspection: ASTM E 94.

C. In addition to visual inspection, test and inspect shop-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:

1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.

D. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Shoring shall have the effect of being continuous down to foundation level unless written approval is obtained from Architect/Engineer to do otherwise. Point loads from shoring shall be distributed to main structural members as necessary to prevent localized overstressing of supporting members. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

B. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete work.

3.3 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

B. Baseplates, Bearing Plates, and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Weld plate washers to top of baseplate.
3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

D. Cranes or other erection machinery shall not be permitted on the foundation slab. The construction shall be scheduled so the structural steel is not erected from the foundation slab.

E. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

F. Splice members only where indicated. Splices will be permitted only with prior written approval of the Architect/Engineer.

G. Do not use thermal cutting during erection for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members that are not under stress, as acceptable to Architect/Engineer. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.

H. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

I. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

J. Erection Bolts: On exposed welded construction, remove erection bolts, fill holes with plug welds, and grind smooth at exposed surfaces.

1. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

3.4 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened, unless otherwise indicated on the Contact Documents.

B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
2. Remove backing bars or runoff tabs where indicated, back gouge, and grind steel smooth.
3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," for mill material.
4. Where fillet welding of members thicker than one half inch is indicated on the drawings, preheating of members shall be accomplished as directed by the Testing Laboratory prior to welding.
5. Where one of the members is embedded in concrete, extreme care shall be taken not to overheat the concrete so as to cause cracking or spalling. Adequate time shall be allowed between multiple passes to allow cooling of the concrete adjacent to the welded members.

3.5 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Verify structural-steel materials and inspect steel frame joint details.
2. Verify weld materials and inspect welds.
3. Verify connection materials and inspect high-strength bolted connections.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Testing agency shall conduct and interpret tests, state in each report whether test specimens comply with requirements, and specifically state any deviations therefrom.

D. Bolted Connections: Inspect and test bolted connections according to RCSC's "Specification for Structural Joints Using High-Strength Bolts."

1. Verify that gaps of installed Direct Tension Indicators are less than gaps specified in ASTM F 959, Table 2.

E. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.

1. In addition to visual inspection, provide non-destructive testing as indicated by AISC 360 and the contract documents, whichever is more stringent. Test and inspect field welds according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

a. Liquid Penetrant Inspection: ASTM E 165.
b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
c. Ultrasonic Inspection: ASTM E 164.
d. Radiographic Inspection: ASTM E 94.

F. In addition to visual inspection, test and inspect field-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:

1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.

3.6 REPAIRS AND PROTECTION

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780/A 780M.

B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.

C. Field Rusting: Special steps shall be taken after erection of steel members to prevent rusting. Any rust appearing on any structural member shall be removed by wire brushing, sand blasting, or other approved techniques. The area shall then be repainted per above. This process shall be continued until the steel member is enclosed in its final waterproof or architectural covering. The Contractor shall notify the Architect/Engineer so that all structural steel may be inspected not more than 36 hours prior to attachment of blocking, sheathing, and/or other covering materials.

END OF SECTION 051200

SECTION 053100 - STEEL DECKING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Roof deck.

B. Related Requirements:

1. Section 051200 "Structural Steel Framing" for shop- and field-welded shear connectors.
2. Section 099113 "Exterior Painting" for repair painting of primed deck and finish painting of deck.
3. Section 099123 "Interior Painting" for repair painting of primed deck and finish painting of deck.

1.3 ACTION SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections. In addition to Division 1 requirements, provide one half-size hard copy (paper) of any drawings submitted in the electronic files.

B. Product Data: For each type of deck, accessory, and product indicated.

C. Shop Drawings:

1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.
2. In addition to Division 1 requirements, provide one half-size hard copy (paper) of any drawings submitted in the electronic files.

1.4 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Product Certificates: For each type of steel deck.

C. Product Test Reports: For tests performed by a qualified testing agency, indicating that each of the following complies with requirements:

1. Power-actuated mechanical fasteners.
2. Acoustical roof deck.

D. Evaluation Reports: For steel deck, from ICC-ES.

E. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."
   1. Welded decking in place is subject to inspection and testing. Expense of removing and replacing portions of decking for testing purposes will be borne by Owner if welds are found to be satisfactory. Remove work found to be defective and replace with new acceptable work.

C. FM Global Listing: Provide steel roof deck evaluated by FM Global and listed in its "Approval Guide, Building Materials" for Class 1 fire rating and Class 1-90 windstorm ratings.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 DECKING MATERIALS

A. Source Limitations:
   1. To the greatest extent possible steel shapes shall be manufactured with recycled material and shall be manufactured locally or within the State of Texas.

2.2 PERFORMANCE REQUIREMENTS

A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

   1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.3 ROOF DECK

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Vulcraft Group, Division of Nucor Corporation; 936-687-4665; www.vulcraft.com
2. New Millennium Building Systems, LLC; 870-722-4272; www.newmill.com
3. Epic Metals Corporation; 877-696-3742; www.epicmetals.com
4. Canam-buildings, a business unit of Canam Group; 866-466-8769; www.canam-construction.com

B. Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 31, and with the following:

1. Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade as Indicated on Contract Documents, shop primed with manufacturer's standard baked-on, rust-inhibitive primer.

    a. Color: Manufacturer's standard.

2. Galvanized-Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade as Indicated on Contract Documents, G60 zinc coating.
3. Galvanized and Shop-Primed Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade as Indicated on Contract Documents, G60 zinc coating; cleaned, pretreated, and primed with manufacturer's standard baked-on, rust-inhibitive primer.

    a. Color: Manufacturer's standard.

4. Deck Profile: As indicated on Contract Documents.
5. Profile Depth: As indicated on Contract Documents.
6. Design Uncoated-Steel Thickness: As indicated on Contract Documents.
7. Span Condition: Triple span or more.
8. Side Laps: As indicated on Contract Documents.

2.4 ACCESSORIES

A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.

D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

F. Pour Stops and Girder Fillers: Steel sheet, minimum yield strength of 33,000 psi, of same material and finish as deck, and of thickness and profile recommended by SDI Publication No. 31 for overhang and slab depth.

G. Metal Cover Plates: Fabricate metal cover plates for end abutting floor deck units of not less than same thickness as decking. Form to match contour of deck units and approximately 6" wide.

H. Metal Closure Strips: Fabricate metal closure strips, for openings between decking and other construction, of not less than 0.045 inch min. (18 gage) sheet steel. Form to provide tight fitting closures at open ends of cells or flutes and sides of decking.

I. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 16 gage thickness, with factory-punched hole of 3/8-inch minimum diameter.

J. Flat Sump Plates: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck. For drains, cut holes in the field.

K. Recessed Sump Pans: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck, with 3-inch- wide flanges and [level] [sloped] recessed pans of 1-1/2-inch minimum depth. For drains, cut holes in the field.

L. Galvanizing Repair Paint: ASTM A 780/A 780M.

M. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.

B. Locate deck bundles to prevent overloading of supporting members.

C. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

1. Maximum vertical dimension between deck units at a support shall be 1/16 inch.

2. Align cellular deck panels over full length of cell runs and align cells at ends of abutting panels.

D. Place deck panels flat and square, secured to adjacent framing with top flange having no warping in excess of 1/16 inch across any three adjacent flanges.

E. Do not place deck units on concrete supporting structure until concrete has cured and is dry.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work. Coordinate reinforcing requirements of openings in

first paragraph below with applicable Sections. Reinforce openings as indicated on the contract documents, and not less than:

1. Reinforce steel deck openings from 6 to 18 inches in size with 2x2x1/4 inch steel angles. Place angles perpendicular to flutes; extend a minimum of two flutes beyond each side of opening and fusion weld to deck at each flute.

H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

I. Fastening Deck Units: The top flanges of the beams and the steel deck shall be free of paint, water, ice, oil, rust, or any other material which might interfere with the welding process.

J. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

3.3 ROOF-DECK INSTALLATION

A. Install temporary shoring before placing deck panels if required to meet deflection limitations.

B. Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter that is not less than 1-1/2 inches long, and as follows:

1. Weld Diameter: As Indicated on the Contract Documents.
2. Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds per deck unit at each support. Space welds as indicated on Contract Documents.
3. Weld Washers: Install weld washers at each weld location where deck thickness is less than 0.028 inches.

C. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of one-half of the span or 36 inches, and as follows:

1. Mechanically fasten with self-drilling, No. 10 diameter or larger, length as required, carbon-steel screws.
2. For decks with positive registering, interlocking male/female type side laps, join by button punching.

D. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches, with end joints as follows:

1. End Joints: Lapped 2 inches minimum.

E. Roof Sump Pans and Sump Plates: Install over openings provided in roof deck and mechanically fasten flanges to top of deck. Space mechanical fasteners not more than 12 inches apart with at least one fastener at each corner.

1. Install reinforcing channels or zees in ribs to span between supports and mechanically fasten.

F. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld to substrate to provide a complete deck installation.

1. Weld cover plates at changes in direction of roof-deck panels unless otherwise indicated.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Field welds will be subject to inspection.

C. Prepare test and inspection reports.

3.5 PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780/A 780M and manufacturer's written instructions.

B. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on both surfaces of prime-painted deck immediately after installation and apply repair paint.

1. Apply repair paint, of same color as adjacent shop-primed deck, to bottom surfaces of deck exposed to view.

END OF SECTION 053100

SECTION 05 40 00 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Load-bearing wall framing.
2. Exterior non-load-bearing wall framing.
3. Interior non-load-bearing wall framing exceeding height limitations of standard, nonstructural metal framing.
4. Roof rafter framing.
5. Ceiling joist framing.
6. Soffit framing.

B. Related Requirements:

1. Section 055000 "Metal Fabrications" for miscellaneous steel shapes, masonry shelf angles, and connections used with cold-formed metal framing.
2. Section 061053 "Miscellaneous Rough Carpentry" for subflooring, wall sheathing, or roof sheathing using wood-based structural-use panels, particleboard, fibrous-felted board, and foam-plastic sheathing.
3. Section 092216 "Gypsum Board Assemblies" for standard, interior non-load-bearing, metal-stud framing, with height limitations and ceiling-suspension assemblies.

1.3 DEFINITIONS

A. Uncoated Steel Design Thickness: Minimum uncoated thickness of cold-formed framing delivered to the Project site shall be not less than 95 percent of the indicated thickness used in the cold-formed framing design. Lesser thicknesses shall be permitted at bends due to cold forming. Where decimal thicknesses of framing are not indicated, the thicknesses in “gages” and “mils” shall be provided in conformance with the thicknesses indicated in the Steel Stud Manufacturers Association.

B. Producer: Entity that produces steel sheet coil fabricated into cold-formed members.

C. Engineer of Record: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing cold formed metal framing engineering services and is specifically hired to do so.

D. Engineering Services: Services performed by the Engineer of record for installations of cold-formed metal framing for this Project.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site prior to commencing the Work.
1. Require attendance of parties directly affecting the Work of the section. The Engineer of Record shall be an attendee of the Preinstallation Conference. If the Engineer of Record is not able to attend the scheduled Preinstallation Conference, the conference shall be rescheduled as many times as necessary, until the Engineer of Record is able to attend the conference.
2. Review conditions of installation, installation drawings, procedures and coordination with related work.
3. Approved Cold-Formed Metal Framing shop drawings shall be reviewed at the Preinstallation Conference with the Engineer of Record present for the review.
4. Review required inspecting, testing, and certifying procedures.

5. The Owner's Materials Testing Lab shall attend the Preinstallation Conference if the Owner has engaged the service of an independent lab for site inspections of CFMF.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.

B. Shop Drawings:
   1. Provide shop/installation drawings prepared by cold-formed metal framing engineer.
   2. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
   3. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

C. Delegated-Design Submittal: For cold-formed steel framing. For cold-formed metal framing, connection design including fasteners, clips, anchors and all other related aspects of the framing design: comply with all applicable model code required design loads. Include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

B. Welding certificates.

C. Product Certificates: For each type of code-compliance certification for studs and tracks.

D. Product Test Reports: For each listed product, for tests performed by a qualified testing agency.
   1. Steel sheet.
   2. Expansion anchors.
   3. Power-actuated anchors.
   4. Mechanical fasteners.
   5. Vertical deflection clips.
   6. Horizontal drift deflection clips
   7. Miscellaneous structural clips and accessories.

E. Evaluation Reports: For nonstandard cold-formed steel framing post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

F. Submittals required as part of component manufacturer's and installer's Quality Control Program(s) that include material control procedures, inspection procedures, and nonconformance procedures.

G. Component manufacturer's and installer's Quality Control Inspector qualifications.

H. Certificates of Compliance: Certificate from Professional Structural Engineer responsible for system design that system was designed in accordance with Contract Documents requirements, applicable Building Code, and generally accepted engineering practices.

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Installer Qualifications: An experienced installer who has completed cold-formed metal framing similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
   1. The installer shall establish and maintain quality control procedures and perform inspections to ensure that the work is in accordance with AISI referenced documents and Contract Documents.

C. Engineer of Record:
   1. Engage a qualified professional Engineer to prepare design calculations, Shop Drawings, and other structural data as required.
   2. The Engineer of Record shall perform two (2) site inspections during installation and one (1) site inspection at completion of cold-formed metal framing.
   3. The Engineer of Record shall provide reports, including any nonconformance, issued to the Construction Manager, Owner, and Architect/Engineer within 48 hours of inspection.

D. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.

E. Welding Qualifications: Qualify procedures and personnel according to the following:
   1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
   2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

F. AISI Specifications and Standards:
   1. Comply with AISI documents as referenced standards in the applicable version of the International Building Code for this project.
   2. Comply with AISI S202-15 "Code of Standard Practice for Cold-formed Steel Structural Framing".
   3. Comply with AISI S240-15 "North American Standard for Cold-Formed Steel Structural Framing", including Section D Quality Control and Quality Assurance.

1.8 DELIVERY, STORAGE AND HANDLING

A. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling in accordance with AISI's "Code of Standard Practice".

B. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation in accordance with AISI's "Code of Standard Practice".

C. The contractor shall verify that the framing materials delivered meet the requirements of the contract, construction documents, and submittals.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design cold-formed steel framing.

B. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated. The size of framing members indicated in the drawings, are minimum sizes – provide the indicated sizes, or larger sizes where structural engineering dictates larger sizes are required. Where larger sizes of studs, tighter spacing of studs or more studs are indicated by the Structural Engineer preparing the buildings framing design, provide these material increases to the job, at no additional cost of the Owner. In some instances, the stud sizes indicated may be larger than engineering analysis dictates are necessary - heavier indicated stud sizes may have been chosen, and subsequently indicated in order to support, or otherwise accommodate other building systems which require heavier stud gages than basic structural engineering (framing design to meet the Building Code) dictates – DO NOT DOWN-SIZE THE STUD SIZES INDICATED.
   1. Design Loads: As indicated on Drawings
   2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:

      a. Exterior Load-Bearing Wall Framing used behind masonry veneer: Horizontal deflection of 1/600 of the wall height.
      b. Exterior Load-Bearing Wall Framing not used behind masonry veneer: Horizontal deflection of 1/360 of the wall height.
      c. Exterior Non-Load-Bearing Framing used behind masonry veneer: Horizontal deflection of 1/600 of the wall height.

d. Exterior Non-Load-Bearing Framing not used behind masonry veneer: Horizontal deflection of 1/360 of the wall height.
e. Interior Non-Load-Bearing Framing: Horizontal deflection of 1/360 of the wall height under a horizontal load of 5 lbf/sq. ft.
f. Roof Rafter Framing: Vertical deflection of 1/360 of the horizontally projected span for live loads.
g. Ceiling Joist Framing: Vertical deflection of 1/360 of the span for live loads and 1/240 for total loads of the span.

3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.

4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
   a. Upward and downward movement of 1-1/2 inches.

5. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

C. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:
   1. Floor and Roof Systems: AISI S210.
   2. Wall Studs: AISI S211.
   3. Headers: AISI S212.
   4. Lateral Design: AISI S213.
   5. Truss Design: AISI S214.

D. Design framing installed behind exterior ceramic tile walls to comply with ANSI A108.11-4.0-4.3 requirements for framing.

E. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
   1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency acceptable to authorities having jurisdiction.

2.2 COLD-FORMED STEEL FRAMING MATERIALS

A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating designation as follows:
   1. Grade: As required by structural performance.
   2. Coating: G60 (Z180) unless otherwise indicated, G90 (Z275) at masonry curtain-wall framing.

B. Steel Sheet for Vertical Deflection Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
   1. Grade: As required by structural performance.
   2. Coating: G60 (Z180) unless otherwise indicated, G90 (Z275) at masonry curtain-wall framing.

2.3 LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: 0.0428 inch.
   2. Flange Width: 1-5/8 inches, minimum.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with straight flanges, and as follows:
   1. Minimum Base-Metal Thickness: Matching steel studs.
   2. Flange Width: 1-1/4 inches.

C. Steel Box or Back-to-Back Headers: Manufacturer's standard C-shapes used to form header beams, of web depths indicated, unpunched, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: 0.0428 inch.
   2. Flange Width: 1-5/8 inches, minimum.

D. Steel Single- or Double-L Headers: Manufacturer's standard L-shapes used to form header beams, of web depths indicated, and as follows:
   1. Minimum Base-Metal Thickness: 0.0428 inch.
   2. Top Flange Width: 1-5/8 inches, minimum.

2.4 EXTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: 0.0428 inch.
   2. Flange Width: 1-5/8 inches, minimum.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: Matching steel studs.
   2. Flange Width: 1-1/4 inches, minimum.

C. Vertical Deflection Clips: Manufacturer's standard bypass clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web to permit frictionless vertical movement, 68 mils (1.72 mm) minimum thickness, size as required by structural design calculations.
   1. Basis-of-Design: VertiClip, The Steel Network, Inc. 888-474-4876 www.steelnetwork.com
   2. Manufacturers: Subject to compliance with requirements, provide the named product, or a comparable product by other manufacturer.

D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:
   1. Minimum Base-Metal Thickness: 0.0538 inch.
   2. Flange Width: As required to accommodate upward or downward deflection of primary structure.

E. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

2.5 INTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: 0.0428 inch.
   2. Flange Width: 1-5/8 inches, minimum.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: Matching steel studs.
   2. Flange Width: 1-1/4 inches, minimum.

C. Vertical Deflection Clips: Manufacturer's standard head clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web to permit frictionless vertical movement, 68 mils (1.72 mm) minimum thickness, size as required by structural design calculations.
   1. Basis-of-Design: VertiClip, The Steel Network, Inc. 888-474-4876 www.steelnetwork.com
   2. Manufacturers: Subject to compliance with requirements, provide the named product, or a comparable product by other manufacturer.

D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:
   1. Minimum Base-Metal Thickness: 0.0538 inch.
   2. Flange Width: As required to accommodate upward or downward deflection of primary structure.

E. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

2.6 ROOF-RAFTER FRAMING

A. Steel Rafters: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: 0.0428 inch.
   2. Flange Width: 1-5/8 inches, minimum.

2.7 CEILING JOIST FRAMING

A. Steel Ceiling Joists: Manufacturer's standard C-shaped steel sections, of web depths indicated, punched with standard holes, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: 0.0428 inch.
   2. Flange Width: 1-5/8 inches, minimum.

B. Connector Devices: For transfer of loads from ceiling joist framing members to supporting structure, hanger type and size as required by structural design calculations. ASTM A 653/A 653M, structural steel, zinc coated.
   1. Grade: As required by structural performance.
   2. Coating: G90 (Z275).
   3. Basis-of-Design: StiffClip, The Steel Network, Inc. 888-474-4876 www.steelnetwork.com
   4. Manufacturers: Subject to compliance with requirements, provide the named product, or a comparable product by other manufacturer.]

2.8 SOFFIT FRAMING

A. Exterior Soffit Frame: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: 0.0428 inch.
   2. Flange Width: 1-5/8 inches, minimum.

2.9 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories from ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated steel sheet, of same grade and coating designation used for framing members, with a minimum yield strength of 33,000 psi. Where any of the framing's minimum yield strength is greater than 33,000 psi, i.e. 50,000 psi, accessory minimum yield strength shall be match the framings minimum yield strength.

B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:

   1. Supplementary framing.
   2. Bracing, bridging, and solid blocking.
   3. Web stiffeners.
   4. Anchor clips.
   5. End clips.
   6. Foundation clips.
   7. Gusset plates.
   8. Stud kickers and knee braces.
   9. Joist hangers and end closures.

10. Hole-reinforcing plates.
11. Backer plates.

2.10 ANCHORS, CLIPS, AND FASTENERS

A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.

B. Anchor Bolts: ASTM F 1554, Grade 36, threaded carbon-steel bolts, carbon-steel nuts, and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.

C. Post-Installed Anchors: Fastener systems with bolts of same basic metal as fastened metal, if visible, unless otherwise indicated; with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC58 at masonry walls or ICC-ES AC308 at concrete walls as appropriate for the substrate.
   1. Uses: Securing cold-formed steel framing to structure.
   2. Type: Adhesive anchor.
   3. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, unless otherwise indicated.
   4. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594 (ASTM F 836M).

D. Power-Actuated Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

E. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
   1. Head Type: Low-profile head beneath sheathing; manufacturer's standard elsewhere.

F. Welding Electrodes: Comply with AWS standards.

2.11 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: ASTM A 780/A 780M, MIL-P-21035B, or SSPC-Paint 20.

B. Nonmetallic, Nonshrink Grout: Factory-packaged, nonmetallic, noncorrosive, nonstaining grout, complying with ASTM C 1107/C 1107M, and with a fluid consistency and 30-minute working time.

C. Shims: Load-bearing, high-density, multimonomer, nonleaching plastic; or cold-formed steel of same grade and metallic coating as framing members supported by shims.

D. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.

2.12 FABRICATION

A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, Engineer's shop/installation drawings, manufacturer's written instructions, and requirements in this Section.
   1. Fabricate framing assemblies using jigs or templates.
   2. Cut framing members by sawing or shearing; do not torch cut.
   3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
      a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
      b. Locate mechanical fasteners and install according to Shop Drawings, with screws penetrating joined members by no fewer than three exposed screw threads.

4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.

B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies by means that prevent damage or permanent distortion.

C. Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable variation of 1/8 inch in 10 feet and as follows:
1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, conditions, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.

B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that required to obtain fire-resistance ratings indicated. Protect remaining fire-resistive materials from damage.

C. Grout bearing surfaces uniform and level to ensure full contact of bearing flanges or track webs on supporting concrete or masonry construction.

D. Install load-bearing shims or grout between the underside of load-bearing wall bottom track and the top of foundation wall or slab at locations with a gap larger than 1/4 inch to ensure a uniform bearing surface on supporting concrete or masonry construction.

E. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.

B. Install cold-formed steel framing according to AISI S200, AISI S202, Engineer's shop/installation drawings, and manufacturer's written instructions unless more stringent requirements are indicated.

C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.
   1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch.

D. Provide supplementary framing, blocking, and bracing where metal framing systems are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, metal roof, wall, and soffit panels, and similar work requiring attachment. Where type of supplementary support is not otherwise indicated, comply with cold- formed metal framing manufacturer's recommendations and industry standards in each case, considering weight or loading resulting from item supported.

E. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.
   1. Cut framing members by sawing or shearing; do not torch cut.
   2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
      a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
      b. Locate mechanical fasteners, install according to Shop Drawings, and comply with requirements for spacing, edge distances, and screw penetration.

F. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

G. Install temporary bracing and supports to secure framing and support loads equal to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

H. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.

I. Install insulation, specified in Section 072100 "Thermal Insulation," in framing-assembly members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.

J. Fasten hole-reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.

3.4 LOAD-BEARING WALL INSTALLATION

A. Install continuous top and bottom tracks sized to match studs. Align tracks accurately and securely anchor at corners and ends, and at spacings as follows:
   1. Anchor Spacing: As shown on Shop Drawings.

B. Squarely seat studs against top and bottom tracks, with gap not exceeding 1/8 inch between the end of wall-framing member and the web of track. Fasten both flanges of studs to top and bottom tracks. Space studs as follows:
   1. Stud Spacing: As indicated on Drawings.

C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar configurations.

D. Align studs vertically where floor framing interrupts wall-framing continuity. Where studs cannot be aligned, continuously reinforce track to transfer loads.

E. Align floor and roof framing over studs according to AISI S200, Section C1. Where framing cannot be aligned, continuously reinforce track to transfer loads.

F. Anchor studs abutting structural columns or walls, including masonry walls, to supporting structure.

G. Install headers over wall openings wider than stud spacing. Locate headers above openings. Fabricate headers of compound shapes indicated or required to transfer load to supporting studs, complete with clip-angle connectors, web stiffeners, or gusset plates.

1. Frame wall openings with not less than a double stud at each jamb of frame. Fasten jamb members together to uniformly distribute loads.
2. Install tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with clip angles or by welding, and space jack studs same as full-height wall studs.

H. Install supplementary framing, blocking, and bracing in stud framing indicated to support fixtures, equipment, services, casework, heavy trim, furnishings, and similar work requiring attachment to framing.
1. If type of supplementary support is not indicated, comply with stud manufacturer's written recommendations and industry standards in each case, considering weight or load resulting from item supported.

I. Install horizontal bridging in stud system, spaced vertically as indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs with a minimum of two screws into each flange of the clip angle for framing members up to 6 inches deep.
2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges, and secure solid blocking to stud webs or flanges.
3. Subject to compliance with authorities having jurisdiction and other requirements, provide either bridging method indicated immediately above.
4. Where Portland Cement Plaster (PCP) is to be installed over walls, and the lath used in the PCP is welded wire lath, the wall bracing shall be provided in accordance with the International Building Code section 2308.9.3 or section 2308.12 regardless of type of studs used in the PCP wall.

J. Install steel sheet diagonal bracing straps to both stud flanges; terminate at and fasten to reinforced top and bottom tracks. Fasten clip-angle connectors to multiple studs at ends of bracing and anchor to structure.

K. Install miscellaneous framing and connections, including supplementary framing, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.5 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

B. Fasten both flanges of studs to bottom track unless otherwise indicated. Space studs as follows:
1. Stud Spacing: As indicated on Shop Drawings.

C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.

D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.

1. Install single deep-leg deflection tracks and anchor to building structure.
2. Connect vertical deflection clips to bypassing studs and anchor to building structure.
3. Connect drift clips to cold-formed steel framing and anchor to building structure.

E. At exterior walls where walls are adjacent to the primary building structure, connect vertical deflection clips with slip capability, to the studs and anchor the clips to the primary building

structure. The connection at the stud is to allow vertical movement only, not horizontal movement. Tighten connection nuts for vertical movement only. Deflection clips shall have vertical slot connection holes for vertical movement. Locate the slots adjacent to the stud, not at the primary building structure. The slip fasteners at the studs shall allow vertical movement without the fastener being able to disconnect from and fall from the framing studs. Slip connection shall be with bolts, nuts and washers unless the framing manufacturer has other recommendations that are acceptable to the Architect – submit designs in shop drawings. If framing manufacturer does not have other permanent fastening options that are acceptable to the Architect, deform the bolt threads after the nuts are in place to create a permanent fastener installation.

F. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
   1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
   2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
   3. Subject to compliance with authorities having jurisdiction and other requirements, provide either bridging method indicated immediately above.
   4. Where Portland Cement Plaster (PCP) is to be installed over walls, and the lath used in the PCP is welded wire lath, the wall bracing shall be provided in accordance with the International Building Code section 2308.9.3 or section 2308.12 regardless of type of studs used in the PCP wall.

G. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches of single deflection track. Install a combination of bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges.
   1. Install solid blocking at every other stud and at additional locations as indicated on shop drawings.

H. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.6 INTERIOR NON-LOAD-BEARING WALL INSTALLATION

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

B. Fasten both flanges of studs tobottom track unless otherwise indicated. Space studs as follows:
   1. Stud Spacing: As indicated on Drawings.

C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
   1. Install single deep-leg deflection tracks and anchor to building structure.
   2. Connect vertical deflection clips to studs and anchor to building structure.
   3. Connect drift clips to cold-formed steel metal framing and anchor to building structure.

E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
   1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
   2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
   3. Subject to compliance with authorities having jurisdiction and other requirements, provide either bridging method indicated immediately above.
   4. Where Portland Cement Plaster (PCP) is to be installed over walls, and the lath used in the PCP is welded wire lath, the wall bracing shall be provided in accordance with the

International Building Code section 2308.9.3 or section 2308.12 regardless of type of studs used in the PCP wall.

F. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches of single deflection track. Install a combination of bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges.
   1. Install solid blocking at every other stud and at additional locations as indicated on shop drawings.

G. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.7 JOIST INSTALLATION

A. Install perimeter joist track sized to match joists. Align and securely anchor or fasten track to supporting structure at corners, ends, and spacings indicated on Shop Drawings.

B. Install joists bearing on supporting frame, level, straight, and plumb; adjust to final position, brace, and reinforce. Fasten joists to both flanges of joist track.
   1. Install joists over supporting frame with a minimum end bearing of 1-1/2 inches.
   2. Reinforce ends and bearing points of joists with web stiffeners, end clips, joist hangers, steel clip angles, or steel-stud sections.

C. Space joists not more than 2 inches from abutting walls, and as follows:
   1. Joist Spacing: As indicated on Drawings.

D. Frame openings with built-up joist headers, consisting of joist and joist track or another combination of connected joists if indicated.

E. Install joist reinforcement at interior supports with single, short length of joist section located directly over interior support, with lapped joists of equal length to joist reinforcement.
   1. Install web stiffeners to transfer axial loads of walls above.

F. Install bridging at intervals indicated on Shop Drawings. Fasten bridging at each joist intersection as follows:
   1. Bridging: Cold-rolled steel channel, welded or mechanically fastened to bottom flange of joists.
   2. Joist-Track Solid Bridging: Joist-track solid blocking of width and thickness indicated, secured to joist webs.
   3. Combination Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and joist-track solid blocking of width and thickness indicated. Fasten flat straps to bottom flange of joists and secure solid blocking to joist webs.
   4. Subject to compliance with authorities having jurisdiction and other requirements, provide any bridging method indicated above.

G. Secure joists to load-bearing interior walls to prevent lateral movement of bottom flange.

H. Install miscellaneous joist framing and connections, including web stiffeners, closure pieces, clip angles, continuous angles, hold-down angles, anchors, and fasteners, to provide a complete and stable joist-framing assembly.

3.8 ERECTION TOLERANCES

A. Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
   1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.9 FIELD QUALITY CONTROL

A. Inspection: Component manufacturer and installer shall inspect the work as required by their Quality Control Program(s) per AISI S240-15.

B. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

C. Field and shop welds will be subject to testing and inspecting.

D. Testing agency will report test results promptly and in writing to Contractor and Architect.

E. Cold-formed steel framing will be considered defective if it does not pass tests and inspections.

F. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.10 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780/A 780M and manufacturer's written instructions.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 0

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes shop fabricated metal items.
   1. Loose lintels.
   2. Bollards.
   3. Interior steel ladders at roof access hatches and elevator pits.
   4. Exterior aluminum ladders at roof height changes.
   5. Structural supports for miscellaneous attachments.
   6. Steel framing and supports for mechanical and electrical equipment.
   7. Other miscellaneous steel items indicated or required for complete installation of indicated work.

B. Related Sections:
   1. Section 03 30 00 - Cast-In-Place Concrete: Execution requirements for embedded anchors and attachments for metal fabrications specified by this section in concrete.
   2. Section 05 12 00 - Structural Steel.
   3. Section 05 21 00 - Steel Joists and Joist Girders.
   4. Section 05 31 13 – Steel Floor Decking.
   5. Section 05 31 23 - Steel Roof Decking.
   6. Section 09 90 00 - Painting and Coating: Field applied paint finish.
   7. Section 10 28 10 – Miscellaneous Specialties: Aluminum roof-to-roof access ladder.
   8. Section 10 82 13 – Exterior Decorative Grilles and Screens.

1.2 REFERENCES

A. ASTM International:
   1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
   2. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
   3. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
   4. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
   5. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
   6. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
   7. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.
   8. ASTM F436 - Standard Specification for Hardened Steel Washers.

B. American Welding Society:
   1. AWS D1.1 - Structural Welding Code - Steel.

C. SSPC: The Society for Protective Coatings:
   1. SSPC Paint 15 - Steel Joist Shop Paint.
   2. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic and Type II - Organic).

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal requirements.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

C. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification

within previous 12 months.

D. Samples: Factory finished 12" x 12" panel for approval by Architect. Sample shall include lazer cut pattern and factory finish. Quality of pattern cutting and finish on approved sample shall be the standard of installed panels.

1.4 QUALIFICATIONS

A. Fabricator Qualifications: A firm experienced in producing metal fabrications similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Accept metal fabrications on site in labeled shipments. Inspect for damage.

C. Protect metal fabrications from damage by exposure to weather.

1.6 FIELD MEASUREMENTS

A. Where metal fabrications are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions. Allow for trimming and fitting.

PART 2 - PRODUCTS

2.1 MATERIALS - STEEL

A. Steel Sections: ASTM A36/A36M.

B. Steel Plate: ASTM A36/A36M.

C. Hollow Structural Sections: ASTM A500, Grade B.

D. Steel Pipe: ASTM A53/A53M, Grade B Schedule 40. .

E. Sheet Steel: ASTM A653/A653M, Grade 33 Structural Quality with galvanized coating.

F. Bolts: ASTM A307; Grade A or B.

G. Nuts: ASTM A563 heavy hex type.

H. Washers: ASTM F436; Type 1.

I. Welding Materials: AWS D1.1; type required for materials being welded.

J. Shop Primer: SSPC Paint 15, or manufacturer's standard primer complying with performance requirements of SSPC Paint 15.

K. Touch-Up Primer: Match shop primer.

L. Touch-Up Primer for Galvanized Surfaces: SSPC Paint 20.

2.2 LOOSE LINTELS

A. Lintels: Steel sections, size and configuration as indicated on Drawings, length to allow 8 inches minimum bearing on both sides of opening.

B. Galvanize loose lintels installed in exterior walls and provide with shop primer ready for field finish painting.

2.3 ANGLE EXTENSIONS FOR WIRE MASONRY ANCHORS

A. Fabricate angle extension for wire masonry anchors from steel angles, 2" x 2" x 1/8". Provide a 1/4" x 1" slot in the vertical leg of the angle, 1" back from the end for receiving the 3/16" wire masonry anchors specified in Division 4 Section "Unit Masonry". Fabricate in lengths such that the overall length of the angle extension is equal to the distance from the web of column or beam to 1" from the back of the masonry wall. Reference detail in drawings for additional clarification.

B. Weld the angle extension, with a continuous fillet weld, at 16" o.c. horizontally at beam webs and vertically at column webs where support of masonry walls is indicated.

2.4 BOLLARDS

A. Fabricate bollards from Schedule 80 steel pipe, size as indicated.

B. Standard Bollards: Fill with 3,000 psi concrete as specified in Section 03 30 00, with crowned cap.

C. Removable Bollards: Fabricate sleeves from Schedule 40 steel pipe or ¼-inch wall thickness steel tubing with an ID 1/4 inch less than OD of bollards. Match drill sleeve and bollard for 1/2-inch steel machine bolt.
1. Cap removable bollards with 1/4-inch minimum steel plate. Do not fill with concrete.

2.5 FIXED STEEL LADDERS: Typical at roof hatches and elevator pits – interior locations.

A. General: Fabricate ladders for locations shown, with dimensions, spacings, details, and anchorages as indicated.
1. Steel ladders shall be all-welded construction unless indicated otherwise.
2. Comply with ANSI A14.3 for fixed ladders.
3. Provide hot-dip galvanizing after fabrication for exterior ladders.
4. For elevator pit ladders, comply with ASME A17.1.

B. Side Rails: Continuous 1/2 x 2-1/2 inch flat bars with eased edges, spaced 18 inches apart.

C. Bar Rungs: 3/4-inch round steel reinforcing bars, spaced 12 inches o.c. vertically.
1. Fit bar rungs level along centerline of side rails; plug-weld and grind smooth on outer rail faces.
2. Finish:
a. Elevator Pit Ladder: Hot dip galvanized after fabrication, no paint.
b. Roof Hatch Ladder: Hot dip galvanized after fabrication, no paint.

D. Support each ladder side rail at top and bottom and not more than 60-inches o.c. minimum 1/2 x 2 x 12 inch steel bent plate brackets welded or bolted to side rails and fixed to masonry walls with 1/2- in x 2-in stainless steel expansion anchors.

1. Size brackets larger or spaced closer as required to support design loads specified in ANSI A14.3. Brackets finished same as ladder.

2.6 FIXED ALUMINUM LADDERS: Typical at changes in roof heights – exterior locations.

A. General: Fabricate ladders for locations shown, with dimensions, spacings, details, and anchorages as indicated.
1. Aluminum ladders shall be all-welded construction unless indicated otherwise.
2. Comply with ANSI A14.3 for fixed ladders.
3. Provide mill-finish for aluminum ladders and mounting brackets. No paint.

B. Side Rails: Continuous 3/8 x 2-1/2 x 2-1/2 inch structural aluminum angles or 1/4 x 1-1/2 x 3 inch structural aluminum tubing spaced 18 inches apart unless indicated otherwise. All

corners and edges eased.

C. Rungs: 3/16 x 1-inch square structural aluminum tubes, spaced 12 inches o.c. vertically unless indicated otherwise.
   1. Fit rungs level between side rails and fully weld; and grind smooth.

D. Support each ladder side rail at top and bottom and not more than 48-inches o.c. with minimum 3/8 x 2 x 12 inch structural aluminum angles welded or bolted to side rails and fixed to masonry walls with 1/2- in x 2-in stainless steel expansion anchors.
   1. Size brackets larger or spaced closer as required to support design loads specified in ANSI A14.3. Brackets finished same as ladder.

2.7 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports that are not a part of structural steel framework as necessary to complete the Work.

B. Fabricate units from structural steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
   1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors 1-1/4 inches wide by 1/4 inch thick by 8 inches long at 24 inches o.c., unless otherwise indicated.
   2. Furnish inserts if units must be installed after concrete is placed.

C. Operable Partitions: Fabricate supports for operable partitions of continuous steel shapes of sizes indicated, with attached bearing plates, anchors, and braces. Drill bottom flanges of beams to receive partition track hanger rods; locate holes where indicated on operable partition shop drawings.

2.8 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Continuously seal joined members by continuous welds.

D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.9 FACTORY APPLIED FINISHES - STEEL

A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

B. Galvanizing: Hot-dip galvanize all items exposed to the exterior, ASTM A123/A123M, minimum 2.0 oz/sq ft coating thickness.
   1. Galvanize after fabrication.
   2. After galvanizing, fill vent holes and grind smooth
   3. Do not apply galvanizing using double- dip or progressive processes without Architect's or Engineer's written approval.
   4. Galvanizing for Fasteners, Connectors, and Anchors:
      a. Hot-Dipped Galvanizing: ASTM A153/A153M.
      b. Mechanical Galvanizing: ASTM B695; Class 50 minimum.

C. Prime paint items with one coat except where galvanizing is specified.

1. Do not prime surfaces in direct contact with concrete or where field welding is required.

2.10 FABRICATION TOLERANCES

A. Squareness: 1/8-inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8-inch in 48 inches.

E. Maximum Deviation from Plane: 1/16 inch in 48 inches.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify field conditions are acceptable and are ready to receive Work.

3.2 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply steel items required to be cast into concrete or embedded in masonry with setting templates to appropriate sections.

3.3 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Make provisions for erection stresses. Install temporary bracing to maintain alignment, until permanent bracing and attachments are installed.

C. Field weld components indicated on shop drawings.

D. Perform field welding in accordance with AWS D1.1.

E. Obtain approval of Architect/Engineer prior to site cutting or making adjustments not scheduled.

F. After erection, touch up welds, abrasions, and damaged finishes with prime paint or galvanizing repair paint to match shop finishes.

3.4 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation from Plumb: 1/4 inch per story or for every 12 ft in height whichever is greater, non-cumulative.

C. Maximum Offset from Alignment: 1/4 inch.

D. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 06 10 53 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
1. Roof curbs, cants, and perimeter nailers.
2. Wood siding.
3. Blocking in wall and roof openings.
4. Cement board backing for exterior adhered thin-masonry veneer applications.
5. Cement board backing for interior ceramic tile wet walls.
6. Plywood sheathing indicated at parapets.
7. Wood furring and grounds.
8. Concealed wood blocking for support of toilet accessories, wall cabinets, handrails, and other wall-mounted items.
9. Telephone and electrical panel back boards.
10. Fire retardant and preservative treatment of wood.

B. Related Sections:
1. Section 04 73 00 – Adhered Manufactured Stone Veneer.
2. Section 06 20 23 – Finish Carpentry and Millwork: Blocking.
3. Section 10 11 00 – Visual Display Surfaces: Blocking.
4. Section 10 21 13 – Phenolic Core Toilet Partitions: Blocking.
5. Section 10 28 00 – Toilet and Shower Accessories: Blocking.
6. Section 12 32 16 - Manufactured Plastic Laminate-Clad Casework : Blocking.

1.2 REFERENCES

A. American Forest and Paper Association:
1. AF&PA - National Design Specifications for Wood Construction.

B. American Wood-Preservers' Association:
1. AWPA U1 - User Specification for Treated Wood.

C. ASTM International:
1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

D. Southern Pine Inspection Bureau:
1. SPIB - Standard Grading Rules for Southern Pine Lumber.

E. U.S. Department of Commerce National Institute of Standards and Technology:
1. DOC PS 1 - Construction and Industrial Plywood.
2. DOC PS 2 - Performance Standard for Wood-Based Structural-Use Panels.
3. DOC PS 20 - American Softwood Lumber Standard.

F. West Coast Lumber Inspection Bureau:
1. WCLIB - Standard Grading Rules for West Coast Lumber.

G. Western Wood Products Association:
1. WWPA G-5 - Western Lumber Grading Rules.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit technical data on wood preservative and fire-retardant treatment materials and application instructions.

C. Shop Drawings: Submit coordinated shop drawings indicating specific locations of preservative treated wood and specific locations of fire-retardant treated wood. Interior and exterior wood blocking and construction shall meet requirements of governing agencies.

1.2 QUALITY ASSURANCE

'A. Perform Work in accordance with the following:
1. Lumber Grading Agency: Certified by DOC PS 20.
2. Plywood Grading Agency: Certified by EWA - The Engineered Wood Association.
3. Lumber: DOC PS 20.
4. Plywood: DOC PS 1 or DOC PS 2.

B. Surface Burning Characteristics: Fire Retardant Treated Materials: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

D. Apply label from agency approved by authority having jurisdiction to identify each preservative treated and fire-retardant treated material.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Lumber Grading Rules: AF&PA, SPIB, WCLIB, WWPA G-5.

B. Miscellaneous Framing: Southern pine, mixed southern pine or spruce-pine-fir species; 19 percent maximum moisture content.

C. Plywood: APA/EWA; southern pine or Douglas Fir species; 1/2 inch thick, minimum.

2.2 ACCESSORIES

A. Fasteners and Anchors:
1. Fasteners: Hot dipped galvanized steel for high humidity and treated wood locations, unfinished or cadmium plated steel elsewhere.
2. Nails and Staples: ASTM F1667.
3. Anchors:
a. Toggle bolt type for anchorage to hollow masonry.
b. Expansion shield and lag bolt type for anchorage to solid masonry or concrete.
c. Bolt or ballistic fastener for anchorages to steel.

2.3 FACTORY WOOD TREATMENT

A. Preservative Treatment: AWPA U1, Use Category UC2; using inorganic boron (SBX) preservative with 0.25 percent retainage.

B. Fire Retardant Treatment: AWPA U1, Use Category UCFA for interior use, and UCFB for exterior use; chemically treated and pressure impregnated.

C. Moisture Content after Treatment:
1. Lumber: Maximum 19 percent.
2. Plywood: Maximum 15 percent.

2.4 FIELD WOOD TREATMENT

A. Preservative Treatment: Brush applied inorganic boron solution, with minimum concentration of 1.5 percent.

B. Touch-up cut wood ends.

2.5 CEMENT BOARD at THIN MASONRY APPLICATIONS

A. Manufacturers:
1. National Gypsum Company; *PermaBase* Cement Board.
2. USG Company; *DUROCK* Cement Board.

B. Cementitious Backer Board: ASTM C1325; High density, glass fiber reinforced, 5/8-inch thick; coated glass fiber tape for joints and corners.
1. Membrane: Install #15 asphalt saturated felt directly behind cementitious backer board,

overlapping joints 4"-6":

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify substrate conditions are ready to receive blocking, curbing and framing.

3.2 PREPARATION

A. Coordinate placement of blocking, curbing and framing items.

3.3 INSTALLATION

A. Set members level and plumb, in correct position.

B. Place horizontal members, crown side up.

C. Construct curb members of solid wood sections.

D. Curb roof openings except where prefabricated curbs are provided. Form corners by alternating lapping side members.

E. Coordinate curb installation with installation of decking and support of deck openings.

F. Secure sheathing to framing members with ends over firm bearing and staggered.

G. Install plywood parapet sheathing using 1/2 inch thick plywood. Space panels 1/8 inch apart at edges and ends.

H. Install telephone and electrical panel back boards using 3/4 inch thick plywood. Size back boards 12 inches beyond size of electrical and telephone panel, or as indicated on Drawings.

I. Install cement board backing using self-drilling screws into each metal stud at 8"-oc vertically. Gap panels 1/8-inch apart at edges and ends.
1. Exterior: Use stainless steel screws.
2. Interior: Use coated or stainless steel self-drilling screws designed for countersinking screw heads in cement board.

3.4 SCHEDULE OF WOOD TREATMENT

A. The term "Treated" as may be used on the drawings for interior or exterior wood products does not distinguish between Fire-Retardant Treated or Preservative Treated. Confirm with the Architect where conditions as scheduled below appear in conflict with drawing notations.

B. Confirm specific requirements of local governing authorities prior to installation of treated wood products. Where local governing authorities require Fire-Retardant Treatment in lieu of Preservative Treatment, the requirements of those authorities shall govern.

C. Schedule

1. Preservative Treatment: Install preservative treated wood in the following locations:
   a. Wood cants, nailers, curbs, equipment support bases, blocking, and sheathing built into or above the roof.
   b. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
   c. Wood framing members less than 18 inches above grade.
   d. Wood floor plates installed over concrete slabs that are directly in contact with earth.
   e. All wood framing, blocking, and furring members used in exposed exterior construction, such as decorative wood decks.
   f. Any wood Items specifically indicated on the drawings as preservative treated and not required by local governing authorities to be fire-retardant treated.

2. Fire-Retardant Treatment: Install fire-retardant treated wood in the following locations:
   a. Blocking concealed within walls supporting cabinets, toilet accessories, handrails, and other wall-mounted items need not be fire retardant treated.
   b. Exterior and roof-related wood Items requiring weather protection AND fire-retardant treatment shall receive fire retardant treatment formulated for exterior use in lieu of the preservative treatment. Other items may receive treatment formulated for interior use.
   c. Any wood Items specifically indicated on the drawings as fire-retardant or FR treated.
   d. Any wood items required by local governing authorities as fire-retardant treated.

END OF SECTION

SECTION 06 16 00 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Wall sheathing.
2. Parapet sheathing.
3. Related underlayment.
4. Sheathing joint and penetration treatment.

B. Related Requirements:

1. Section 06 10 00 "Rough Carpentry" for plywood backing panels.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review air-barrier and water-resistant glass-mat gypsum sheathing requirements and installation, special details, transitions, mockups, air-leakage testing, protection, and work scheduling that covers air-barrier and water-resistant glass-mat gypsum sheathing.

1.4 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Include physical properties of treated materials.
3. For fire-retardant treatments, include physical properties of treated plywood both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5516.
4. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
5. For air-barrier and water-resistant glass-mat gypsum sheathing, include manufacturer's technical data and tested physical and performance properties of products.

B. Shop Drawings: For air-barrier and water-resistant glass-mat gypsum sheathing assemblies.

1. Show locations and extent of sheathing, accessories, and assemblies specific to Project conditions.

2. Include details for sheathing joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
3. Include details of interfaces with other materials that form part of air barrier.]

C. Qualification Data: For Installer.

D. Product Certificates: From air-barrier and water-resistant glass-mat gypsum sheathing manufacturer, certifying compatibility of sheathing accessory materials with Project materials that connect to or that come in contact with the sheathing.

E. Product Test Reports: For each air-barrier and water-resistant glass-mat gypsum sheathing assembly, indicating compliance with specified requirements, for tests performed by a qualified testing agency.]

F. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated plywood.
2. Fire-retardant-treated plywood.
3. Air-barrier and water-resistant glass-mat gypsum sheathing.

G. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer of air-barrier and water-resistant glass-mat gypsum sheathing.

1. Installer shall be licensed by ABAA according to ABAA's Quality Assurance Program and shall employ ABAA-certified installers and supervisors on Project.

B. Mockups: Build mockups to set quality standards for materials and execution.

1. Build integrated mockups of exterior wall assembly, minimum 150 sq. ft. incorporating backup wall construction, window, storefront, door frame and sill, ties and other penetrations, and flashing to demonstrate crack and joint treatment and sealing of gaps, terminations, and penetrations of air-barrier sheathing assembly.

a. Coordinate construction of mockups to permit inspection and testing of sheathing before external insulation and cladding are installed.
b. Include junction with roofing membrane, and foundation wall intersection.
c. If Architect determines mockups do not comply with requirements, reconstruct mockups until mockups are approved.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

C. Testing Agency Qualifications:
1. For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.
2. For testing and inspecting agency providing tests and inspections related to air-barrier and water-resistant glass-mat gypsum sheathing: an independent agency, qualified according to ASTM E329 for testing indicated, and certified by Air Barrier Association of America, Inc.

1.6 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Owner will engage a qualified testing agency to perform preconstruction testing on field mockups.

B. Mockup Testing: Air-barrier and water-resistant glass-mat gypsum sheathing assemblies shall comply with performance requirements indicated, as evidenced by reports based on mockup testing by a qualified testing agency.

1. Air-Leakage-Location Testing: Mockups will be tested for evidence of air leakage according to ASTM E1186, chamber pressurization or depressurization with smoke tracers.

2. Notify Architect seven days in advance of the dates and times when mockups will be tested.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: As tested according to ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

B. Air-Barrier and Water-Resistant Glass-Mat Gypsum Sheathing Performance: Air-barrier and water-resistant glass-mat gypsum sheathing assembly, and seals with adjacent construction, shall be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, tie-ins to installed waterproofing and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.

2.2 WOOD PANEL PRODUCTS

A. Emissions: Products shall meet the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.

C. Factory mark panels to indicate compliance with applicable standard.

2.3 PRESERVATIVE-TREATED PLYWOOD

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

C. Application: Treat items indicated on Drawings.

2.4 FIRE-RETARDANT-TREATED PLYWOOD

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Use treatment that does not promote corrosion of metal fasteners.
2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.

C. Kiln-dry material after treatment to a maximum moisture content of 15 percent. Do not use material that is warped or does not comply with requirements for untreated material.

D. Identify fire-retardant-treated plywood with appropriate classification marking of qualified testing agency.

E. Application: Treat plywood indicated on Drawings, and the following:

1. Roof and wall sheathing.
2. Subflooring and underlayment for raised platforms.

2.5 WALL SHEATHING

A. Plywood Sheathing: DOC PS 1, Exterior, Structural I sheathing.

1. Span Rating: Not less than 16/0.
2. Nominal Thickness: Not less than 1/2 inch or greater where indicated.

B. Glass-Mat Gypsum Sheathing: ASTM C 1177/1177M.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. GlasRoc, CertainTeed Corporation 800-233-8990 www.certainteed.com
b. Dens-Glass Gold, Georgia-Pacific 800-225-6119 www.gp.com
c. Securock Glass-Mat Sheathing, USG Corporation 800-950-3839 www.usg.com
d. e²XP™ Wallboard Sheathing, National Gypsum Company 704-365-7300 www.nationalgypsum.com

2. Type and Thickness: Regular, 1/2 inch or 5/8 inch thick, as indicated.
3. Panel Size: Typically 48 by 96 inches.

2.6 PARAPET SHEATHING

A. Plywood Sheathing: DOC PS 1, Exterior, Structural sheathing. Provide factory fire-resistant treatment.

1. Span Rating: Not less than 16/0.
2. Nominal Thickness: Not less than 1/2 inch minimum or greater where indicated.

B. Glass-Mat Gypsum Sheathing: ASTM C 1177/1177M.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. GlasRoc, CertainTeed Corporation 800-233-8990 www.certainteed.com
b. Dens-Glass Gold, Georgia-Pacific 800-225-6119 www.gp.com
c. Securock Glass-Mat Sheathing, USG Corporation 800-950-3839 www.usg.com
d. e²XP™ Wallboard Sheathing, National Gypsum Company 704-365-7300 www.nationalgypsum.com

2. Type and Thickness: Regular, 1/2 inch thick minimum or greater as indicated.
3. Size: 48 by 96 inches (1219 by 2438 mm) for vertical installation.

2.7 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For parapet and wall sheathing fastened into wood, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

2. For roof, parapet and wall sheathing fastened into wood with wood preservative-treated material, provide fasteners of Type 304 stainless steel.

3. For parapet and wall sheathing fastened into Cold-Formed Metal framing or other steel, provide fasteners with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.]

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Screws for Fastening Sheathing to Wood Framing: ASTM C 1002.

E. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

F. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached.

1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C 1002.
2. For steel framing from 0.033 to 0.112 inch thick, use screws that comply with ASTM C 954.

G. Screws for Fastening Composite Nail Base Insulated Roof Sheathing to Metal Roof Deck: Steel drill screws, in type and length recommended by sheathing manufacturer for thickness of sheathing to be attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117. Provide washers or plates if recommended by sheathing manufacturer.

2.8 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

A. Sealant for Glass-Mat Gypsum Sheathing: Elastomeric, medium-modulus, neutral-curing silicone joint sealant compatible with joint substrates formed by gypsum sheathing and other materials, recommended by sheathing manufacturer for application indicated and complying with requirements for elastomeric sealants specified in Section 07 92 00 "Joint Sealants."]

B. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C 834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.

1. Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches wide, 10 by 10 or 10 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.]

C. Provide only sealants that are fully compatible with materials adjacent to the sheathing (such as air barrier material).

2.9 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Wood Framing: Formulation complying with APA AFG-01 and ASTM D 3498 that is approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.

2. ICC-ES evaluation report for fastener.

D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Coordinate wall, parapet and roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:

1. [Combination Subfloor-Underlayment:

a. [Glue and nail to wood framing.]
b. Screw to cold-formed metal framing.
c. Space panels 1/8 inch apart at edges and ends.

2. Subflooring:

a. [Glue and nail to wood framing.]
b. Screw to cold-formed metal framing.
c. Space panels 1/8 apart at edges and ends.]

3. Wall and Parapet Sheathing:
a. Screw to cold-formed metal framing and any wood nailers.
b. Space panels 1/8 inch apart at edges and ends.

3.3 GYPSUM SHEATHING INSTALLATION

A. Erect gypsum sheathing products in accordance with ASTM C1280, horizontally unless in rated assemblies, with edges butted and ends occurring over firm bearing. For rated assemblies, erect gypsum sheathing vertically or horizontally as required to achieve the rating required.

1. Install vertical edges centered over studs. Abut ends and edges with those of adjacent panels. Attach at perimeter and within field of panel to each stud.

2. Space fasteners approximately 8 inches o.c. at each stud, and set back a minimum of 3/8 inch from edges and ends of panels.

B. Comply with GA-253 and with manufacturer's written instructions.

1. [Fasten gypsum sheathing to wood framing with screws.]
2. Fasten gypsum sheathing to cold-formed metal framing with screws.
3. Install panels with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
4. Install panels with a 1/4-inch) gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.

C. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.

D. Seal sheathing joints, openings and holes according to sheathing manufacturer's written instructions minimum, but never less than the following. All tape shall be covered completely by sealant.

1. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

2. Holes and Openings: Seal all other penetrations, openings and holes. Treat small holes less than a 1/4 inch, the same method as the fasteners, making sure to seal the holes. For openings measuring larger than 1/4 inch in any direction, patch the holes by inserting

backer-rod fillers into the holes and by applying sealant over the fillers to close the openings. Protect the hole patches by applying a layer of tape over the already in-place sealant and cover the tape with another layer of sealant.]

3.4 FIELD QUALITY CONTROL

A. ABAA Quality Assurance Program: Perform examinations, preparation, installation, testing, and inspections under ABAA's Quality Assurance Program.

B. Testing and Inspecting Agency: Owner will engage a qualified testing agency to perform tests and inspections.

1. Air-Leakage-Location Testing: Air-barrier sheathing assemblies will be tested for evidence of air leakage according to ASTM E1186, chamber pressurization or depressurization with smoke tracers.

C. Air barriers will be considered defective if they do not pass tests and inspections.

D. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.

E. Prepare test and inspection reports and submit copies to Owner, Architect, and Contractor.

END OF SECTION 06 16 00

SECTION 06 40 23 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. General: Miscellaneous wood or plastic laminate clad millwork items that are not included in Division 12 Sections which cover manufactured casework. This Section includes the following:

1. Custom plastic laminate-clad reception desk.
2. Custom plastic laminate-cabinets and countertops not provided under Section 12 32 16 “Manufactured Plastic Laminate-Faced Casework”
3. Shop finishing of interior woodwork.

B. Related Sections include the following:

1. Division 6 Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.
2. Section 12 32 16 Manufactured Plastic Laminate-Clad Casework.
3. Division 9 Section "Painting and Coating" for any required field finishing of interior architectural woodwork.

C. This Section does not include premanufactured casework. Refer to Division 12 Sections for premanufactured casework requirements. The Casework required to meet the Division 12 specification is distinguished from the custom millwork, specified in this section, by model numbers which correspond to predetermined cabinet designs. Refer to the plans for casework model numbers, if any.
    1. The cabinets specified in, and controlled by, this specification section are not designated by Manufacturer’s model numbers and may or may not be designated by Architectural Woodwork Institute (AWI) unit numbers,
    2. The Manufactured Casework Manufacturers listed in the specification body, may bid the custom cabinets required in this section, subject to compliance with the indicated requirements.

1.3 REFERENCES

A. American Forest and Paper Association:

1. AF&PA - National Design Specifications for Wood Construction.

B. ASTM International:

1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 DEFINITIONS

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items, unless concealed within other construction before woodwork installation.

B. Balanced Construction: To achieve balanced construction panels should be absolutely symmetrical from the centerline, i.e., use materials on either side, which contract or expand, or are moisture permeable, at the same rate.

C. For the purposes of this specification and project:

1. Thermoset Decorative Overlay (TDO): Melamine.
2. High-Pressure Decorative Laminate (HPDL): Plastic Laminate other than Melamine.
3. CLS: Thin Plastic Laminate used exclusively for cabinet liner or other "hidden from view" applications, unless otherwise indicated.

1.5 SUBMITTALS

A. Comply with Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: For each type of product indicated, including cabinet hardware and accessories, and finishing materials and processes.
   a. Including plywood, high-pressure decorative laminate, thermoset decorative overlay, cabinet hardware, accessories, finishing materials, and processes.

C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components. Comply with AWS Section 1 – Submittals, and, in addition, the following:

1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
2. Indicate wood type and finish of each piece of construction.
3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.
4. Show shelf to cabinet joint details of bottom, intermediate, and top fixed shelves.

D. Samples for Verification: Submit three representative samples of each finish carpentry and millwork item, illustrating wood grain, edge and corner condition(s), and finish. Comply with AWS Section 1 – Submittals, and, in addition, the following:

1. Plastic-laminate-clad panel products: 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with separate samples of unfaced panel product used for core.
2. Corner pieces as follows:
   a. Cabinet front frame joints between stiles and rail, as well as exposed end pieces, 18 inches high by 18 inches (450 mm) wide by 6 inches (150 mm) deep.
   b. Miter joints for standing trim.

E. Product Certificates: Signed by manufacturers of woodwork certifying that products furnished comply with requirements.

F. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed architectural woodwork similar (finish interior carpentry) in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Fabricator Qualifications: A firm experienced in producing architectural woodwork (finish interior carpentry) similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

1. The work is open to Millwork Shops capable of compliance with these specifications and the AWS, as published by the Architectural Woodwork Institute.

C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production and installation of interior architectural woodwork.

D. Quality Standard: Unless otherwise indicated, comply with Architectural Woodwork Institute (AWI), Architectural Woodwork Manufacturers Association of Canada, Woodwork Institute collaborative work: Architectural Woodwork Standards (AWS Edition 2, or later edition if published) for grades of interior architectural woodwork (interior finish carpentry), construction, finishes, and other requirements.

E. Provide a mock-up of a typical base cabinet, a typical tall cabinet and a typical wall cabinet, and any other kind of cabinet indicated on the drawings – the type of cabinet indicated to be provided, need not be provided in the mock-up if the cabinet is not included in the building design. Provide the mock-up in a location as directed by the Architect in the field that 1) is separtated from exterior environmental elements and the by-products of construction, i.e. dirt, dust, moisture 2) is an air conditioned space, enclosed and conditioned for temperature (cooled and heated, or both) and conditined for humidity. Once the mock-up is installed, the mechanical system(s) that are conditioning the air space shall not be turned off. Provide the mock-up with each type of accessory to the type of cabinet in the mock-up, i.e. closure, end, filler panels, and other accessories. Revise mock-up cabinets and accessories as directed by the Architect in the field. Mock-up cabinets shall remain mocked-up during casework installation and until after the casework for the project is installed – they shall become the reference by which to judge the initial and the final casework installation and the cabinet construction. Do not remove the mock-up cabinets without approval from the Architect in the field. Mock-up cabinets may be incorporated into the final work if allowed by and coordinated with the Architect in the field.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Comply with AWI requirements.

C. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

D. Protect stored wood and installed work from moisture damage.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Maintain temperature and humidity conditions within ranges recommended by AWI. Do not deliver or install woodwork until building is enclosed, wet work is

complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

1. Allow materials to acclimate to temperature and humidity conditions recommended by AWI for minimum of 48 hours prior to installation. Maintain same conditions during and after installation.

B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.
2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.9 COORDINATION

A. Comply with Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

C. Coordinate work with electrical rough-in and installation of associated and adjacent finishes.

D. Hardware Coordination: Distribute copies of approved hardware schedule specified in Division 8 Section "Door Hardware" to fabricator of architectural woodwork; coordinate Shop Drawings and fabrication with hardware requirements.

E. Coordination with Other Manufacturers Work

1. Coordinate with Casework manufacturer for matching color, finish, and manufacturer of plastic laminate surfacing used for casework.
2. Coordinate with Library Furniture manufacturer for matching finish wood species, grain, color, and finish used for Library furnishings.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that comply with requirements of the AWS quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

B. Wood Species and Cut for Transparent Finish: As indicated.

C. Wood Species for Opaque Finish: For standing and running trim: any closed-grain hardwood. For other woodwork: paint- grade birch.

D. Wood Products: Comply with the following:

1. Hardboard: AHA A135.4.
2. Medium-Density Fiberboard: ANSI A208.2, Grade MD.

3. Particleboard: Not acceptable.
4. Hardwood Plywood and Face Veneers: Not applicable.
5. Concealed Plywood: U.S. Product Standard PSI-66, 7-ply wood veneer core Douglas Fir or Birch plywood, grade trademarked DFPA, sanded. A-D grade. Use only in concealed areas or as core for plastic laminate. Use exterior grade at sink cabinets.

E. General Cabinet Construction Requirements:

1. Cabinet bases shall be of dimensional lumber.
2. Frames, side panels and structural parts of the cabinets shall be of plywood and/or dimension lumber.
3. Cores for doors, shelves. and drawer fronts shall may have substrate of plywood or medium-density fiberboard.
4. All fixed shelves shall be full shelf thickness "stop dado" joined to their supports. The full depth of the stop dado joint shall, begin no more than 1-1/2 inch (38 mm) from the face of the shelf and, end at the back of the shelf. The joint shall be continuous.
5. File drawers shall be designed and constructed so that the hanging folder rail position (height above the bottom of the drawer) is justified as low as possible in the drawer to allow filing insert bottoms (hanging file folders) to sit as close as possible to the bottom of the drawer. Allow at least 1.25 inch of air space above the rail height for folder tabs to clear the cabinet construction above the file drawer without touching the cabinet.]

F. Thermoset Decorative Overlay: medium-density fiberboard or plywood as specified with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1. Use only at interiors of cabinets where melamine overlay will be part of balanced construction (melamine both sides). Where high-pressure decorative laminate is installed, do not apply CLS or TDO on the opposite side of the panel. Do not apply TDO to the exterior of cabinets.]

G. High-Pressure Decorative Laminate (Plastic Laminate): NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard. Comply with NEMA Standard GP50 high pressure laminated plastic.

1. Provide 0.050 inch nominal thick material at horizontal surfaces, and 0.028 inch nominal thick laminate on exposed vertical surfaces. Use at exteriors of cabinets and at interiors of cabinets where necessary to achieve balanced panel construction.
2. Provide backing sheet on bottom or concealed surfaces. Color(s) to be selected by the Architect from manufacturer's full range.

3. Manufacturer: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

a. Formica Corporation 800-367-6422 www.formica.com
b. Lamin-Art, Inc. 800-323-7624 www.laminart.com
c. Pionite Decorative Surfaces 800-746-6483 www.pionite.com
d. Wilsonart International, Inc., a Division of Illinois Tool Works Inc. 800-433-3222 www.wilsonart.com

H. Formaldehyde Emission Levels: Adhesive materials and products used in the manufacture of wood products, including but not limited to particle board and plywood shall be urea-formaldehyde free. No-added Urea-Formaldehyde Resin panel products shall be used.

2.2 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 8 Section "Door Hardware." The hardware indicated establishes a "Basis of Design" for appearance and performance. Comparable products by other

manufacturers may be allowed where the design is, solely in the opinion of the Architect, equal or better than the "Basis of Design". Caution, and attention to understanding the "Basis of Design", should be exercised where substitutions away from use of the "Basis of Design" are planned.

B. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.

C. Cabinet Hardware:

1. Shelf Standards: 255 Series, nickel-plated, Knape & Vogt Manufacturing Company 800-253-1561 www.knapeandvogt.com
2. Shelf Brackets: 256 Series, nickel-plated, Knape & Vogt Manufacturing Company 800-253-1561 www.knapeandvogt.com
3. Hinges: Five knuckle pin type double wrap around design (0.088 inch steel) - Finish to match cabinet pulls.
4. Cabinet Pulls: #4483 1/2 Wire Pulls, aluminum with satin finish, Stanley Security Solutions, Inc. 317-849-2250 www.stanleysecuritysolutions.com
5. Magnetic Catches: Provide for use with five-knuckle hinges (not needed at specified Hafele three-knuckle hinges). If three-knuckle hinges different from those specified are used, coordinate with the hinge manufacturer to determine if the substitute hinges are self-catching. If this is the case, catches are not required. If the substitute hinges are not self-catching, the specified catches shall be provided.
    a. 918 Magnetic Catch, aluminum satin finish, Knape & Vogt Manufacturing Company 800-253-1561 www.knapeandvogt.com
    b. #710300, clear coated aluminum, Stanley Security Solutions, Inc. 317-849-2250 www.stanleysecuritysolutions.com
6. Drawer Slides for Light and Medium Duty Drawers: Full extension all ball bearing 100 lbs. load rated with lever disconnect and positive outstop preventing inadvertent drawer removal.
    a. 3832, Accuride International Inc. 562-903-0200 www.accuride.com
7. Drawer Slide for File Drawer and Wide Heavy Duty Drawers: Full extension all ball bearing 150 lbs. load rated with rail mount, hold-in detent, progressive movement and positive outstop preventing inadvertent drawer removal.
    a. 4032, Accuride International Inc. 562-903-0200 www.accuride.com
    b. 8500 Heavy-Duty Lateral File Slide, Knape & Vogt Manufacturing Company 800-253-1561 www.knapeandvogt.com
8. Label Holders: 704 Drawer Label Holder, 3-1/2 inch W by 1-3/4 inch H, anochrome finish, Knape & Vogt Manufacturing Company 800-253-1561 www.knapeandvogt.com
9. Locks: Surface mounting, cylinder length as required for application intended, supply with standard accessories and two keys.
    a. #6810 Million Lock, Sugatsune America, Inc. 800-562-5267 www.sugatsune.com
    b. C8178, pin tumbler, CompX National, Division of CompX Security Products 864-297-6655 www.compxnet.com

D. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.3 ACCESSORIES

A. Fasteners and Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors in masonry walls.

1. Fasteners: Hot dipped or Electro galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
2. Nails and Staples: ASTM F1667.

B. Adhesive for High Pressure Decorative Laminates: FS A-A-1936 contact adhesive.

C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application.

D. Concealed Joint Fasteners: Threaded steel.

E. Grommets:

1. XG Flip-Top Series, 3 inch (76 mm), color as selected by Architect from manufacturer's full range of standard colors, Doug Mockett & Company, Inc. 800-523-1269 www.mockett.com
2. Type: Plastic or nylon 2-1/2" diameter with flip-top tab in cap, in color(s) as selected by the Architect.
3. Locations: Where indicated on the drawings and where needed for data wiring to pass through counter tops, whether or not indicated.
4. Basis of Design: Model #EDP3 as manufactured by Doug Mocket & Co., 800-523-1269.

F. Perimeter Sealant:

1. For Plastic Laminate-Clad or Natural Finish Millwork: Silicone; ASTM C920, Uses G, A, and O; single component, mildew resistant.

a. Type: Tremsil 200 manufactured by Tremco.
b. Applications: Use for sealing perimeter joints between items of natural finish millwork and adjacent materials after all finishes are fully cured.

2.4 INSTALLATION MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.5 FABRICATION, GENERAL

A. Interior Woodwork Grade: AWS Grade: Custom, unless otherwise indicated. All work shall be of the highest quality workmanship thoroughly sanded and cleaned, free from tool marks, with all nails properly set, filled and sanded smooth. Moldings and trim shall be furnished in as long lengths as practicable. All pencil and chalk marks shall be removed.

B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:

1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members 3/4 Inch (19 mm) Thick or Less: 1/16 inch (1.5 mm).
2. Edges of Rails and Similar Members More Than 3/4 Inch (19 mm) Thick: 1/8 inch (3 mm).

D. Fixed Shelves: Fixed shelves shall be fastened to cabinet bodies with full-shelf thickness "Stop Dado" joints. The dado shall stop no farther than 1-1/2 inch (38 mm) from the edge of the vertical support. The dado shall not begin closer than 1 inch (25 mm) from the edge of the vertical support. The depth which the dado cut shall extend into the vertical shelf support shall be no more than half of the thickness of the vertical support. The joint shall be glued for its entire length and all the surfaces of the joint shall be fully glued with no fraction of the joint's "shelf to support" surfaces void of glue.

E. Supported Shelves Up To 32 inch (813 mm) Span: Adjustable and fixed shelves with end supports only, and end-to-end spans shorter than or equal to 32 inches (813 mm), shall be 3/4 inch (19 mm) minimum thick. Fixed shelves of end-to-end lengths shorter than or equal to 32 inches (813 mm), with support along at least one of their long edges, shall also be 3/4 inch (19 mm) minimum thick.

F. Supported Shelves, 32 inch (813 mm) to 42 inch (1,067 mm) Span: Adjustable and fixed shelves with end supports only, and end-to-end spans between 32 inches (813 mm) and 42 inches (1,067 mm), shall be 1 inch (25 mm) minimum thick. Fixed shelves of end-to-end lengths between 32 inches (813 mm) and 42 inches (1,067 mm), with support along at least one of their long edges, shall also be 1 inch (25 mm) minimum thick.

G. Adjustable Supports:

1. Recessed Standards: Adjustable shelves shall be supported by recessed standards. The face of the standard shall be in-line and flush with the face of the panel into which it is installed. Other AWS accepted methods of adjustable shelf support will not be allowed, including the "surface mounted standards" method and the "multiple holes" method. Adjustable shelves shall be made adjustable by the use of metal shelf supports.
2. Multiple Hole Supports: Adjustable shelves shall be supported by the "Multiple Holes" method with three columns of holes to allow three supports at each end of a shelf. The front and back shelf supports shall be the Basis-of-Design indicated below. The middle support shall be a metal support which allows for aligned support between the two different support designs [metal (middle) and plastic (ends)]. Other AWS accepted methods of adjustable shelf support will not be allowed, including the "surface mounted standards" method and the "recessed standards" method. The front and back supports for the adjustable shelves shall be plastic shelf supports.
    a. Basis-of-Design: Dual Peg Locking Tongue Support, Clear, 5mm x 3/4 inch (19 mm) or 1 inch (25 mm), Model # 3220CL, Bainbridge Manufacturing, Inc. 800-255-4702 www.bainbridgemfg.com >

H. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

I. Shop cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

1. Seal edges of openings in countertops with a coat of varnish.

J. Install glass to comply with applicable requirements in Division 8 Section "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

K. Semiexposed Surfaces: Provide surface materials indicated below:

1. Drawer Sides and Backs: Solid-hardwood lumber, sanded and clear finished.
2. Drawer Bottoms: Hardwood plywood, sanded and clear finished.

2.6 PLASTIC-LAMINATE CABINETS

A. Quality Standard: Comply with AWS Section 10 – Casework.

B. AWS Grade: Custom.

C. Provide laminate covered panels of balanced construction for all work provided and controlled under this specification section. Panels with one surface finished and the other not finished, will not be allowed. Panels with both sides of panels finished, but not of balanced construction, will not be allowed. Adjacent panels or panels of more than one panel thickness must be glued together, or each substrate panel must have both surfaces covered with laminate before being located in final plan configuration.

D. AWS Type of Cabinet Construction: Reveal overlay.

E. Panel Product for Exposed Surfaces: Medium Density Fiberboard or 7-ply, minimum, wood veneer core plywood.

F. Laminate Cladding for Exposed Surfaces (Exteriors of cabinets with and without doors and drawers, interiors of cubbies and cabinet compartments without doors): High-pressure decorative laminate complying with the following requirements:

1. Horizontal Surfaces Other Than Tops: HGS.
2. Postformed Surfaces: HGP.
3. Vertical Surfaces: VGS.
4. Edges: Provide Rigid PVC extrusions, through color, matching the laminate in color, pattern and texture - 3mm thick at doors and drawer fronts, and full depth of counter edges - 1mm thick or all exposed edges elsewhere.
5. Thermoset Decorative Overlay (Melamine) and HPDL - Grade CLS, not allowed at exposed surfaces.

G. Materials for Semi-exposed Surfaces:

1. For semi-exposed backs of panels provide surface of high-pressure decorative laminate:

a. Grade VGS where cabinets are freestanding (with the back is not against a wall), or where cabinet backs are against a low wall and the back is partially visible.

b. Grade CLS or Thermoset Decorative Overlay (Melamine) where cabinet backs are against walls.

2.7 PLASTIC-LAMINATE COUNTERTOPS

A. Quality Standard: Comply with AWS Section 11 – Countertops for requirements for high-pressure decorative laminate countertops.

1. Typical Countertops: High-pressure decorative laminate grade HGS over 7-ply, minimum, wood veneer core exterior grade plywood core.
2. Countertops with sinks or other plumbed fixtures: High-pressure decorative laminate grade HGS over Medium Density Fiberboard or 7-ply, minimum, wood veneer core plywood core.

B. Edge Treatment: Provide Rigid PVC extrusions, through-color matching the laminate, 3 mm thick for full depth of counter edge, 1 mm thick for all exposed edges of splashes.

2.8 SHOP FINISHING

A. Quality Standard: Comply with AWS, unless otherwise indicated.

B. General: Shop finish transparent finished interior architectural woodwork for non-plastic laminate surfaced items such as drawer bodes.

C. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

D. Transparent Finish: Comply with requirements indicated below for grade, finish system, and sheen, with sheen measured on 60-degree gloss meter per ASTM D 523:

1. AWS Finish System 5: Conversion varnish, satin clear.
2. Open Finish for Open-Grain Woods: Do not apply filler to open-grain woods.
3. Sheen: Satin, 30-50 gloss units.]

PART 3 - EXECUTION

3.1 PREPARATION

A. Condition woodwork to average prevailing humidity conditions in installation areas before installation.
B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packaging and.

3.2 INSTALLATION

A. Quality Standard: Install miscellaneous woodwork to comply with AWS for the items specified in Part 2 of this Section for type of woodwork involved.

B. Install miscellaneous woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).

C. Scribe and cut woodwork to fit adjoining work, Refinish cut surfaces and repair damaged finish at cuts.

D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with, concealed fasteners and blind nailing as required for complete installation. Only use exposed fasteners where indicated – exposed fasteners shall be countersunk or set so that heads of fasteners are flush with wood finish, unless otherwise indicated not to be flush. Use fine finishing nails or finishing screws for fasteners which are not concealed or otherwise hidden from view, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

E. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

1. Install cabinets with no more than 1/8 inch in 96 inch (3 mm in 2400 mm) sag, bow, or other variation from a straight line.
2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches (400 mm) o.c. with No. 10 wafer-head screws sized for 1 inch (25 mm) penetration into wood framing, blocking, or hanging strips and No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish.
3. Locks: Provide locks for drawers and doors as indicated in the drawings.

a. Locks shall be all keyed alike within each room and each room keyed differently.
b. Provide 4 master keys which can operate all cabinet (millwork) locks throughout the areas receiving new cabinets.

F. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

1. Install countertops with no more than 1/8 inch in 96 inch sag, bow, or other variation from a straight line.
2. Secure backsplashes to countertops with concealed metal brackets at 16 inches (400 mm) o.c. and to walls with adhesive.
3. Caulk space between countertop backsplash and wall with matching-color sealant specified in Division 7 Section "Joint Sealants."

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 06 40 23

SECTION 06 42 19 - PLASTIC LAMINATE WALL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
   1. Plastic laminate-clad individual panels with factory-finished trims.
   2. Wood furring and shims not built within wall.

B. Related Sections:
   1. Section 06 10 53 - Miscellaneous Rough Carpentry: Concealed sheet metal mounting bands required for installing paneling. In-wall wood blocking as may be required by the panel manufacturer or installer.
   2. Section 09 21 16 – Gypsum Board Assemblies: Installation and finishing of drywall after installation of sheet metal mounting bands.
   3. Section 09 90 00 – Painting and Coating: Finish painting of drywall prior to installation of panels.

1.2 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: For each product indicated.
   1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

C. Shop Drawings: Show location of paneling, large-scale details, attachment devices, and other components. Include dimensioned plans and elevations based on job measurements.
   1. Show typical and all non-typical details full size.
   2. Show all trim conditions and locations.

D. Samples for Verification: For the following:
   1. Plastic laminate chain of samples for initial approval of color/finish selection.
   2. Plastic-laminate-clad panel sections nominal 8 by 10 inches face size, with plastic laminate self-edges for each color/pattern/finish.
   3. Once laminate colors are approved:
      a. Provide 12" lengths of sample trim factory-painted to match laminate.
      b. Provide 12" x 12" panel samples of each selected color complete with edge bandings of specified color(s).

E. Provide fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or other testing and inspecting agency acceptable to authorities having jurisdiction

F. Product Certificates: Signed by manufacturers of paneling certifying that products furnished comply with requirements.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed paneling similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Fabricator Qualifications: A firm experienced in producing paneling similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of paneling, construction, finishes, and other requirements.

D. Fire-Test-Response Characteristics:

1. Where fire-retardant materials or products are required, provide materials and products with specified fire-test-response characteristics per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction.

2. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

1.4 MOCK-UP

A. Section 01-40 00 - Quality Requirements: Mock-up requirements.

B. Before fabricating panels build onsite mockup using a minimum of 48" wide x height as indicated on the drawings. Panels shall be mounted on drywall-surfaced metal stud wall. Approved mockup will become the standard of fit, finish, materials and workmanship for the completed Work. Build mockup to comply with the following requirements, using materials indicated for the completed Work:
   1. Build mockup in the location and of the size indicated or, if not indicated, as directed by Architect.
   2. Notify Architect three days in advance of dates and times when mockups will be installed.
   3. Use only materials that meet the requirements of the specifications, and finish materials in the selected color(s) and finish(es).
   4. Obtain Architect's approval of mockup before starting paneling fabrication.
   5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
   6. Approved mockups may remain as part of the completed Work.

1.5 PRE-INSTALLATION MEETING

A. Section 01 31 19 – Project Meetings: Schedule and coordinate pre-installation meeting that includes the trade(s) for the work of this Section and other trades that whose work is related to the work of this Section.

B. Convene minimum one week prior to commencing work of this Section.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Do not deliver paneling until painting and similar operations that could damage paneling have been completed in installation areas. If paneling must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install paneling until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

B. Field Measurements: Where paneling is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
   1. Locate concealed framing, blocking, and reinforcements that support paneling by field measurements before being enclosed and indicate measurements on Shop Drawings.
   2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating paneling without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that paneling can be installed as indicated.

PART 2 - PRODUCTS

2.1 PANELING FABRICATORS

A. Available Fabricators: Subject to compliance with requirements, fabricators offering paneling that may be incorporated into the Work include, but are not limited to, the following:
   1. Panel Specialists, Inc. (PSI), www.panelspec.com.
   2. Custom Plastics, www.customplastics.com.
   3. Substitutions: Section 01 60 00 - Product Requirements.

2.2 MATERIALS

A. General: Provide materials that comply with requirements of the AWI quality standard for quality grade specified, unless otherwise indicated.

B. Wood Products: Comply with the following:
   1. Particle board: 4- pound density particle board core faced with fire-rated vertical surface type (.030") high-pressure laminate and backed with .028" high pressure laminate backer sheet.
   2. Manufacturer: Provide "Duraflake FR" by Willamette Industries or equivalent.

C. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.
   1. Available Manufacturers:
      a. Formica Corporation.
      b. International Paper; Decorative Products Div, www.internationalpaper.com.
      c. Pionite Decorative Surfaces, www.pionite.com.
      d. Laminart, www.laminart.com.
      e. Wilsonart International, www.wilsonart.com.

D. Panel Fire-Test-Response Characteristics: Fabricated panels rated Class I in accordance with ASTM-E-84;
   1. Flame spread 15.
   2. Smoke developed 15
   3. Cataloged by Underwriters Laboratories as UL 723.
   4. Provide fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or other testing and inspecting agency acceptable to authorities having jurisdiction.
   5. Rated Class “A”.
   6. Flame Spread Rating: Less than 25.
   7. Smoke Developed Rating: Less than 100.

E. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.

F. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where indicated, use materials impregnated with fire-retardant chemical formulations indicated by a pressure process or other means acceptable to authorities having jurisdiction to produce products with fire-test-response characteristics specified.

1. Do not use treated material that does not comply with requirements of referenced woodworking standard or that is warped, discolored, or otherwise defective.
2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.

B. Fire Retardant-Treated Lumber and Plywood by Pressure Process: Comply with AWPA C20 (lumber) and AWPA C27 (plywood), for woodwork items indicated as fire-retardant treated. Use the following treatment type:
1. Interior Type A: Low-hygroscopic formulation.
2. Kiln dry material before and after treatment to levels required for untreated material.

C. Fire Retardant Particleboard: Panels complying with the following requirements, made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame spread rating of 25 or less and smoke-developed rating of 25 or less per ASTM E 84.
1. For panels 3/4 inch thick and less, comply with ANSI A208.1 for Grade M-2 except for the following minimum properties: density, 45 lb/cu. ft; modulus of rupture, 1600 psi; modulus of elasticity, 300,000 psi; internal bond, 80 psi; and screw-holding capacity on face and edge, 250 lbf and 225 lbf, respectively.
2. For panels 13/16 to 1-1/4 inches thick, comply with ANSI A208.1 for Grade M-1 except for the following minimum properties: density, 44 lb/cu. ft; modulus of rupture, 1300 psi; modulus of elasticity, 250,000 psi; linear expansion, 0.50 percent; and screw-holding capacity on face and edge, 250 lbf and 175 lbf, respectively.
3. Product: Subject to compliance with requirements, provide "Duraflake FR" by Willamette Industries, Inc.

2.4 FABRICATION, GENERAL

A. Paneling Grade: Provide Custom grade paneling complying with the referenced quality standard.

B. Wood Moisture Content: Comply with requirements of the referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Complete fabrication to maximum extent feasible, before shipment to Project site. Disassemble components only as necessary for shipment and installation.

D. Neatly cut openings to receive fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs and seal with clear waterproofing agent.

2.5 PLASTIC-LAMINATE-CLAD FLUSH PANELS

A. Quality Standard: Comply with AWI Section 500.

B. Plastic-Laminate Cladding: High-pressure decorative laminate, color(s) and finish as scheduled:
1. Faces: Type VGF.
2. Backs: Type BKV.
3. Panel Edges: Extruded rigid PVC; smooth finish, of width to match overall panel thickness; custom color as required to match plastic laminate; 3 mm thickness in 1-piece lengths.

C. Panel Core Construction: Fire-retardant high-density particleboard.

D. Fire Retardant Treated Paneling: Provide panels consisting of fire-retardant plastic laminate and fire-retardant particleboard or fire-retardant medium-density fiberboard. Panels shall have a flame-spread rating of 75 or less and a smoke-developed rating of 450 or less per ASTM E 84.

E. Finish Sizes:
1. Overall finish panel thickness shall be minimum 7/16 inch.
2. Panel face size(s) shall be as indicated in the drawings.

F. Factory-Provided Mounting Accessories and Trim:
1. Concealed Mounting Spline: Extruded aluminum No. 302 with screw-mounting flange.
2. Laminate clad, extruded aluminum outside corner molding: No. 103L
3. Vertical and horizontal molding with mounting flange: No. 412HT.
4. Outside Corner: Extruded aluminum painted color to match plastic laminate: No. 103L.
5. Inside Corner: Extruded aluminum painted color to match plastic laminate: No. 304.
6. Wainscot Top Cap: Extruded aluminum painted color to match plastic laminate: No. 304.

PART 3 - EXECUTION

3.1 PREPARATION

A. Condition paneling to average prevailing humidity conditions in installation areas before installation.

B. Before installing paneling, examine shop-fabricated work for completion and complete work as required, including removal of packing and back-priming.

3.2 INSTALLATION

A. Quality Standard: Install panels to comply with AWI Section 1700 for the appropriate grade of materials.

B. Install continuous horizontal bands of 16-ga. x 4" wide sheet metal to metal wall studs prior to installation of gypsum board.
1. Fasten sheet steel band using minimum of (2) bugle-head drywall screws at each stud. Dimple sheet metal at screw locations for flush heads to avoid interference with gypsum board installation.
2. Provide continuous metal bands horizontally as required for panel attachment.

C. Install each panel plumb, true, and straight with no distortions and with all top and bottom edges in alignment.
1. Shim as required with concealed shims to ensure full length of each panel is flush with adjacent panel. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
2. Install each panel with no edge more than 1/16 inch out of flush alignment with edge of adjacent panel.
3. Install each panel without trim pieces and free-floating of any other panel.
4. Where indicated provide uniform reveal between top edge and drywall furring,
5. Install self-adhesive foam backer spacers where required to keep panel mounts tight without rattle.

3.3 ADJUSTING AND CLEANING

A. Adjust installed panels where necessary to provide uniform gaps between panels, all top edges level and in alignment, and with all panel edges flush with each adjacent panel edge.

B. Replace any panels that are damaged during installation or prior to Owner acceptance.

C. Clean exposed surfaces of panels and deliver to the Owner recommended cleaner in quantity suitable for a minimum of 50 cleanings.

END OF SECTION

SECTION 06 61 19 – QUARTZ SURFACING FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes quartz-based fabricated stone countertops for reception desk and other fabrications as may be indicated in the drawings.

B. Related Sections:
   1. Section 06 20 53 – Interior Finish Carpentry and Millwork: Base cabinet countertop support.

1.2 REFERENCES

A. ASTM International:
   1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
   2. ASTM C373 – Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity.
   3. ASTM C170 - Standard Test Method Compressive Strength of Dimension Stone.
   4. ASTM C501 - Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser.
   5. NEMA LD3-3.6 – Ball Impact Resistance.
   6. NEMA LD3-3.6 – High Temperature Resistance.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate dimensions, thicknesses, required clearances, tolerances, materials, colors, finishes, fabrication details, field jointing, adjacent construction, methods of support, integration of plumbing and electrical components, and anchorages.

C. Product Data: Submit data on specified component products.

D. Samples: Submit two samples, 12 12 inch in size illustrating each color, texture, and finish.

E. Manufacturer's Installation Instructions: Submit preparation of opening required, rough-in sizes, and tolerances for item placement.

1.4 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Closeout procedures.

B. Operation and Maintenance Data: Submit list of approved cleaning materials and procedures required, and list of substances harmful to component materials. Include instructions for stain removal and surface and gloss restoration.

1.5 WARRANTY:

A. Provide manufacturer’s limited commercial 10-year warranty against product defects.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five years’ documented experience.

B. Installer: Fabricated and installed by manufacturer’s certified fabricator/installer with a minimum of 5-years’ experience in similar installations. Provide manufacturer’s written certification with assurance of manufacturer’s warranty.

PART 2 - PRODUCTS

2.1 QUARTZ SURFACING FABRICATIONS

A. Manufacturers:
1. Consentino Silestone, www.silestone.com.
2. Corian Quartz, www.corianquartz.com
3. Ice Stone LLC, www.icestoneusa
4. Prestige Stone Quartz Surfacing, Building Plastics, Inc., www.bpiteam.com
5. Zodaq Quartz Surfaces, DuPont, www.dupont.com
6. Substitutions: Section 016000 - Product Requirements.

B. Basis of Design: *Corian Quartz*® (formerly *Zodiaq*®) or approved equivalent by specified manufacturer.

C. Performance Characteristics
1. Fire Resistance per ASTM E84 (UL 723).
a. Surface Burning Characteristics: Class A (Class 1)
b. Flame Spread Resistance: 25 or less.
c. Smoke Developed Index: 450 or less.
2. Water Absorption: Less than 0.04% short term; less than 0.12% long term per ASTM C373.
3. Density: 2.2 - 2.4 g/cm^3 per ASTM D792.
4. Impact Resistance: No failure at 164 inches NEMA LD 3-3.8.
5. Abrasion Resistance: 139 or better per ASTM C501.
6. Stain Resistance: Passes ANSI Z124.
7. High Temperature Resistance: Passes NEMA LD3-3.6
8. Impact Resistance: No failure at 164 inches NEMA LD 3-3.8.

D. Selection(s): Reference the Color Schedule.

2.2 COMPOSITION

A. 93 percent crushed quartz aggregate combined with resins and pigments fabricated into slabs using a vacuum vibro-compaction process.

B. Color: As selected by the Architect from manufacturer's full range of standard and custom colors for polished finish.

2.3 SHOP FABRICATION

A. Finished Slab Thickness: 3/4-inch or 1-1/4-inch as indicated in the drawings.

B. Slab Sizes: As indicated.

C. Identification: Each slab shall be labeled with fabricator's batch number and imprinted with manufacturer's identifying mark on the back side.

D. Polish exposed surfaces to manufacturer's "Polished" finish with gloss rating of 35%.

E. Beveled or slightly radiused corners and edges.

F. Provide all necessary cut-outs. Obtain templates from plumbing subcontractor for fittings, sinks, and lavatories. Provide cut-outs with minimum 3/8" inside corner radius. Reinforce any remaining material less than 3-inches wide with concealed strip(s) of quartz panels.

G. Laminate layers of quartz surfacing as required to create built-up edges or other areas requiring additional thickness as indicated in the drawings.

2.4 ACCESSORIES

A. Mounting Adhesive: Silicone or 2-component epoxy as determined by the installer for the particular installation.

1. Color: Adhesive that will be visible in finished work shall be tinted to match quartz surfacing.
2. Provide spacers where required by the adhesive manufacturer for the particular installation.

B. Joint Sealants: Clear silicone sealant by Dow Corning or General Electric as recommended by the manufacturer for the specific application and conditions of use. Provide anti-bacterial type at restrooms and food preparation areas.

PART 3 - EXECUTION

3.1 STORAGE AND HANDLING

A. Store in racks in near-vertical position, indoors and away from direct exposure to sun or other heat source.

B. Protect against warpage and breakage.

C. Store with finished face turned toward finished face and separated by heavy paper or cardboard.

3.2 EXAMINATION

A. Reference Section 013000 - Administrative Requirements: Coordination and project conditions

B. Field-verify all relevant dimensions prior to beginning fabrication.

C. Verify that substrates supporting quartz surfacing are plumb, level, and within plane to within 1/16-inch per ten-ft., and that necessary supports and blocking are in place.

D. Ensure that base cabinets are securely fixed to adjoining units and back wall.

E. Verify joint preparation and affected dimensions are acceptable.

3.3 INSTALLATION

A. Align work plumb and level.

B. Rigidly adhere or physically anchor finished panels in concealed manner to prevent movement or misalignment.

3.4 ERECTION TOLERANCES

A. Maximum Variation from Indicated Dimension: 1/8 inch.

B. Maximum Offset from Indicated Position: 1/8 inch.

3.5 FINAL CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Clean and polish all exposed surfaces of quartz surfacing.

C. Furnish to the Owner (2) 16 oz. or larger containers of manufacturer's recommended non-abrasive, low pH cleaning and polishing agent.

END OF SECTION

SECTION 07 19 16 – CONCRETE FLOOR SEALER AND FINISH

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Water-based clear sealer and finish for interior concrete floors to remain exposed.

B. Related Sections:

1. Section 03 30 00 - Cast-In-Place Concrete: Concrete slab-on-grade surfaces and curing agents (not a replacement for sealer/finish provided under this Section 07 10 16).
2. Section 07 92 00 - Joint Sealants.

1.2 SYSTEM DESCRIPTION

A. Applied Finish: Material to restrict moisture absorption and provide slip-resistant and abrasion-resistant finished appearance for interior concrete flooring indicated to remain exposed.

1.3 SUBMITTALS

B. Section 01 33 00 - Submittal Procedures: Submittal procedures.

C. Section 01 33 00 - Submittals: Submittal procedures.

D. Product Data: Submit details of product description, tests performed, limitations to coating, and chemical properties including percentage of solids.

E. Samples: Of each substrate indicated to receive water repellent, 12 inches square, with specified repellent treatment applied to half of each sample.

F. Manufacturer's Installation Instructions: Submit special procedures and conditions requiring special attention, and cautionary procedures required during application.

G. Manufacturer's Certificate: Certify products meet or exceed specified requirements, including local requirements controlling the emission of VOCs.

1.4 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section for a minimum of three years.

B. Applicator: Company specializing in performing Work of this section with minimum three years' experience and approved by manufacturer for this application.

1.5 PRE-INSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Section 01 31 19 - Project Meetings: Pre-installation meeting.

C. Convene minimum one week prior to commencing work of this section.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Section 01 60 00 - Materials and Equipment: Product storage and handling requirements.

C. Protect product from freezing.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Section 01 60 00 - Materials and Equipment.

C. Do not apply coating when ambient or surface temperature is lower than 40 degrees F or higher than 100 degrees F.

1.8 WARRANTY

A. Section 01 70 00 - Closeout Requirements: Product warranties and product bonds.

B. Section 01 78 00 - Warranties and Bonds: Product warranties and product bonds.

C. Furnish manufacturer's written warranty for sealer/finish for a minimum of two-years after Substantial Completion of Project.

PART 2 - PRODUCTS

2.1 Manufacturers:

A. Euclid Chemical Company, www.euclidchemical.com.

B. L.M. Scofield Company, www.scofield.com

C. Westcoat Specialty Coating Systems www.westcoat.com/

D. W.R. Meadows, www.wrmeadows.com

E. [Substitutions: Section 01 60 00 - Product Requirements.]

F. [Substitutions: Section 01 25 13 - Product Substitutions.]

2.2 MATERIALS

A. Concrete Sealer: Water-based clear and colorless high solids type sealer and finish that is VOC-compliant.

1. Basis-of-Design: *Selectseal Plus* as manufactured by Scofield.
2. VOC Content: less than 100 g/L.
3. Semi-Gloss or Gloss finish.
4. High solids content; low odor.
5. Certified wet-slip resistant per UL 410.
6. Abrasion-resistant.

7. Apply at interior concrete floors scheduled to remain exposed.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Section 01 31 00 – Project Coordination: Coordination and project conditions.

C. Verify joint sealants are installed and cured.

D. Verify surfaces to be coated are dry, clean, and free of efflorescence, oil, or other matter detrimental to application of coating.

E. Obtain product information from Contractor for curing agent that was used on floors scheduled to receive a clear finish coat to ensure that the proposed finish coat is compatible.

F. Test the surface of concrete before applying sealer/finish ensure it absorbs drops of water within 20-30 seconds. Verify with the sealer/finish manufacturer whether a non-absorbing surface will require mild acid-etching prior to sealer/finish application.

3.2 PREPARATION

A. Delay Work until concrete substrate is cured minimum of 60 days, and all other trades have completed work in the affected areas.

B. Remove loose particles and foreign matter. Remove oil or foreign substances that may interfere with appearance or performance of sealer/finish. Remove drywall compound and paint drips by scraping.

C. Remove curing agents remaining on surface of affected slabs. Ensure compatibility of curing agent and any installed joint sealants with proposed sealer/finish product.

D. Scrub and rinse surfaces with water and let dry while restricting foot traffic. Vacuum dry surface just prior to application of sealer/finish.

E. Test for pH level of substrate before applying. Do not apply to substrates with pH level outside of manufacturer's recommended limits.

F. Protect adjoining work, including sealant bond surfaces at joints. Mask-off wall bases and adjoining surfaces of aluminum and glass if there is the possibility of water repellent being deposited on surfaces.

G. Coordination with Sealants:

1. Coordinate with sealant manufacturer to determine whether sealer/finish should be applied prior to or after installation of any joint sealants in concrete slab. Sealant joints installed prior to application of sealer/finish shall be fully cured.
2. Sealer/finish application may precede joint sealant installation only if sealant adhesion and compatibility have been tested and verified.

3.3 APPLICATION

A. Apply in accordance with manufacturer's instructions.

B. Apply a saturation coating of clear sealer/finish on indicated surfaces using foam, microfiber, or lamb's wood applicators. Cover all surfaces to remain exposed.

C. Apply second coat in accordance with manufacturer's directions for drying and scuffing of first coat. Final coat shall be free of lap or brush marks.

3.4 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 77 00 - Project Closeout: Protecting installed construction.]

B. Immediately remove sealer/finish from adjacent surfaces by methods as instructed by coating manufacturer. Repair damage to surfaces not indicated to receive sealer/finish.

END OF SECTION 07 19 16

SECTION 07 21 00 - THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Polyisocyanurate foam-plastic board.
2. Glass-fiber blanket.

B. Related Requirements:

1. Section 07 22 16 “Roof Board Insulation”: for rigid insulation board as part of roofing system.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Provide product data indicating fire-test-response characteristics in accordance with the following, or similar testing and inspecting agency acceptable to authorities having jurisdiction:
   a. Identify materials with appropriate markings of applicable testing and inspecting agency.
   b. Surface-Burning Characteristics tested per ASTM E84.
   c. Fire-Resistance Ratings tested per ASTM E119.
   d. Combustion Characteristics tested per ASTM E136.
2. Provide product data indicating thermal characteristics.

B. Manufacturer's Installation Instructions: Submit special environmental conditions required for installation and installation techniques.

C. Manufacturer's Certificate: Certify products meet or exceed specified requirements

D. Evaluation Reports: For foam-plastic insulation, from ICC-ES.

E. NFPA 285 coordination and compliance data shall include, but not be limited to, showing that the plastic foam insulation product(s) and other products / materials also being supplied on the job for the wall systems, have been tested together in a wall system matching the job requirements.]

1.4 DELIVERY, STORAGE AND HANDLING

A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

B. Protect foam-plastic board insulation as follows:

1. Do not expose to sunlight except to necessary extent for period of installation and concealment.

2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site until just before installation time.
3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.]

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of building insulation through one source

B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings (Building Code required labels on face of each piece, package or container) of applicable testing and inspecting agency. Label shall contain insulation Manufacturer's or Distributer's identification, model number, serial number or complete performance characteristics, and approved agency's identification – Manufacturer shall refer to Chapter 26 of the International Building Code for wording of requirements.

1. Surface-Burning Characteristics: ASTM E 84.
2. Fire-Resistance Ratings: ASTM E 119.
3. Combustion Characteristics: ASTM E 136.

C. Coordination Requirements:

1. Even though such conditions may be indicated for the Project:

a. There may, or may not, be an indicated Basis-of-Design for the combustible wall "rigid foam plastic wall insulation" and the combustible "air barrier" indicated to be used together in the project walls to achieve NFPA 285 wall system testing compliance - and ;

b. The choice of insulation and air barrier to be used on the project is open to the bidding process and contingent on the insulation product having been tested with other "to be bid" products including but not limited to the combustible air barrier.

c. Contractor shall submit evidence that the proposed insulation and associated proposed wall system components have been tested together, as a "system" to pass NFPA 285 testing requirements.

PART 2 - PRODUCTS

2.1 POLYISOCYANURATE FOAM-PLASTIC BOARD (wall insulation)

A. Polyisocyanurate Board, Foil Faced: ASTM C 1289, foil faced, Type I, Class 1 or 2.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Xci Foil (Class A), Hunter Panels 888-746-1114 www.hpanels.com e84-<25/250, 3.5" max. thick, Maximum 2 inch air gap

b. Thermasheath by Rmax Inc. 972-387-4500 www.rmaxinc.com/ e84-25/450, 3" max. thick

c. EnergyShield Pro by Atlas Roofing Corporation 800-388-6134 www.atlasroofing.com/ e84-25/450 for 2", 3" or 4" thicknesses only; may be used with some WRB over insulation, must be used with Type X gypsum board (Type C not allowed); Max 2" air gap betweenn brick and insulation

d. EnergyShield Pro2 by Atlas Roofing Corporation 800-388-6134 www.atlasroofing.com/ e84-25/450 for 2", 3" or 4" thicknesses only; may be

used with some WRB over insulation, must be used with Type X gypsum board (Type C not allowed); Max 2" air gap betweenn brick and insulation

e. Ox ISO RED MAX Polyiso Foam Insulated Sheathing 269-435-2425 http://oxengineeredproducts.com/building-products/isoredci/

2. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly. Manufacturer shall provide the appropriate insulation panel suitable for installation in the wall assemblies indicated for the job to achieve NFPA 285 compliance. Coordination with the other products used in the wall is required due to the "assembly" performance nature of NFPA 285. Consult the insulation manufacturer or the insulation manufacturer's product representative for complementary, NFPA 285 compatible, products suitable for use with the insulation product (those tested with the insulation product being provided at the wall. All materials used in wall assemblies shall have been tested with each other in a wall assembly test.

2.2 GLASS-FIBER BLANKET

A. Glass-Fiber Blanket, Unfaced: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. CertainTeed Ceilings 800-233-8990 www.certainteed.com
b. Johns Manville 800-654-3103 www.jm.com
c. EcoBatt, Knauf Insulation 800-825-4434 www.knaufinsulation.us
d. Owens Corning 800-438-7465 www.owenscorning.com]

2.3 MINERAL-WOOL BLANKETS

A. Mineral-Wool Blanket, Unfaced: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics. Nominal density shall be 4.0 pcf; r-value of 4.0 at 75 deg F (23.9 deg C).

2.4 INSULATION FASTENERS

A. Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of holding insulation of specified thickness securely in position with self-locking washer in place.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. TACTOO Insul-Hangers, AGM Industries, Inc. 800-225-9990 www.agmind.com
b. Insulation Hangers (Spindle Type) Gemco 800-331-1164 www.gemcoinsulation.com

2. Plate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.

3. Spindle: Copper-coated, low-carbon steel; fully annealed; 0.105 inch in diameter; length to suit depth of insulation.

B. Adhesively Attached, Angle-Shaped, Spindle-Type Anchors: Angle welded to projecting spindle; capable of holding insulation of specified thickness securely in position with self-locking washer in place.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

   a. 90-Degree Angle Hangers AGM Industries, Inc. 800-225-9990 www.agmind.com
   b. 90-Degree Insulation Hangers, Gemco 800-331-1164 www.gemcoinsulation.com

2. Angle: Formed from 0.030-inch- thick, perforated, galvanized carbon-steel sheet with each leg 2 inches square.

3. Spindle: Copper-coated, low-carbon steel; fully annealed; 0.105 inch in diameter; length to suit depth of insulation.

C. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch- thick galvanized-steel sheet, with beveled edge for increased stiffness, sized as required to hold insulation securely in place, but not less than 1-1/2 inches square or in diameter.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

   a. RC150, AGM Industries, Inc. 800-225-9990 www.agmind.com
   b. SC150, AGM Industries, Inc. 800-225-9990 www.agmind.com
   c. Dome-Cap, Gemco 800-331-1164 www.gemcoinsulation.com
   d. R-150, Gemco 800-331-1164 www.gemcoinsulation.com
   e. S-150, Gemco 800-331-1164 www.gemcoinsulation.com

2. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in the following locations:

   a. Crawl spaces.
   b. Ceiling plenums.
   c. Attic spaces.

D. Insulation Standoff: Spacer fabricated from galvanized mild-steel sheet for fitting over spindle of insulation anchor to maintain air space of 1 inch (25 mm) between face of insulation and substrate to which anchor is attached.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

   a. Clutch Clip, Gemco 800-331-1164 www.gemcoinsulation.com

E. Anchor Adhesive: Product with demonstrated capability to bond insulation anchors securely to substrates without damaging insulation, fasteners, or substrates.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

   a. TACTOO GPA-72 Adhesive, AGM Industries, Inc. 800-225-9990 www.agmind.com
   b. Tuff bond Hanger Adhesive, Gemco 800-331-1164 www.gemcoinsulation.com

F. Safing Clips: Galvanized steel safing clips approved by manufacturer of safing insulation for holding safing insulation in place.

2.5 ACCESSORIES

A. Insulation for Miscellaneous Voids:

1. Spray Polyurethane Foam Insulation: ASTM C 1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
2. Mineral-Wool Blanket: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics. For use at rated assemblies and at unrated floors, if allowed by Authority Having Jurisdiction.
3. Mineral-Wool Board: For use at rated assemblies and at unrated floors, if allowed by Authority Having Jurisdiction

B. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

C. Calking Compound: Material approved by manufacturer of safing insulation for sealing joint between foil backing of safing insulation and edge opening against penetration of smoke.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 Seal “board insulation" joints, tight or open, that occur between boards and at perimeter abutting materials with compatible mastic, sealant, adhesive, pick one, or other permanent materials that will not fall from the joints, and that is approved by, recommended by or otherwise acceptable to the insulation Manufacturer and the sealing materials Manufacturer. After sealing of the joints, air and water shall not pass from the insulation surface, past the surface into the body of the insulation. INSTALLATION OF CAVITY-WALL INSULATION

A. Foam-Plastic Board Insulation: Install pads of adhesive spaced approximately 24 inches o.c. both ways on inside face and as recommended by manufacturer. Fit courses of insulation between wall ties and other obstructions, with edges butted tightly in both directions. Press units firmly against inside substrates.

1. Supplement adhesive attachment of insulation by securing boards with two-piece wall ties designed for this purpose and specified in Section 04 20 00 "Unit Masonry."

3.4 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

A. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
4. For metal-framed wall cavities where cavity heights exceed 96 inches support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
5. Mineral Wool Insulation (batt or board): Batt compacted to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft.
6. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.5 INSTALLATION OF SAFING INSULATION

A. At Unrated Floors: Install loose mineral-wool blanket perimeter safing insulation to fill miscellaneous voids, gaps and cavity spaces where shown, and if not shown, between edges of concrete floor slab and back of 1) exterior walls and/or 2) spandrel panel insulation, or installation with no insulation, of exterior curtain-wall systems. Compact to approximately 40% of normal maximum volume, and seal joints and/or surface with calking compound indicated to prevent the passage of smoke. Use of these materials is subject to acceptance by the Authority Having Jurisdiction.

3.6 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07 21 00

SECTION 07 22 16
ROOF BOARD INSULATION

PART 1 – GENERAL

1.1 REFERENCES (INCLUDING LATEST REVISIONS)

A. Comply with governing local, state, and federal regulations, safety standards, and codes.

B. Testing Laboratory Services: Test results shall meet or exceed established standards.

C. Underwriters Laboratories, Inc. (Roofing Covering): Class A fire hazard classification.

D. American Society of Testing Materials (ASTM)
1. C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
2. C 209 Methods of Testing Insulating Board (Cellulosic Fiber), Structural and Decorative
3. C 728 Perlite Thermal Insulation Board
4. D 41 Asphalt Primer Used in Roofing and Waterproofing
5. D 312 Asphalt Used in Roofing
6. D 1621 Test Method for Compressive Properties of Rigid Cellular Plastics
7. D 4601 Asphalt Coated Glass Fiber Base Sheet Used in Roofing

E. The National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual

F. American National Standards Institute/Single Ply Roofing Industry (ANSI/SPRI)

G. American Society of Civil Engineers - ASCE 7 Minimum Design Loads for Buildings and Other Structures (for wind uplift criteria)

1.2 QUALITY ASSURANCE

A. Regulatory Requirements
1. Classified by Underwriter's Laboratories (UL) as Class A roof covering.
2. Follow local, state, and federal regulations, safety standards, and codes.

B. Installation
1. Installation shall be in accordance with manufacturer's current published application procedures, NRCA general recommendations, and ASCE 7 wind uplift criteria.
2. Roof system manufacturer's technical specifications shall be considered part of this specification and shall be used as reference for specific application procedures.

C. Contract Documents
1. In the case of an inconsistency between the drawings and specifications or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Project Manager's/Architect's interpretation.

1.3 SUBMITTALS

A. Product Data: Submit Manufacturer's product data sheets for each product.

B. Shop Drawings: Layout of roof plan showing tapered design, tapered insulation pattern, direction of slope, amount of slope, spot elevations indicating thicknesses at high and low points.

C. Certification: Submit roof manufacturer's certification in writing that insulation is acceptable as substrate for application of specified roof system.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store materials in accordance with manufacturer's recommendations.

B. When stored outdoors:
1. Tarp and shield insulation from moisture and ultraviolet rays.
2. Elevate insulation above substrate four inches minimum.
3. Secure insulation to resist high winds.
4. Distribute insulation stored on roof deck to prevent concentrated loads that would impose excessive stress or stain on deck or structural members. Verify that structure can accommodate additional loading.
5. Wet insulation, or insulation that has been wet but which has dried, may not be used and shall be removed completely and immediately from the job site.
6. Do not double stack bundles of insulation on the roof top.

1.5 SEQUENCING AND SCHEDULING

A. Substrate Acceptance: Roof system manufacturer's representative shall inspect roof deck and associated substrates and provide written acceptance of conditions.

B. Manufacturer's approved roofing contractor shall inspect and approve deck and substrates.

C. Plan roof layout with respect to roof deck slope to prevent rainwater drainage into completed roofing.

D. Do not install more insulation than can be covered with complete roof system in same day.

1.6 PRODUCT CONDITIONS

A. Environmental Requirements:
1. Apply roofing and insulation in dry weather.
2. Do not proceed with roof construction during inclement weather or when precipitation is predicted 40% or more possibility.
3. Do not apply insulation over wet or moist deck or in foggy conditions.
4. Days with wind speeds of 30 mph or greater shall be considered "Bad Weather" days.

B. Emergency Equipment: Maintain on-site equipment and material necessary to apply emergency temporary seals in the event of sudden storms or inclement weather.

C. Costs for emergency roofing shall be borne by Contractor.

PART 2 – PRODUCTS

2.1 INSULATION – FLAT STOCK

A. All insulation shall be approved in writing by the membrane manufacturer as to thickness, type, and manufacturer. All insulation must be approved for the specific application, Underwriters Laboratory approved, and be listed in the FM Global Approval Guide.

B. Polyisocyanurate Roof Insulation: Insulation shall be two layers of rigid polyisocyanurate foam board; meeting Federal Specification No. HH-I-1972/1 or 2 with 20 psi minimum compressive strength and 2.0 pcf minimum density. First layer shall be a minimum thickness of one and one-half inch (1-1/2"). R-value over each roof area shall meet or exceed R-25. Board shall be surfaced on two (2) sides with non-asphaltic facer material.

2.2 INSULATION – TAPERED

A. Factory Tapered Polyisocyanurate for Field of Roof: Shall be tapered polyisocyanurate board, with a 20 psi minimum compressive strength and nominal 2.0 pcf density. Insulation shall be of thickness required for one-eighth inch (1/8) slope per foot to roof drains as indicated on drawings with a minimum edge thickness of one-half inch (1/2"). Insulation shall be surfaced on two (2) sides with a non-asphaltic facer material.

B. Factory Tapered Polyisocyanurate Crickets: Factory cut twenty-four inch by forty-eight inch (24" x 48") polyisocyanurate board cut to one-half inch (1/2") per foot slope used in conjunction with standard thickness of polyisocyanurate board to provide positive slope.

2.3 COVER BOARD

A. Shall be impact-resistant, nonstructural, specially engineered gypsum and cellulose fiber panels with 95% recycled content; uniform water-resistance throughout core and surface. Board size four feet by four feet (4' x 4'), thickness 1/2"; conforming to ASTM C 1278, meeting FM 4470 Class 1 criteria, classified by Underwriters Laboratories, and listed in the FM Global Approval Guide. Board will meet the following physical properties:

Test	Typical Value	Test Method
Fire Resistance	Class A	UL 790
Permeance	≤ 30	ASTM C473
Surface water absorption	≤ 1.6 nominal grams	ASTM C473
Water resistance	Maximum 10% weight percentage gain	
Mold Resistance	Minimum rating of "10"	ASTM D3273

2.4 ASPHALT ROOF PRIMER

A. Quick-dry asphalt-based primer for priming of asphalt roof surfaces:

Applicable Federal Specification	SS-A-701B
ASTM	D 41
Flash Point	105° F
Viscosity at 80° F (ASTM D 217)	50-60 K.U.
Weight per gallon	7.4 pounds
Drying time (to touch)	Min. 4 hours

2.5 BITUMEN

A. Shall be ASTM D 312 Type IV extra steep asphalt.

B. Contractor shall mix with the hot asphalt an additive that eliminates the asphalt odor

2.6 COLD INSULATION ADHESIVE

A. Shall be a dual component, reaction cure polyurethane adhesive, meeting the following physical properties, as supplied by the roof system manufacturer.

Density	ASTM D-1622	3.2 lb/cf
Compressive Strength	ASTM D-1621	38 psi @ 6% deflection
Tensile Strength	ASTM D 1623	35 psi
Water Absorption	ASTM D 2842	5.1%
Closed Cell Content	ASTM D 6226	90% min.
R-Value	ASTM C 518	3.8/inch
Weight/Gallon (Liquid Components)	Part 1 Component	10.32 lbs.
	Part 2 Component	8.54 lbs.

2.7 FASTENERS

A. Fasteners and fastening plates and/or termination bars shall be FM Approved and shall be listed in the FM Global Approval Guide, and as recommended by the insulation/fastener manufacturer for the specific application to meet the minimal requirements for wind uplift as required by the local jurisdiction and/or FM Global.

B. FM-90 Base Sheet Fastener for Lightweight Insulating / Poured Gypsum Substrates: Shall be a galvanized (G-90) coated steel with split shank, one piece fastener, with rectangular dual gripping legs 1.7" length and an elastomeric polymer coating to be used with a precision formed galvalume (AZ-55) coated steel with a rib reinforced cap in 2.7" inch diameter plate as manufactured by ES Products, or approved equal. Fasteners and plates shall be approved by FM Global and listed in the FM Global Approval Guide.

PART 3 – EXECUTION

3.1 PROTECTION OF ROOFING

A. Provide special protection from traffic on yet to be removed roofing.

B. Provide special protection from traffic on completed work.

3.2 EXAMINATION AND PREPARATION

A. Do not install until defects are corrected and deck substrate meets roof system manufacturer's requirements.

B. Do not apply insulation unless asphalt application temperature, EVT of approximately 375° F to 425° F, can be maintained or when water or moisture is present on substrate. Do not heat asphalt above flashing point, or 525° F.

C. Examine substrate and related surfaces, and verify that there are no conditions such as inadequate anchorage, foreign materials, moisture, ridges, depressions, or other conditions which would prevent satisfactory installation of roof system.

D. Start of work constitutes acceptance of deck substrate and site conditions.

E. Sweep deck substrate clean of dust and debris immediately prior to installation of base sheet . After base sheet installation, sweep base sheet clean of dust and debris prior to installation of insulation.

3.3 APPLICATION OF INSULATION – GENERAL INSTRUCTIONS

A. Manufacturer's Instructions: In regard to attachment, the manufacturer's instructions or specifications shall determine the suitability for an application. Installation must meet ASCE 7 criteria and meet local governing building codes.

B. Precautions: The surface of the insulation must not be ruptured due to overdriving of fasteners.

C. Thermal insulation boards shall be laid on the substrate in parallel rows with end joints staggered minimum of six inches and butted as close as possible. All joints shall be tight and at the roof perimeter and roof penetrations, insulation shall be cut neatly and fitted to reduce openings to a minimum. All openings one-fourth inch (1/4") or larger shall be filled with insulation.

D. Insulation shall be tapered or feathered at drains and scuppers to provide proper drainage (if applicable).

E. No more insulation shall be installed than can be covered by the completed roof system by the end of the day or the onset of inclement weather.

F. Tapered insulation and crickets, shall be placed in accordance with the drawings and/or as required to minimum of NRCA standards.

3.4 APPLICATION OF INSULATION - ADHERED IN HOT OVER BASE SHEET

A. Specified flat stock insulation shall be bonded to the specified base sheet with a solid mopping of steep asphalt Type IV, as required by slope (NRCA), at the minimum rate of twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface and immediately rolled in place and weighted.

B. The top surface of the first layer of flat stock insulation shall be coated with hot asphalt using twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface, and specified flat stock insulation shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately rolled in place and weighted.

C. The top surface of preceding insulation shall be coated with hot asphalt using twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface, and specified tapered insulation shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately rolled in place and weighted.
D. The top surface of the preceding insulation shall be coated with hot asphalt using twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface, and specified cover board shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately rolled in place and weighted.

3.5 APPLICATION OF INSULATION - ADHERED IN LOW RISE FOAM ADHESIVE

A. Specified flat stock insulation shall be bonded to the specified base sheet with cold insulation adhesive, per manufacturer's applications rates and guidelines, and immediately rolled in place and weighted till adhesive cures.

B. Second layer of specified flat stock insulation shall be bonded to the top surface of the first layer of insulation with cold insulation adhesive, per manufacturer's applications rates and guidelines, and applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately rolled in place and weighted till adhesive cures.
C. Specified tapered insulation shall be bonded to the top surface of the previous layer of insulation with cold insulation adhesive, per manufacturer's applications rates and guidelines, and applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately rolled in place and weighted till adhesive cures.

D. Specified cover board shall be bonded to the top surface of the preceding layer of insulation and applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately rolled in place and weighted till adhesive cures.

3.6 ADJUSTING

A. Remove insulation which has been damaged (broken, cracked, punctured, wet, etc.) and install acceptable new units before installation of roof system.

3.7 CLEANING

A. Remove debris and material wrappers from jobsite. Leave insulation clean and dry, ready to receive roofing membrane.

END OF SECTION 07 22 16

SECTION 07 27 26 - FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Vapor-permeable, fluid-applied air barriers.

B. Related Requirements:

1. Section 4 05 23 "Through-Wall and Wall Substrate Flashing System" .

2. Section 06 16 00 "Sheathing" for wall sheathings and wall sheathing joint-and-penetration treatments.

1.3 DEFINITIONS

A. Air-Barrier Material: A primary element that provides a continuous barrier to the movement of air.

B. Air-Barrier Accessory: A transitional component of the air barrier that provides continuity.

C. Air-Barrier Assembly: The collection of air-barrier materials and accessories applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review air-barrier requirements and installation, special details, mockups, air-leakage and bond testing, air-barrier protection, and work scheduling that covers air barriers.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include manufacturer's written instructions for evaluating, preparing, and treating each substrate; technical data; dry film thickness; and tested physical and performance properties of products.
2. Include manufacturer’s data from ICC-ES substantiating recent compliance with building code in effect for Project. The ICC-ES report for the submitted Vapor Permeable Weather-resistive Barrier shall indicate that the "Barrier" is approved for use in the Type of

Construction corresponding to the Project's Type of Construction (i.e. Type I, II, III, IV and Type V). Where this is not the case, the report shall not exclude the Air Barrier from being used for the Type of Construction corresponding to the Project.

3. Provide documentation showing compliance with NFPA 285 as required by 2012 International Building Code or later codes, for combustible weather-resistive barriers.
4. Installation Accessories (Tapes, precut closure pieces and other items required or recommended by the manufacturer, if any): Manufacturer's data sheets and complete installation requirements and recommendations.
5. Submit proof of proposed product being listed on the ABAA web site as an acceptable Air Barrier.

B. Shop Drawings: For air-barrier assemblies.

1. Show locations and extent of air-barrier materials, accessories, and assemblies specific to Project conditions.
2. Include details for substrate joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
3. Include details of interfaces with other materials that form part of air barrier.

1.6 INFORMATIONAL SUBMITTALS

A. Product Certificates: From air-barrier manufacturer, certifying compatibility of air barriers and accessory materials with Project materials that connect to or that come in contact with the barrier.

B. Compatibility: Submit a letter from the primary material manufacturer stating that the materials proposed for use are permanently chemically compatible as well as adhesively compatible with the adjacent materials proposed for use. Submit the letter from manufacturer stating that cleaning materials used during installation are also chemically compatible with adjacent materials proposed for use.

1. Confirm that air / water barrier included in the Masonry "Compatibility Report" is compatible with all Masonry related products to be used on the job, and that the barrier has been checked for compatibility with all other products (not Masonry) which it will touch or be placed in-close-proximity to. Compatibility with the following items, but not limited to the following, shall be confirmed: air / water barrier materials, vapor retarders if any, insulation, and sheathing surfaces. Incompatible products shall not be provided nor combined. Products that are incompatible with the air / water barrier shall not be provided nor combined and used with the air barrier. [If proposed product is asphalt-based, and incompatible with the masonry accessories, state this in the submittal.]

C. Product Test Reports: For each air-barrier assembly, for tests performed by a qualified testing agency.

D. Field quality-control reports.

E. NFPA 285 coordination and compliance data shall include, but not be limited to, showing that the air barrier product(s) and other products / materials also being supplied on the job for the wall systems, have been tested together in a wall system matching the job requirements.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1. Installer shall be licensed by ABAA according to ABAA's Quality Assurance Program and shall employ ABAA-certified installers and supervisors on Project.

B. Mockups: Build mockups to set quality standards for materials and execution.

1. Build integrated mockups of exterior wall assembly as directed by Architect in the field, 150 sq. ft. incorporating backup wall construction, external cladding, window, storefront, door frame and sill, insulation, ties and other penetrations, and flashing to demonstrate surface preparation, crack and joint treatment, application of air barriers, and sealing of gaps, terminations, and penetrations of air-barrier assembly.

a. Coordinate construction of mockups to permit inspection and testing of air barrier before external insulation and cladding are installed.
b. Include junction with roofing membrane and foundation wall intersection.
c. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply air barrier until mockups are approved.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion if allowed by and coordinated with the Architect in the field.

C. Coordination Requirements: Even though the following conditions exist on the job 1) there may, or may not, be an indicated Basis-of-Design for the combustible wall "air barrier" and the combustible "rigid foam plastic wall insulation" indicated to be used together in the project walls to achieve NFPA 285 wall system testing compliance - and 2) the choice of air barrier (and insulation) to be used on the project is open to the bidding process and contingent on the air barrier product having been tested with other "to be bid" products including but not limited to the combustible rigid foam plastic wall insulation, submit evidence that the proposed air barrier and associated proposed wall system components have been tested together, as a "system" to pass NFPA 285 testing requirements. The lead Contractor shall coordinate as necessary, or cause to be coordinated as necessary, to provide a set of materials that have been fire tested together for the job.

1.8 DELIVERY, STORAGE AND HANDLING

A. Remove and replace liquid materials that cannot be applied within their stated shelf life.

B. Protect stored materials from direct sunlight.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended in writing by air-barrier manufacturer.

1. Protect substrates from environmental conditions that affect air-barrier performance.
2. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Source Limitations: Obtain primary air-barrier materials and air-barrier accessories from single source from single manufacturer. [Provide either a High-Build air barrier or a Medium-Build air barrier.]

2.2 PERFORMANCE REQUIREMENTS

A. Air-Barrier Performance: Air-barrier assembly and seals with adjacent construction shall be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, tie-ins to installed waterproofing, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.

B. Air-Barrier Assembly Air Leakage: Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft. when tested according to ASTM E 2357.

2.3 MEDIUM-BUILD AIR BARRIERS, VAPOR PERMEABLE

A. Medium-Build, Vapor-Permeable Air Barrier: Synthetic polymer material with an installed dry film thickness, according to manufacturer's written instructions, of 20 to 30 mils (0.51 to 0.76 mm) unless otherwise indicated, over smooth, void-free substrates.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. BASF Corporation: Finestop RA or MasterSeal AWB 660, 800-327-1570. www.basf.com/group/corporate/en/

b. DuPont Building Innovations: Tyvek Fluid Applied WB.

c. Momentive Performance Materials, Inc.: GE Elemax 2600 Air and Water-Resistive Barrier (17 mil or thicker nominal thickness allowed) silicone coating Use of this system requires the use of silicone compatible adhesives and sealants. Provide and coordinate the use of system compatible adhesives and sealants in contact with this air barrier system.

d. Hohmann & Barnard, Incorporated: Enviro-Barrier VP, 631-234-0600. www.h-b.com/

e. Prosoco, Inc.: R-Guard Spray Wrap MVP.

f. STS Coatings: FW-100A, Wall Guardian, 210-377-1055 www.wallguardian.com

g. Tremco, Incorporated: ExoAir 230. Membrane. Provide gasket material that is compatible with air barrier.

h. W.R. Meadows, Incorporated: Air Shield LMP. ASTM D1970 healing 30mil; 12 perms.

2. Physical and Performance Properties:

a. Air Permeance: Maximum 0.004 cfm/sq. ft. of surface area at 1.57-lbf/sq. ft. (0.02 L/s x sq. m of surface area at 75-Pa) pressure difference; ASTM E 2178.

b. Vapor Permeance: Minimum 10 perms or more (580 ng/Pa x s x sq. m); ASTM E 96/E 96M, Desiccant Method, Procedure A, at 20 mil or more thickness.

c. Ultimate Elongation and Recovery ability: Minimum 250 percent; "ASTM D 412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension", Die C. Material shall be tested with "Test Method A" as indicated in ASTM D 412, latest version for elongation and recovery. Indicate break point as a percentage. Recovery value shall be at least 95 percent after elongation of 300 percent. Die "C" shall be utilized for the test.

d. Low temperature crack bridging ability: Material shall achieve passing results, no sign of any failure mode, when tested in accordance with "ASTM C 1305 Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane" latest version, when tested at the air barrier installed thickness, but not less than 20 mil thick.

e. Sealability: Material shall achieve passing results when tested in accordance with "ASTM D 1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection".

f. Adhesion to Substrate: Minimum 16 lbf/sq. in. (110 kPa) when tested according to ASTM D 4541.

g. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

h. UV Resistance: Can be exposed to sunlight for a minimum of 180 days according to manufacturer's written instructions.

2.4 ACCESSORY MATERIALS

A. Requirement: Provide primers, transition strips, termination strips, joint reinforcing fabric and strips, joint sealants, counterflashing strips, flashing sheets and metal termination bars, termination mastic, substrate patching materials, adhesives, tapes, foam sealants, lap sealants, and other accessory materials that are recommended in writing by air-barrier manufacturer to produce a complete air-barrier assembly and that are compatible with primary air-barrier material and adjacent construction to which they may seal.

B. Primer: Liquid waterborne primer recommended for substrate by air-barrier material manufacturer.

C. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, 0.0250 inch (0.64 mm) thick, and Series 300 stainless-steel fasteners.

D. Preformed Silicone Extrusion: Manufacturer's standard system consisting of cured low-modulus silicone extrusion, sized to fit opening widths, with a single-component, neutral-curing, Class 100/50 (low-modulus) silicone sealant for bonding extrusions to substrates. EXECUTION

2.5 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.

2. Verify that substrates have cured and aged for minimum time recommended in writing by air-barrier manufacturer.
3. Verify that substrates are visibly dry and free of moisture.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

2.6 SURFACE PREPARATION

A. Clean, prepare, treat, fill, and seal substrate and joints and cracks in substrate according to manufacturer's written instructions and details. Provide clean, dust-free, and dry substrate for air-barrier application.

B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.

C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching material.

E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.

F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.

G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

H. Bridge isolation joints, expansion joints and discontinuous wall-to-wall, deck-to-wall, and deck-to-deck joints with air-barrier accessory material that accommodates joint movement according to manufacturer's written instructions and details.

2.7 ACCESSORIES INSTALLATION

A. Install accessory materials according to air-barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.

1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
2. Install transition strip on roofing membrane or base flashing so that a minimum of 3 inches of coverage is achieved over each substrate.
3. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
4. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.

B. Connect and seal exterior wall air-barrier material continuously to roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.

C. At end of each working day, seal top edge of strips and transition strips to substrate with termination mastic.

D. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

E. Wall Openings: Prime concealed, perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply transition strip or preformed silicone extrusion so that a minimum of 3 inches of coverage is achieved over each substrate. Maintain 3 inches of full contact over firm bearing to perimeter frames, with not less than 1 inch of full contact.

1. Transition Strip: Roll firmly to enhance adhesion.
2. Preformed Silicone Extrusion: Set in full bed of silicone sealant applied to walls, frame, and air-barrier material.

F. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air-barrier material with foam sealant.

G. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.

H. Seal top of through-wall flashings to air barrier with an additional 6-inch- wide, transition strip.

I. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.

J. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches beyond repaired areas in strip direction.

2.8 PRIMARY AIR-BARRIER MATERIAL INSTALLATION

A. Apply air-barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier according to air-barrier manufacturer's written instructions and details. Apply air-barrier material within manufacturer's recommended application temperature ranges.

1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
2. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.

B. Medium-Build Air Barriers: Apply continuous unbroken air-barrier material to substrates according to the following thickness. Apply an increased thickness of air-barrier material in full contact around protrusions such as masonry ties.

1. Vapor-Permeable, Medium-Build Air Barrier: Total dry film thickness as recommended in writing by manufacturer to comply with performance requirements, but not less than 20 mils (0.51 mm), applied in one or more equal coats. Apply additional material as needed to achieve void- and pinhole-free surface, but do not exceed thickness on which required vapor permeability is based.

C. Do not cover air barrier until it has been tested and inspected by testing agency.

D. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

2.9 FIELD QUALITY CONTROL

A. ABAA Quality Assurance Program: Perform examinations, preparation, installation, testing, and inspections under ABAA's Quality Assurance Program.

B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

C. Inspections: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements. Inspections may include the following:

1. Continuity of air-barrier system has been achieved throughout the building envelope with no gaps or holes.
2. Air-barrier dry film thickness.
3. Continuous structural support of air-barrier system has been provided.
4. Masonry and concrete surfaces are smooth, clean, and free of cavities, protrusions, and mortar droppings.
5. Site conditions for application temperature and dryness of substrates have been maintained.
6. Maximum exposure time of materials to UV deterioration has not been exceeded.
7. Surfaces have been primed, if applicable.
8. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
9. Termination mastic has been applied on cut edges.
10. Strips and transition strips have been firmly adhered to substrate.
11. Compatible materials have been used.
12. Transitions at changes in direction and structural support at gaps have been provided.
13. Connections between assemblies (air-barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
14. All penetrations have been sealed.

D. [Inspections/Photographs: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements. Subcontractor responsible for the work, or his agent, shall photograph items to be inspected, unless otherwise indicated, and submit to one copy each to the Architect and Owner in an electronic report printable on 8.5 inch x 11 inch format. Inspections shall include the following:

1. Continuity of air-barrier system has been achieved throughout the building envelope with no gaps or holes. This will require continuous structural support of air-barrier system over the entire area over which it is installed.
2. Air-barrier dry film thickness.
3. Maximum exposure time of materials to UV deterioration has not been exceeded.
4. Surfaces have been primed, if applicable.
5. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
6. Termination mastic has been applied on cut edges.
7. Strips and transition strips have been firmly adhered to substrate.
8. Compatible materials have been used. Provide letters from manufacturers.
9. Transitions at changes in direction and structural support at gaps have been provided.

10. Connections between assemblies (air-barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
11. All penetrations have been sealed.]

E. Tests: As determined by testing agency from among the following tests:

1. Air-Leakage-Location Testing: Air-barrier assemblies will be tested for evidence of air leakage according to ASTM E 1186, chamber pressurization or depressurization with smoke tracers.
2. Air-Leakage-Volume Testing: Air-barrier assemblies will be tested for air-leakage rate according to ASTM E 783.
3. Adhesion Testing: Air-barrier assemblies will be tested for required adhesion to substrate according to ASTM D 4541 for each 600 sq. ft. of installed air barrier or part thereof.

F. Air barriers will be considered defective if they do not pass tests and inspections.

1. Apply additional air-barrier material, according to manufacturer's written instructions, where inspection results indicate insufficient thickness.
2. Remove and replace deficient air-barrier components for retesting as specified above.]

G. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.

H. Prepare test and inspection reports.

2.10 CLEANING AND PROTECTION

A. Protect air-barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.

1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full-thickness, air-barrier application after repairing and preparing the overexposed materials according to air-barrier manufacturer's written instructions.
2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.

B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

C. Remove masking materials after installation.

END OF SECTION 07 27 26

SECTION 07 42 13 - METAL WALL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
1. Prefinished steel wall panel systems with concealed fasteners.
2. Steel hat channel furring.
3. Building paper behind metal wall panels.
4. Related flashings, trim, and accessory components.

B. Related Sections:
1. Section 05 40 00 - Cold-Formed Metal Framing: Secondary support framing as required.
2. Section 06 10 53 – Rough Carpentry: Plywood sheathing material and installation.
3. Section 07 21 00 – Thermal Insulation: Rigid insulation board at exterior walls.
4. Section 07 27 26 - Fluid-Applied Membrane Air Barriers
5. Section 07 62 00 - Sheet Metal Flashing and Trim: Color match for roofing fascia where indicated.

1.2 REFERENCES

A. ASTM International:
1. ASTM A755/A755M - Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Pre-painted by the Coil-Coating Process for Exterior Exposed Building Products.
2. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

1.3 PERFORMANCE REQUIREMENTS

A. Components: Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall as calculated in accordance with applicable code.

B. Maximum Allowable Deflection of Panel: 1/180 of span.

C. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement within system; movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; deflection of structural support framing.

D. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate dimensions, layout, joints, expansion joints, construction details, methods of anchorage, and interface with adjacent materials.

C. Product Data: Submit manufacturer's product data for the specific panels.

D. Samples:
1. Submit two samples of each type panel and panel finish, 12 x 12 inch in size, illustrating panel profile and finish color, sheen, and texture.
2. Submit two samples of fasteners, closures, and other accessories.

E. Manufacturer's Installation Instructions: Submit special procedures.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years' experience.

B. Installer: Company specializing in performing Work of this section with minimum three years' experience and approved by manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

C. Store prefinished material off ground protected from weather, to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

D. Prevent contact with materials capable of causing discoloration or staining.

1.7 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Coordinate Work with installation of wall sheathing and dampproofing.

C. Coordinate Work with installation of windows, doors, and adjacent components or materials.

1.8 WARRANTY

A. Section 01 70 00 - Execution and Closeout Requirements: Product warranties and product bonds.

B. Special Fluoropolymer Finish Warranty: Submit a written warranty, signed by manufacturer, covering failure of the factory-applied exterior finish on metal wall panels within the specified warranty period and agreeing to repair finish or replace wall panels that show evidence of finish deterioration. Deterioration of finish includes, but is not limited to, color fade, chalking, cracking, peeling, and loss of film integrity.
   1. Fluoropolymer Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
A. AEP-Span www.aep-span.com
B. Berridge Manufacturing Co. www.berridge.com
C. Centria www.centria.com
D. Metal Building Components, Inc. www.mbci.com
E. Morin, www.morincorp.com.
F. Pac-Clad/Peterson, www.pac-clad.com
G. Substitutions: Section 01 60 00 - Product Requirements.

2.2 PREFINISHED STEEL PANELS

A. General:
   1. Base Metal: Galvanized steel sheet ASTM A653/A653M; Structural Quality; G90 zinc coating. Minimum 22-gage prefinished steel stock.
   2. Configuration: Smooth-faced, no grooves, with Interlocking edges and ends butted tight. Concealed fastening system.
   3. Exposed Finish: Standard two-coat (primer and top coat) fluoropolymer coating with minimum 70-percent polyvinylidene fluoride resin. Color(s) to be selected by the Architect. 20-year finish warranty.
   4. Unexposed Finish: Manufacturer's standard coating.

5. Provide with Matching Trim: Trim, Closure Pieces, and Flashings: Same material, thickness and finish as panels; brake-formed to required profiles.

B. Exterior Vertical Wall Panels:
1. Basis of Design: *Precision HWP Panel* as manufactured by Pac-Clad or approved equivalent by specified manufacturer.
2. Minimum 22 gage prefinished steel stock.
3. 16-inch coverage, 7/8-inch deep; Flat, ribbed face with smooth finish.
4. Finish face color as selected by the Architect.
5. Install with interlocking long edges and concealed fasteners; Panel ends concealed by system's matching trim.

2.3 ACCESSORIES

A. Sealants: Specified in Section 07 90 00; color to match siding.

B. Fasteners: Manufacturer's concealed stainless steel or hot dip galvanized screws, threaded to suit application.

C. Field Touch-up Paint: As recommended by panel manufacturer.

D. Building Paper - Where recommended by panel manufacturer: Cellulose fiber building paper, water repellent breather type. ASTM D226; Type II, No. 30 unperforated asphalt felt.

2.4 FABRICATION

A. Form sections to match existing panels, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest practicable lengths.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify sheathing and dampproofing/membrane air barrier is in place and ready to receive metal panels.

3.2 INSTALLATION

A. METAL FURRING CHANNELS:
1. Where indicated, provide and install 16-ga. galvanized metal hat channel furring at maximum 16" o.c. over substrate and panel manufacturer -recommended building paper.

B. BUILDING PAPER: Where recommended by the panel manufacturer,
1. install 1 layer building paper shingle-style over substrate to receive metal siding.
2. Weather lap edges 6 inches and ends minimum 6 inches, minimum.
3. Securely fasten through substrate to metal studs, using stainless steel screws.

C. METAL PANELS
1. Install panels in accordance with manufacturer's instructions using manufacturer's standard flashing and trim details unless modified by Drawings.
2. Protect surfaces in contact with cementitious materials and dissimilar metals with bituminous paint. Allow to dry prior to installation.
3. At stud walls fasten wall panels through sheathing into cold formed metal framing members; space fasteners maximum 16 inches on center horizontally and vertically to suit application.
4. Form laps and joints to shed water.
5. Field cutting panels by torch is not permitted.

6. Accessories: Install components necessary for complete wall panel assembly, including trim, flashings, sealants, gaskets, and similar items.
7. Installation Tolerances: Shim and align panel units within installed tolerance of 1/4 inch in 20 feet on level; with location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.3 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Remove site cuttings from finish surfaces.

C. Remove protective films from panel surfaces within 60 days of installation.

D. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

END OF SECTION

SECTION 07 52 16
MODIFIED ASPHALT BITUMINOUS ROOFING

PART 1 - GENERAL

1.1 AREAS COVERED

A. Refer to roof plans for areas to be included in the scope of work.

1.2 DEFINITIONS

ACM	Asbestos Containing Materials
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
EPA	Environmental Protection Agency
EPDM	Ethylene Propylene Diene Monomer
EPS	Expanded Polystyrene
EVT	Equiviscous Temperatures
FM	Factory Mutual
IBC	International Building Code
KEE	Ketone Ethylene Ester
NDL	No Dollar Limit
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NRCA	National Roofing Contractors Association
OSHA	Occupational Safety & Health Administration
SBS	Styrene-Butadiene-Styrene
SDI	Steel Deck Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPRI	Single Ply Roofing Industry
UL	Underwriters Laboratories, Inc.

1.3 REFERENCES (INCLUDING LATEST REVISIONS)

A. Comply with governing local, state, and federal regulations, safety standards, and codes.

B. Testing Laboratory Services: Test results shall meet or exceed established standards.

C. Underwriters Laboratories, Inc. (Roofing Covering): Class A fire hazard classification.

D. American Society for Testing and Materials (ASTM)

E. The National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual

F. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) - Architectural Sheet Metal Manual

G. American Society of Civil Engineers – ASCE 7

1.4 INSTALLER QUALIFICATIONS

A. Roofing installer must be:
   1. Currently in good standing with the manufacturer.
   2. Installer must be an experienced single firm specializing in the type of roofing repair and/or removal and replacement work required, employing only experienced workers for the class of work in which they are employed, having at least five (5) years successful experience on projects similar in size and scope and acceptable as applicators by the Project Manager/Architect.

3. Contractor must have successfully completed previous projects warranted by the manufacturer.

B. It shall remain each Bidder's responsibility to determine his current status with the manufacturer's certification plan.

1.5 MANUFACTURER QUALIFICATIONS

A. A qualified manufacturer is one that is UL listed and has FM approvals for a membrane roofing system similar to that used for this project for a minimum of fifteen (15) years.

1.6 CONTRACT DOCUMENT QUALITY ASSURANCE

A. In the case of an inconsistency between the drawings and specifications or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Project Manager's/Architect's interpretation.

1.7 SUBMITTALS

A. Refer to Specification Section 01 33 00 for Submittal requirements

B. Shop Drawings: Provide manufacturer's approved details of all perimeter conditions, projection conditions, and any additional special job conditions which require details other than indicated in the drawings.

1.8 SYSTEM DESCRIPTION

A. Typical: Two-ply, Modified Bitumen Roofing System with factory applied cool roof coating; reinforced modified bitumen cap sheet applied torch applied over modified bitumen base ply torch applied to cover board adhered to rigid insulation and taper; with top surface of the modified cap sheet coated with Energy Star compliant factory applied reflective coating.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened containers and rolls with all labels intact and legible including labels indicating appropriate warnings, storage conditions, lot numbers, and usage instructions. Materials damaged in shipping or storage shall not be used.

B. Manufacturer's packaging and/or roll plastic is not acceptable for exterior storage. Tarpaulin with grommets shall be minimum acceptable for exterior coverings. All materials stored as above shall be a minimum of four inches (4") off the substrate, and the tarpaulin tied off with rope.

C. Deliver materials requiring fire resistance classification to the job with labels attached and packaged as required by labeling service.

D. Deliver materials in sufficient quantity to allow continuity of work.

E. Handle and store material and equipment in such a manner as to avoid damage. Liquid products shall be delivered sealed, in original containers.

F. Handle rolled goods so as to prevent damage to edge or ends.

G. Select and operate material handling equipment so as not to damage existing construction or applied roofing.

H. Moisture-sensitive products shall be maintained in dry storage areas and properly covered. Provide continuous protection of materials against wetting and moisture absorption. Store roofing and flashing materials on clean raised platforms with weather protective covering when stored outdoors.

I. Store rolled goods on end.

J. Protect materials against damage by construction traffic.

K. The proper storage of materials is the sole responsibility of the contractor and any wet or damaged roofing materials shall be discarded, removed from the project site, and replaced prior to application.

L. Comply with fire and safety regulations, especially with materials which are extremely flammable and/or toxic. Use safety precautions indicated on labels.

M. Products liable, such as emulsions, to degrade as a result of being frozen shall be maintained above 40° F in heated storage.

N. No storage of materials shall be permitted on roof areas other than those materials that are to be installed the same day. Any exception must be in written form.

O. The contractor is to erect a temporary chain link fence, minimum six feet (6') in height, around work area stage and kettles. Fence is to be secured on a daily basis.

1.10 SITE CONDITIONS

A. Job Condition Requirements:
1. Coordinate the work of the contractor with the work to be performed by other trades, to ensure proper sequencing of the entire work. The contractor is to schedule his work so that adequate time is allowed for other trades to perform their work.
2. Apply roofing in dry weather.
3. Do not apply roofing when ambient temperature is below 45° F.
4. Proceed with roofing work only when weather conditions are in compliance with manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with specifications.
5. Schedule the work so the building will be left watertight at the end of each day. Do not remove more roofing materials than can be reinstalled in any working day.
6. Load placed on the roof at any point shall not exceed the safe load for which the roof is designed.
7. All surfaces to receive new roofing shall be smooth, dry, and free from dirt, debris, and foreign material before any of this work is installed. Competent operators shall be in attendance at all times equipment is in use. Materials shall be stored neatly in areas designated by the Project Manager/Architect.
8. The contractor is to be aware of the potential for roof leaks on the existing roof as a result of ruptured blisters and/or roof mat damage caused by the vacuum process, foot traffic, or material and equipment storage. The contractor is to take all necessary precautions to prevent damage to the existing roof. All damage to the existing roof that could result in roof leaks is to be repaired on a daily basis by the roofing contractor.
9. The contractor shall follow local, state, and federal regulations, safety standards, and codes for the removal, handling, and disposal of asbestos containing materials, if present. When a conflict exists, follow the stricter document.
10. Due caution should be exercised so as not to alter the structural integrity of the deck. When cutting through any deck, care should be taken so as not to damage the deck or any part of the deck, such as post tension cables, etc.
11. The contractor is to verify the location of all interior ducts, electrical lines, piping, conduit, and/or similar obstructions. The contractor is to perform all work in such a manner as to avoid contact with the above mentioned items.
12. Surface and air temperatures should be a minimum 40° F during applications of cleaner and waterproof coating and remain above 40° F for a minimum of four (4) hours following applications. Verify compatibility of cleaner with coatings, paints, primers and joint sealers specified. Advise Project Manager/Architect of any problems in this regard prior to commencing cleaning operations.
13. Temporary Sanitary Facilities:
    a. The contractor shall furnish and maintain temporary sanitary facilities for employees use during this project, including temporary toilets, wash facilities, and drinking water fixtures.

b. Toilet units shall be self-contained, single-occupant, of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.
c. Facilities shall be installed where they will best service the project's needs, with Owner's/Owner's Representative's approval.
d. Contractor shall provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
e. All portable facilities shall comply with local laws, codes, and regulations.
f. Contractor shall be responsible to see that the units are removed in a timely manner after the completion of the project.

B. Protection of Work and Property:
1. Work: The contractor shall maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. Contractor shall provide and maintain at all times any OSHA required danger signs, guards, and/or obstructions necessary to protect the public and his workmen from any dangers inherent with or created by the work in progress. All federal, state, and city rules and requirements pertaining to safety and all EPA standards, OSHA standards, NESHAP regulations pertaining to asbestos as required shall be fulfilled by the contractor as part of his proposal.
2. Property: Protect existing planting and landscaping as necessary or required to provide and maintain clearance and access to the work of this contract. Examples of two categories or degrees of protection are generally as follows: a) removal, protection, preservation, or replacement and replanting of plant materials; b) protection of plant materials in place, and replacement of any damage resulting from the contractor's operations.
3. Finished roof areas shall be protected from damage by the contractor during construction.
4. Twenty-four Hour Call: The contractor shall have personnel on call 24 hours per day, seven (7) days per week for emergencies during the course of a job. The Owner/Project Manager/Architect is to have the 24 hour numbers for the contact. Contractor must be able to respond to any emergency call and have personnel on-site within two (2) hours after contact. Numbers available to the Owner/Project Manager/Architect are to be mobile, home and office numbers for:
   a) Job Foreman
   b) Job Superintendent
   c) Owner or Company Officer

C. Safety:
1. Follow all OSHA safety regulations and requirements.
2. Superintendent and foreman should be trained in OSHA safety regulations and requirements.
3. Keep two fully charged fire extinguishers at the kettle and two near the work area.
4. During torch application, a fully charged fire extinguisher must be within ten feet (10') of the work area and two fully charged extinguishers near the work area.
5. All fire extinguishers must have been inspected and certified within the past six (6) months and shall have the inspection tag attached to the extinguisher.
6. The contractor shall provide a non-working employee, who is CERTA certified, and who will monitor torch-applied material during and following application. The employee shall use an infrared thermometer to determine if a hot-spot is present in the recently torch-applied material. The infrared thermometer shall be a minimum of 8:1 distance to spot ratio and shall have a minimum upper temperature range of 900° F.
7. The contractor shall provide a four (4) hour fire watch following completion of work each day. The CERTA certified employee shall monitor the area applied during that day's work with an infrared thermometer. The employee shall monitor the area every thirty (30) minutes to look for hot-spots in the applied material.
8. If a hot-spot is located, the employee must contact the fire department immediately. The employee shall then contact the emergency number for Round Rock Independent School District. The employee shall then contact the Roof Consultant. Any hot-spot located shall be opened up immediately and corrective measures taken to prevent fire from entering the building. Two (2) fully charged fire extinguishers and two (2) 5-gallon pails of water must be within reach of the employee during each monitoring event.

D. Damage to Work of Others: The contractor shall repair, refinish, and make good any damage to the building or landscaping resulting from any of his operation. This shall include, but is not limited to, any damage to plaster, tile work, wall covering, paint, ceilings, floors, or any other finished work. Damage done to the building, equipment, or grounds must be repaired at the successful contractor's expense holding the Owner harmless from any other claims for property damage and/or personal injury.

E. Measurements: It will be the contractor's responsibility to obtain and/or verify any necessary dimensions by visiting the job site, and the contractor shall be responsible for the correctness of same. Any drawings supplied are for reference only.

F. Use of Premises:
1. The contractor is advised that the Owner will occupy the building at all times, and the contractor must provide all safeguards required to protect personnel and to keep noise levels as low as reasonably possible for each operation.
2. The contractor shall:
   a) Coordinate work in such a manner as to not interfere with the normal operation of the building.
   b) Assume full responsibility for protection and safekeeping of products stored on premises.
   c) Agree to hold the Owner harmless in any and all liability of every nature and description which may be suffered through bodily injuries, including death of any persons by reason of negligence of the contractor, agents, employees, or subcontractors.

G. Cleaning and Disposal of Materials:
1. Contractor shall keep the job clean and free from all loose materials and foreign matter. Contractor shall take necessary precautions to keep outside walls clean and shall allow no roofing materials to remain on the outside walls.
2. All waste materials, rubbish, etc., shall be removed from the Owner's premises as accumulated. Rubbish shall be carefully handled to reduce the spread of dust. A suitable scrap chute or hoist must be used to lower any debris. At completion, all work areas shall be left broom clean and all contractor's equipment and materials removed from the site.
3. All bituminous or roofing related materials shall be removed from ladders, stairs, railings, and similar parts of the building.
4. Debris shall be deposited at an approved disposal site.

1.11 SEQUENCING AND SCHEDULING

A. Coordinate roofing schedule with work of other trades.

B. Plan lay up of roofing membrane with respect to deck slope. Avoid situations where excessive drainage could pass into completed roofing.

C. Maintain communication with roofing manufacturer's representative to inform of progress and to schedule periodic inspections.

D. All penetrations shall be made in roof prior to beginning with roof installation.

1.12 PERFORMANCE REQUIREMENTS

A. Roofing System: Shall prevent water migration into roof assembly or building interior through the roof membrane and/or membrane base flashing.

1.13 QUALITY ASSURANCE

A. Work of this Section to conform to these specifications, and to the roofing material manufacturer's application instructions. In the event of conflicts between the two, the more stringent requirement shall be observed.

B. Maintain one copy of each document on site.

C. Factory Technical Representative: Roofing Contractor is to arrange and schedule the manufacturer's technical representative to be on site the first day of the installation of manufacturer's roofing system. The manufacturer's technical representative shall inspect the work of the contractor at least one time each week during the installation of the roofing system. The manufacturer's technical representative shall perform with the owner's representative and the roofing contractor a final inspection of the roofing system. At the completion of the final inspection, provide to the roofing contractor a list of punch list items (if any) to be correct before technical acceptance of the roofing project and prior to issuance of manufacturer's Twenty (20) Year Full System, Edge to Edge Warranty. Field reports shall be provided after each inspection within five (5) days of site visit.

D. Pullout Tests: Conduct pullout test on deck using appropriate fastener prior to roof system installation. Submit pullout results for manufacturer's review to determine specific fastening pattern for this project, minimum uplift requirements shall conform to current ASCE 7 criteria.

1.14 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacture of the products specified, with five (5) years documented experience in the uninterrupted, and unmodified manufacture of the roofing system and component elements of the roofing system specified herein.

B. Applicator: Company specializing in the work of this Section, having a minimum of five (5) years documented experience applying modified bitumen roofing systems, and approved by the Manufacturer for not less than three (3) years to install the specified roof system so as to achieve a twenty (20) year edge to edge full system no dollar limit warranty.

1.15 REGULATORY REQUIREMENTS

A. Conform to all applicable local codes for roof assembly fire hazard requirements.

B. Provide certification of inspection confirming approval of design and installation by authority having jurisdiction.

C. Fire Hazard Classifications: UL Class A.

1.16 PRE-INSTALLATION CONFERENCE

A. Convene a preinstallation conference two weeks prior to commencing the Work.

B. Require attendance of parties directly affecting the Work of this Section.

C. Review condition of roof deck and installation, installation procedures and coordination with related work.

1.17 ENVIRONMENT REQUIREMENTS

A. Do not apply roofing during inclement weather.

B. Do not apply roofing membrane to damp or frozen deck or substrate.

1.18 WARRANTY

A. Roofing - Manufacturer: Project shall be installed in such a manner that the roofing material manufacturer will furnish a written twenty (20) year, Full system edge to edge type warranty from the date of substantial completion of the completed project.

B. Roofing - Contractor: The contractor, jointly with any subcontractors employed by him, shall guarantee the work required and performed under this contract will be free from defects in workmanship and materials, and that the building will be and remain waterproof for a two (2) year warranty period, after the Owner accepts the work as substantially complete. The warranty shall be in approved notarized written form, to obligate the contractor and his subcontractors, if any, to make good the requirements of the warranty.

C. Warranty repairs shall be performed by a certified installer. The repairs shall be performed in accordance with the manufacturer's written instructions and recommended procedures so as to not void the warranty (if applicable). Repair of the system, including materials and labor, shall be done at no cost to the Owner.

D. Provide twenty (20) year edge to edge full system Manufacturer's No-Dollar-Limit (NDL) warranty on the above-deck roofing system. Warranty to cover costs of material and labor to replace roofing material which fails to resist the penetration of water due to failure of either material or workmanship, with no penal sum.

E. Manufacturer's warranty shall cover above deck roofing components against wind uplift resulting from wind pressures based on the requirements of ASCE 7.

PART 2 PRODUCTS

2.1 GENERAL

A. Samples of all materials used on the project, which are not supplied by the membrane manufacturer, shall be submitted to the membrane manufacturer for written approval prior to work starting.

B. All materials used on the project shall be asbestos free
C. All materials shall be furnished, specified, or approved in writing by the manufacturer holding the existing warranty and in accordance to NRCA recommendations and accepted roofing industry standards.

2.2 MANUFACTURERS – SHEET AND BITUMINOUS MATERIALS

A. Soprema
B. Johns Manville
C. Or prior approved equal by Owner / Project Manager

2.3 FINISH MEMBRANE:

1. Cap Ply Cool Roof Rated:
   a. Membrane Top Ply: High Reflectivity White Surface Cap Sheet:
      1) Description: Roofing membrane shall have a fiberglass mat reinforcement and thermofusible elastomeric asphalt. Top surface to have White High-Reflective surface. Application is for hot heat welded membranes.
   b. Physical Properties:
      1) Approximate Weight: 104 lbs/sq
      2) Approximate thickness: 157 mils
      3) Total System thickness: 248 mils
   c. White reflective surface certifications: Shall be listed by Energy Star and CRRC:
      1) Initial Solar Reflectance Value: .83
      2) Weathered Reflectance Value: .80
      3) Initial Emissivity Value: .91
      4) Weathered Emissivity Value: .88
      5) Solar Reflectance Index Value: 104

2.4 BASE PLY MEMBRANE:

1. Fiberglass reinforced modified bitumen sheet.
   a. Description: Base ply membrane shall have a fiberglass reinforcement and thermofusible elastomeric asphalt. Both sides shall have a high-brush sanded surface. This membrane is to be applied by heat weld for membranes.
   b. Physical Properties:
      1) Approximate roll weight: 90 pounds
      2) Approximate thickness: 91 mils

B. Base Flashing Membranes:

1. Base Ply Membrane– Fiberglass reinforced modified bitumen sheet.
   a. Description: Base ply membrane shall have a fiberglass reinforcement and thermofusible elastomeric asphalt. Both sides shall have a high-brush sanded surface. This application is to be applied for heat weld membranes.
   b. Physical Properties:
      1) Approximate roll weight: 90 pounds
      2) Approximate thickness: 91 mils
2. Finish Membrane: Polyester reinforced modified bitumen flashing sheet.
   a. Description: Flashing membrane shall have a non-woven polyester reinforcement and thermofusible elastomeric asphalt. Both sides shall have a high-brush sanded surface. Top surface to have White High-Reflective surface. This application is to be heat welded for membranes.
   b. Physical Properties:
      1) Approximate roll weight: 106 lbs.
      2) Approximately thickness: 1570 mils
   c. White reflective surface certifications: Shall be listed by Energy Star and CRRC:
      1) Initial Solar Reflectance Value: .83
      2) Weathered Reflectance Value: .80
      3) Initial Emissivity Value: .91
      4) Weathered Emissivity Value: .88
      5) Solar Reflectance Index Value: 104

2.5 BITUMEN FOR INSULATION AND COVER BOARD APPLICATIONS

A. Shall be ASTM D 312 Type IV extra steep asphalt.

B. Shall be Low Fuming Perma Mop ASTM D 312-15 modified asphalt, and as acceptable by roofing manufacturer to comply with warranty requirements.

C. Shall be SEBS Modified Asphalt ASTM D6152 intended for use with glass felts, modified membranes, insulation and cover boards with slopes o f0:12 to 3:12 slopes.

2.6 BASE SHEET FOR USE OVER LIGHTWEIGHT FILL

A. Shall be Underwriters Laboratory approved.

B. Shall be heavy duty, asphalt-coated fiber glass venting base sheet, with mineral surfacing on one side, ASTM D4897, Type II.

C. Base sheet fasteners as specified in 07 22 16 Insulation.

2.7 VERTICAL WALL FLASHING ADHESIVE

A. Shall be a dual component, reaction cure polyurethane adhesive, meeting the following physical properties.

Density	ASTM D-1622	Free Rise	3.2 lb/cf
Compressive Strength	ASTM D-1621	Parallel	38 psi @ 6% deflection
Tensile Strength	ASTM D 1623	35 psi	
Water Absorption	ASTM D 2843	5.1%	
Closed Cell Content	ASTM D 2856	90% min.; R-value=	3.8 new
Weight/Gallon (Liquid Components)	"Part 1" Component = 10.32 lbs.		
		"Part 2" Component = 8.54 lbs.	
		"Part 1" Component = 225 cps	
		"Part 2" Component = 275 cp	

2.8 ASPHALT ROOF PRIMER

A. Quick-dry asphalt-based primer for priming of asphalt roof surfaces.

ASTM	D 41
Flash Point	105° F
Viscosity at 80° F (ASTM D 217)	50-60 K.U.
Weight per gallon	7.4 pounds
Drying time (to touch)	Min. 4 hours

2.9 ASPHALT PLASTIC ROOF CEMENT

A. Trowel-applied mastic used on flanges of gravel stops, stacks, vents, and similar applications.

ASTM	D 4586
Flash Point	105° F
Weight per gallon (approximate)	11 lbs.
Viscosity @ 80° F (ASTM D 217)	270-330
% Non-Volatile (Fed. Test Method 141)	70% Min.
% Specially Processed Bitumen	30% Min.
% Total Solids, by Volume	75% Min.
Dry film thickness of 1 gal./15 sq. ft.	85 Mils
Drying time	2 to 3 days
Service Temperature, Extended Exposure	-20° to +150° F
Resistance to Oils & Solvents	Poor
Resistance to Sunlight	Good
Resistance to Chemicals	Good
Effects of Weathering	Slight chalking
Water Resistance	
Under Good Drainage Conditions	Excellent
Under Continuous Submersion	Fair

2.10 INSULATION

A. All insulation shall be in compliance with Section 07 22 16 Roof Board Insulation.

B. All insulation shall be supplied by the membrane manufacturer. All insulation must be approved for the specific application, Underwriters Laboratory approved

2.11 SUBSTRATE BOARDS

A. All substrate boards shall be in compliance with Section 07 22 16 Roof Board Insulation.

2.12 CANT STRIP

A. Structural: Shall be wood where used for structural purposes meeting NRCA, FM Global and Underwriters Laboratory guidelines.

B. Non-structural: Shall be wood fiber where used for non-structural purposes, conforming to ASTM C208 and C209.

2.13 ROUGH LUMBER

A. All wood nailers, structural cants, curbs, and other miscellaneous rough carpentry, shall be lumber as recommended by NRCA, and Underwriters Laboratory guidelines.

B. Vertical Wall Shimming Material: Shall be exterior grade plywood unless otherwise accepted by Project Manager/Architect. Thickness shall be as required for attachment or to make material flashing flush or level with offsets and/or transitions, minimum three-fourths inch (3/4"). Proper selection of material is required to achieve UL guidelines.

C. Where plywood is not used on the back of the parapet contractor to provide a continuous 22 ga. Sheet metal strap over the face of the studs at the through wall flashing location to accommodate the flashing fasteners.

2.14 SEALANTS FOR ROOFING AND ABOVE ROOF LINE CONTROL JOINTS

A. One-part Urethane Sealant: Sealant for use at coping joints, reglet joints, etc., shall be a one-component, high performance, non-priming, non-sag, gun grade elastomeric polyurethane sealant designed for use in active exterior joints, ASTM C 920, shall meet the following physical and performance properties.

Properties	Results	Test Methods
Movement capability, %	±35	ASTM C719
Tensile strength, psi (MPa)	350 (2.4)	ASTM D412
Tear strength, pli	50	ASTM D1004
Ultimate elongation at break, %	800	ASTM D412
Rheological, at 120° F (49° C) (sag in vertical displacement)	No sag	ASTM C639
Extrudability, 3 seconds	Passes	ASTM C603
Hardness, Shore A		ASTM C661
At standard conditions	25 – 30	
After heat aging (max Shore A: 50)	25	
Weight loss, after heat aging	3%	ASTM C792
Cracking and chalking, after heat aging	None	ASTM C792
Tack-free time, hrs, (maximum 72 hrs)	Passes	ASTM C679
Stain and color change	Passes (no visible stain)	ASTM C510
Bond durability,* on glass, aluminum, and concrete ±35% movement	Passes	ASTM C719
Adhesion* in peel, pli (min. 5 pli)	30	ASTM C794
Adhesion* in peel after UV radiation through glass (min. 5 pli)	Passes	ASTM C794
Artificial weathering, Xenon arc, 250 hours	Passes	ASTM C793
Artificial weathering, Xenon arc, 3,000 hours	No surface cracking	ASTM G26
Water immersion, 122° F (50° C)	Passes 10 weeks with movement cycling	ASTM C1247

*Primed for water immersion dictated by ASTM C920.

2.15 FASTENERS

A. All substrate boards shall be in compliance with Section 07 22 16 Roof Board Insulation.

B. Fasteners and fastening plates or bars shall be as recommended by the fastener manufacturer for the specific application.

2.16 FIBERGLASS COATED MEMBRANE

A. A non-rotting, non-absorbent woven fiberglass membrane having a vinyl coating designed for membrane reinforcement for all roof repairs. Compatible with either tar or asphalt bitumens, having ten (10) open-weave squares per inch.

2.17 LIQUID FLASHING SYSTEM

A. Liquid flashing system to be manufacturers recommended system comprising a liquid compound and sheet scrim fabric or equivalent.

2.18 TERMINATION/PRESSURE BARS

A. Aluminum strip shall be extruded channel bar with a mill finish, width one inch (1"), thickness 0.100" ± .008", leg height one-fourth inch (1/4") top and bottom, leg angle ninety degrees (90°), for perimeter and curb anchorage, having predrilled holes six inches (6") on center, as manufactured by Olympic Fasteners, or approved equal.

2.19 SELF-ADHERING UNDERLAYMENT FOR TEMPORARY WATERPROOFING

A. A premium heavyweight, minimum 60 mil, self-adhering high temperature 260 degree min, underlayment, to use as a temporary waterproofing barrier.

2.20 DELIVERY AND STORAGE

A. All materials shall be delivered with appropriate carton and can labels indicating appropriate warnings, storage conditions, lot numbers, and usage instructions. Materials damaged in shipping or storage shall not be used.

2.23 PRECAUTIONS

A. Some of the indicated materials are extremely flammable and/or toxic. Use precautions indicated on can and carton labels.

2.21 OVERNIGHT SEAL

A. Hot applied asphalt bitumen shall be provided for the purpose of night sealing the roof system.

B. Apply a six inch (6") wide mopping of asphalt along the exposed edges of the white fleece backed base flashings as required to prevent wicking into the membrane.

2.22 MISCELLANEOUS MATERIALS

A. Other materials shall be as specified, or of the best grade for the proposed use, as recommended by the manufacturer of said product.

B. Manufacturer's Instructions: In regard to attachment, the manufacturer's instructions or specifications shall determine the suitability for an application. Installation must meet ASCE 7 criteria and meet local governing building codes.

2.23 EXPANSION JOINTS

A. Provide field fabricated wood expansion joints where shown on the drawings in size as indicated and acceptable to authorities having jurisdiction.

B. Expansion joint nailers shall extend upward a minimum of eight inches (8") above finish roof height.

C. Existing expansion joints shall be replaced with curbed expansion joints which extend a minimum of eight inches (8") above the finished roof surface. New expansion joint cover shall be fabricated of sheet metal in accordance with NRCA and/or SMACNA details and flashed in accordance with roofing material manufacturer's recommended procedures.

D. Expansion joints at walls and field of the roof shall be curbed as outlined in accordance with NRCA and SMACNA guidelines. The curbs will be flashed as outlined above in Curb Flashings.

E. Provide structural expansion joint in the field of the roof where the roof span exceeds 200'-0" in any direction.

PART 3 EXECUTION

3.1 REFERENCE

A. In the instance of a conflict between these specifications and those of the manufacturer and/or current NRCA, Underwriters Laboratory and IBC guidelines, the more stringent specifications (better quality or greater quantity of work) shall take precedence.

B. The manufacturer's Technical Specifications and current NRCA, Underwriters Laboratory and IBC guidelines shall be considered a part of this specification and shall be referred to for general application procedures and recommendations.

C. Application of materials shall be in strict accordance with the manufacturer's recommendations and current NRCA, Underwriters Laboratory and IBC guidelines, except where more stringent requirements (better quality or greater quantity of work) are shown or specified.

D. General Installation:
1. Comply with governing local, state, and federal regulations, safety standards, and codes. When conflict exists, the more restrictive document shall govern.
2. Protect adjacent areas with tarpaulin or other durable materials.
3. Contractor shall prevent overspray and be responsible for parking lot areas and/or adjoining areas not part of this contract.
4. Contractor shall be responsible for sealing, as required, all openings that may allow bitumen migration or drippage, i.e. pitch dams, envelopes, and filler strips.
5. Prepare surfaces according to manufacturer's or applicator's published instructions. All metal that is to receive bitumen, or come in contact with bitumen or adhesive, shall be first primed with appropriate primer. Any prefinished galvanized sheet steel that is to receive bitumen, or come in contact with bitumen or adhesive, shall be scored, scuffed or abraded before receiving primer application.
6. Use cleaning materials or primers necessary to render an acceptable surface/substrate.
7. All surfaces/substrates shall be clean and dry prior to application of materials.
8. Prior to application of felts and or membrane, all foreign matter, gravel, etc., shall be removed from the insulation and/or substrate. Gravel or debris between the insulation/substrate and plies is not acceptable.
9. Prior to application of flashing membranes, substrate shall be clean and free of any previously installed roofing materials. Contractor shall ensure that all components of substrate be structurally sound before application of flashing materials.
10. Bitumen kettle shall have a fume recovery system, and visible thermometer to provide positive monitoring of the bitumen temperature when it is heated in accordance with manufacturer's instructions.

11. Ambient temperature shall be 40° F and rising.
12. The underlayment plies and field membrane are to be laid in the direction of maximum roof slope, working from bottom of slope toward ridge.
13. Wrinkles, buckles, kinks, and fish mouths are not acceptable when laying membranes.
14. Dry voids of membrane on membrane are not acceptable.
15. All surfaces that are to receive the self-adhered membranes shall be primed with a fast drying asphaltic primer.
16. Application of roofing shall immediately follow the application of any insulation as a continuous operation. Under no circumstance is insulation to be left exposed at the end of the day. Insulation left exposed overnight will be removed and replaced at no cost to the Owner.
17. Masonry and metal surfaces to receive roofing shall be primed with a uniform coating of approved asphalt primer.
18. Unless otherwise noted, all layers of roofing shall be installed perpendicular to the slope of the deck; completely free of wrinkles, creases or fishmouths. Membrane application by the "mop and flop" technique will not be permitted.
19. Asphalt kettles or tankers employed under this Contract shall be equipped with functioning, accurately calibrated, readable thermometers.
20. Asphalt shall be applied in uniform mopping free of voids or holidays, at a rate recommended by the roofing manufacturer and not more than 25° F above the asphalt's listed Equiviscous temperature (EVT).

F. Do not apply roofing materials unless asphalt application temperatures can be maintained within the equiviscous temperature (EVT) range; or when water in any form (i.e., rain, dew, ice, frost, snow, etc.) is present on the deck. Do not heat asphalt above finished blowing temperature, flash point or 525 degrees Fahrenheit.
1. The equiviscous temperature (EVT) is defined by the NRCA as the temperature at which a bitumen attains the proper viscosity for built-up membrane application.
2. The EVT range is defined by the NRCA as the recommended bitumen application temperature range. The range is approximately 25 degrees Fahrenheit above or below the EVT. The EVT range is measured in the mop cart or mechanical spreader just prior to the application of bitumen to the substrate.
3. The proper viscosity for mop application is 125 centipoise. The proper viscosity for mechanical spreader application is 75 centipoise. If both mop and mechanical application is used, the proper viscosity for both is 75 centipoise.

G. Consider roof system manufacturer's technical specifications part of this specification and use as reference for specific application procedures and recommendations

3.2 EXAMINATION

A. Examine roof deck and related surfaces and verify that there are not conditions such as inadequate anchorage, foreign materials, moisture, ridges, or other conditions which would prevent satisfactory installation of roofing system.

B. Correct conditions requiring correction or completion prior to installation of roofing system. Notify Owner's representative (Owner's representative, Contractor Officer) of unacceptable conditions.

C. Do not proceed until defects are corrected.

D. Verify location of interior ducts, electrical lines, piping, conduit, an similar obstructions. Perform work in manner to avoid contact with above mentioned items.

E. Verify debris has been removed.

F. Start of work under this Part Three constitutes acceptance of deck substrate and site conditions by roofing contractor

3.3 SUBSTRATE PREPARATION

A. Tear-off: Remove all existing roof assembly down to the existing light weight fill substrate. Substrate shall be smooth, free of debris, sharp edges, and other surface irregularities prior to starting roofing application. Substrate repair shall be performed as required to minimum of NRCA standards.

B. Protect all building surfaces against damage from roofing work.

C. Prevent debris and bitumen from entering the building, any drains, downspouts, plenum spaces and/or roof openings.

D. Clean surfaces of roof deck and maintain free of dirt, debris and any deleterious material during roofing operations.

E. Above-Deck Fills:
1. Roofing substrate must be acceptable to the manufacturer prior to application of roof materials.
2. Nailable fills shall receive a specified base sheet properly fastened with suitable fasteners.
3. Fill shall be patched with quick setting cement as required to provide a smooth substrate for installation.

3.4 CATEGORY II (NON-FRIABLE) ASBESTOS CONTAINING MATERIALS (ACM) REMOVAL

A. Owner and Contractor agree to exonerate, indemnify, defend, and hold harmless the roofing material manufacturer from and against all claims, demands, lawsuits, damages, expenses and losses incurred by Contractor's removal of asbestos-containing materials from Owner's building and work site. Contractor must conduct its operations according to applicable requirements including but not limited to those established by:
1. Occupation Safety and Health Administration (OSHA).
2. Environmental Protection Agency (EPA).
3. Department of Transportation (DOT).
4. State or Local Air Pollution Control Authorities/Agencies.
5. State or Local Solid Waste or Hazardous Waste Authorities/Agencies.
6. State or Local Health Department(s).
7. State or Local Building Code Authorities.
8. Other federal, state or local agencies or authorities.

B. Contractor or Owner shall perform appropriate inspections, surveys and file timely notifications to proper authorities prior to starting roof renovation or demolition activities. Inspectors, project planners, project managers, contractors and workers involved in the roof project shall have appropriate training, licenses and registrations. Contractor and Owner shall be responsible for determining and implementing regulatory compliance activities, including but not limited to work practices, engineering controls, personal protection, air monitoring, testing, hazard communication, material handling, record retention, and arranging for waste disposal/handling.

C. Contractor must file a Uniform Hazardous Waste Manifest from proper landfill site for each load of asbestos containing material removed. Copies must be sent to Owner and material manufacturer/specifier. Transportation of waste shall be in accordance with applicable Department of Transportation (DOT) requirements.

3.5 ASPHALT HEATING

A. Use low burner flames during initial melt-downs. Circulate asphalt after initial melt-down.
1. Maximum asphalt temperature shall be 25°F below the flash point.

B. Avoid prolonged heating of asphalt at high temperatures. Reduce the asphalt temperature to below 500°F if asphalt is not being used for periods of four (4) hours or more.

C. Kettle shall be free of contaminants.

D. Application rates: Bitumen quantities for waterstop/tie-offs, flashings, miscellaneous detail applications, and minimum kettle capacity are not included in application rates. To account for these factors, add approximately 25 percent additional bitumen on a total job average basis.

3.6 ROUGH CARPENTRY

A. All rough carpentry shall be in compliance with Section 06 10 53 Miscellaneous Carpentry.

B. Nailers shall be installed according to NRCA, Underwriters Laboratory, and IBC guidelines.

C. Wooden nailers shall be installed at Metal edges, drip edges, expansion joints, and on outside perimeter of building.

D. Metal Edge and drip edge nailers shall be the same height as the new insulation being installed where required.

E. Nailers shall be raised if necessary by anchoring an additional nailer of appropriate height to the existing nailer if the existing nailer is not to be replaced.

F. Expansion joint nailers shall extend upward a minimum of eight inches (8") above finish roof height.

G. Where parapet wall exists, specified vertical wall shimming material shall be installed beginning at roof height up to a minimum of twelve inches (12") above finished roof surface, or as detailed, to provide substrate for horizontal termination of roof to wall flashing system.

H. Any lumber or shimming required for attachment, or to make material flashing flush or level with offsets and/or transitions, shall be incorporated in these specifications.

3.7 CANTS

A. Provide full 45 degree cant strips (no partials) at all intersections of vertical and horizontal surfaces, such as walls, parapet walls, curbs, expansion joints, etc., and as recommended by membrane manufacturer.

B. Cants shall provide a four (4) inch rise above the roof's surface.

C. Toe of cant shall be level with the surface to receive new roof membrane and in all cases anchored according to NRCA, Underwriters Laboratory, and IBC guidelines.

D. Cant strips shall be installed at the intersection of the deck and all vertical surfaces.

E. If a wood cant is used where insulation exists, cant shall be toe nailed into treated wood nailer under cant the same height as insulation.

3.8 MECHANICALLY FASTENED BASE SHEET OVER SUBSTRATE

A. Substrate shall be covered with a specified base sheet mechanically fastened as follows:
   1. Securement shall conform to the ASCE 7 criteria for wind uplift as dictated by wind zone applicable to location of project. Fasteners and fastening patterns shall be determined by building height, location and geographical area of the United States. It is the contractor's responsibility to consult current codes, publications, literature, and bulletins of IBC and the fastener manufacturer that are in effect at the time of this project.

B. If slope dictates, underlayment plies shall be installed using the strapped method going with the slope as required by membrane manufacturer.

3.9 INSULATION

A. All insulation shall be in compliance with Section 07 22 16 Roof Board Insulation.

B. All insulation shall be approved in writing by the membrane manufacturer as to thickness, type, and manufacturer. All insulation must be approved for the specific application, Underwriters Laboratory approved

3.10 SUBSTRATE BOARDS

A. All substrate boards shall be in compliance with Section 07 22 16 Roof Board Insulation.

3.11 APPLICATION OF UNDERLAYMENT PLY SHEETS

A. Cover Board shall be covered with one (1) layer of specified base sheet adhered.

B. All layers shall be heat welded in place in a uniform and continuous manner to prevent fishmouth or wrinkles in the membrane.

D. Broom each ply from the top side before membrane cools. Ensure complete and continuous seal and contact between bitumen and ply sheets without wrinkles, including ends, edges, laps, fish mouths, or blisters. Avoid walking on plies until adhesive has set.

E. Specified layers shall be applied in accordance with the manufacturer's recommendations and in accordance with general practices as set forth by the NRCA Roofing Manual.

F. If slope dictates, underlayment plies shall be installed using the strapped method going with the slope as required by membrane manufacturer

3.12 APPLICATION BASE MEMBRANE

A. Apply base membrane sheet over prepared substrate shall be heat applied (Torched), providing four inch (4") side laps and six inch (6") end laps. Stagger end laps of adjacent sheets not less than thirty-six inches (36").

B. Apply sufficient pressure to the top side of the sheet to ensure that the base ply is adhered.

3.13 APPLICATION FINISH MEMBRANE

A. Beginning at low point of roof, apply approved cap sheet utilizing heat weld (Torch). Provide four-inch (4") side laps and six inch (6") end laps. Stagger end laps thirty-six inches (36") from adjacent rows.

B. All layers of roofing shall be installed free of wrinkles, creases and fishmouths.

C. Prohibit foot and cart traffic from newly applied felts. Do not "walk-in" plies.

D. The asphalt bleed out must be visible beyond both edges of the sheet. The amount of visible bleed out of asphalt should be just sufficient for excess asphalt to squeeze out along the edges.

E. If slope dictates, membrane shall be installed using the strapped method going with the slope as required by membrane manufacturer.

F. In addition to the standard application procedures as outlined, the contractor must be familiarized and adhere to the manufacturer's requirements for proper installation procedures for the cool roof white cap sheet.

F. Care must be taken to ensure good alignment of the first roll. A 45° cut shall be made on the selvage edge of underlying membrane prior to application to ensure a good seal between the membranes.

3.14 FLASHING APPLICATION

A. Flash all penetrations, metal edge systems, walls, curbs, expansion joints, drains as shown on details and approved shop drawings with white flashing membrane.
   1. Field fabricate flashings for vent pipes, vent stacks, or other multi-angled roof projections/penetrations.
   2. Mechanically fasten flashing at terminations according to approved details.
   3. Fastening membrane flashing through metal counterflashing without the use of a termination bar is not acceptable.

B. Any lumber or shimming required for attachment or to make material flashing flush or level with offsets and/or transitions shall be incorporated in the flashing specifications.

C. Flashing shall be placed at all vertical junctures with the roof, and at all penetrations. It will consist of the approved base flashing sheet applied over one or more base ply sheets.

D. Base membrane sheet will be heat welded in place providing three inch (3") side laps. Secure top edge with approved fasteners at six inches (6") on center. Sheet to extend four inches (4") beyond the toe of the cant onto the horizontal surface of the membrane; and extend not less than three inches (3") above the top of the cant onto the vertical wall/curb surface. The top leading edge shall be secured with a continuous termination bar, fastened at 8" o.c., the termination bar shall be sealed with three course and mastic.

E. Flashing plies shall be cut from the end of the roll and applied vertically always working to a selvage edge.

F. Extend flashing sheet four inches (4") beyond toe of cant onto horizontal field of the roof, and extend onto vertical face of wall/curb not less than eight inches (8") above finished roof surface. Secure top edge termination bar and three course mastic application. Termination bar to be fastened with approved fasteners at six inches (6") on center.
   1. At concrete or masonry surfaces, secure top edge of flashing utilizing a continuous metal termination bar.
   2. Thoroughly seal all voids in the corners and seams.
   3. Application shall provide a smooth surface, free of air pockets, wrinkles, fishmouths or tears.

3.15 CANTS

A. Provide full 45 degree cant strips (no partials) at all intersections of vertical and horizontal surfaces, such as walls, parapet walls, curbs, expansion joints, etc., and as recommended by membrane manufacturer.

B. Cants shall provide a four (4) inch rise above the roof's surface. (Vertical, not diagonal)

C. Toe of cant shall be level with the surface to receive new roof membrane and in all cases anchored according to NRCA, Underwriters Laboratory, and IBC guidelines.

D. Cant strips shall be installed at the intersection of the deck and all vertical surfaces.

E. If a wood cant is used where insulation exists, cant shall be toe nailed into treated wood nailer under cant the same height as insulation.

3.16 PROJECTION FLASHINGS

A. Plumbing Vents: Soil vent stack pipes shall receive new lead flashings installed in strict accordance with practices set forth in the NRCA Roofing Manual. The lead shall be carried up and over the top of the stack, and crimped down into the pipe to form a watertight seal. Projections that cannot be sealed thus should be boxed in and flashed as recommended by the roof membrane manufacturer.

B. Square Projections: Cut a slit in the membrane to correspond with the position of the projection, and lay the membrane in hot asphalt. Apply another layer of membrane in exactly the same fashion, but from the opposite direction. For metal flange-type projections, after doing above, strip in with six inch (6") strips of membrane.

C. Round Projections: Cut membrane square and eighteen inches (18") from perimeter of projection. Slit square membrane with an "X" of proper size to ensure a close fit and positive seal. Place over projection, and adhere to clean membrane already on the roof. Cut a six inch (6") piece of membrane to apply as a collar, and secure with an all stainless steel clamp.

3.17 CURB FLASHINGS

A. The flashing substrate shall be free of any dirt and loose material.

B. The underlayment ply or plies shall be brought to two inches (2") past the top of the cant strip and adhered.

C. Starting on the roof at least six inches (6") from the roofside edge of the cant strip, adhere one (1) ply of smooth sanded modified base membrane extending over the cant and up the vertical a minimum of eight inches (8"). Each lap of the membrane shall be a minimum of three inches (3").

D. Over the smooth sanded modified base membrane starting on the roof at least eight inches (8") from the roofside edge of the cant strip, adhere the finished membrane extending over the cant and up the vertical a minimum of eight inches (8"). Each lap of the finished membrane shall be a minimum of three inches (3"), and shall not coincide with the laps of the underlayment sheet.

E. Fasten the top edge of the flashings on six inch (6") centers using approved termination bar and fasteners. Cover termination bar with 3 course and mastic to seal leading edge of the finished membrane watertight.

F. An NRCA-approved metal counterflashing shall extend down over the flashing a minimum of four inches (4").

3.18 EXPANSION JOINTS

A. Expansion material shall be formed and centered over the roof to roof structural EJ locations as shown on the drawings.

B. Coordinate the location of the expansion joint framing with Structural, Architectural and Roof drawings.

C. Framing of the expansion shall be in accordance with the details and as field conditions dictate.

D. Expansion material shall be formed and located adjacent to roof to rise wall structural EJ locations as shown on the drawings.

E. Wood Cants shall provide a four inch (4") rise above the roof's surface and extend a minimum of four inches (4") horizontally.

F. Vertical wood framing shall be attached over horizontal wood blocking as shown and detailed.

G. Taper the top of the expansion join as required at tapered roof areas to maintain a minimum height of 8" above finished roof surface.

H. Provide a field-built wood, structural expansion joint in the field of the roof where the roof span exceeds 200'-0" in any direction.

3.19 MEMBRANE PROTECTION

A. Walk Way Pads: Install manufacturer's walk way pads continuously on each side of each air-handling/mechanical unit on the roof in accordance with the manufacturer's recommended procedures.

B. Where equipment pads, wood sleepers, or walkway slabs are to be installed over the roofing membrane, an additional layer of the roofing membrane shall be installed between the roofing membrane and the pad, sleeper, or slab. Due caution shall be exercised to prevent roofing membrane damage during placement. Where required, membrane shall be welded to field membrane to prevent slippage.

3.20 ELASTOMERIC SEAM COATING

A. Cover bleed out blocking with elastomeric seam coating approved by manufacturer. Coating shall be applied using a medium nap roller.

B. Temperatures at time of application must be 50 deg. F and rising during time of application. Apply per manufacturer's recommendations.

3.21 OVERNIGHT SEAL

A. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.

B. Installation shall be performed according to accepted roofing practice as outlined in the NRCA Roofing Manual.

3.22 FIELD QUALITY CONTROL

A. Owner reserves the right to have finished Work inspected using infrared thermography or other appropriate, non-destructive means to establish satisfactory conditions of completed Work.

B. Correct identified defects or irregularities. Cut out and repair membrane defects before end of each day.

3.23 MANUFACTURER'S FIELD SERVICES

A. Provide manufacturer's field services as required to qualify for specified warranty.

B. Roofing materials manufacturer's representative shall visit the site and observe the progress of the Work at a rate of not less than one time per week.

1. Site visits shall be followed up by a written report of findings which is to be transmitted to the Owner's Representative within five (5) days of the site visit.

3.24 CLEANING

A. Remove bituminous markings from finished surfaces.

B. In areas where finished surfaces are marred, or soiled by Work of this Section, consult manufacturer of soiled surface for cleaning advice and conform to their written instructions.

C. Repair or replace defaced or disfigured finishes caused by Work of this Section.

D. Roof surface shall be completely cleaned prior to final building move-in. All discharge water to be dealt with in accordance with local EPA requirements.

3.25 PROTECTION OF FINISHED WORK

A. Protect finished Work under provision of application Section.

B. Where traffic must continue over finished roof installation, protect surfaces with minimum one-half inch (1/2") wood fiberboard insulation, under five-eighth inch (5/8") thick plywood protective walkways ballasted in place with sandbags or the like.

C. At all parapet and metal coping cap conditions, provide additional layer of self-adhered underlayment for temporary protection over all parapet and coping caps conditions once roofing has been completed and prior to installation of wood nailers and metal coping cap. Self-adhered underlayment is to cover cavity conditions from roof side of parapet framing to outside of exterior finish to protect cavity from moisture prior to completing parapet cap framing.

END OF SECTION 07 52 16

SECTION 07 62 00
SHEET METAL AND MISCELLANEOUS ACCESSORIES

PART 1 - GENERAL

1.1 AREAS COVERED

A. Refer to roof plans for areas to be included in the scope of work.

1.2 DEFINITIONS

ACM	Asbestos Containing Materials
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
CTEM	Coal-Tar Elastomeric Membrane
EPA	Environmental Protection Agency
EPS	Expanded Polystyrene
EVT	Equiviscous Temperatures
FM	Factory Mutual
IBC	International Building Code
KEE	Ketone Ethylene Ester
NDL	No Dollar Limit
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NRCA	National Roofing Contractors Association
OSHA	Occupational Safety & Health Administration
SBS	Styrene-Butadiene-Styrene
SDI	Steel Deck Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPRI	Single Ply Roofing Industry
UL	Underwriters Laboratories, Inc.

1.3 REFERENCES (INCLUDING LATEST REVISIONS)

A. Comply with governing local, state, and federal regulations, safety standards, and codes.

B. Testing Laboratory Services: Test results shall meet or exceed established standards.

C. Underwriters Laboratories, Inc. (Roofing Covering): Class A fire hazard classification.

D. American Society for Testing and Materials (ASTM)

E. The National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual

F. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) - Architectural Sheet Metal Manual

G. American Society of Civil Engineers – ASCE 7

H. U.L. E.S. edge securement requirements.- ES-1

1.4 INSTALLER QUALIFICATIONS

A. Roofing installer must be:
   1. Currently prequalified with the Owner in accordance with Owner's prequalification requirements.
   2. Currently in good standing with the manufacturer.

3. Installer must be an experienced single firm specializing in the type of roofing repair and/or removal and replacement work required, employing only experienced workers for the class of work in which they are employed, having at least five (5) years successful experience on projects similar in size and scope and acceptable as applicators by the Project Manager/Architect.
4. Contractor must have successfully completed previous projects warranted by the manufacturer.

B. It shall remain each Bidder's responsibility to determine his current status with the manufacturer's certification plan.

1.5 MANUFACTURER QUALIFICATIONS

A. A qualified manufacturer is one that is UL listed and has FM approvals for a membrane roofing system similar to that used for this project for a minimum of fifteen (15) years.

1.6 CONTRACT DOCUMENT QUALITY ASSURANCE

A. In the case of an inconsistency between the drawings and specifications or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Project Manager's/Architect's interpretation

1.7 SUBMITTALS

A. Product Data:
1. Submit shop drawings, product data and mockups of all sheet metal.

1.8 QUALITY ASSURANCE

A. Comply with governing local, state, and federal regulations, safety standards, and codes. Provide products of acceptable manufacturers in satisfactory use in similar service for five (5) years. Use experienced installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

B. Reference Standards: Applicable portions of ASCE, U.L., E.S.-1, SMACNA, ASTM, and NAAMM publications.

1.9 PRE-INSTALLATION CONFERENCE

A. Convene a preinstallation conference two weeks prior to commencing the Work.

B. Require attendance of parties directly affecting the Work of this Section.

C. Review condition of roof deck and installation, installation procedures and coordination with related work.

1.10 WARRANTIES

A. Manufacturer's Product Warranty: Submit manufacturer's edge system warranty signed by the manufacturer's authorized official, guaranteeing to correct failures in product which may occur during the warranty period, without reducing or otherwise limiting any other rights to correction which the Owner/Project Consultant may have under the contract documents. Failure is defined to include product failure which leads to interruption of a watertight installation. Correction may include repair or replacement of failed product.

B. Contractor's Warranty Period: For roofing flashing and sheet metal, provide a written warranty which shall warrant work to be free of leaks and defects in materials and workmanship for two (2) years, starting from date of substantial completion.

C. Defects of the sheet metal occurring during the warranty period shall be promptly corrected by the contractor, and defects of the roofing shall be promptly corrected by the manufacturer at no additional cost to the Owner. Upon notification from the Owner or the Owner's representative that evidence of a defect exists, the responsible party shall immediately inform the Owner's representative of the date on which corrective work will be scheduled, and shall notify the Owner's representative when the corrective work has been completed.

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIAL

A. Hot-dipped Galvanized Steel for use as counter flashings (where not visible from the ground), and expansion joints: Minimum 24-gauge, G-90, hot-dipped galvanized metal, commercial quality, ASTM A 653/A 653M.

B. Stainless Steel for use as pitch pans: Minimum 24-gauge, commercial quality, ASTM A 653/A 653M.

C. Hot-dipped Galvanized Steel for use as continuous clips: Minimum 22-gauge, G-90, hot-dipped galvanized metal, commercial quality, ASTM A 653/A 653M.

D. Manufacturers Prefinished (where visible from the ground) pre manufactured system for edge and copings. Shall be 24-gauge minimum, prefinished with Kynar finish meeting ASTM A 446)for use as new downspouts, gutters and miscellaneous metal.

E. Stainless Steel: QQ-S-766, Class 304 or 316; or ASTM A 167, Type 304 or 316; form and condition most suitable for the purpose.

F. All existing sheet metal shall be replaced with new metal as specified on drawings.

G. All prefinished metal color shall be as selected by Owner/Architect from manufacturer's full range of colors, including metallics.

2.2 FASTENERS

A. Fasteners shall be same metal as flashing/sheet metal, or other non-corrosive metal as recommended by sheet manufacturer for the specific application. Match finish of exposed heads with material being fastened.

B. Fasteners and fastening plates or bars shall be listed in the U.L., ES-1 approvals as well as FM Global Approval Guide.

C. Fastener for Brick: Shall be one-fourth inch by two inches (1/4" x 2"), zinc with plated steel or stainless steel nail, one piece unit, flat head.

D. Screws: Self-taping sheet metal type with neoprene washer, as appropriate.

E. Pop Rivets: Full stainless-steel Series 42 or 44, as appropriate.

F. Continuous Clip: Concealed hold-down clip type; of same materials as coping, gravel guard, sized to suit application. Use a continuous clip, minimum 22-gauge G-90 galvanized.

2.3 RELATED MATERIAL

A. Plastic Cement: FS SS-C-153, cutback asphalt type.

B. Solder: QQ-S-571 composition best suited for purpose; use high tin content, minimum 60/40, for stainless steel and monel alloy.

C. Sealant (for Sheet Metal): One-component polyurethane, conforming to requirements of FS TT-S-230C, non-staining and non-bleeding.

D. Miscellaneous Materials:
1. Splash Blocks: Concrete, 3000 psi, 28 days. Provide and install with protection pads at all downspouts. Dimensions shall be a minimum eighteen inches wide by thirty-six inches long (18" x 36").
2. Metal Accessories: Provide and install sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size, and gauge required for performance.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof are solidly set, cant strips and reglets in place, substrates are smooth and clean and nailing strips located.

B. Verify membrane termination and base flashings are in place, sealed and secure, prior to metal installation.

C. Beginning of installation means acceptance of conditions.

D. Compatibility: Provide materials that are recommended by manufacturers to be fully compatible with indicated substrates or provide separation materials as required to eliminate contact between incompatible materials.

3.2 PREPARATION

A. Field measure site conditions prior to fabricating work. Provide all shop drawings and mock-ups one month prior to installation to the Owner/Project Consultant for approval.

B. Install starter and edge strips and cleats before starting installation.

3.3 FABRICATION - GENERAL

A. Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of U.L. -E.S.-1, SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer's instructions and recommendations. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems.

B. Fabricate gutters/downspouts, counterflashings, expansion joints, and copings with new galvanized sheet metal as specified. Fabricate gravel guard and fascia to size and dimensions as indicated on the drawings. Fabricate light metal coping, gutters and downspouts as indicated.

C. Fabricate pitch pans with new stainless steel as specified.

D. Form materials with straight lines, sharp angles and smooth curves.

E. Fold back edges on concealed side of exposed edge to form hem (1/4" minimum).

F. Weld or solder joints on parts that are to be permanently and rigidly assembled.

G. Limit single-piece lengths to ten feet (10').

H. Fabricate corner pieces with eighteen inch (18") extensions, mitered and sealed by forming as one piece.

I. Where installing flashing directly to masonry or dissimilar materials, backpaint with bituminous paint.

J. Install new metal rooftop projections. New rooftop projection details shall be as recommended in NRCA or SMACNA handbooks. All rooftop projections shall be cleaned, all joints sealed, and painted with a rust inhibitive paint.

K. All sheet metal shall be sealed and watertight.

L. Metal work should be secured so as to prevent damage from buckling or wind. Where clips are shown, fabricate as detailed.

M. All metal to receive bitumen or adhesive shall be first primed with asphalt primer.

N. All prefinished metal shall be sanded and/or abraded prior to receiving primer.

O. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

P. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.

3.4 INSTALLATION

A. General: All sheet metal termination to vertical wall shall have a through-wall with receiver installed on masonry walls or prefabricated "Z" bar flashing pre-installed to fluid applied wall finished prior to installation of sheet metal termination. This applies to edge metal, base flashing closures and all vertical surface intersections. Refer to NRCA, SMACNA, and metal manufacturer's guidelines.

B. Gravel Guard/Fascia: (SHALL BE E.S. 1 CERTIFIED)
1. Shall be installed with expansion joints, ten feet (10') on center, one-fourth inch (1/4") expansion leeway, with a cover plate.
2. Form sections identical to profiles as shown or approved similar, to match existing building.
3. Fabricate corner pieces with minimum eighteen inch (18"), maximum forty-eight inch (48") extensions, formed and sealed with rivets and sealant, as one piece.
4. Hem exposed edges one-half inch (1/2") minimum.
5. Backpaint flashing in contact with masonry or dissimilar materials with bituminous paint. Surface sand before applying primers.
6. Integrate flashing in a manner consistent with detailing.
7. Provide and install continuous clip, minimum 22 gauge.
8. Apply sealant at horizontal juncture of gravel guard metal to exterior vertical wall.
9. Shall be fabricated in accordance with published details.
10. Install bead of sealant at metal edge juncture at exterior wall surface.

C. Coping: (SHALL BE E.S. 1 CERTIFIED)
1. Install new pre-manufactured metal coping for a permanent watertight installation.
2. All coping shall be pre-manufactured to include low profile standing metal seam to meet ANSI/SPRI ES-1 requirements.
3. Shall be minimum 24-gauge prefinished Kynar installed in ten foot (10') sections maximum.
4. Vertical fascia shall extend minimum two and one-half inches (2-1/2") or be minimum one and one-half inches (1-1/2") below bottom of nailer, whichever is greater.
5. Fabricate corner pieces with minimum eighteen inch (18"), maximum forty-eight inch (48") extensions, formed and sealed with rivets and sealant, as one piece.
6. Hem exposed edges one-fourth inch (1/4") minimum.
7. Provide and install continuous clip, minimum 22-gauge.
8. Shall be fabricated in accordance with published details.

D. Expansion Joint Field and at Wall:
1. Shall be as outlined by details and be in full compliance with these specifications.
2. Lock seams and end joints.
3. Fabricate corner pieces with minimum eighteen-inch (18"), maximum forty-eight-inch (48") extensions, formed and sealed with rivets and sealant, as one piece.
4. Hem exposed edges one-fourth inch (1/4") minimum.
5. Back paint flashing in contact with masonry or dissimilar materials with bituminous paint. Surface sand before applying primers.
6. Integrate flashing in a manner consistent with detailing.
7. Provide and install continuous clip, minimum 22-gauge or one gauge thicker than flashing.
8. Shall be fabricated in accordance with published details.

E. Counterflashing:
1. Provide and install new two-piece sheet metal counterflashing as required for a permanent watertight installation.
2. Saw cut brick mortar joint to receive friction fit reglet and removable counterflashing as detailed in SMACNA 7th Edition Figure 4-4D.

F. Gutter and Downspouts:
1. All Gutter and Downspouts shall be in compliance with Section 07 62 13 Gutter and Downspouts

G. Scupper, and Downspout:
1. Fabrication:
a) Fabricate scupper, collector head and downspout of profile and size indicated, taking care that the roof drain leader fits properly into the back of the collector head. Seal the pipe to the collector head for water tightness.
b) Field measure site conditions prior to fabricating work.
c) Fabricate with required connection pieces.
d) Fabricate section square, true, and accurate in size, in maximum possible lengths and free of distortion or defects detrimental to appearance or performance.
e) Hem exposed edges of metal.
f) Form and seal all metal joints; provide for expansion joints per SMACNA.

H. Installation:
a) Install collector head, downspout, and accessories.
b) Join lengths with seams pop riveted and sealed watertight. Flash and seal collector head to downspouts and accessories.
c) Seal all metal joints watertight for full metal surface contact.
e) Downspouts: Rectangular profile. Seal all joints, six inches by six inches (6" x 6") minimum or as shown on published details.
f) Support Brackets, Joint Fasteners: Profiled to suit gutters and downspouts.
g) Anchorage Devices: SMACNA requirements. Type recommended by fabricator.
i) Downspout Support Straps – Kynar.

I. Pitch Pans – Stainless Steel:
1. Install pitch pans of 24-gauge stainless steel according to NRCA standards, minimum of six inches by six inches (6" x 6").
2. Pitch pans shall be fabricated to minimum of four inches (4") above the finished roof membrane. Seams of pitch pans shall be soldered inside and out.
3. Mastic shall be applied under pitch pan flange a minimum of one-half pound (1/2#) per linear foot.
4. All metal flanges shall be primed with asphalt primer prior to flashing installation. Inside of pitch pan shall be cleaned and primed.
5. All projections enclosed in pitch pans shall be cleaned in any manner suitable and coated with a rust inhibitive coating as approved by the Owner/Project Consultant. Coating shall be allowed to dry prior to pitch pan fill.

6. Base of pitch pans shall be filled around penetration with M-1 sealant. Sprinkle mod bit granules over sealant 1/4" deep.
7. Top finish fill shall be coal-tar urethane, with maximum fill to top of pitch pan sides.
8. Strip metal flange of pitch pan with heat welded base sheet extending from the outer edge of the flange a minimum of three inches (3") inward to base of pitch pan.

J. Bonnets/Hoods:
1. Fabricate and install above all pitch pans, where necessary, or reinstall as applicable, metal bonnets over all pitch pans, NO EXCEPTIONS.
2. Bonnets/Hoods shall be manufactured with metal compatible with metal to which bonnet is to be attached.
3. On beams and other steel, weld in place bonnets fabricated from one-fourth inch (1/4") steel plate.
4. Draw band bonnets fabricated from 22-gauge galvanized steel may be used on circular projections.

3.5 FINISH

A. Backpaint concealed metal surfaces with bituminous paint where expected to be in contact with cementitious materials or dissimilar metals. Exposed surfaces to be provided with a factory applied fluorocarbon Kynar finish meeting ASTM A 446 and AAMA specification 605.2 for high performance coating.

END OF SECTION 07 62 00

SECTION 07 62 13
GUTTERS AND DOWNSPOUTS

PART 1 - GENERAL

1.1 AREAS COVERED

A. Refer to roof plans for areas to be included in the scope of work.

1.2 SUMMARY

A. Section Includes:
   1. Precoated galvanized steel gutters, downspouts, scuppers, brackets, spacers, fasteners, stiffeners and caps.
   2. Precast concrete splash blocks.

1.3 REFERENCES

A. American Society for Testing and Materials:
   1. ASTM A 167 – Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
   3. ASTM A 361 – Sheet Steel, Zinc-Coated (Galvanized) by Hot-Dip Process for Roofing and Siding.
   4. ASTM A 446 – Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality.
   5. ASTM B 32 – Solder Metal.
   6. ASTM B 209 – Aluminum and Aluminum Alloy Sheet and Plate.

B. Federal Specifications: FS TT-C-494 – Coating Compound, Bituminous, Solvent Type, Acid Resistant.

C. SMACNA – Architectural Sheet Metal Manual.

D. ASCE - American Society of Civil Engineers: ASCE 7

E. Underwriters Laboratory, Edge Securement: ES-1

F. Comply with governing local, state, and federal regulations, safety standards, and codes.

1.4 INSTALLER QUALIFICATIONS

A. Installer must be:
   1. Currently prequalified with the Owner in accordance with Owner's prequalification requirements.
   2. Currently in good standing with the manufacturer.
   3. Installer must be an experienced single firm specializing in the type of roofing related repair and/or removal and replacement work required, employing only experienced workers for the class of work in which they are employed, having at least five (5) years successful experience on projects similar in size and scope and acceptable as applicators by the Project Manager/Architect.
   4. Contractor must have successfully completed previous projects warranted by the manufacturer.

B. It shall remain each Bidder's responsibility to determine his current status with the manufacturer's certification plan.

1.5 MANUFACTURER QUALIFICATIONS

A. A qualified manufacturer is one that is UL listed and has FM approvals for a membrane roofing system similar to that used for this project for a minimum of fifteen (15) years

1.6 SUBMITTALS

A. Refer to Specification Section 01 33 00 for Submittal requirements

B. Shop Drawings: Provide manufacturer's approved details of all perimeter conditions, projection conditions, and any additional special job conditions which require details other than indicated in the drawings.

C. Shop Drawings: Showing layout, profiles, jointing methods, fastening details, locations, and installation details.

D. Samples: Submit six inch (6") long samples of factory-fabricated products illustrating component design, finish, color and configuration.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original, unopened containers and rolls with all labels intact and legible including labels indicating appropriate warnings, storage conditions, lot numbers, and usage instructions. Materials damaged in shipping or storage shall not be used.

B. Manufacturer's packaging and/or roll plastic is not acceptable for exterior storage. Tarpaulin with grommets shall be minimum acceptable for exterior coverings. All materials stored as above shall be a minimum of four inches (4") off the substrate, and the tarpaulin tied off with rope.

C. Deliver materials requiring fire resistance classification to the job with labels attached and packaged as required by labeling service.

D. Deliver materials in sufficient quantity to allow continuity of work.

E. Handle and store material and equipment in such a manner as to avoid damage. Liquid products shall be delivered sealed, in original containers.

F. Select and operate material handling equipment so as not to damage existing construction or applied roofing.

G. Protect materials against damage by construction traffic.

H. The proper storage of materials is the sole responsibility of the contractor and any Damaged materials shall be discarded, removed from the project site, and replaced prior to application.

I. No storage of materials shall be permitted on roof areas other than those materials that are to be installed the same day. Any exception must be in written form.

J. Stack preformed and prefinished material to prevent twisting, bending or abrasion, and to provide ventilation. Slope to drain.

K. Prevent contact with materials during storage which may cause discoloration, staining or damage.

1.8 SITE CONDITIONS

A. Job Condition Requirements:
   1. Coordinate the work of the contractor with the work to be performed by other trades, to ensure proper sequencing of the entire work. The contractor is to schedule his work so that adequate time is allowed for other trades to perform their work.
   2. Apply metal in dry weather.

3. Proceed with roofing work only when weather conditions are in compliance with manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with specifications.
4. Schedule the work so the building will be left watertight at the end of each day.
5. Load placed on the roof at any point shall not exceed the safe load for which the roof is designed.
6. All surfaces to receive new metal shall be smooth, dry, and free from dirt, debris, and foreign material before any of this work is installed. Competent operators shall be in attendance at all times equipment is in use. Materials shall be stored neatly in areas designated by the Project Manager/Architect.
7. The contractor is to take all necessary precautions to prevent damage to the existing roof. All damage to the existing roof that could result in roof leaks is to be repaired on a daily basis by the roofing contractor.
8. The contractor shall follow local, state, and federal regulations, safety standards, and codes for the removal, handling, and disposal of asbestos containing materials, if present. When a conflict exists, follow the stricter document.
9. Due caution should be exercised so as not to alter the structural integrity of the deck. When cutting through any deck, care should be taken so as not to damage the deck or any part of the deck, such as post tension cables, etc.

B. Protection of Work and Property:
1. Work: The contractor shall maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. Contractor shall provide and maintain at all times any OSHA required danger signs, guards, and/or obstructions necessary to protect the public and his workmen from any dangers inherent with or created by the work in progress. All federal, state, and city rules and requirements pertaining to safety and all EPA standards, OSHA standards, NESHAP regulations pertaining to asbestos as required shall be fulfilled by the contractor as part of his proposal.
2. Property: Protect existing planting and landscaping as necessary or required to provide and maintain clearance and access to the work of this contract. Examples of two categories or degrees of protection are generally as follows: a) removal, protection, preservation, or replacement and replanting of plant materials; b) protection of plant materials in place, and replacement of any damage resulting from the contractor's operations.
3. Finished roof areas shall be protected from damage by the contractor during construction.
4. Twenty-four Hour Call: The contractor shall have personnel on call 24 hours per day, seven (7) days per week for emergencies during the course of a job. The Owner/Project Manager/Architect is to have the 24 hour numbers for the contact. Contractor must be able to respond to any emergency call and have personnel on-site within two (2) hours after contact. Numbers available to the Owner/Project Manager/Architect are to be both home and office numbers for:
   a) Job Foreman
   b) Job Superintendent
   c) Owner or Company Officer

C. Damage to Work of Others: The contractor shall repair, refinish, and make good any damage to the building or landscaping resulting from any of his operation. This shall include, but is not limited to, any damage to plaster, tile work, wall covering, paint, ceilings, floors, or any other finished work. Damage done to the building, equipment, or grounds must be repaired at the successful contractor's expense holding the Owner harmless from any other claims for property damage and/or personal injury.

D. Measurements: It will be the contractor's responsibility to obtain and/or verify any necessary dimensions by visiting the job site, and the contractor shall be responsible for the correctness of same. Any drawings supplied are for reference only.

E. Use of Premises:
1. The contractor is advised that the Owner will occupy the building at all times, and the contractor must provide all safeguards required to protect personnel and to keep noise levels as low as reasonably possible for each operation.

2. The contractor shall:
   a) Coordinate work in such a manner as to not interfere with the normal operation of the building.
   b) Assume full responsibility for protection and safekeeping of products stored on premises.
   c) Agree to hold the Owner harmless in any and all liability of every nature and description which may be suffered through bodily injuries, including death of any persons by reason of negligence of the contractor, agents, employees, or subcontractors.

F. Cleaning and Disposal of Materials:
1. Contractor shall keep the job clean and free from all loose materials and foreign matter. Contractor shall take necessary precautions to keep outside walls clean and shall allow no roofing materials to remain on the outside walls.
2. All waste materials, rubbish, etc., shall be removed from the Owner's premises as accumulated. Rubbish shall be carefully handled to reduce the spread of dust. A suitable scrap chute or hoist must be used to lower any debris. At completion, all work areas shall be left broom clean and all contractor's equipment and materials removed from the site.
3. Debris shall be deposited at an approved disposal site.

1.9 SEQUENCING AND SCHEDULING

A. Coordinate work with roofing work for correct sequencing of items which makes up entire weatherproof, rain drainage and sheet metal system.

B. Coordinate work with downspout discharge pipe inlet.

C. Coordinate gutter and downspout system with installation of field fabricated flashing and sheet metal and sheet metal roofing under Section 07600. Work of this Section shall bring gutters and downspouts to point of connection with roofing system, with necessary accommodations for connections.

1.10 PERFORMANCE REQUIREMENTS

A. Metal gutters and downspouts System: Shall prevent water migration through seams and connections or building interior through the metal edge system and base flashing.

1.11 QUALITY ASSURANCE

A. Installer Qualifications: Five years documented experience installing sheet metal systems.

B. Regulatory Requirements: Comply with applicable code for size and method or rain water discharge. Comply with SMACNA Manual for sizing components for rainfall intensity determined by storm occurrence of 1 in 5 years.

C. Gutters/Downspouts and all accessories shall be designed and provided by metal roofing manufacturer providing the standing seam metal roof panels.

D. Factory Technical Representative: Roofing Contractor is to arrange and schedule the manufacturer's technical representative to be on site the first day of the installation of manufacturer's roofing system. The manufacturer's technical representative shall inspect the work of the contractor at least one time each week during the installation of the roofing system. The manufacturer's technical representative shall perform with the owner's representative and the roofing contractor a final inspection of the roofing system. At the completion of the final inspection, provide to the roofing contractor a list of punch list items (if any) to be correct before technical acceptance of the roofing project and prior to issuance of manufacturer's Twenty (20) Year Full System Warranty. Field reports shall be provided after each inspection within five (5) days of site visit.

1.12 REGULATORY REQUIREMENTS

A. Conform to all applicable local codes for metal assembly.

B. Provide certification of inspection confirming approval of design and installation by authority having jurisdiction.

1.13 PRE-INSTALLATION CONFERENCE

A. Convene a preinstallation conference two weeks prior to commencing the Work.

B. Require attendance of parties directly affecting the Work of this Section.

C. Review condition of roof deck and installation, installation procedures and coordination with related work.

1.14 WARRANTIES

A. Manufacturer's Product Warranty: Submit manufacturer's ten (10) year labor and material warranty signed by the manufacturer's authorized official, guaranteeing to correct failures in product which may occur during the warranty period, without reducing or otherwise limiting any other rights to correction which the Owner/Project Consultant may have under the contract documents. Failure is defined to include product failure which leads to interruption of a watertight installation. Correction may include repair or replacement of failed product.

B. Contractor's Warranty Period: For roofing flashing and sheet metal, provide a written warranty which shall warrant work to be free of leaks and defects in materials and workmanship for two (2) years, starting from date of substantial completion.

C. Defects of the sheet metal occurring during the warranty period shall be promptly corrected by the contractor, and defects of the roofing shall be promptly corrected by the manufacturer at no additional cost to the Owner. Upon notification from the Owner or the Owner's representative that evidence of a defect exists, the responsible party shall immediately inform the Owner's representative of the date on which corrective work will be scheduled, and shall notify the Owner's representative when the corrective work has been completed.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pre-Coated Galvanized Steel: ASTM A 446, Grade A, G 90 zinc coating, 24-gauge core steel, shop pre-coated.

B. Fasteners: Galvanized steel screws, bolts or nuts, as applicable.

C. Stiffener Angles and Supports: Formed steel, type to match gutters, 18-gauge and clad with prefinished metal cover.

D. Solder: ASTM B 32, 50-50 percent tin/lead solder with rosin flux for use with steel.

E. Neutralized: Five percent (5%) to ten percent (10%) washing soda solution.

F. Protective Back Paint for Galvanizing: Zinc chromate or galvanized iron type.

G. Bituminous Coating: FS TT-G-494, or MIL-C-18480, or SSPC-12, cold-applied bituminous mastic, compound, for 15 mil dry film thickness coating.

H. Wire Screen: One-half inch (1/2") mesh, stainless steel.

I. Splash Pads or Blocks: Precast concrete type; minimum 3000 psi at 28 days, with minimum five percent (5%) air entrainment.

2.2 FABRICATION

A. Collector Heads: SMACNA style profile as detail by Architect; same gauge as panel, or 24-gauge minimum.

B. Downspouts: SMACNA profile as detailed by Architect; same gauge as panel or 24-gauge minimum.

C. Fabricate collector heads and downspouts true to design and dimensions, straight and without deformation. Finish work free from blemishes, abrasions, tool marks, burrs and other defects which may affect strength or performance. Form corners to smallest radius possible without causing grain separation or otherwise impairing work. Allow for expansion and contraction.

D. Completely weld joints in in collector heads to provide watertight units.

2.3 FINISHES

A. Collector Head and Downspouts: 70-75 percent fluorocarbon resin equivalent to Kynar 500/Hylar 5000; Colors as selected from manufacturer full range of colors including premium colors as selected by Project Manager / Architect.

B. Back paint concealed metal surfaces with protective backing paint to minimum dry thickness of 15 mils.

C. Apply bitumen protective backing paint on surfaces in contact with dissimilar materials.

PART 3 - EXECUTION

3.1 REFERENCE

A. In the instance of a conflict between these specifications and those of the manufacturer and/or current NRCA, Underwriters Laboratory and IBC guidelines, the more stringent specifications (better quality or greater quantity of work) shall take precedence.

B. The manufacturer's Technical Specifications and current SMACNA, Underwriters Laboratory and IBC guidelines shall be considered a part of this specification and shall be referred to for general application procedures and recommendations.

C. Application of materials shall be in strict accordance with the manufacturer's recommendations and current NRCA, SMACNA, Underwriters Laboratory and IBC guidelines, except where more stringent requirements (better quality or greater quantity of work) are shown or specified.

D. General Installation:
1. Comply with governing local, state, and federal regulations, safety standards, and codes.
2. Protect adjacent areas with tarpaulin or other durable materials.
3. Use cleaning materials or primers necessary to render an acceptable surface/substrate.
4. All surfaces/substrates shall be clean and dry prior to application of materials.
5. All surfaces that are to receive the self-adhered membranes shall be primed with a fast-drying asphaltic primer.

3.2 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive the Work of this Section.

B. Verify that deck is secure, that it is clean and smooth, free of depressions, waves, abrupt elevation change, protrusions, or projections and properly sloped to drains.

C. Verify that deck surfaces are dry and free of frost, dew or other moisture.

3.3 INSTALLATION

A. Install collector heads, downspouts and accessories in accordance with SMACNA Architectural Sheet Metal Manual.

B. Joint lengths with seams watertight. Flash and seal collector heads to downspouts and accessories.

C. Set splash blocks under downspouts where they occur on the roof surface and at grade.

D. Install gutters, downspout, and accessories.
   a) Join lengths with seams pop riveted and sealed watertight. Flash and seal collector head to downspouts and accessories.
   b) Seal all metal joints watertight for full metal surface contact.
   c) Downspouts: Rectangular profile. Seal all joints, six inches by six inches (6" x 6") minimum or as shown on published details.
   d) Support Brackets, Joint Fasteners: Profiled to suit downspouts.
   e) Anchorage Devices: SMACNA requirements. Type recommended by fabricator.
   f) Downspout Support Straps – Kynar.

3.4 FIELD QUALITY CONTROL

A. Flood test collector head and downspouts upon completion. Repair any leaks.

3.5 FINISH

A. Back paint concealed metal surfaces with bituminous paint where expected to be in contact with cementitious materials or dissimilar metals. Exposed surfaces to be provided with a factory applied fluorocarbon Kynar finish meeting ASTM A 446 and AAMA specification 605.2 for high performance coating.

END OF SECTION 07 62 13

SECTION 07 72 00
ROOF ACCESSORIES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Roof curbs
2. Roof hatches
3. Wall Mounted Access Ladders
4. Interior Fixed Ladder to Roof Hatch
5. Roof supports

1.3 SUBMITTALS

A. Shop Drawings: Provide manufacturer's approved details of all pertinent conditions, projection conditions, and any additional special job conditions which require details other than indicated in the drawings.

B. Refer to Specification Section 01 33 00 for Submittal requirements
Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

C. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Show the following:
1. Size and location of roof accessories specified in this Section.
2. Method of attaching roof accessories to roof or building structure.
3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.

1.4 QUALITY ASSURANCE

A. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.

B. Factory Technical Representative: Roofing Contractor is to arrange and schedule the manufacturer's technical representative to be on site the first day of the installation of manufacturer's roofing system. The manufacturer's technical representative shall inspect the work of the contractor at least one time each week during the installation of the roofing system. The manufacturer's technical representative shall perform with the owner's representative and the roofing contractor a final inspection of the roofing system. At the completion of the final inspection, provide to the roofing contractor a list of punch list items (if any) to be correct before technical acceptance of the roofing project and prior to issuance of manufacturer's Twenty (20) Year Full System Warranty. Field reports shall be provided after each inspection within five (5) days of site visit.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Pack, handle, and ship roof accessories properly labeled in heavy-duty packaging to prevent damage.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify required openings for each type of roof accessory by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 COORDINATION

A. Coordinate layout and installation of roof accessories with (roofing membrane and base flashing and) interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
   1. With Architect's approval, adjust location of roof accessories that would interrupt roof drainage routes.

1.8 WARRANTY

A. The product manufacturer shall provide a one-year full system material warranty necessary to cover replacement of all components of the system against defects in manufacturing. The warranty will not include Acts of God, vandalism, neglect, metal finish or improper spacing of equipment, which would be a result of improper application.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers listed in other Part 2 articles.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers listed in other Part 2 articles.

2.2 METAL MATERIALS

A. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coated.

B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, AZ50 (AZM150) coated.

C. Prepainted, Metallic-Coated Steel Sheet: Steel sheet metallic coated by hot-dip process and prepainted by coil-coating process to comply with ASTM A 755/A 755M.
   1. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coated.
   2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 (Class AZM150) coated.
   3. Exposed Finishes: High-Performance Organic Finish (2-Coat Fluoropolymer): Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's written instructions.
      a) Fluoropolymer 2-Coat System: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements in AAMA 2604 except as modified below:
         (1) Humidity Resistance: 1000 hours.
         (2) Salt-Spray Resistance: 1000 hours.

2.3 ROOF CURBS

A. Roof Curbs: Provide metal roof curbs, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported on roof curbs. Fabricate with welded or sealed mechanical corner joints and integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1. Manufacturers:
   a) ThyCurb; Div. of Thybar Corporation.
   b) Uni-Curb, Inc.
   c) Vent Products Company, Inc.
2. Load Requirements: Insert load requirements.
3. Material: Galvanized steel sheet, 0.052 inch thick.
4. Material: Aluminum sheet, 0.090 inch thick.
5. Material: Stainless-steel sheet, 0.078 inch thick.
   a) Finish: Prime painted.
   b) Finish: Mill.
6. Liner: Same material as curb, of manufacturer's standard thickness and finish.
7. Factory install wood nailers at tops of curbs.
8. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
9. Factory insulate curbs with one and one-half inch (1-1/2") glass fiberboard insulation.
10. Curb height may be determined by adding thickness of roof insulation and minimum base flashing height recommended by roofing membrane manufacturer. Fabricate units to minimum height of fourteen inches (14"), unless otherwise indicated.
11. Sloping Roofs: Where slope of roof deck exceeds 1:48, fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units.

2.4 EQUIPMENT SUPPORTS

A. To support HVAC Duct use Model # SS2000D Duct Support. SS2000D is two 17" circular bases with 12 ga. framing channel formed to make an “H” shaped support. Framing channel is adjustable in both height and width.

B. To support heavier HVAC equipment use equipment platform Model # HV0505B Base Platform designed by manufacturer to support the weight of the equipment and load requirements. Equipment platform shall consist of (a) 17" circular bases supporting a structural steel frame OR (b) galvanized steel plates, with four holes for approved anchoring per engineering data, supporting a structural steel frame.

2.5 ROOF HATCHES

A. Roof Hatches: Fabricate roof hatches with insulated double-wall lids and insulated double-wall curb frame with integral deck mounting flange and lid frame counterflashing. Fabricate with welded or mechanically fastened and sealed corner joints. Provide continuous weathertight perimeter gasketing and equip with corrosion-resistant or hot-dip galvanized hardware.
   1. Manufacturers:
      Babcock-Davis; a Cierra Products Inc. Company.
      Bilco Company (The).
      Nystrom.
   2. Loads: Fabricate roof hatches to withstand 40 pounds per square foot external and 20 pounds per square foot internal loads.
   3. Type and Size: Single-leaf lid, thirty inches by thirty-six inches (30" x 36").
   4. Curb and Lid Material: Aluminum sheet, 0.090 inch thick.
      a) Finish: Baked enamel.
   5. Insulation: Three inch (3") Polyisocyanurate, equal to R20.3, in curb and corner.
   6. Interior Lid Liner: Manufacturer's standard metal liner of same material and finish as outer metal lid.
   7. Exterior Curb Liner: Manufacturer's standard metal liner of same material and finish as metal curb.
   8. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
   9. Fabricate units to minimum height of fourteen inches (14"), unless otherwise indicated.
   10. Sloping Roofs: Where slope or roof deck exceeds 1:48, fabricate hatch curbs with height tapered to match slope to level tops of units.
   11. Hardware: Galvanized steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside and outside.
      a) Provide 2-point latch on covers larger than eighty-four inches (84").

12. Ladder Safety Post: Manufacturer's standard ladder safety post. Post to lock in place on full extension. Provide release mechanism to return post to closed position.
    a) Test Load: 1000 pounds
    b) Height: Forty-two inches (42") above finished roof deck.
    c) Material and Finish: Aluminum, mill finished.
    d) Diameter: Pipe with one and five-eighths inch (1-5/8") OD tube.
13. Hatch Lid to have an R value of R20.
14. Safety Railing System: Manufacturer's standard aluminum construction, non-penetrating safety railing system with self-closing and latching gate. Corrosion resistant construction. System shall meet or exceed OSHA fall protection regulations (29 CFR 1910.29). Color: Safety Yellow.

2.6 WALL MOUNTED ACCESS LADDERS

Fixed Ladder Design, as manufactured by O'Keefe's, Inc., or approved equal.

1. Ladder safety devices or fall-arrest systems are required on ladders over 24 feet.
2. Ladder safety devices or fall-arrest systems are required on all ladders in high or hazardous areas.
3. Landing platforms are required at 50 feet above the bottom of the ladder.
4. Rail and harness fall arrest system as alternate to landing platforms shall be a permissible manufacturer's option.
    a) Fixed Ladder Bottom Bracket.
    b) Bottom floor supported bracket.
    c) Bottom wall supported bracket.
    d) Bracket as drawn.

B. Fixed Access Ladder
1. Tubular Rail Low Parapet Access Ladder with Platform and Return. Model 503, as manufactured by O'Keeffe's Inc.

C. Materials
1. Aluminum Sheet: Alloy 5005-H34 to comply with ASTM B209.
2. Aluminum Extrusions: Alloy 6063-T6 to comply with ASTM B221.

D. Finishes
1. Mill finish. As extruded.
2. Clear Anodic Finish: AA-M10C22A41 Mechanical finish as fabricated. Architectural Class I, clear coating 0.018 mm or thicker.
3. Paint. Urethane over chemically pretreated substrate.
    a) Fire Red (RAL 2002).
    b) Alert Orange (RAL 2003).
    c) Warning Blue (RAL 5005).
    d) Caution Yellow (RAL 1018).
    e) Safety Green (RAL 6001).
    f) As scheduled on drawings.
4. Furnish touchup kit for each type and color of paint finish provided.

E. Fabrication
1. Rungs: Not less than 1-1/4 inches in section and 18–3/8 inches long, formed from tubular aluminum extrusions. Squared and deeply serrated on all sides.
    a) Rungs shall withstand a 1,500 pound load without deformation or failure.
2. Channel Side Rails: Not less than 1/8 inch wall thickness by 3 inches wide.
3. Heavy Duty Tubular Side Rails: Assembled from two interlocking aluminum extrusions no less than 1/8 inch wall thickness by 3 inches wide. Construction shall be self-locking stainless steel fasteners, full penetration TIG welds and clean, smooth and burr-free surfaces.
4. Walk-Through Rail and Roof Rail Extension: Not less than 3 feet 6 inches above the landing and shall be fitted with deeply serrated, square, tubular grab rails.
5. Landing Platform: 1-1/2 inches or greater diameter, tubular aluminum guardrails and decks of serrated aluminum treads.

6. Rail and Harness Fall Arrest System: Supplied where specified as alternate to landing platforms, in accordance with OSHA regulation 1910.28; permanently mounted to ladder rungs and complete with necessary components.

2.7 INTERIOR FIXED LADDER TO ROOF HATCH

A. Aluminum Fixed Vertical Ladder: Ladder, cage, rest platforms, floor mounting brackets, security doors, walk-thru, and side rails, as manufactured by Precision Ladders, or approved equal.
   1. The basis of design is FL Aluminum Fixed Vertical Ladder, as manufactured by Precision Ladders LLC.
   2. Capacity: Unit shall support a 1000 lb loading without failure.
   3. Performance Standard: Units designed and manufactured to meet or exceed ANSI A14.3 and OSHA 1910.27.

B. Components:
   1. Ladder Stringer: 2-1/2 inch by 1-1/16 inch by 1/8 inch extruded 6005-T5 aluminum channel. Pitch: 90 degrees.
   2. Ladder Tread: 2-1/4 inch by 3/4 inch by 1/4 inch extruded 6005-T5 aluminum with deeply serrated top surface.
   3. Ladder Mounting Bracket: 8-1/2 inch by 2 inch by 3 inch by 1/4 inch thick aluminum angle.
   4. Finishes:
      a) Mill finish on aluminum ladder components.

C. Fabrication
   1. Completely fabricate ladder ready for installation before shipment to the site.
   2. Completely fabricate handrail components ready for field assembly to ladder before shipment to site. Shall be premanufactured wall-mounted ladder of 0.125 by three inch (3") aluminum channel side rails with non-slip rungs as manufactured by O'Keeffe's Inc., or approved equal.
   3. Ladder manufacturer shall be notified immediately of defective products, and be given a reasonable opportunity to inspect the goods prior to return. Ladder manufacturer will not assume responsibility, or compensation, for unauthorized repairs or labor. Ladder manufacturer makes no other warranty, expressed or implied, to the merchantability, fitness for a particular purpose, design, sale, installation, or use, of the ladder; and shall not be liable for incidental or consequential damages, losses of or expenses, resulting from the use of ladder products

2.8 ROOF PIPE SUPPORTS

A. To support conduit or pipe sized up to Ø8" when height adjustment is needed use Model # SS1000A Adjustable Pipe Support. 17" circular base with 12 ga. framing channel, 18"L, attached to 17" circular base using 1/2" threaded rods, 12"L, with washers and nuts. Height of channel can be adjusted along the length of the 1/2" threaded rods. Strut clamps are suggested to hold piping or conduit in place.

B. To support water or gas piping up to Ø8" or when a roller support with height adjustment is needed use Model # SS1000RA Pipe Support with Adjustable Roller. 17" circular base with SBR heavy duty rubber roller assembly attached to 17" circular base using 1/2" threaded rods, 12"L, with washers and nuts. Height of roller assembly can be adjusted along the length of the 1/2" threaded rods.

C. To support multiple pipe runs, piping up to Ø12" when height adjustment or pipe suspension is needed use Model # SS4000P, SS6000P or SS8000P Adjustable Support Bridge. SS4000P Adjustable Suport Bridge is made of four (4) 17" circular bases and 12ga. framing channel formed to make one "H" shaped support with crossbar. SS6000P Adjustable Suport Bridge is made of six (6) 17" circular bases and 12ga. framing channel formed to make two "H" shaped supports with crossbar. SS8000P Adjustable Suport Bridge is made of eight (8) 17" circular bases and 12ga. framing channel formed to make three "H" shaped supports with crossbar. Crossbar height is adjustable and offered in 18", 24", 36", and 48" lengths. Use Adjustable Support Bridge with strut clamps or roller accessories or use optional hanger supports to suspend water or gas piping at various heights. Optional hanger supports attached to support frame using 1/2" threaded rods. Hangers offer complete height adjustments along the length of 1/2" threaded rods.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of work.
   1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored and is ready to receive roof accessories.
   2. Verify dimensions of roof openings for roof accessories.
   3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install roof accessories according to manufacturer's written instructions. Anchor roof accessories securely in place and capable of resisting forces specified. Use fasteners, separators, sealants, and other miscellaneous items as required for completing roof accessory installation. Install roof accessories to resist exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Install roof accessories to fit substrates and to result in watertight performance.

C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
   1. Coat concealed side of uncoated aluminum roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
   2. Underlayment: Where installing exposed-to-view components of roof accessories directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene underlayment.
   3. Bed flanges in thick coat of asphalt roofing cement where required by roof accessory manufacturers for waterproof performance.

D. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.

3.3 ROOF CURB INSTALLATION:
   1. Set roof curb so top surface of roof curb is level.
   2. Curb height to maintain a minimum of 10" above finished roof surface,
   3. Attach roof curb according to manufacturer's written instructions

3.4 PIPE AND EQUIPMENT SUPPORT INSTALLATION:
   1. Install support systems in accordance with manufacturer's instructions and approved shop drawings.
   2. Accurately locate and align pre-fabricated pipe supports in locations specified as per approved shop drawings or as required herein and by site conditions to limit pipe and/or conduit deflection to L/240, not to exceed 10' (3m) on center. No Isolation pads are required under the 17" circular bases.
   3. Should the roofing manufacturer require a separation sheet between the roof and the support system, place a separation sheet or protective pad conforming to the existing roof manufacturer's system under 17" circular bases. Do not adhere to the roof system or 17" circular bases.
   4. If required, insert frame structures into 17" circular bases as indicated by manufacturer's instructions.
   5. Adjust height of each strut or channel and hanger or roller to its required height and tighten with nut, but do not over-tighten. Check each support for equal weight disbursement. Correct if necessary.
   6. Remove any unused materials and packaging from job site. All gas lines, piping, and conduit must be supported on specified stands or hangars.
   7. Supports shall be attached to pipes with oversized strapping.

8. Designated pipe/equipment supports shall be removed and replaced with new.
9. Verify that roof surface is smooth and clean to extent needed to receive materials. Surface shall be cleaned by removing any loose gravel and any foreign matter.
10. Install support systems in accordance with manufacturer's instructions and approved shop drawings. Accurately locate and align pre-fabricated pipe supports in locations specified as per approved shop drawings. Pipe supports shall be placed not to exceed ten feet (10') on center and within two feet (2") of all elevation changes, intersections, and corners.
11. Supports shall be set on a double layer of membrane, adhered to the roof surface using specified silyl-terminated polyester sealant, unless noted otherwise by support manufacturer.
12. Provide bond breaker between dissimilar metals.

3.5 ROOF HATCH INSTALLATION:

1. Check roof hatch for proper operation. Adjust operating mechanism as required. Clean and lubricate joints and hardware.
2. Attach safety railing system to roof hatch curb.
3. Attach ladder safety post according to manufacturer's written instructions.
4. Provide the required structural members necessary to install the hatch into the roof deck. Refer to structural drawings for further information.

3.6 INSTALLATION OF EXTERIOR ROOF ACCESS LADDER

A. Examination:
1. Coordinate anchorages. Furnish setting drawings, templates, and anchorage structural loads for fastener resistance.
2. Do not begin installation until supporting structure is complete and ladder installation will not interfere with supporting structure work.
3. If supporting structure is the responsibility of another installer, notify Architect of unsatisfactory supporting work before proceeding.

B. Installation: Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction.

C. Protection:
1. Protect installed products until completion of project.
2. Touch-up, repair or replace damaged products before Substantial Completion.

3.7 INSTALLATION OF INTERIOR FIXED LADDER TO ROOF HATCH

A. Examination:
1. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
2. Examine materials upon arrival at site. Notify the carrier and manufacturer of any damage.

B. Installation: Install in accordance with manufacturer's instructions.

C. Do not attach directly to the roof hatch assembly.

D. Protection:
1. Protect installed products until completion of project.
2. Touch-up, repair, or replace damaged products before Substantial Completion

3.8 TOUCH UP

A. Touch up factory-primed surfaces with compatible primer ready for field painting in accordance with Division 9 painting Sections.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.9 CLEANING

A. Clean exposed surfaces according to manufacturer's written instructions.

END OF SECTION 07 72 00

SECTION 07 92 00 - JOINT SEALANTS AND PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Urethane joint sealants.
2. Mildew-resistant joint sealants.
3. Polysulfide joint sealants.
4. Butyl joint sealants.
5. Latex joint sealants.
6. Fire-resistant sealants in above-ceiling penetrations in all rated OR non-rated partition.
7. Fire-resistant sealants in all penetrations of upper floors in all rated OR non-rated floor separations.

B. Related Requirements:

1. Section 07 84 13 “Penetration Firestopping” for requirements at unrated floor penetrations.
2. Division 32 Section "Concrete Paving Joint Sealants" for sealing joints in paved roads, parking lots, walkways, and curbing.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Product Test Reports: For each kind of joint sealant, for tests performed by manufacturer and witnessed by a qualified testing agency or for tests performed by a qualified testing agency.

C. Preconstruction Field-Adhesion-Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

D. Field-Adhesion-Test Reports: For each sealant application tested.

E. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

B. Product Testing: Test joint sealants using a qualified testing agency.

1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

C. Pre Installation Conference: Conduct conference at Project site to comply with requirements of the Division 1 section covering this activity. Joint sealants shall be discussed as integral components of other specified items/systems which require pre-installation conferences, e.g. masonry, envelope systems, roofing, openings, etc., as applicable.

D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.7 PRECONSTRUCTION TESTING

A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each kind of sealant and joint substrate.
3. Notify Architect seven days in advance of dates and times when test joints will be erected.

a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

4. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
5. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multicomponent materials.

B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.9 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.10 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period - Urethane: Five (5) years from date of Substantial Completion.
2. Warranty Period - Silicone: Twenty (20) years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. PERFORMANCE REQUIREMENTS

1. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
2. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 URETHANE JOINT SEALANTS

A. Urethane, S, NS, 25, NT: Single-component, nonsag, nontraffic-use, plus 25 percent and minus 25 percent movement capability, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.

1. Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. MasterSeal NP 1, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com class 25
b. Chem-Calk 900, Bostik, Inc. 800-726-7845 www.bostik-us.com
c. Chem-Calk 2639, Bostik, Inc. 800-726-7845 www.bostik-us.com
d. Dynatrol I-XL, Pecora Corporation 800-523-6688 www.pecora.com ASTM D3960) class 50
e. Permapol RC-1, Products Research & Chemical Corp.
f. Sikaflex-1a, Sika Corporation, USA 800-933-7452 www.sikaconstruction.com EPA24 class 35
g. Sikaflex-15LM, Sika Corporation, USA 800-933-7452 www.sikaconstruction.com
h. Vulkem 116, Tremco, Incorporated 800-852-9068 www.tremco.com class 25
i. DyMonic, Tremco, Incorporated 800-852-9068 www.tremco.com class 25

2. Application: Exterior joints in vertical surfaces and nontraffic horizontal surfaces as indicated below:

a. Control and expansion joints in unit masonry.
b. Joints between different materials.
c. Perimeter joints between materials listed above and frames of doors and windows.
d. Control and expansion joints in ceiling and overhead surfaces.
e. Other joints as indicated.

3. Primer: Manufacturer's recommended primer as may be required for very porous surfaces and certain metal finishes. Allow primer to dry before sealing, however, priming and sealing must be accomplished on the same workday.

2.3 MILDEW-RESISTANT JOINT SEALANTS

A. Reference 09 30 13 Tiling for silicone joint usage in tiled areas, including toilet rooms and showers.

2.4 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF. Color: Standard colors matching finished surfaces.

1. Color: Standard colors matching adjacent finished surfaces, unless otherwise indicated. If adjacent surfaces consist of multiple colors – coordinate color to use with the Architect.
2. Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Basis-of-Design: Tremflex 834, Tremco Incorporated 800-852-9068 www.tremco.com

b. Chem-Calk 600, Bostik, Inc. 800-726-7845
c. AC-20, Pecora Corporation 800-523-6688 www.pecora.com
d. MasterSeal NP 520, BASF Construction Chemicals – Building Systems 800-433-9517 www.buildingsystems.basf.com (13g/L, ±25%)
e. NR-201 Urexpan, Pecora Corporation 800-523-6688 www.pecora.com
f. Tremflex 834, Tremco Incorporated 800-852-9068 www.tremco.com Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces as indicated below:

3. Application: Interior vertical and nontraffic horizontal joints in non-wet areas.

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Vertical control joints on exposed surfaces of interior unit masonry and concrete walls and partitions.
c. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
d. Other joints as indicated.

2.5 BUTYL SEALANTS

A. Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, non-drying, non-skinning, non-curing.

1. Type: Butyl Sealant manufactured by Tremco.

2. Applications: Use for concealed sealant bead in sheet metal work and concealed sealant bead in siding overlaps.

2.6 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing. Backings shall be preformed, compressible, resilient, nonwaxing, nonextruding strips of flexible, nongassing polyethylene foam nonabsorbent to water and gas.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.7 PENETRATION FIRESTOPPING SYSTEMS

A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.

1. Subject to compliance with requirements, provide products by one of the following

a. 3M Fire Protection Products (800) 328–1687 http://solutions.3m.com/wps/portal/3M/en_US/fire-protection-systems-NA/firestop/?WT.mc_id=www.3m.com/firestop
b. A/D Fire Protection Systems Inc (800) 263–4087 www.adfire.com/
c. HILTI, Inc. (800) 879–8000 www.us.hilti.com/engineering

d. HOLDRITE 800-321-0316 http://holdrite.com/
e. NUCO Inc (800) 853-3984 http://sealantcentre.com/
f. Passive Fire Protection Partners (800) 810-1788 http://www.firestop.com/
g. RectorSeal (800) 231-3345 www.rectorseal.com/
h. Specified Technologies, Inc. (800) 992-1180 www.stifirestop.com/
i. STC Architectural Products 866.728.1932 www.stcsoundseal.com/
j. Tremco, Inc. (800) 562–2728 www.tremco.com

B. Penetrations in Horizontal Assemblies of All Rated OR Non-Rated Floor separations: Penetration firestopping systems with ratings determined per ASTM E 814 or UL 1479 applicable to F-Rating and T-Rating, hourly-rated systems, based on testing at a positive pressure differential of 0.01-inch wg (2.49 Pa). Firestopping is required in the annular space between the exterior face of the penetrating item and the face of the required floor openings, to resist the passage of flame and the products of combustion

1. F-Rating for Non-Rated Floor Separation Assemblies: Not less than one-hour rating for the penetration material and method.

2. F-Rating for Rated Floor Separation Assemblies: Not less than the fire-resistance rating of the floor separation assembly for the penetration material and method.

3. Unrated Assemblies: An approved fill, void or cavity material that is, 1) tested in the form and manner intended for use to demonstrate that it will stay in place, 2) classified for use in through-penetration firestopping systems.

C. Above-Ceiling Penetrations in all Rated OR Non-Rated Walls: Penetration firestopping systems with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg. Firestopping is required in the annular space between the exterior face of the penetrating item and the face of the required wall openings to resist the passage of flame and the products of combustion

1. F-Rating for Non-Rated Walls and Partitions: Not less than one-hour rating for the penetration material and method.

2. F-Rating for Rated Walls and Partitions: Not less than the fire-resistance rating of the wall or partition for the penetration material and method.

2.8 MISCELLANEOUS MATERIALS

A. Primer: Non-staining material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Non-corrosive chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

D. Polished Concrete Floor Joint Sealer: Not applicable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

a. Concrete.
b. Masonry.
c. Unglazed surfaces of ceramic tile.
d. Other porous joint substrates.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

a. Metal.
b. Glass.
c. Porcelain enamel.
d. Glazed surfaces of ceramic tile.
e. Other nonporous joint substrates.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. For this Project, firestopping is required at all penetrations in all rated **OR** unrated floors, and includes, but is not limited to pipes, cables and conduits. Due to the variable and complex nature of what is required by the Building Code for unrated floors, and the desire to simplify the job with a single requirement, all penetrations in unrated floors are required to be treated with firestopping material, including penetrations within rated "shafts". Any firestopping **within** rated "shafts" is not required to be rated, as the rated "shaft" will provide the rated separation of atmospheres between floors. If a penetration exits a "shaft" terminus at a floor, the penetration firestopping at the floor penetration shall be rated equal to the higher rating of either the rated "shaft" or the floor. For this rated "shaft" terminus condition, refer to Division 7 Section "Penetration Firestopping" for rated firestopping requirements.

C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.
4. Provide flush joint profile at where indicated, according to Figure 8B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations indicated according to Figure 8C in ASTM C 1193.

    a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:

a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
b. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

3. Inspect tested joints and report on the following:

a. Whether sealants filled joint cavities and are free of voids.
b. Whether sealant dimensions and configurations comply with specified requirements.
c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion complies with sealant manufacturer's field-adhesion hand-pull test criteria.

4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant material, sealant configuration, and sealant dimensions.

5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 92 00

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes hollow-metal doors and frames.

B. Related Requirements:
1. Section 08 14 16 - Flush Wood Doors: For plastic laminate clad doors set in steel frames.
2. Section 08 71 00 - Door Hardware: For door hardware for hollow-metal doors.
3. Division 8 Section _ Glazing: For glazed openings in doors, and frames.
4. Section 09 91 00 - Painting: Field painting of shop-primed steel doors and frames.

1.3 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to SDI A250.8.

1.4 REFERENCES

A. American National Standards Institute:

1. ANSI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.

B. ASTM International:

1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM E413 - Standard Classification for Rating Sound Insulation.

C. National Fire Protection Association:

1. NFPA 80 - Standard for Fire Doors, Fire Windows.
2. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.
3. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

D. Steel Door Institute:

1. SDI 108 - Recommended Selection and Usage Guide for Standard Steel Doors.

E. Underwriters Laboratories Inc.:

1. UL 10B - Fire Tests of Door Assemblies.

1.5 COORDINATION

A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.6 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.7 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, core descriptions, fire-resistance ratings, and finishes.

B. Shop Drawings: Include the following:

1. Elevations of each door type.
2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.
7. Details of accessories.
8. Details of moldings, removable stops, and glazing.
9. Details of conduit and preparations for power, signal, and control systems where applicable.

C. Samples for Verification:
1. For "Doors" and "Frames" subparagraphs below, prepare Samples approximately 8 by 10 inches to demonstrate compliance with requirements for quality of materials and construction:

a. Doors: Show vertical-edge, top, and bottom construction; core construction; and hinge and other applied hardware reinforcement. Include separate section showing glazing if applicable.

b. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing fixed hollow-metal panels and glazing if applicable.

D. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

1.8 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of hollow-metal door and frame assembly, for tests performed by a qualified testing agency.

B. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.

1. Provide additional protection to prevent damage to factory-finished units.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include the following:

1. Steel Doors and Frames:

a. Amweld Building Products www.amweld.com
b. [Black Mountain Door, LLC. 855-370-4580 www.blackmountaindoor.com/]
c. Ceco Door 888-264-7474 www.cecodoor.com 66.9%
d. CURRIES Company 641-423-1334 www.curries.com 27.9%
e. Deansteel Manufacturing Company, Inc. 800-825-8271 www.deansteel.com
f. Kewanee Corporation www.kewaneecorp.com
g. Mesker Door, Inc. 256-851-6670 www.meskerdoor.com 59%+(1/2*9%)=63.5%
h. Pearland Industries
i. Pioneer Industries 201-933-1900 www.pioneerindustries.com
51.6%+(1/2*10.6)%=57.2%
j. Republic Doors and Frames www.republicdoor.com
k. Substitutions: Section 01 25 00 – Substitution Procedures.

2. Metal Louvers for Doors: Provide louvers acceptable to the door manufacturer or louvers from one of the following:

a. Air Louvers, Inc. 800-766-0660 www.airlouvers.com
b. Anemostat 310-835-7500 www.anemostat.com
c. National Guard Products 800-647-7874 www.ngp.com/]

B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

C. Provide steel doors and frames from an SDI Certified Manufacturer.

2.2 REGULATORY REQUIREMENTS

A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C (for D, H[, T] (Door, Hose stream ratings.

2.3 INTERIOR DOORS AND FRAMES

A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3. At all locations where doors are indicated in the Door and Frame Schedule.

1. Physical Performance: Level A according to SDI A250.4.
2. Doors:

a. Type: As indicated in the Door and Frame Schedule.
b. Thickness: 1-3/4 inches.
c. Face: Uncoated, cold-rolled steel sheet, minimum thickness of 0.053 inch.
d. Edge Construction: Model 1, Full Flush.
e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion.
f. Core: One of the following: Kraft-paper honeycomb, Polystyrene, Polyurethane or Mineral board.

3. Frames: Level 3, except as noted.

a. Materials: Uncoated, steel sheet, minimum thickness of 0.053 inch - furnish "Level 4" 14 gage (0.067) thick steel material for frames over 48 inches wide.
b. Sidelite and Transom Frames: Fabricated from same thickness material as adjacent door frame.
c. Construction: Full profile welded.

4. Exposed Finish: Prime.

2.4 EXTERIOR HOLLOW-METAL DOORS AND FRAMES

A. Construct exterior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3. At all locations where doors are indicated in the Door and Frame Schedule.

1. Physical Performance: Level A according to SDI A250.4.
2. Doors:

a. Type: As indicated in the Door and Frame Schedule.
b. Thickness: 1-3/4 inches.
c. Face: Minimum 0.053 inch steel sheet with galvanized finish A60 minimum coating.
d. Edge Construction: Model 1, Full Flush.
e. Core: Thermally Insulated.

3. Frames: Level 3, except as noted.

a. Materials: Minimum 0.053 inch steel sheet with galvanized finish A60 minimum coating. Furnish "Level 4", 14-gage (0.067) thick steel material for frames over 48 inches wide.
b. Construction: Full profile welded,
1) Thermally broken and insulated.

4. Door/Frame Assembly
a. Provide a door/frame assembly U-value of 0.61 and maximum air leakage of 0.20 CFM/SF in accordance with AAMA/SDMA/CSA101/1.S.2/A440 or NFRC 400.

b. Exposed Finish: Factory-primed for field finish painting.

2.5 FIXED WINDOWS (Borrowed Lites)

A. Hollow-metal frames of uncoated steel sheet, minimum thickness of 0.053 inch (1.3 mm).

B. Construction: Full profile welded.

2.6 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch (4.5 mm) thick.
2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick.
3. Post-installed Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch (1.0 mm), and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.7 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.]

H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

I. Glazing: Comply with requirements in Section 08 80 00 "Glazing."

J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.8 FABRICATION

A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Doors:

1. Fire Door Cores: As required to provide fire-protection ratings indicated.
2. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches.
3. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets.
4. Bottom Edge Closures: Close bottom edges of doors with end closures or channels of same material as face sheets.
5. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
6. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
5. Jamb Anchors: Provide number and spacing of anchors as follows or at rated frames, as required to construct the rated assembly:

    a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:

        1) Two anchors per jamb up to 60 inches high.
        2) Three anchors per jamb from 60 to 90 inches high.
        3) Four anchors per jamb from 90 to 120 inches high.

4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.

b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

1) Three anchors per jamb up to 60 inches high.
2) Four anchors per jamb from 60 to 90 inches high.
3) Five anchors per jamb from 90 to 96 inches high.
4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.

c. Compression Type: Not less than two anchors in each frame.

d. Post-installed Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.

6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.

a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

7. [Terminated Stops: Terminate stops 6 inches above finish floor with a 45-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.]

D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.

E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive non-templated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

F. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow-metal work.
5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

2.9 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.10 ACCESSORIES

A. Louvers: Provide louvers for interior doors, where indicated, which comply with SDI 111C, with blades or baffles formed of 0.020-inch thick, cold-rolled steel sheet set into 0.032-inch thick steel frame.

1. Sight-proof Louver: Stationary louvers constructed with inverted-V or inverted-Y blades.
2. Lightproof Louver: Stationary louvers constructed with baffles to prevent light from passing from one side to the other.
3. Fire-Rated Automatic Louvers: Louvers constructed with movable blades closed by actuating fusible link, and listed and labeled for use in fire-rated door assemblies of type and fire-resistance rating indicated by same qualified testing and inspecting agency that established fire-resistance rating of door assembly.]

B. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

C. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove any welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Drill and tap doors and frames to receive non-templated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.

B. Hollow-Metal Frames: Install hollow-metal frames for doors, transoms, sidelites, fixed windows, and other openings, of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

    a. At fire-rated openings, install frames according to NFPA 80.
    b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    c. Install frames with removable stops located on secure side of opening.
    d. Install door silencers in frames before grouting.
    e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    g. Field apply bituminous coating to backs of frames that will be filled with grout containing anti-freezing agents.
    h. Only place grout or mortar in frames by hand troweling – DO NOT pump grout or mortar into frames.
    i. Frames to be grout and mortar filled shall be braced during grout and mortar application to prevent bowing and sagging.
    j. Installers shall reference the frame manufacturer's instructions and follow them.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.

    a. Floor anchors may be set with power-actuated fasteners instead of post-installed expansion anchors if so indicated and approved on Shop Drawings.

3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
6. In-Place Concrete or Masonry Construction: Secure frames in place with post-installed expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
7. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
8. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Steel Doors:

    a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
    b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
    c. At Bottom of Door: 5/8 inch minus 1/32 inch), and no more than 3/4 inch.
    d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.

2. [Fire-Rated Doors: Install doors with clearances according to NFPA 80.
3. Smoke-Control Doors: Install doors and gaskets according to NFPA 105.]

D. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.

    1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow-metal work immediately after installation.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

D. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

E. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 08 11 13

SECTION 08 12 16 - INTERIOR ALUMINUM FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
1. Interior aluminum frames for flush wood doors.
2. Interior aluminum frames for interior windows.

B. Related Sections include the following:
1. Section 06 10 53 - Miscellaneous Rough Carpentry: Wood framing and blocking.
2. Section 08 14 16 - Flush Wood Doors: Wood doors installed in interior aluminum frames.
3. Section 08 71 00 - Door Hardware: Frame preparation for door hardware.
4. Section 08 80 00 - Glazing: Glass in interior aluminum frames.
5. Section 09 21 16 - Gypsum Board Assemblies: Steel stud framing.

1.2 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of interior aluminum frame indicated.

B. Shop Drawings: For interior aluminum frames. Include plans, elevations, sections, details, and attachments to other work.

C. Samples for Verification: 12 inch long framing member with factory-applied finish for each type of interior aluminum frame indicated.

D. Maintenance Data: For interior aluminum frames to include in maintenance manuals.

1.3 QUALITY ASSURANCE

A. Product Options: Drawings indicate size, profiles, and dimensional requirements of interior aluminum frames and are based on the specific system indicated.

B. Fire-Rated Door Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated.

1.4 WARRANTY

A. Warrant against defects in manufacturing of materials for a period of 1 years from date of substantial completion.

B. Warrant framing finish against defects, including cracking, flaking, blistering, peeling, and excessive fading, chalking and non-uniformity in color for a period of 5 years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers:
1. Modulex, Inc., www.modulexinc.com.
2. RACO Interior Products, Inc., www.racointeriors.com.
3. Versatrac, www.versatrac.com.
4. Substitutions: Section 01 60 00 - Product Requirements.

B. Basis-of-Design: The design for interior aluminum frames is based on RACO Classic Freestanding Series.

2.2 COMPONENTS

A. Aluminum Framing, General: ASTM B221/B221M, Alloy 6063-T5 or alloy and temper required to suit structural and finish requirements, not less than 0.062 inch thick.

B. Door Frames: Reinforced for hinges and strikes.

C. Glazing Frames: For glazing thickness indicated.

D. Ceiling Tracks: Extruded aluminum.

E. Trim: Extruded aluminum, not less than 0.062 inch thick, with removable snap-in door stops without exposed fasteners. All snap-in trim to be beveled NOT square.

2.3 ACCESSORIES

A. Fasteners: Aluminum, nonmagnetic stainless-steel or other noncorrosive metal fasteners compatible with frames, stops, panels, reinforcement plates, hardware, anchors, and other items being fastened.

B. Sound Seals: Manufacturer's standard continuous mohair, wool pile, or vinyl seals.

C. Glazing Gaskets: Manufacturer's standard extruded or molded plastic, to accommodate glazing thickness indicated.

D. Glazing: Comply with requirements in Section 08 80 00 - Glazing.

E. Hardware: Comply with requirements in Section 08 71 00 - Door Hardware.

2.4 FABRICATION

A. Machine jambs and prepare for hardware, with concealed reinforcement plates, drilled and tapped as required, and fastened within frame with concealed screws.

B. Provide concealed corner reinforcements and alignment clips for accurately fitted hairline joints at butted or mitered connections.

C. Fabricate frames for glazing with removable stops to allow glazing replacement without dismantling frame.

D. Fabricate all components to allow secure installation without exposed fasteners.

2.5 ALUMINUM FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Factory Applied Paint Finish: Comply with AAMA(2603)603.8 and AA-DAF-45, factory applied baked enamel coating.

1. Color: As selected from manufacturers available, including color-matches for color anodized.

C. Class II Clear Anodized: AAMA 611 AA--M12C22A31 Class II, minimum thickness 0.4 mil, acid etched, medium matte, clear anodic coating. Provide in lieu of factory paint finish where indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls, floors, and ceilings, with Installer present, for conditions affecting performance of work.
1. Verify that wall thickness does not exceed standard tolerances allowed by throat size indicated.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with frame manufacturer's written installation instructions.

B. Install frames plumb and square, securely anchored to substrates.

C. Install frame components in the longest possible lengths; components up to 96 inches long must be 1 piece.
   1. Delete first subparagraph below if frames are not supported by suspended ceiling.
   2. Fasten to suspended ceiling grid on maximum 24-inch centers, using sheet metal screws or other fasteners approved by frame manufacturer.
   3. Use concealed installation clips to produce tightly fitted and aligned splices and connections.
   4. Secure clips to main structural extrusion components and not to snap-in or trim members.
   5. Do not leave screws or other fasteners exposed to view when installation is complete.

3.3 CLEANING

A. Clean exposed frame surfaces promptly after installation, using cleaning methods recommended by frame manufacturer and according to AAMA 609 & 610.

B. Touch up marred frame surfaces. Remove and replace frames with damaged finish that cannot be satisfactorily repaired.

END OF SECTION

SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Solid-core doors with plastic-laminate faces.
2. Factory fitting flush wood doors to frames and factory machining for hardware.

B. Related Requirements:
1. Section 08 11 13 - Standard Steel Doors and Frames: Steel frame for flush wood doors.
2. Section 08 71 00 - Door Hardware: Finish hardware requirements for doors.
3. Section 08 80 00 – Glazing: general requirements for glass view panels in flush wood doors.

1.3 REFERENCES

A. ASTM International: ASTM E413 - Standard Classification for Rating Sound Insulation.

B. Architectural Woodwork Institute: AWI – Architectural Woodwork Quality Standards.

1. WDMA I.S. 1-A “Architectural Wood Flush Doors”.

C. Intertek Testing Services (Warnock Hersey Listed): WH - Certification Listings.

D. National Electrical Manufacturers Association: NEMA LD 3 - High Pressure Decorative Laminates.

E. National Fire Protection Association:

1. NFPA 80 - Standard for Fire Doors, Fire Windows.
2. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.

F. Underwriters Laboratories Inc.:

1. UL - Building Materials Directory.
2. UL 10B - Fire Tests of Door Assemblies.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of door. Include details of core and edge construction, louvers, and trim for openings.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:

1. Dimensions and locations of blocking.
2. Dimensions and locations of mortises and holes for hardware.
3. Dimensions and locations of cutouts.
4. Undercuts.
5. Doors to be factory-faced with selected plastic laminate surfacing.
6. Fire-protection ratings for fire-rated doors.

C. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors.

D. Samples for Verification:

1. Plastic laminate, 6 inches (150 mm) square, for each color, texture, and pattern selected.
2. Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edges representing actual materials to be used.
    a. Provide Samples for each color, texture, and pattern of plastic laminate required.
    b. Finish veneer-faced door Samples with same materials proposed for factory-finished doors.
3. Louver blade and frame sections, 6 inches (150 mm) long, for each material and finish specified.
4. Frames for light openings, 6 inches long, for each configuration type.

1.6 INFORMATIONAL SUBMITTALS

A. Sample Warranty: For special warranty.

B. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

1.7 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting.

C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during remainder of construction period.

1.10 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
    1. Failures include, but are not limited to, the following:
        a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
    2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
    3. Warranty Period for solid-core interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:
    1. Flush Wood Doors:
        a. Algoma Hardwoods, Inc. 800-678-8910 www.algomahardwoods.com
        b. Chappell Door Company 800-800-3225 www.chappelldoor.net
        c. Doormerica Products 888-454-2888 www.doormerica.com
        d. Eggers Industries 920-793-1351 www.eggersindustries.com 5" EtLt; 3.5" LotLt
        e. Graham Wood Doors 641-423-2444 www.grahamdoors.com

f. IPIK Door Company 504-469-3666 www.ipikdoor.com
g. Marshfield Door Systems, Inc. 800-869-3667 www.marshfielddoors.com
h. Mohawk Flush Doors 570-473-3557 www.mohawkdoors.com
i. Oshkosh Door Company 920-233-6161 www.oshkoshdoor.com
j. VT Industries, Inc. 800-827-1615 www.vtindustries.com

2. Metal Louvers for Doors:

a. Air Louvers, Inc. 800-766-0660 www.airlouvers.com
b. Anemostat 310-835-7500 www.anemostat.com
c. National Guard Products 800-647-7874 www.ngp.com/]

2.2 FLUSH WOOD DOORS, GENERAL

A. Design Concept: The design concept for the wood doors is that their appearance, including accessories, will be consistent, in the sole opinion of the Architect, unless otherwise indicated. Where there are fire rated doors, and non-rated rated doors, they shall match in their accessory's appearance and in their overall appearance.

B. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."

1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.
2. Contract Documents contain selections chosen from options in quality standard and additional requirements beyond those of quality standard. Comply with those selections and requirements in addition to quality standard.

C. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.

D. Size of Stiles at Door Lites and Openings in Doors: Size indicated (typically 6 inch) unless stiles need to be larger to achieve / claim warranty from the MFR who does the work.

E. [[Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.]

1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
2. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
3. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
4. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
5. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.

F. Particleboard-Core Doors:

1. Particleboard: ANSI A208.1, Grade LD-2.
2. Blocking: Provide wood blocking in particleboard-core doors as follows:

a. 5-inch top-rail blocking, in doors indicated to have closers.

b. 5-inch bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.

3. Provide doors with glued-wood-stave cores instead of particleboard cores for doors indicated to receive exit devices.

G. Structural-Composite-Lumber-Core Doors:

1. Structural Composite Lumber: WDMA I.S.10.

a. Screw Withdrawal, Face: 700 lbf.
b. Screw Withdrawal, Edge: 400 lbf.

H. Mineral-Core Doors:

1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as follows:

a. 5-inch top-rail blocking.
b. 5-inch bottom-rail blocking, in doors indicated to have protection plates.
c. 5-inch midrail blocking, in doors indicated to have armor plates.
d. 5-inch midrail blocking, in doors indicated to have exit devices.

3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

a. Screw-Holding Capability: 475 lbf per WDMA T.M.-10.

2.3 PLASTIC-LAMINATE-FACED DOORS

A. Interior Solid-Core Doors:

1. Grade: Premium.
2. Plastic-Laminate Faces: High-pressure decorative laminates complying with NEMA LD 3, Grade HGS.
3. Colors, Patterns, and Finishes: As indicated, or if not indicated, as selected by Architect from laminate manufacturer's full range of products.
4. Core: Particleboard.
   a. Panel Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before faces and crossbands are applied.
   b. Edge Construction: At hinge stiles, provide manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance.
      1) Finish: Four edges factory-painted or stained to match plastic laminate facings

2.4 GLAZING PANEL FRAMES

A. Metal Frames for glazed openings: Manufacturer's standard frame formed of 0.048-inch thick, cold-rolled steel sheet; factory primed for paint and approved for use in doors of fire-protection rating indicated.

2.5 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

1. Comply with NFPA 80 requirements for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.

1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

C. Openings: Factory cut and trim openings through doors.

1. Glazed Openings: Trim openings with moldings of material and profile indicated.
2. Glazing: Factory install glazing in doors with wood frames and indicated to be factory finished. Comply with applicable requirements in Section 08 80 00 "Glazing."
3. Louvers: Factory install louvers in prepared openings.

D. Sound Ratings for Doors:

1. Where no sound rating is indicated, provide acoustical assemblies with STC sound ratings of minimum 33 or better, in accordance with ASTM E 1408,.
2. Where sound ratings of greater than 35 are indicated, reference separate Sound Door Section for specific requirements of complete door and frame assembly.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and installed door frames, with Installer present, before hanging doors.

1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
2. Reject doors with defects.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Hardware: For installation, see Section 08 71 00 "Door Hardware."

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

1. Install fire-rated doors according to NFPA 80.

C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.

1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.

a. Comply with NFPA 80 for fire-rated doors.
b. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
c. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock edge; trim stiles and rails only to extent permitted by labeling agency.

D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

3.3 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely. Test-operate each installation upon completion to ensure satisfactory operation. Check moving parts for proper lubrication and make adjustments for smooth, easy, and free-swinging operation, and leave in complete and proper operating condition. Remove and replace defective Work, including defective or damaged doors that are warped, bowed, or otherwise unacceptable.

1. Upon installation doors shall be allowed to acclimate through a full cycle of seasons for a period not to exceed one year, after which time distortion shall be checked and corrected, if required, in accordance with NWWDA I.S. 1-A.

B. Entrances: Adjust operating hardware for smooth operation according to hardware manufacturers' written instructions.

1. Adjust closers to meet closing speed requirements of the ADA Standards for Accessible Design and the Texas Accessibility Standards (TAS).

C. Replace doors that are damaged or that do not comply with requirements. Doors with damaged plastic laminate faces may be repaired by removing completely the laminate facing, and replacing with matching laminate applied with heat and pressure meeting original factory requirements.
1. Work complies with requirements and shows no evidence of repair and manufacturer's warranty remains in force.

END OF SECTION 08 14 16

SECTION 08 31 13 – ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes access doors for installation in the following types of construction:

1. Gypsum wall board or veneer plaster wall, ceiling or soffit.
2. Masonry wall.
3. Acoustical ceiling.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 7 Section "Roof Accessories" for roof hatches.
2. Division 22, Plumbing.
3. Division 23, Mechanical.
4. Division 26, Electrical.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data in form of manufacturer's technical data and installation instructions for each type of access door assembly, including setting drawings, templates, instructions, and directions for installation of anchorage, devices.

1. Include complete schedule, including types, general locations, sizes, wall and ceiling construction details, finishes, latching or locking provisions, and other data pertinent to installation.

C. Shop drawings showing fabrication and installation of customized access doors and frames, including details of each frame type, elevations of door design types, anchorage and accessory items.

D. Samples, 3 inches by 5 inches minimum size, of each door face material showing factory-finished color and texture.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain access doors for entire project from one source from a single manufacturer.

B. Size Variations: Obtain Architect's acceptance of manufacturer's standard size units, which may vary slightly from sizes indicated.

C. Coordination: Furnish inserts and anchoring devices that must be built into other work for installation of access doors. Coordinate delivery with other work to avoid delay.

1.5 PROJECT CONDITIONS

A. Verification: Obtain specific locations and sizes for required access doors from trades requiring access to concealed equipment and indicate on submittal schedule.

PART 2 – PRODUCTS

2.1 WALL, CEILING, AND SOFFIT ACCESS DOORS

A. Wall, Ceiling, and Soffit Access Door Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

1. Babcock-Davis, Inc. 888-412-3726 www.babcockdavis.com
2. Bar-Co, Alfab, Inc. 334-347-9516 www.alfabinc.com
3. Cesco Products 888-422-3726 www.cescoproducts.com
4. J.L. Industries, Inc. 800-554-6077 www.jlindustries.com
5. Karp Associates, Inc. 800-888-4212 www.karpinc.com
6. Milcor, Commercial Products Group of Hart & Cooley, Inc. 800-624-8642 www.commercialproductsgroup.com
7. Nystrom, Inc. 800-547-2635 www.nystrom.com
8. The Williams Brothers Corporation 416-299-7767 www.williams-brothers.com

B. Materials and Fabrication:

1. General: Furnish each access door assembly manufactured as an integral unit, complete with all parts, and ready for installation.
2. Steel Access Doors and Frames: Fabricate units of continuous welded steel construction unless otherwise indicated. Grind welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access doors to types of support shown. Frame shall be fabricated from 16 gage factory-primed steel.
3. Fabricate frame with exposed flange nominal 1 inch wide around perimeter of frame for units installed in the following construction:

    a. Exposed concrete.
    b. Exposed masonry.
    c. Gypsum board drywall finish.
    d. Ceramic tile finish.
    e. Wood paneling.

        1) Frames at exposed masonry locations shall be furnished with adjustable metal masonry anchors.
        2) Frames at gypsum board drywall finish shall be perforated frames with drywall bead.

4. Flush Panel Doors: Fabricate from not less than 14 gage sheet steel, with concealed spring hinges or concealed continuous piano hinge set to open 175 degrees. Finish with manufacturer's factory-applied prime paint.
5. Recessed Panel Doors: Fabricate from not less than 18 gage sheet steel with face of panel formed to provide recess below surface of applied finish. Reinforce panel as required to prevent buckling. Finish with manufacturer's factory-applied prime paint.

    a. Furnish recessed panels for concealed installation in acoustic tile ceiling systems.

6. Furnish flush, screwdriver-operated cam locks of number required to hold door in flush, smooth plane when closed.

    a. Provide one cylinder lock per access door. Furnish 2 keys per lock. Key all locks alike, unless otherwise scheduled or indicated.
    b. For recessed panel doors, provide access sleeves for each locking device. Furnish plastic grommets and install in holes cut through finish.

7. Provide brushed stainless steel access doors where indicated or scheduled.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's instructions for installation of access doors.

B. Coordinate installation with work of other trades.

C. Set frames accurately in position and securely attach to supports with face panels plumb or level in relation to adjacent finish surfaces.

3.2 ADJUST AND CLEAN

A. Adjust hardware and panels after installation for proper operation.

B. Remove and replace panels or frames that are warped, bowed, or otherwise damaged.

END OF SECTION 08 31 13

SECTION 08 33 23 - OVERHEAD COILING DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
1. Insulated exterior overhead coiling doors.
2. Non-insulated interior overhead coiling doors.
3. Electric operation.

B. Related Sections:
1. Section 05 50 00 - Metal Fabrications: Support framing.
2. Section 08 71 00 - Door Hardware.
3. Section 09 90 00 - Painting and Coating: Field painted finish for guides.
4. Division 26 Sections – Electrical power and concealed conduit and wiring

1.2 REFERENCES

A. ASTM International:
1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM A924/A924M - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. National Electrical Manufacturers Association:
1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
2. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
3. NEMA MG 1 - Motors and Generators.

1.3 SYSTEM DESCRIPTION

A. Electric Operation: Electric motor operated unit with manual override in case of power failure.

B. Design momentary keyed operation for full-to-partial opening and closing of door. Housing to accept building master key cylinder provided under the Hardware Section. Release of pressure on key immediately stops door operation.

1.4 DESIGN REQUIREMENTS

A. Wind Loads: Design exterior door assembly to withstand wind/suction loads indicated on Drawings, with maximum deflection of 1/120, and without damage to door shutter or assembly components.

B. Operation: Design door assembly, including operator, to operate for not less than 10,000 cycles.

1.5 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate pertinent dimensioning, anchorage methods, hardware locations, and installation details, including wiring diagrams for electric operators.

C. Product Data: Submit general construction, component connections and details, wiring diagram and electrical equipment.

D. Samples: Submit two door slats, 12 inches long, illustrating shape, color and finish texture.

E. Manufacturer's Installation Instructions: Indicate installation sequence and procedures, and adjustment and alignment procedures.

1.6 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.7 QUALITY ASSURANCE

A. Products Requiring Electrical Connection: Listed and classified by UL or another testing firm acceptable to authority having jurisdiction.

B. Surface Burning Characteristics:
1. Foam Insulation: Maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

C. Apply label from agency approved by authority having jurisdiction to identify each foam plastic insulation board.

1.8 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five years' experience.

B. Installer: Company specializing in performing work of this section with minimum five years' experience and approved by manufacturer.

PART 2 - PRODUCTS

2.1 OVERHEAD COILING DOORS

A. Manufacturers:
1. The Cookson Company www.cooksondoor.com/index
2. Cornell Iron Works Inc. www.cornelliron.com
3. McKeon Rolling Steel Door Company, Inc. www.mckeondoor.com
4. Overhead Door Corporation. www.overheaddoor.com
5. Raynor Garage Doors. www.raynor.com/index.cfm
6. Windsor Door www.windsordoor.com.
7. Substitutions: Section 01 25 00 – Substitution Procedures.

B. Materials:
1. Slats:
a. Interlocking, minimum 24 gauge ASTM A653/A653M steel slats, with galvanized coating designation G90 in accordance with ASTM A924/A924M and factory powder coat finish.
b. For exterior doors, sandwich slat construction with insulated core between two steel slat faces.
c. Field painted steel guides and powder coat finished steel hood.
d. Nominal Slat Size: 2 inches wide x required length.
e. Slat Ends: Alternate slats fitted with end locks to act as wearing surface in guides and to prevent lateral movement.
2. Windlocks for Exterior Doors: Malleable-iron castings secured to curtain slats with galvanized rivets or high-strength nylon, as required to comply with wind load.
3. Curtain Bottom: Fitted with minimum 1-1/2 x 1-1/2 x 1/8 inch angles to provide reinforcement and positive contact with floor in closed position; galvanized.

4. Astragal: For exterior doors provide a replaceable, adjustable, continuous, compressible gasket of flexible vinyl, rubber, or neoprene, between angles or fitted to shape, as a cushion bumper for interior door.
5. Insulation: For exterior doors provide manufacturer's standard rigid cellular polystyrene or polyurethane foam-type thermal insulation complying with maximum flame spread and smoke developed indices of 75 and 450, respectively, according to ASTM E 84. Enclose insulation completely within metal slat faces.
6. Curtain Bottom:
   a. Standard Bottom Bar 21.5' width and smaller: Extruded aluminum alloy 6063-T5, min height 3 3/8" min base thickness 3/16", min width 4"
   b. Standard Bottom Bar larger than 21.5' width: 2 structural steel angles minimum 2"x2"x1/8"
7. Counterbalance Shaft Assembly:
   a. Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width
   b. Spring Balance: Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs (110 N). Provide wheel for applying and adjusting spring torque
8. Brackets: Fabricate from minimum 3/16 inch (5 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures
   a. Finish: Powder Coat stock colors

C. Guides: Minimum 3/16 inch thick; galvanized steel conforming to ASTM A653/A653M, minimum galvanized coating designation G90 in accordance with ASTM A924/A924M.
1. Furnish continuous angles of profile to retain door in place; mounting brackets of same metal. Roller Shaft Counterbalance: Steel pipe and helical steel spring system, capable of producing torque sufficient to ensure smooth operation of curtain from any position and capable of holding position at mid-travel; with adjustable spring tension.
2. Top of inner and outer guide angles to be flared outwards to form bellmouth for smooth entry of curtain into guides. Provide removable guide stoppers to prevent over travel of curtain and bottom bar

D. Hood Enclosure: Round shape, minimum 24 gage galvanized steel; internally reinforced to maintain rigidity and shape.

E. Mounting Tube Frame: Provide manufacturer's standard mounting tube frame designed to support grille; factory fabricated from structural-steel tubes; fastened to floor and structure above grille; to be built into wall construction; and complete with anchors, connections, and fasteners.

F. Electric Operator:
1. General: Provide electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and operational life specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, remote-control stations, control devices, integral gearing for locking door, and accessories required for proper operation.
2. Comply with NFPA 70.
3. Disconnect Device for Manual Operation: Provide hand-operated disconnect or mechanism for automatically engaging sprocket-chain operator and releasing brake while disconnecting motor, without affecting timing of limit switch. Mount disconnect and operator so they are accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is

engaged.

4. Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency auxiliary operator.
5. Provide control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6, with NFPA 70 Class 2 control circuit, maximum 24-V, ac or dc.
6. Door-Operator Type: Provide wall-, hood-, or bracket-mounted, jackshaft, gear-head hoist-type door operator unit consisting of electric motor, enclosed worm-gear running-in-oil primary drive, chain and sprocket secondary drive, and auxiliary chain-hoist and floor level disconnect.
7. Electric Motors: Provide high-starting torque, reversible, continuous-duty, Class A insulated, electric motors, complying with NEMA MG 1, with overload protection, sized to start, accelerate, and operate door in either direction, from any position, at not less than 2/3 fps or more than 1 fps, without exceeding nameplate ratings or considering service factor.
    a. Type: Polyphase, medium-induction type.
    b. Service Factor: According to NEMA MG 1, unless otherwise indicated.
    c. Coordinate wiring requirements and electric characteristics of motors with building electrical system.
    d. Provide open dripproof-type motor, and controller with NEMA ICS 6, Type 1 enclosure.
8. Remote-Control Station: Provide keyed control station with 3-position controls labeled "Open," "Close," and "Stop."
    a. Provide one control station on each side of door where doors are installed across corridors or other traffic areas.
    b. Provide control station accepting cylinder for key operation provided under Hardware Section.
9. Provide interior units, full-guarded, surface-mounted, heavy-duty type, with general-purpose NEMA ICS 6, Type 1 enclosure.
10. Obstruction Detection Device: Provide each motorized door with indicated external automatic safety sensor able to protect full width of door opening. Activation of sensor immediately stops and reverses downward door travel.
    a. Sensor Edge: Provide each motorized door with an automatic safety sensor edge, located within astragal or weather stripping mounted to bottom bar. Contact with sensor immediately stops and reverses downward door travel. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.
    b. Provide electrically actuated automatic bottom bar.
    c. Self-Monitoring Type: Provide self-monitoring, 4-wire configured device.
11. Limit Switches: Provide adjustable switches, interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.

2.2 SHOP FINISHING

A. Curtain Slats: Steel, with factory powder coat finish, color as selected.

B. Steel Guides and Hood Enclosure: Prime for field painting.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify opening sizes, tolerances and conditions are acceptable.

3.2 INSTALLATION

A. Use anchorage devices to securely fasten assembly to wall construction and building

framing without distortion or stress.

B. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.

C. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

D. Coordinate installation of electrical service. Complete wiring from disconnect to unit components and from fire alarm system to door operator.

E. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07 90 00.

F. Install perimeter trim and closures.

3.3 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maintain dimensional tolerances and alignment with adjacent Work.

C. Maximum Variation From Plumb: 1/16 inch.

D. Maximum Variation From Level: 1/16 inch.

E. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch per 10 ft straight edge.

3.4 ADJUSTING

A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.

B. Adjust door, hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Clean door and components.

C. Remove labels and visible markings, except for fire rating labels.

END OF SECTION

SECTION 08 41 13 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Exterior and interior storefront framing (reference separate section for fire rated systems).
2. Storefront framing for fixed windows.
3. Storefront framing for entry doors and sidelights.
4. Exterior and interior manual-swing entrance doors.
5. Aluminum head and sill frames for butt-glazed panels without vertical mullions.

B. Related Requirements:

1. Section 07 90 00 – Joint Protection 07 92 00 - Joint Sealants.
2. Section 08 41 23 – Fire Rated Aluminum Framed Storefront Systems.
3. Section 08 71 00 - Door Hardware.
4. Section 08 80 00 - Glazing.

1.3 REFERENCES

A. American Architectural Manufacturers Association:

1. AAMA 501 - Methods of Test for Exterior Walls.
2. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
3. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
4. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site.
5. AAMA MCWM-1 - Metal Curtain Wall Manual.
6. AAMA SFM-1 - Aluminum Store Front and Entrance Manual.

B. ASTM International:

1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
2. ASTM A123/A123M - Standard Specification for Zinc Hot-Dip Galvanized Coatings on Iron and Steel Products.
3. (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
4. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
5. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
6. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors By Uniform Static Air Pressure Difference.

C. SSPC: The Society for Protective Coatings:

1. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic and Type II - Organic).

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work prepared by storefront manufacturer on a system engineered by the storefront Manufacturer's Engineer.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

2. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.

3. Include full-size isometric details of each vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:

a. Joinery, including concealed welds.
b. Anchorage type and number.
c. Expansion provisions.
d. Glazing.
e. Flashing and drainage.

4. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.

E. Fabrication Sample: Of each vertical-to-horizontal intersection of assemblies, made from 12-inch lengths of full-size components and showing details of the following:

1. Joinery, including concealed welds.
2. Anchorage.
3. Expansion provisions.
4. Glazing.
5. Flashing and drainage.

F. Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

G. Delegated-Design Submittal: For aluminum-framed entrances and storefronts indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Energy Performance Certificates: For aluminum-framed entrances and storefronts, accessories, and components, from manufacturer.

1. Basis for Certification: NFRC-certified energy performance values for each aluminum-framed entrance and storefront.

C. Product Test Reports: For aluminum-framed entrances and storefronts, for tests performed by manufacturer and witnessed by a qualified testing agency or by a qualified testing agency.

D. Source quality-control reports.

E. Field quality-control reports.

F. Sample Warranties: For special warranties.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For aluminum-framed entrances and storefronts to include in maintenance manuals.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

C. Structural-Sealant Glazing: Comply with ASTM C 1401 for design and installation of storefront systems.

D. Accessible Entrances: Comply with the ADA Standards for Accessible Design, the Texas Accessibility Standards (TAS), and all applicable state and local requirements.

1.9 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including, but not limited to, excessive deflection.
b. Noise or vibration created by wind and thermal and structural movements.
c. Deterioration of metals and other materials beyond normal weathering.
d. Water penetration through fixed glazing and framing areas.
e. Failure of operating components.

2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design aluminum-framed entrances and storefronts.

B. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
2. Failure also includes the following:

a. Thermal stresses transferring to building structure.
b. Glass breakage.
c. Noise or vibration created by wind and thermal and structural movements.
d. Loosening or weakening of fasteners, attachments, and other components.
e. Failure of operating units.

C. Structural Loads:

1. Wind Loads: As indicated on Drawings.
2. Other Design Loads: As indicated on Drawings.

D. Deflection of Framing Members: At design wind pressure, as follows:

1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans greater than 13 feet 6 inches or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
2. Deflection Parallel to Glazing Plane: Limited to 1/360 of clear span or 1/8 inch, whichever is smaller.
3. Cantilever Deflection: Where framing members overhang an anchor point, as follows:
    a. Perpendicular to Plane of Wall: No greater than 1/240 of clear span plus 1/4 inch) for spans greater than 11 feet 8-1/4 inches or 1/175 times span, for spans less than 11 feet 8-1/4 inches.

E. Structural: Test according to ASTM E 330 as follows:

1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
3. Test Durations: As required by design wind velocity, but not less than 10 seconds.

F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:

1. Fixed Framing and Glass Area:
    a. Maximum air leakage of 0.06 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
2. Entrance Doors: Test according to ASTM E 283.
    a. Pair of Doors: Maximum air leakage of 1.0 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
    b. Single Doors: Maximum air leakage of 0.5 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.

G. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:

1. No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft.

H. Energy Performance: Certify and label energy performance according to NFRC as follows:

1. Thermal Transmittance (U-factor):
    a. Fixed glazing and framing areas shall have U-factor of not more than 0.45 Btu/sq. ft. x h x deg F as determined according to NFRC 100.
    b. Glazed doors shall have U-factor of not more than 0.83 Btu/sq. ft. x h x deg F as determined according to NFRC 100.
2. Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.25 for Climate Zone 2 as determined according to NFRC 200.
3. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC-certified condensation resistance rating of no less than 15 as determined according to NFRC 500.

I. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:

1. Temperature Change: 120 deg F ambient; 180 deg F, material surfaces.

2. Thermal Cycling: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.

   a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 deg F.
   b. Low Exterior Ambient-Air Temperature: 0 deg F.
   c. Interior Ambient-Air Temperature: 75 deg F.

J. Structural-Sealant Joints:

1. Designed to carry gravity loads of glazing.
2. Designed to produce tensile or shear stress of less than 20 psi.

K. Structural Sealant: Capable of withstanding tensile and shear stresses imposed by structural-sealant-glazed storefront system without failing adhesively or cohesively. When tested for preconstruction adhesion and compatibility, cohesive failure of sealant shall occur before adhesive failure.

1. Adhesive failure occurs when sealant pulls away from substrate cleanly, leaving no sealant material behind.
2. Cohesive failure occurs when sealant breaks or tears within itself but does not separate from each substrate because sealant-to-substrate bond strength exceeds sealant's internal strength.

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide the named product, or a comparable product by one of the following:

1. Arcadia Incorporated 713-398-3227 www.arcadiainc.com/
2. Arch Aluminum & Glass Co., Inc. www.arch.amarlite.com
3. Columbia Commercial Building Products 800-668-1645 www.ccbpwin.com
4. Coral Industries Inc. 800-772-7737 http://coralind.com/
5. EFCO, a Pella Company 800-221-4169 www.efcocorp.com
6. Kawneer North America 972-438-1212 www.kawneer.com
7. Oldcastle BuildingEnvelope 866-653-2278 www.oldcastlebe.com
8. Ranger Glass, www.rangerglass.com
9. Tubelite Inc. 800-866-2227 www.tubeliteinc.com
10. United States Aluminum. www.usalum.com
11. Vistawall Architectural Products. www.vistawall.com
12. YKK AP America Inc. 800-955-9551 www.ykkap.com

B. Basis-of Design:
1. Exterior Storefront Door and Window Frames: Kawneer *Trifab 601T* .
2. Non-rated Interior Storefront Door and Window Frames: Kawneer *Trifab VG 450*.
3.
4. Interior Storefront Door and Window Frames: Kawneer *Trifab 601 (reference separate section for rated systems)*.
5. Exterior and Interior Entrance Vestibule Doors: Kawneer *Series TuffLine 500*.

C. Source Limitations: Obtain all components of aluminum-framed entrance and storefront system, including framing spandrel panels and accessories, from single manufacturer.

2.3 FRAMING

A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads. All components and accessories of the "Aluminum Storefront" framing shall be made of the same aluminum. Pieces of the framing system, including accessories, that may be made and/or available in a material different from aluminum (like plastic), but are also available in aluminum, shall be made of and provided in aluminum for the Aluminum Storefront framing system.
1. Construction: Thermally broken for exterior applications.
2. Glazing System: Retained mechanically with gaskets on four sides.

3. Glazing Plane: Middle unless indicated otherwise.
4. Finish: Clear anodic finish.
5. Fabrication Method: Field-fabricated stick system.

B. Backer Plates: Manufacturer's standard, continuous extruded aluminum backer plates for framing members, if not integral, where framing abuts adjacent construction. Provide at heads and jambs.

C. Provide manufacturer's standard cap fillers made of aluminum at all exterior tops of vertical mullions.

D. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with non-staining, nonferrous shims for aligning system components.

E. Provide manufacturer's standard continuous extruded aluminum sub-sill receptors at all exterior frames.
1. Basis of Design: Kawneer thermally isolated sub-sill – use with the clip designed for the system.
2. Sub-sill receptors shall have end dams made from the clipped sub-sill extrusion bent to form the end dams with sealant on both sides of the joint between the end dam legs.
3. End dams shall be provided adjacent to jambs and at lower receptors where sills step.
4. Sub-sill receptors shall be prefabricated with color to match framing.
5. Allow for expansion of sub-sill receptors according to requirements of other Articles of this specification. "Break metal" sub-sill receptors will not be accepted.

F. Materials:

1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

a. Sheet and Plate: ASTM B 209 or ASTM B 209M.
b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 or ASTM B 221M.
c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
d. Structural Profiles: ASTM B 308/B 308M.

2. Steel Reinforcement: Steel shall be coated with manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.

a. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
b. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
c. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.4 ENTRANCE DOOR SYSTEMS

A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.

1. Door Construction: Aluminum framed glass doors; 2-inches thick profile, 5-inch wide top rail, 5-inch wide vertical stiles, 10-1/4 inch wide bottom rail to meet ADA requirements; beveled glazing stops. 3/16-inch thick wall thickness.

a. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded, or that incorporate concealed tie rods
b. Provide intermediate rail for mounting of exit device hardware.
c. Factory-prepared for 1" glazing.

2. Thermal Construction for Exterior Doors: High-performance plastic connectors separate aluminum members exposed to the exterior from members exposed to the interior.

3. Door Design:

a. Interior Doors (except at entrance vestibules): Medium stile; 3-1/2-inch width.
b. Exterior and Exterior Doors at Entrance Vestibules: Wide stile; 5-inch width.
c. Swinging door surfaces within 10 inches of the finish floor or ground measured vertically shall have a smooth surface on the push side extending the full width of

the door in compliance with the requirements of the ADA Standards for Accessible Design and the Texas Accessibility Standards (TAS)

4. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets neoprene.
    a. Provide nonremovable glazing stops on outside of door.

2.5 ENTRANCE DOOR HARDWARE

A. Entrance Door Hardware: Hardware not specified in this Section is specified in Section 08 71 00 "Door Hardware."
    1. Entrance Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers' products complying with BHMA standard referenced.
    2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.
    3. Opening-Force Requirements:
        a. Egress Doors: Not more than 15 lbf to release the latch, not more than 30 lbf to set the door in motion, and not more than 15 lbf to open the door to its minimum required width.
        b. Interior Doors: Not more than 5 lbf to fully open door.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of entrance door hardware are indicated in "Entrance Door Hardware Sets" Article. Products are identified by using entrance door hardware designations as follows:
    1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in "Entrance Door Hardware Sets" Article.
    2. References to BHMA Standards: Provide products complying with these standards and requirements for description, quality, and function.

C. Removable Mullions: BHMA A156.3, extruded aluminum (unless provided under Section 08 11 00)
    1. When used with panic exit devices, provide removable mullions listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305. Use only mullions that have been tested with exit devices to be used.

D. Weather Stripping: Manufacturer's standard replaceable components.
    1. Compression Type: Made of ASTM D 2000, molded neoprene, or ASTM D 2287, molded PVC.
    2. Sliding Type: AAMA 701/702, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.

E. Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners on mounting strip.

F. Silencers: BHMA A156.16, Grade 1.

G. Thresholds: BHMA A156.21, raised thresholds beveled with a slope of not more than 1:2, with maximum height of 1/2 inch (12.7 mm).

H. Finger Guards: Manufacturer's standard collapsible neoprene or PVC gasket anchored to frame hinge-jamb at center-pivoted doors.]

2.6 GLAZING

A. Glazing: Glass and installation provided under Section 08 80 00 "Glazing."

B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.

1. Color: Black.

2.7 WEATHER SEALS

A. Provide manufacturer's standard replaceable components.

B. AAMA 701, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.

C. Sealant and Backing Materials:
1. Sealant Used Within System (not used for glazing): Manufacturer's standard materials to achieve weather, moisture, and air infiltration requirements.
2. Perimeter Sealant: Specified in Section 07 90 00 for perimeter frame-to-building wall interface.

2.8 ACCESSORIES

A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, nonbleeding fasteners and accessories compatible with adjacent materials.

1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.

2. Reinforce members as required to receive fastener threads.

3. If exposed fasteners are used, they shall be supplied with countersunk Phillips screw heads, finished to match framing system.

B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.

1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.

C. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.

D. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil thickness per coat.

2.9 FABRICATION

A. Form or extrude aluminum shapes before finishing.

B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

C. Fabricate components that, when assembled, have the following characteristics:

1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fitted joints with ends coped or mitered.
3. Physical and thermal isolation of glazing from framing members.
4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
5. Provisions for field replacement of glazing from interior.
6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

D. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and wind loads, and for properly installing and supporting entrance door hardware.

1. At exterior doors, provide compression weather stripping at fixed stops.

2. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.

E. Entrance Doors: Reinforce doors as required for installing entrance door hardware.

1. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
2. At exterior doors, provide weather sweeps applied to door bottoms.

F. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.

G. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.10 SHOP FINISHING

A. Color Anodized Aluminum Surfaces (Typical): AAMA 611, AA-M10C21A44 / AA-M45C22A44 non-specular as fabricated mechanical finish, medium matte chemical finish, and Architectural Class I, 0.7 mils dark bronze anodized coating.

B. Concealed Steel Items: Galvanized to ASTM A123/A123M; minimum 1.2 oz/sq ft coating thickness; galvanize after fabrication.

C. Apply bituminous paint to concealed aluminum surfaces in contact with cementitious materials or dissimilar metals.

D. Touch-Up Primer for Galvanized Steel Surfaces: SSPC Paint 20 zinc rich.

E. Extent of Finish:
1. Apply factory coating to surfaces exposed at completed assemblies.
2. Apply touch-up materials recommended by coating manufacturer for field application to cut ends and minor damage to factory applied finish.

2.11 SOURCE QUALITY CONTROL

A. Structural Sealant: Perform quality-control procedures complying with ASTM C 1401 recommendations including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.]

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare surfaces that are in contact with structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.

3.3 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
6. Perimeter frames shall be attached to walls/structure at a maximum spacing of 16 inches on center, unless the Engineer of record for the storefront work has indicated that a greater spacing is acceptable. Tighter spacing of perimeter attachment shall be required where indicated by the Engineer.
7. Seal perimeter and other joints watertight unless otherwise indicated.

B. Metal Protection:

1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.

2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Set continuous sill members and flashing in full sealant bed as specified in Section 07 92 00 "Joint Sealants" to produce weathertight installation.

D. Install components plumb and true in alignment with established lines and grades.

E. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.

1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.

2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

F. Interior Butt-Jointed Glazing: To ensure against excessive bowing of glazing panels in butt-jointed glazing, provide framing appropriate for bedding panels without vertical mullions in full bed of sealant at both head and sill frames.

3.4 ERECTION TOLERANCES

A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:

1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet .

2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.

3. Alignment:

a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.

b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.

c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.

4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

3.5 ADJUSTING

A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.

B. Adjust and lubricate operating hardware for smooth operation.

3.6 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Remove protective material from pre-finished aluminum surfaces.

C. Wash down surfaces with solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

D. Remove excess sealant by method acceptable to sealant manufacturer.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 70 00 - Execution and Closeout Requirements: Protecting installed construction.

B. Protect finished Work from damage.

END OF SECTION 08 41 13

SECTION 08 41 23 - FIRE-RATED ALUMINUM FRAMED STOREFRONT SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
   1. Fire rated aluminum storefront framing systems for certain interior openings as scheduled.

B. Related Sections:
   1. Section 07 84 00 – Firestopping: Perimeter sealants.
   2. Section 08 41 13 – Aluminum-Framed Entrances and Storefronts: Non-fire rated aluminum storefront systems.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. Fire safety related:
      a. ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials.
      b. ASTM E2074-00: Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies.
      c. ASTM E2010-01: Standard Test Method for Positive Pressure Fire Tests of Window Assemblies.
   2. Material related
      a. ASTM A 1008/A 1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength, Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2007.
      b. ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2006b.

B. American Welding Society (AWS)
   1. AWS D1.3 - Structural Welding Code - Sheet Steel; 2007

C. National Fire Protection Association (NFPA):
   1. NFPA 80: Fire Doors and Windows.
   2. NFPA 251: Fire Tests of Building Construction & Materials
   3. NFPA 252: Fire Tests of Door Assemblies
   4. NFPA 257: Fire Test of Window Assemblies

D. Underwriters Laboratories, Inc. (UL):
   1. UL 9: Fire Tests of Door Assemblies
   2. UL 10 B: Fire Tests of Door Assemblies
   3. UL 263: Fire tests of Building Construction and Materials

E. American National Standards Institute (ANSI):
   1. ANSI Z97.1: Standard for Safety Glazing Materials Used in Buildings

F. Consumer Product Safety Commission (CPSC):
   1. CPSC 16 CFR 120: Safety Standard for Architectural Glazing Materials

1.3 PERFORMANCE REQUIREMENTS

A. Fire Rating Requirements for System:
   1. Frames and Glazing: One-hour rating or as indicated.

B. Structural Performance:
   1. Accommodate movement between storefront and adjoining systems.

1.4 SUBMITTALS

A. Section 01 33 00 – Submittal Procedures: Submittal procedures.

B. Product Data: Submit latest edition of manufacturer's product data providing product descriptions, technical data and installation instructions. Including blank warranty form; include laboratory test data.

C. Shop Drawings:
   1. Include plans, elevations and details of product showing component dimensions; framed opening requirements, dimensions, tolerances, and attachment to structure
   2. Provide templates for the location of embeds and anchor locations required for any adjoining work

D. Samples for Initial Color Selection: For steel frames with painted finish.
   1. Manufacturer's color chart showing the full range of colors available.

E. Samples: For following:
   1. Glass, in 8 x 10 inch size.
   2. Aluminum and steel framing with selected finishes.

F. Installer Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

G. Manufacturer's Certificate.

H. Field Quality-control reports.

I. Maintenance Data.

J. Warranties: Submit manufacturer's warranty and ensure that forms have been completed in the Owner's name and registered with the manufacturer.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for Project and whose work has resulted in construction with a record of successful in-service performance.

B. Source Limitations for Glazing Accessories: Obtain all components and accessories from one source for each product and installation method indicated.

C. Fire-Rated Door Assemblies: Not applicable.

D. Fire-Rated Window Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by UL, for fire ratings indicated, based on testing according to NFPA 257, ASTM E119.

E. Certification: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
   1. Window assemblies shall be tested to the acceptance criteria of ASTM E2010-01, NFPA 257, UL 10-B Standard methods for Fire Tests of Window Assemblies.
   2. Underwriters Laboratories (UL) shall have conduct fire testing.

F. Listings and Labels - Fire Rated Assemblies: Under current follow-up service by an approved independent agency maintaining a current listing or certification. Label assemblies accordance with limits of manufacturer's listing.

1.6 PRE-INSTALLATION MEETING

A. Section 01 30 00 – Administrative Requirements: Preinstallation meetings.

B. Conduct a pre-installation conference at least one week prior to the work of this section.

1.7 DELIVERY, STORAGE AND HANDLING

A. Section 01 60 00 – Product Requirements: Product storage and handling requirements.

B. Deliver, store and handle under provisions specified by manufacturer.
   1. At delivery inspect all containers for damage.
   2. Examine glass and frame units for damage.
   3. List all damage to containers on the shipping company's Bill of Lading.
   4. Report damage to manufacturer immediately.
   5. Store glazing materials and frame units in original packing containers.
   6. Do not expose glazing material of frame units to sunlight and weather.
   7. Do not store horizontally.
   8. Place glass and frames upright, no less than 6 degrees from vertical.
   9. Store all materials in dry conditions, off the ground.
   10. Protect from construction activities.
   11. Fully support Glass units along entire length.
   12. Non-abrasive pads such as cloth or cork must separate glass and frame units.
   13. Do not stack containers.

1.8 PROJECT CONDITIONS

A. Obtain field measurements prior to fabrication of frame units. If field measurements will not be available in a timely manner coordinate planned measurements with the work of other sections.
   1. Note whether field or planned dimensions were used in the creation of the shop drawings.

B. Coordinate the work of this section with others effected including but not limited to: other exterior envelope components and door hardware beyond that provided by this section

1.9 WARRANTY

A. Section 01 70 00 – Execution and Closeout Requirements: Product warranties and product bonds.

B. Furnish 5 year warranty for framing and glazing.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers:
   1. System: Technical Glass Products, www.fireglass.com.
   2. Substitutions: Section 01 60 00 – Product Requirements.

B. Basis-of-Design:
   1. Framing: *Fireframes*® Aluminum *Series* as manufactured by Technical Glass Products.
   2. Glazing: *Pyrostop*® as manufactured by the Pilkington Group and distributed by Technical Glass Products.

2.2 MATERIALS – FRAMING

A. Fire Rated Framing System: Manufacturer's aluminum-clad steel framing members with stainless steel spacers corresponding with glass thickness.
   1. Framing dimensions: 2" face x 6" depth to match exterior framing).
   2. Adjust framing dimensions as may be required tor specified rating.

B. Fasteners: Manufacturer's standard, sized to accommodate the thickness of the glazing material.

C. Glazing Tape: Closed cell PVC glazing tape, nominal 1/2 inch by 1/4 inch, applied to glazing stops.

2.3 MATERIALS – DOORS: Not applicable.

2.4 MATERIALS – GLASS

A. Fire Rated Glazing: Composed of multiple sheets of clear glass laminated with intumescent interlayers, meeting impact requirements of ANSI Z97.1 and CPSC 16CFR1201 (Cat. I and II).

B. Properties - Interior Glazing:

1. Fire Rating: Provide glazing panel construction and thickness as required for specified fire rating.
2. Rated as Safety Glazing: Per ANSI Z97.1
3. Glazing Type: Single.
4. Nominal Thickness: Nominal 7/8".
5. Light Transmission: 88 percent or more

C. Labeling: Each piece of fire-rated glazing shall be labeled with a permanent logo including name of product, manufacturer, testing laboratory (UL), fire rating period, safety glazing standards, and date of manufacture.

D. Glazing Accessories: Manufacturer's standard compression gaskets, spacers, setting blocks and other accessories necessary for a complete installation.

2.5 FABRICATION

A. Field glaze door and frame assemblies.

B. Factory prepare steel door assemblies field mounting of hardware

C. Fabrication Dimensions: Fabricate fire rated assembly to field dimensions.

D. Obtain reviewed Shop Drawings prior to fabrication.

2.6 SHOP FINISHING

A. Color Anodized Aluminum Surfaces (Typical): AAMA 611, AA-M10C21A44 / AA-M45C22A44 non-specular as fabricated mechanical finish, medium matte chemical finish, and Architectural Class I, 0.7 mils dark bronze anodized coating.

B. Concealed Steel Items: Galvanized to ASTM A123/A123M; minimum 1.2 oz/sq ft coating thickness; galvanize after fabrication.

C. Apply bituminous paint to concealed aluminum surfaces in contact with cementitious materials or dissimilar metals.

D. Touch-Up Primer for Galvanized Steel Surfaces: SSPC Paint 20 zinc rich.

E. Extent of Finish:
1. Apply factory coating to surfaces exposed at completed assemblies.
2. Apply touch-up materials recommended by coating manufacturer for field application to cut ends and minor damage to factory applied finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and members to which the work of this section attaches or adjoins prior to frame installation.

B. Notify Architect of any conditions which affect the integrity of the proposed fire wall / door system.
1. Do not proceed with installation until conditions are corrected.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved shop drawing by factory-authorized installer with minimum 3-years' experience in similar installations.

B. Install firestopping at perimeter of system.

C. Install glazing in accordance with fire resistant glazing material manufacturer's specifications. Field cutting or other non-factory modifications are not permitted.

D. Do not install damaged frames or chipped glassing units.

E. Install plumb and true. Limit out of plumb or true to 1/8 inch in 10'-0" in any dimension.

3.3 REPAIR AND TOUCH UP

A. Limited to minor repair of small scratches. Use only manufacturer's recommended products.
   1. Such repairs shall match original finish for quality or material and view.
   2. Repairs and touch-up not visible from a distance of 5 feet Owner and Architect to approve.

B. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged.

3.4 ADJUSTING

A. Adjust door function and hardware for smooth operation. Coordinate with other hardware suppliers for function and use of any other attached hardware.

3.5 PROTECTION AND CLEANING

A. Protect glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

C. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION

SECTION 08 56 60 – HORIZONTAL SLIDING TRANSACTION WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Shop fabricated and assembled operable transaction window(s).

B. Related Sections:
   1. Section 06 40 23 – Interior Architectural Woodwork: Countertop construction.
   2. Section 08 80 00 – Glazing: General glazing requirements.

1.2 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data for each type of window required, including the following:
   1. Construction details and fabrication methods.
   2. Profiles and dimensions of individual components.
   3. Data on hardware, accessories, and finishes.
   4. Recommendations for maintaining and cleaning exterior surfaces.

C. Manufacture's Product Certificates:
   1. For each type of transaction window: Certify Products meet or exceed specified requirements for weather protection when in closed position.
      a. Provide test reports from nationally accredited testing laboratory indicating and interpreting test results relative to compliance with performance requirements of installed assemblies.

D. Shop Drawings showing fabrication and installation of each type of window required including information not fully detailed in manufacturer's standard Product Data and the following:
   1. Layout and installation details, including anchors.
   2. Elevations at 1/4 inch = 1-foot (1:50) scale and typical window unit elevations at 3/4 inch = 1 foot scale.
   3. Full-size section details of anchoring channels, angles, and trim.
   4. Accessories, including all spacers, anchors, and fasteners.

E. Physical Samples:
   1. (2) each: Stainless steel bolts and screws.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed installation of the specified system(s) similar in material, design, and extent to those required for this Project and with a record of successful in-service performance.

B. Single-Source Responsibility: Obtain factory-fabricated system from one source and by a single manufacturer.

C. Product Options: The Drawings and Specifications indicate sizes, profiles, dimensional requirements, and aesthetic effects of based on the specific window types and models indicated. Other qualified manufacturers specified whose products have equal performance and design characteristics may be considered provided deviations in size, profile, and dimensions are minor and do not alter the aesthetic effect.

   1. Refer to Division 1 Section "Substitutions".

1.4 PROJECT CONDITIONS

A. Field Measurements: Check rough openings by field measurements before fabrication and show recorded measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
   1. Where field measurements cannot be made without delaying the Work, guarantee opening dimensions and coordinate wall construction to ensure that actual opening dimensions correspond to guaranteed dimensions.

1.5 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Warranty Period: Minimum 1-year after date of Substantial Completion. Warranted failures include but are not limited to:
   1. Deterioration of metals, plastics, hardware, and any finishes beyond that anticipated by Architect during normal intended use.
   2. Structural failures including deflections exceeding 1/8 inch, or any amount that may affect window operation.
   3. Failure of anchors or attachments.
   4. Yellowing or deterioration of visual clarity or distortion.

PART 2 - PRODUCTS

2.1 SYSTEM

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   1. Quickserv Corporation, www.quikserv.com
   2. Ready Access, www.ready-access.com.
   3. Substitutions: Section 01 60 00 - Product Requirements.

B. Basis-of-Design: Custom 3-panel *Combo Ticket Window* as manufactured by Quickserv or approved equivalent by specified manufacturer.

2.2 COMPONENTS

A. System Type:
   1. Operation: Two fixed vision panels with overlapping center sliding vision panel; manual opening and and automatic latching upon closing.
   2. Overall Size: As indicated.
   3. Glazing Panels: Single pane clear tempered glass. Minimum 1/4" thickness.
   4. Configuration: Right or left sliding center panel handed as indicated in the drawings.

B. Aluminum Extrusions: Provide alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength and not less than 0.125 inch (3.2 mm) thick at any location.

   1. Bottom support channels: 1-9/16" high x gap opening for thickness of vision panels.

   2. Top trim angle: 2" vertical leg x 1" horizontal leg x 1/8" thick x continuous across top of system.

   3. Finish: Dark bronze anodized.

C. Glazing: ASTM C1048, Type 1 transparent flat, Quality Q3, Kind FT fully tempered, Condition A uncoated, float glass with horizontal tempering; furnish fully tempered glass conforming to

CPSC 16 CFR 1201 Category II.

D. Fasteners: Provide mechanical fasteners that are noncorrosive and compatible with aluminum channels and trim. Provide stainless steel fasteners where visible.
   1. Reinforcement: Where fasteners screw anchor into aluminum less than 0.125-inch thick, reinforce interior with aluminum or nonmagnetic stainless steel to receive screw threads.

2.3 FABRICATION

A. General: Fabricate and assemble system in shop to size indicated by job measurements.

B. Package in sealed protective materials for delivery and installation at the Project site.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect openings before installation. Verify that finished opening is correct and that countertop is level and adjacent wall surfaces are plumb.
   1. Report any defects or discrepancies that may negatively affect aesthetics or performance of installed system.
   2. Do not proceed with installation of transaction window system until all defects or discrepancies are corrected.

3.2 INSTALLATION

A. Comply with manufacturer's specifications and printed recommendations for installing transaction window system using hardware and fasteners provided by the.

B. Set system units plumb, level, and true to line, without warp or rack. Provide proper support and anchor securely in place.

C. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified under "Dissimilar Materials" Paragraph in appendix to AAMA 101.

D. Refer to Division 7 Section "Joint Sealants" for compounds, fillers, and gaskets to be installed concurrently with transaction window components.

3.3 CLEANING AND PROTECTION

A. Clean aluminum surfaces promptly after installing windows. Exercise care to avoid damage to finishes. Remove protective film from vision panels.

B. Clean vision panels in accordance with system manufacturer’s recommendations.

C. Protect system and finishes from dirt, fingerprints and scratches until acceptance by Owner.

END OF SECTION

SECTION 08 71 00 - FINISH HARDWARE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Work under this section comprises of furnishing and installing hardware specified herein and noted on drawings for a complete and operational system, including any electrified hardware components, systems, controls and hardware for aluminum entrance doors. Any door shown on the drawing and not specifically referenced in the hardware sets shall be provided with identical hardware as specified on other similar openings and shall be included in the General Contractor's base bid. All fire rated door shall be provided with fire rated hardware as required by local code Authority as part of the General Contractor's base bid. The hardware supplier shall verify all cylinder types specified for locking devices supplied as part of the door system with the door manufacturer and/or door supplies.

B. The General Contractor shall notify the Architect in writing of any discrepancies (five (5) days prior to bid date) that could and/or would result in hardware being supplied that is none functional, hardware specified and/or hardware that has not been specifically specified that would result in any code violations and any door that is not covered in this specification. Failure of the General Contractor to address any such issue shall be considered acceptance of the hardware specified and all discrepancies shall be corrected at the General Contractor's expense and considered a part of their base bid. Change orders shall not be issued if deemed by the Architect and/or San Marcos CISD to fall under and/or be covered as a part of the General Contractor base bid, due to failure to comply with this instruction notification.

C. Items include but are not limited to the following:

1. Hinges - Pivots
2. Flush Bolts
3. Exit Devices
4. Locksets and Cylinders
5. Push Plates - Pulls
6. Coordinators
7. Closers
8. Kick, Mop and Protection Plates
9. Stops, Wall Bumpers, Overhead Controls
10. Electrified Hold Open Devices
11. Thresholds, Seals and Door Bottoms
12. Silencers
13. Miscellaneous Trim and Accessories

1.02 RELATED DOCUMENTS, drawings and general provisions of contract, and Division 1 Specification sections, apply to this section.

1.03 RELATED WORK specified elsewhere that should be examined for its effect upon this section:

A. Section 06 20 00 - Finish Carpentry
B. Section 08 11 13 – Steel Doors and Frames
C. Section 08 14 16 – Flush Wood Doors
D. Sections within 08 31 13 – Access Doors
E. Section within 08 41 13 – Aluminum Entrances, Storefront and Window Framing
F. Sections within 08 80 00 – Glass and Glazing

G. Sections within 09 91 00 - Painting
H. Division 26 – Electrical
I. Division 28 – Access Control

1.04 REFERENCES SPECIFIED in this section subject to compliance as directed:

A. NFPA-80 - Standard for Fire Doors and Windows
B. NFPA-101 - Life Safety Code
C. ADA - The Americans with Disabilities Act - Title III - Public Accommodations
D. ANSI-A 117.1 - American National Standards Institute - Accessible and Usable Buildings and Facilities
E. ANSI-A 156.5 - American National Standards institute -Auxiliary Locks and Associated Products
F. UFAS - Uniform Federal Accessibility Standards
G. UL – Under-writer's Laboratories
H. WHI - Warnock Hersey International, Testing Services
I. State and Local Codes including Authority Having Jurisdiction
J. U.B.C.7-2-97 and UL10C
K. IBC-2012 – International Building Code
L. NFPA-70 – International Electrical Code

1.05 SUBMITTALS

A. HARDWARE SCHEDULES submit copies of schedule in accordance with Division 1, General Requirements. Schedule to be in vertical format, listing each door opening, including: handing of opening, all hardware scheduled for opening or otherwise required to allow for proper function of door opening as intended, and finish of hardware. At doors with door closers or door controls include degree of door opening. Supply the schedules all Finish Hardware within two (2) weeks from date purchase order is received by the hardware supplier.

B. Submit manufacturer's cut/catalog sheets on all hardware items and any required special mounting instructions with the hardware schedule.

C. Certification of Compliance:

1. Submit any information necessary to indicate compliance to all of these specifications as required.
2. Submit a statement from the manufacturer that electronic hardware and systems being supplied comply with the operational descriptions exactly as specified.

D. Submit any samples necessary as required by the Architect.

E. Templates for finish hardware items to be sent to related door and frame suppliers within three (3) working days of receipt of approved hardware schedule.

F. Doors and Frames used in positive pressure opening assemblies shall meet U.B.C. 7-2-97 and UL10C in areas where this specification includes Seals for smoke door.

1.06 QUALITY ASSURANCE

A. Hardware supplier to be a qualified, Factory Authorized, direct distributor of the products to be furnished. In addition, the supplier to have in their regular employment an AHC or AHC /CDC and/or a person of equivalent experience (minimum fifteen (15) years in the industry) who will be made available at reasonable times to consult with the Architect/Contractor and/or San Marcos CISD regarding any matters affecting the finish hardware on this project.

B. All hardware used in labeled fire or smoke rated openings to be listed for those types of openings and bear the identifying label or mark indicating UL. (Underwriter's Laboratories) approved for fire. Exit devices in non-labeled openings to be listed for panic.

1.07 DELIVERY, HANDLING AND PACKAGING

A. Furnish all hardware with each unit clearly marked and numbered in accordance with the hardware schedule. Include door and item number for each.

B. Pack each item of hardware completes with all necessary parts and fasteners.

C. Properly wrap and cushion each item to prevent scratches and dents during delivery and storage.

1.08 SEQUENCING AND SCHEDULING

Any part of the finish hardware required by the frame or door manufacturers or other suppliers that is needed in order to produce doors or frames is to be sent to those suppliers in a timely manner, so as not to interrupt job progress.

1.09 WARRANTY

All finish hardware shall be supplied with a Two- (2) year warranty against defects in materials and workmanship, commencing with substantial completion of the project except as follows:

1. All Closers are to have a thirty- (30) year written warranty.
2. All Exit Devices are to have a three- (3) year written warranty.
3. All Locksets are to have a ten- (10) year written warranty.
4. All Continuous Hinges are to have a ten- (10) year written warranty.

PART 2 – PRODUCTS

2.01 FASTENERS

A. Furnish with finish hardware all necessary screws, bolts and other fasteners of suitable size and type to anchor the hardware in position for a long life under hard use.

B. Furnish fastenings where necessary with expansion shields, toggle bolts and other anchors designated by the Architect according to the material to which the hardware is to be applied and the recommendations of the hardware manufacturer. All closers and exit devices on labeled wood doors shall be through-bolted if required be the door manufacturer. All thresholds shall be fastened with wood screws and plastic anchors. Where specified in the hardware sets, security type fasteners of the type called for are to be supplied.

C. Design of all fastenings shall harmonize with the hardware as to material and finish.

D. All hardware shall be installed with the Manufacturers standard screws as provided. The use of any other type of fasteners shall not be permitted. The general contractor shall provide wood blocking in all stud walls specified and/or scheduled to receive wall stops, No Exception.

2.02 ENVIRONMENTAL CONCERN FOR PACKAGING

Hardware shipped to the job site is to be packaged in biodegradable packs such as paper or cardboard boxes and wrapping.

2.03 HINGES

A. All hinges to be of one manufacturer as hereafter listed for continuity and consideration of warranty. Provide one of the following manufacturers Ives, ABH or Stanley.

B. Unless otherwise specified provide five-knuckle, heavy-duty, button tip, full mortise template type hinges with non-rising loose pins. Provide non-removable pins for out swinging doors at secured areas or as called for in this specification (Refer to 3.02 Hardware Sets).

C. Exterior Five Knuckle Door Hinges shall be manufactured from solid stainless steel or bronze base metal and provide all out-swinging doors with non-removable pins or security studs as called for in 3.02 Hardware Sets.

D. Interior Five Knuckle Door Hinges shall be manufactured from solid stainless steel or bronze base metal. Furnish three (3) hinges up to 90 inches high and one (1) additional hinge for every 30 inches or fraction thereof.

E. Provide all exterior & interior hinges in a size 4½" x 4½" for all 1¾" thick doors up to and including 36 inches wide. Doors over 1¾" through 2¼" thick, use 5" x 5" hinges. Doors over 36 inches use 5" x 4½" unless otherwise noted in 3.02 Hardware Sets.

F. Were exterior or interior door hinges are required to clear the trim and/or to permit the doors to swing 180 degrees furnish hinges of sufficient throw.

G. Provide heavy weight hinges on all exterior or interior doors over 36 inches in width.

H. At exterior or interior labeled door's ball-bearing steel or stainless steel type hinges shall be provided. For all doors equipped with closers provide ball-bearing-type hinges.

I. Finishes at all Interior and Exterior door hinges shall be brushed steel, unless otherwise specified in 3.02 Hardware Sets.

J. Continuous hinges shall be Ives Geared or Pinned Hinges as specified or equal products manufactured by Roton and/or Zero and are to be used on all exterior and high abuse openings as selected by the district.

K. Pivots shall not be used at any San Marcos CISD Facility.

2.04 LOCK AND LOCK TRIM

A. All of the locksets, latch sets, and trim to be of one manufacturer as hereafter listed for continuity of design and consideration of warranty. Locksets specified are Schlage "ND" series with the Rhodes lever as specified.

B. Provide metal wrought box strike boxes and curved lip strikes with proper lip length to protect trim of the frame, but not to project more than 1/8 inch beyond frame trim or the inactive leaf of a pair of doors.

C. Mechanical Locks shall meet ANSI Operational Grade 1, Series 4000 as specified.

1. Hand of lock is to be field reversible or non-handed.

2. All lever trim is to be through-bolted through the door.
3. Provide a ¾" latch throw (part #14-042) at all pair's of doors.
4. Provide a 3-3/4" back set (part #14-028) at all doors specified with sound seal.

2.05 CYLINDERS AND KEYING

A. Provide all Exterior and Interior locks, Keyed Mullions and Panic Exit Devices requiring cylinders with Schlage Small Format Interchangeable Core 29R Keyway Cylinder keyed to the Existing System and which also complies with performance requirements of ANSI A156.5. All cylinders shall be keyed to the existing Facility Master Key System as directed by San Marcos CISD. The hardware supplier shall meet with the General Contractor, the Architect and San Marcos CISD at the project site to determine all permanent keying requirements. The hardware supplier shall provide One (1) Knox Box if required by the local Fire Marshall. The contractor shall, as required by the local Fire Marshall and San Marcos CISD mount the Knox Box.

B Furnish all exterior and interior locks, cylinders and Exit devices with temporary keyed construction cores for the duration of construction. Provide ten (10) construction keys and two (2) construction control keys total. The general contractor shall within thirty (30) days of the installation of permanent cores return all construction cores to the hardware supplier for full credit.

C. Cylinders shall be factory keyed and factory maintained as directed by San Marcos CISD and the Architect. Provide four- (4) keys per cylinder and ten- (10) master keys per master used. (Verify all key quantities with San Marcos CISD prior to ordering) Provide One Hundred (100) Everest key blanks for San Marcos CISD use as required. All permanent cores, keys and key blanks are to be delivered to San Marcos CISD directly from the manufacturer. Provide a Factory Generated bitting list for changes used and include additional bittings for future expansion as instructed by San Marcos CISD during the project keying meeting. Signature for all deliveries to San Marcos CISD shall be required.

D. Factory stamp all keys "Do not duplicate" and with key symbol as directed by San Marcos CISD. Visual key control shall be provided on all permanent cores.

2.06 EXIT DEVICES

A. All exit devices and trim, including electrified items, to be of one manufacturer as hereafter listed and in the hardware sets for continuity of design and consideration of warranty; electrified devices and trim to be the same series and design as mechanical devices and trim.

B. Exit Devices to be "UL" listed for life safety. All exit devices for labeled doors shall have "UL" label for "Fire Exit Hardware". All devices mounted on labeled wood doors are to be through-bolted or per the manufacturer's listing requirements. All devices shall conform to NFPA 80 and NFPA 101 requirements.

C. All exit devices to be of a heavy duty, chassis mounted design, with one-piece removable covers, eliminating necessity of removing the device from the door for standard maintenance and keying requirements.

D. All trims to be through-bolted to the lock stile case. Lever design to be the same as specified with the lock sets ("Rhode" #06 lever design).

E. Exit Devices shall be the modern push rail design with built in cylinder dogging feature with indicator, "CD-SI". All exit devices shall be mounted with sex bolts.

F. All devices shall carry a three- (3) year warranty against manufacturing defects and workmanship. Exit devices shall be certified by an independent testing lab for a minimum of 1,000,000 cycles.

G. All removable mullions shall be supplied with key removable feature "KR" and supplied with mullion stabilizers.

H. Furnish roller strikes for all rim and surface vertical rod exit devices. Furnish security dead latching for all active latch bolts. Plated latch bolts not accepted.

I. All exit devices with electrified latch retraction kits shall have special center case cylinder dogging feature, "SD".

J. Exit Devices shall be Von Duprin "99" series (No Substitutions).

2.07 SURFACE MOUNTED DOOR CLOSERS

A. All closers for this project shall be the products of a single manufacturer for continuity of design and consideration of warranty. All door closers shall be mounted as to achieve the maximum degree of opening (trim permitting).

B. All closers to be heavy duty, surface-mounted, fully hydraulic, rack and pinion action with high strength cast iron or aluminum cylinder to provide control throughout the entire door opening cycle.

C. Size all closers in accordance with the manufacturer's recommendations at the factory.

D. All closers to have adjustable spring power sizes 1 or 2 through 4 or 6 and separate tamper resistant, brass, non-critical regulating screw valves for closing speed, latching speed and back-check control as a standard feature unless specified other wise.

E. All closer covers to be rectangular, full cover type of non-ferrous, non-corrosive material painted to match closer. Provide closer covers only if provided as a standard part of the door closer package.

F. Closers shall have heavy-duty arms. All closer arms shall be of sufficient length to accommodate the reveal depth and to insure proper installation. The hardware supplier shall provide any and all required brackets, spacers or filler plates as required by the manufacture for a proper and functional installation as part of their base bid.

G. Supply appropriate arm assembly for each closer so that closer body and arm are mounted on non-public side of door opening and on the interior side of exterior openings, except where required otherwise in the hardware sets.

1. All parallel arm mounted closers to be factory indexed to insure proper installation.
2. Furnish heavy-duty cold forged parallel arms for all parallel arm mounted closers.

H. Provide closers with special application and heavy-duty arms as specified in the hardware sets or as otherwise called for to insure a proper operating, long lasting opening. Drop plates and any additional brackets required for the proper installation of the door closer shall be included in the hardware supplier's base bid.

I. Finish: Baked on Powder Coated finish shall match other hardware.

J. Provide and mount all door closers with sex bolts as provided by the manufacturer.

K. Closers shall be LCN 4040XP series at all exterior doors & 1461 series at all Interior doors as specified (Refer to Hardware Sets 3.02).

2.08 DOOR STOPS AND HOLDERS

A. Door stops are to be furnished for every door leaf. Every door is to have a floor, wall, or an overhead stop.

B. Place doorstops in such a position that they permit maximum door swing, but do not present a hazard of obstruction. Furnish floor strikes for floor holders of proper height to engage holders of doors.

C. Where overhead stops and holders are specified, or otherwise required for proper door operation, they are to be heavy duty and of extruded brass, bronze or stainless steel with no plastic parts as specified**.** The General Contractor shall provide wood blocking in all stud walls specified and scheduled to receive wall stops.

D. Finish: Same as other hardware where available.

E. Acceptable Products

1. Floor and wall stops as listed in hardware sets. Equivalent products as manufactured by Ives, Glynn Johnson and Trimco are acceptable.

2.09 PUSH PLATES, DOOR PULLS, AND KICKPLATES

A. All push plates, door pull, kick plates and other miscellaneous hardware as listed in hardware sets. Equivalent products as manufactured by Ives, ABH, Glynn Johnson and Trimco are acceptable.

B. Kick plates to be 10 inches high and Mop plates to be 6 inches high, both by 2 inches or 1 inch less than door width (LDW) as specified. They are to be of 16 gauge thick stainless steel. For door with louvers or narrow bottom rails, kick plate height to be 1 inch less dimension shown from the bottom of the door to the bottom of the louver or glass.

C. Where required armor plates, edge guards and other protective hardware shall be supplied in sizes as scheduled in the hardware sets.

D. Finish: Same as other hardware where available.

2.10 FLUSH BOLTS AND COORDINATORS

A. Provide Flush bolts with Dust Proof Strikes as indicated in the individual hardware sets by Ives, Glynn Johnson and Trimco are acceptable. Finish shall match the adjacent hardware.

2.11 THRESHOLDS AND SEALS

A. Provide materials and finishes as listed in hardware sets. Equivalent product by National Guard Products, Zero, and Reese are acceptable. All thresholds must be in accordance with the requirements of the ADA and ANSI A117.1.

B. Provide thresholds with wood screws and plastic anchors. Supply all necessary anchoring devices for weather strip and sound seal.

C. Seals shall comply with requirements of U.B.C. 7-2-97 and UL10C. All thresholds, door bottoms and weather strip inserts shall be a silicone based product as specified in 3.02 Hardware Sets. Other materials used shall be rejected, unless originally specified.

D. Seals shall comply with the requirements of the Wood Door Manufacturer's certification requirements.

E. Provide all thresholds with a factory applied none slip surface (SIA) as specified.

2.12 FINISHES

A. Finishes for all hardware are as required in this specification and the hardware sets.

B. Special care is to be taken to make uniform the finish of all various manufactured items.

2.13 DOOR SILENCERS

A. Provide door silencers at all openings without gasket. Provide two- (2) each a each pair of doors and three- (3) or four- (4) each for each single door (coordinate with the frame manufacturer).

2.14 KEY CABINET

A. Provide a key cabinet Lund 1200 series for installation by the contractor as instructed by the Architect and San Marcos CISD. Key Cabinet shall be of such size as to hold 150% of the total number of keys supplied for this project.

B. The hardware supplier shall assist San Marcos CISD in the tagging of all keys and instruct the San Marcos CISD staff as to the proper use of the key cabinet system at the project site. Training shall include industry standard procedures for maintaining a key system. The hardware supplier shall provide San Marcos CISD two- (2) complete full size copies of the floor plans complete with the door number and key symbol shown at each door opening. One- (1) copy shall be placed in the key cabinet and one- (1) copy shall be turned over to the San Marcos CISD Representative. Training shall be based on eight- (8) hours maximum. The hardware supplier shall send a list of all staff members trained in the proper use of the key cabinet to the San Marcos CISD Representative and the Architect.

2.15 PROPRIETARY PRODUCTS

A. References to specific products are used to establish quality standards of utility and performance. Unless otherwise approved provide only the specified product.

B. All other materials, not specifically described, but required for a complete and proper finish hardware installation, are to be selected by the Contractor, subject to the approval of the Architect and San Marcos CISD.

C. Architect and San Marcos CISD reserve the right to approve all the substitutions proposed for this specification. All requests for substitution to be made prior to bid in accordance with Division 1, General Requirements, and are to be in writing, hand delivered to the Architect. Two (2) copies of the manufacturer's brochures and a physical sample of each item in the appropriate design and finish shall accompany requests for substitution.

PART 3 - EXECUTION

3.01 INSTALLATION AND SERVICE ITEMS OF FINISH HARDWARE

A. All finish hardware shall be installed by an experienced finish hardware installer with at least ten (10) years experience after a pre-installation meeting between the contractor, hardware Manufacturers representative, the hardware supplier, hollow metal supplier and wood door supplier. The finish hardware installer shall be responsible for the proper installation and function of all doors and hardware.

B. The hardware supplier's office and/or warehouse shall be located within a one hundred (100) mile radius of the project site as to better service the general contractor and San Marcos CISD during the course of this project.

C. Check hardware against the reviewed hardware schedule upon delivery. Store the hardware in a dry and secure location to protect against loss and damage.

D. Install finish hardware in accordance with approved hardware schedule and manufacturers' printed instructions. Pre-fit hardware before finish is applied to door; remove and reinstall after finish is complete and dry. Install and adjust hardware so that parts operate smoothly, close tightly, and do not rattle.

E. Mortise and cutting to be done neatly, and evidence of cutting to be concealed in the finished work. Protect all Finish hardware from scratching or other damage.

F. The hardware supplier, general contractor, hardware installer, representatives of the lock, exit device and closer manufacturers shall after three (3) months of San Marcos CISD acceptance of the facility, perform an onsite survey of the finish hardware installation. Any item of finish hardware found to be defective or out of adjustment shall be replaced or adjusted for the proper function and operation of the door assembly at the contractor's, supplier's and/or installer's expense. The hardware supplier shall provide a written report of any and all affected items to the Architect and San Marcos CISD (No Exceptions). The scheduled inspection date for the on site inspection and adjustment of finish hardware shall be provided to the Architect as a part of the general contractor and hardware supplies close-out documentation for this project.

3.02 HARDWARE SETS

76877 OPT0287882 Version 1

Hardware Group No. 001

For use on Door #(s):
151A 156A

Provide each RU door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	SFIC MORTISE CYL.	80-132 W/KEYED CONST. CORE	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH

CYLINDER TYPE/QTY AS REQ
ALL HARDWARE BY OVERHEAD COILING DOOR MANUFACTURER

Hardware Group No. 002

For use on Door #(s):
117

Provide each CO door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CASED OPENING	NO HARDWARE REQUIRED		

Hardware Group No. 003 - SLIDING DOOR

For use on Door #(s):
114 115 139 140 141

Provide each SL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	SFIC MORTISE CYL.	80-132 W/KEYED CONST. CORE TYPE/QTY REQD	626	SCH
2	EA	SFIC EVEREST CORE	80-037 EV29 R TYPE/QTY REQD	626	SCH

CYLINDER TYPE/QTY AS REQ
BALANCE HARDWARE BY SLIDING DOOR MANUFACTURER

Hardware Group No. 101R

For use on Door #(s):
120A 121 124 125 126 127
128 130 132

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ENTRANCE LOCK	ND53HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		

Hardware Group No. 103

For use on Door #(s):
120B 122A 122B 137 138 142 143

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ENTRANCE LOCK	ND53HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		

Hardware Group No. 201

For use on Door #(s):
154

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER SILENCERS AS REQD		

Hardware Group No. 201R

For use on Door #(s):
129 131 151D

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	STOREROOM LOCK	ND80HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		

Hardware Group No. 203

For use on Door #(s):
113

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		

Hardware Group No. 205

For use on Door #(s):
155

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY HEIGHT AS REQ	628	IVE
1	EA	STOREROOM LOCK	ND80HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	4040XP SCUSH SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	FLOOR STOP	FS18L	BLK	IVE
1	SET	GASKETING	139A HEAD & JAMBS	A	ZER
1	EA	RAIN DRIP	142A DW + 4"	AA	ZER
1	EA	DOOR SWEEP	50MAA	AA	ZER
1	EA	THRESHOLD	65A-V3 FRAME WIDTH	A	ZER

Hardware Group No. 341

For use on Door #(s):
111 112 152 153

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY W/COIN TURN	L9044 06A L583-363 L283-722	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		
1	EA	COAT HOOK	582M	626	IVE

Hardware Group No. 343

For use on Door #(s):
123

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY W/COIN TURN	L9044 06A L583-363 L283-722	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		
1	EA	COAT HOOK	582M	626	IVE

Hardware Group No. 501

For use on Door #(s):
103 116

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		

Hardware Group No. 501A

For use on Door #(s):
102A 102C 104 107A 107B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		

Hardware Group No. 501R

For use on Door #(s):
110A 119

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		

Hardware Group No. 501W

For use on Door #(s):
156C

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1HW 5 X 4.5 NRP	652	IVE
1	EA	CLASSROOM LOCK	ND70HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 503

For use on Door #(s):
109B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		

Hardware Group No. 503EX

For use on Door #(s):
X157 X158 X159

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70HD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		

HARDWARE SET IS A GUIDELINE.
GENERAL CONTRACTOR/HW SUPPLIER FIELD-VERIFY EXISTING CONDITIONS PRIOR TO BID DATE. PROVIDE ALL PRODUCTS NECESSARY FOR COMPLETE, FUNCTIONING COMPLIANT OPENING. ADVISE ARCHITECT OF ANY INCOMPATIBILITY REGARDING DOOR/FRAME/HARDWARE. GC AND HARDWARE SUPPLIER TO REVIEW ALL OPENINGS/HARDWARE SETS WITH OWNER/ARCHITECT AT LATER DATE TO DETERMINE EXACT REQUIREMENTS.

Hardware Group No. 711C

For use on Door #(s):
145

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY HEIGHT AS REQ	628	IVE
1	EA	PANIC HARDWARE	CDSI-99-NL-SNB	626	VON
1	EA	SFIC MORTISE CYL.	80-132 W/KEYED CONST. CORE	626	SCH
1	EA	SFIC RIM CYLINDER	80-159 W/KEYED CONST. CORE	626	SCH
2	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC SCUSH SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 715

For use on Door #(s):
151B 151C 156B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY HEIGHT AS REQ	628	IVE
1	EA	PANIC HARDWARE	CDSI-XP99-NL-SNB	626	VON
1	EA	SFIC MORTISE CYL.	80-132 W/KEYED CONST. CORE	626	SCH
1	EA	SFIC RIM CYLINDER	80-159 W/KEYED CONST. CORE	626	SCH
2	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	4040XP SCUSH SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	FLOOR STOP	FS18L	BLK	IVE
1	EA	RAIN DRIP	142A DW + 4"	AA	ZER
1	SET	GASKETING	328AA (2 PCS @ JAMBS)	AA	ZER
1	EA	GASKETING	429AA-S HEADER	AA	ZER
1	EA	DOOR SWEEP	50MAA	AA	ZER
1	EA	THRESHOLD	655A-E-V3 LENGTH AS REQ	A	ZER

Hardware Group No. 715A

For use on Door #(s):
100E 100I 109C

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY HEIGHT AS REQ	628	IVE
1	EA	PANIC HARDWARE	CDSI-XP99-NL-SNB	626	VON
1	EA	SFIC MORTISE CYL.	80-132 W/KEYED CONST. CORE	626	SCH
1	EA	SFIC RIM CYLINDER	80-159 W/KEYED CONST. CORE	626	SCH
2	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	4040XP SCUSH SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30 AS REQ	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	FLOOR STOP	FS18L	BLK	IVE
1	EA	RAIN DRIP	142A DW + 4"	AA	ZER
	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		
1	EA	DOOR SWEEP	50MAA	AA	ZER
1	EA	THRESHOLD	655A-E-V3 LENGTH AS REQ	A	ZER

Hardware Group No. 801

For use on Door #(s):
105 106

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	PUSH PLATE	8200 8" X 16"	630	IVE
1	EA	PULL PLATE	8305 8" 3.5" X 15"	630	IVE
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		

Hardware Group No. C201 - ACCESS CONTROLLED

For use on Door #(s):
109A 110B 133

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	EU STOREROOM LOCK	ND80HDEU RHO RX 12V/24V DC	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS WHERE APPLICABLE	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		
	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O
	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
		SECURITY ITEMS	BALANCE OF SECURITY ITEMS BY ANOTHER SECTION		

FREE EGRESS BY THE LEVER.

Hardware Group No. C201AW - ACCESS CONTROLLED

For use on Door #(s):
100C

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	EU STOREROOM LOCK	ND80HDEU RHO RX 12V/24V DC	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	WALL STOP	WS406/407CCV	630	IVE
	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O
	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
		SECURITY ITEMS	BALANCE OF SECURITY ITEMS BY ANOTHER SECTION		

INGRESS BY THE CARD READER OR KEY OVERRIDE.
FREE EGRESS BY THE LEVER.

Hardware Group No. C201C - ACCESS CONTROLLED

For use on Door #(s):
144

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	EU STOREROOM LOCK	ND80HDEU RHO RX 12V/24V DC	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC SCUSH SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS WHERE APPLICABLE	630	IVE
	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		
	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O
	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
		SECURITY ITEMS	BALANCE OF SECURITY ITEMS BY ANOTHER SECTION		

FREE EGRESS BY THE LEVER.

Hardware Group No. C201R - ACCESS CONTROLLED

For use on Door #(s):
118

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	EU STOREROOM LOCK	ND80HDEU RHO RX 12V/24V DC	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC REG OR PA AS REQ SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	PROTECTION PLATE	8400 10" X 2" LDW B-CS WHERE APPLICABLE	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		
	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O
	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
		SECURITY ITEMS	BALANCE OF SECURITY ITEMS BY ANOTHER SECTION		

FREE EGRESS BY THE LEVER.

Hardware Group No. C710AM - VESTIBULE / REMOTE RELEASE

For use on Door #(s):
100BB

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY HEIGHT AS REQ	628	IVE
1	EA	CONT. HINGE	112XY EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	REMOVABLE MULLION	KR4954-STAB-MT54 HEIGHT AS REQ	689	VON
1	EA	PANIC HARDWARE	CDSI-99-DT-SNB	626	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-99-NL-SNB	626	VON
2	EA	SFIC MORTISE CYL.	80-132 W/KEYED CONST. CORE	626	SCH
1	EA	SFIC RIM CYLINDER	80-159 W/KEYED CONST. CORE	626	SCH
3	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
2	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC SCUSH SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
2	EA	MOUNTING PLATE	1460-18	689	LCN
2	EA	CUSH SHOE SUPPORT	1460-30	689	LCN
1	EA	DESK MOUNT BUTTON	660-PB OR SIM (PROVIDED BY SEC 28)	628	SCE
	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O
	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
		SECURITY ITEMS	BALANCE OF SECURITY ITEMS BY ANOTHER SECTION		

INGRESS BY THE CARD READER OR KEY OVERRIDE.
FREE EGRESS BY THE LEVER EXIT DEVICES.
MARBLE THRESHOLD BY ANOTHER SECTION WHEN INDICATED OR DETAILED.

Hardware Group No. C711A

For use on Door #(s):
100L

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-99-NL-SNB	626	VON
1	EA	SFIC RIM CYLINDER	80-159 W/KEYED CONST. CORE	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC SCUSH SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	MOUNTING PLATE	1460-18	689	LCN
1	EA	CUSH SHOE SUPPORT	1460-30	689	LCN
	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O
	EA	CARD READER	BY SECURITY CONTRACTOR		B/O

Hardware Group No. C711AR - AR=ALUMINUM DOOR AND FIRE RATED - TGP / ACCESS CONTROLLED

For use on Door #(s):
100BA 100F

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
	EA	WELD-ON PIVOT SET	BY TECHNICAL GLASS PRODUCTS (SEE SECTION 08 41 23)	PTM	TGP
1	EA	POWER TRANSFER	EPT10 AS REQD	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-QEL-3347A-L-NL-F-360-06 24 VDC	626	VON
1	EA	SFIC RIM CYLINDER	80-159 W/KEYED CONST. CORE	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	1461 FC SCUSH SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
	EA	SEAL SET	BY TECHNICAL GLASS PRODUCTS (SEE SECTION 08 41 23)	BLK	TGP
	EA	DOOR BOTTOM	BY TECHNICAL GLASS PRODUCTS (SEE SECTION 08 41 23)	AL	TGP
1	EA	SADDLE THRESHOLD	545A-V3-FRAME WIDTH AS REQD	A	ZER
	EA		BALANCE OF HARDWARE BY DOOR MANUFACTURER		B/O
	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O
	EA	CARD READER	BY SECURITY CONTRACTOR		B/O

BASIS OF DESIGN: TECHNICAL GLASS PRODUCTS – DESIGNER SERIES.
-VERIFY AND COORDINATE ALL HARDWARE WITH DOOR/FRAME MANUFACTURER.

OPERATION:
-DOORS TO RELEASE UPON FIRE ALARM ACTIVATION.
-INGRESS BY THE CARD READER OR KEY OVERRIDE.
-FREE EGRESS AT ALL TIMES BY THE PUSH PAD.
-EXIT DEVICE IS FAIL SECURE
-WIRE THE ELECTRIFIED LATCH BOLTS TO THE FIRE ALARM SYSTEM.
-THE ELECTRIFIED LATCH BOLTS ARE TO REMAIN IN THE EXTENDED POSITION UPON ACTIVATION OF THE FIRE ALARM SYSTEM, UNLESS MANUALLY RETRACTED BY THE PUSH PADS.

Hardware Group No. C714AM - ACCESS CONTROLLED/REMOTE RELEASE

For use on Door #(s):
100A

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY HEIGHT AS REQ	628	IVE
1	EA	CONT. HINGE	112XY EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	REMOVABLE MULLION	KR4954XP-STAB-MT54	689	VON
1	EA	PANIC HARDWARE	CDSI-XP99-DT-SNB	626	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-XP99-NL-SNB	626	VON
2	EA	SFIC MORTISE CYL.	80-132 W/KEYED CONST. CORE	626	SCH
1	EA	SFIC RIM CYLINDER	80-159 W/KEYED CONST. CORE	626	SCH
3	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
2	EA	SURFACE CLOSER (SPECIAL ORDER)	4040XP SCUSH SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
2	EA	CUSH SHOE SUPPORT	4040XP-30 AS REQ	689	LCN
2	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	RAIN DRIP	142A DW + 4"	AA	ZER
1	EA	MULLION SEAL	8780N PSA HEIGHT AS REQ	BK	ZER
	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		
2	EA	DOOR SWEEP	50MAA	AA	ZER
1	EA	THRESHOLD	655A-E-V3 LENGTH AS REQ OR MARBLE AS DETAILED	A	ZER
	EA	DESK MOUNT BUTTON	660-PB OR SIM (PROVIDED BY SEC 28)	628	SCE
	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O
	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
		SECURITY ITEMS	BALANCE OF SECURITY ITEMS BY ANOTHER SECTION		

Hardware Group No. C715A - ACCESS CONTROLLED

For use on Door #(s):
102B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-XP99-NL-SNB	626	VON
1	EA	SFIC RIM CYLINDER	80-159 W/KEYED CONST. CORE	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R	626	SCH
1	EA	SURFACE CLOSER (SPECIAL ORDER)	4040XP SCUSH SNB (MOUNT ALL CLOSER COVERS WITH SPECIAL SCREW PACK ST3596)	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30 AS REQ	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	FLOOR STOP	FS18L	BLK	IVE
1	EA	RAIN DRIP	142A DW + 4"	AA	ZER
	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER		
1	EA	DOOR SWEEP	50MAA	AA	ZER
1	EA	THRESHOLD	655A-E-V3 LENGTH AS REQ	A	ZER
	EA		BALANCE OF HARDWARE BY DOOR MANUFACTURER		B/O
	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O
	EA	CARD READER	BY SECURITY CONTRACTOR		B/O

SECTION 08 80 00 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Glass products.
2. Fully tempered glass.
3. Insulating glass.
4. Glazing sealants.
5. Glazing tapes.
6. Miscellaneous glazing materials.

B. Related Requirements:

1. Section 08 41 13 “Aluminum Framed Entrances and Storefronts” for glazing in entrance systems and fixed glass windows.
2. Section 08 41 23 “Fire-Rated Aluminum-Framed Glazing System: Fire rated glass.

1.3 DEFINITIONS

A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters in accordance with ASTM C1036.

C. IBC: International Building Code.

D. Interspace: Space between lites of an insulating-glass unit.

E. Deterioration of Coated Glass: Defects developed from normal use, which are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.

F. Deterioration of Laminated Glass: Defects developed from normal use, which are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those ald by referenced laminated glass standard.

G. Deterioration of Insulating Glass: Failure of hermetic seal under normal use, which is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1.4 COORDINATION

A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review temporary protection requirements for glazing during and after installation.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Glass and Plastic: Provide structural, physical, and thermal and solar optical performance characteristics, size limitations, special handling or installation requirements.
2. Glazing Sealants, Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors where exposed.

B. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square.

C. Glazing Accessory Samples: For sealants and] colored spacers] in 12-inch lengths. Install sealant Samples between two strips of material representative in color of adjoining framing system.

D. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

E. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by qualified professional engineer responsible for their preparation.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and manufacturers of fabricated glass units.

B. Product Certificates: For glass.

C. Product Test Reports: For fabricated glass and glazing sealants, for tests performed by a qualified testing agency.

1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.

D. Preconstruction adhesion and compatibility test report.

E. Sample Warranties: For special warranties.

1.8 QUALITY ASSURANCE

A. Fabricated-Glass Manufacturer Qualifications: A qualified manufacturer of fabricated glass units who is approved by primary glass manufacturer.

B. Installer Qualifications: A qualified glazing contractor for this Project who is certified under the North American Contractor Certification Program (NACC) for Architectural Glass & Metal (AG&M) contractors and who employs glazing technicians certified under the Architectural Glass and Metal Technician (AGMT) certification program.

C. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC 702-2019 (CAP) Certification Agency Program.

D. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.

E. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution. Mockups shall be built by the Subcontractor responsible for the Project Work.

1. Install glazing in mockups specified in Section 08 41 13 "Aluminum-Framed Entrances and Storefronts" to match glazing systems required for Project, including glazing methods. Coordinate mockups with mockup requirements for Division 04 Sections “Unit Masonry Assemblies”, “Unit Masonry”, and / or other Division 04 Sections.

2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion, if allowed by and coordinated with the Architect in the field.

1.9 PRECONSTRUCTION TESTING

A. Preconstruction Adhesion and Compatibility Test Reports: Testing is not required if data are submitted based on previous testing (Test Reports), from glazing sealant manufacturer, of current sealant products and glazing materials matching those submitted. Previous testing is for each glass product, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials in accordance with manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. For insulating-glass units that will be exposed to substantial altitude changes, comply with insulating-glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.11 FIELD CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

1.12 WARRANTY

A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.

1. Warranty Period: 10 years from date of Substantial Completion.

B. Manufacturer's Special Warranty for Laminated Glass: Manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1. Warranty Period: Five years from date of Substantial Completion.

C. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1. Warranty Period: 10 years from date of Substantial Completion.

D. Manufacturer's Special Warranty for Heat-Soaked Tempered Glass: Manufacturer agrees to replace heat-soaked tempered glass units that spontaneously break due to nickel sulfide (NiS) inclusions at a rate exceeding 0.3 percent (3/1000) within specified warranty period. Coverage for any other cause is excluded.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Glass: Obtain tinted and coated glass from single source from single manufacturer.

B. Source Limitations for Glazing Accessories: For each product and installation method, obtain from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design glazing.

C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined in accordance with the IBC and ASTM E1300:

1. Design Wind Pressures: As indicated on Drawings, but in all cases not less than wind pressures applicable to Project and determined in accordance with ASCE/SEI 7, based on heights above grade indicated on Drawings.

    a. Wind Design Data: As indicated on Drawings.

2. Probability of Breakage for Sloped Glazing: For glass sloped more than 15 degrees from vertical, design glass for a probability of breakage not greater than 0.001.

3. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch whichever is less.

4. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual tinted glass lites.

D. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.

E. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

1. For monolithic glass lites, properties are based on units with lites 6 mm thick, or if thicker glass is indicated, of thickness indicated.]

2. For laminated glass lites, properties are based on products of construction indicated.

3. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.

4. U-Factors: Center-of-glazing values, in accordance with NFRC 100 and based on LBL's WINDOW 7 computer program expressed as Btu/sq. ft. x h x deg F.

5. SHGC and Visible Transmittance: Center-of-glazing values, in accordance with NFRC 200 and based on LBL's WINDOW 7 computer program.

6. Visible Reflectance: Center-of-glazing values, in accordance with NFRC 300.

2.3 MATERIALS - GENERAL REQUIREMENTS

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. NGA Publication: "Laminated Glazing Reference Manual"
2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR A7, "Sloped Glazing Guidelines."
3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."
4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
5. GANA Publication: "Sealant Manual" (2008 ed.) or later edition from GANA or NGA.
6. NGA Publication: "Glazing Manual."

B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

C. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the Insulating-Glass Certification Council (IGCC).

D. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than thickness indicated.

1. Minimum Glass Thickness for Exterior Lites: As indicated, but not less than 6 mm.

2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project, unless otherwise indicated.

2.4 GLASS PRODUCTS

A. Manufacturers: Subject to compliance with requirements, Manufacturers offering monolithic float-glass units and manufactured composite units which may be incorporated in the Work include, but are not limited to, the following:

1. AGC Glass Company North America 800-251-0441 us.agc.com/
2. Cardinal Glass Industries 952.229.2600 www.cardinalcorp.com/
3. Guardian Industries Corp. 248-340-1800 www.guardian.com
4. Oldcastle Building Envelope 866-653-2278 www.oldcastlebe.com
5. Pilkington North America Inc. 800-221-0444 www.pilkington.com
6. Vitro Architectural Glass (formerly PPG Industries), Inc. 800-377-5267 www.ppg.com

B. Fully Tempered Float Glass: ASTM C1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.

2. Tempered Glass Testing (Heat Soaking): Test each fully-tempered glass to be used in Insulating Glass Units on the exterior of the building for nickel sulfide inclusions, (exterior or interior) to create "Heat Soaked Tempered" Glass, otherwise known as "Heat Soaked Thermally Toughened" Glass.

a. Testing: Comply with the European and International standard for heat soaking EN 14179–1: 2005 (HST), and as follows.

1) Testing: The tempered glass shall be taken to a temperature of 290°C and maintained at that temperature for 2 hours, with ±10 degrees C variance allowed. Thermocouples and process documentation shall be used to verify that the glass has remained at the proper temperature for the required amount of time.

C. Tempered Glass: ASTM C1048, Type 1 transparent flat, Quality Q3, Kind FT fully tempered, Condition A uncoated, float glass with horizontal tempering; furnish tempered glass conforming to CPSC 16 CFR 1201 Category II.

D. Low-E Coating: ASTM C1376, vacuum deposited, low-E coating applied to No. 2 face of clear glass in insulated panels for exterior glazing.
1. Basis-of-Design: Guardian SNE50 or approved equivalent as required to meet Energy Code requirements for both clear and colored glass panels.

E. Fabricated Exterior Insulating Glass Panels: ASTM E2190 certified by Insulating Glass Certification Council (IGCC) with fully tempered Class 1 and 2 glass lites separated by a dehydrated airspace that is hermetically dual sealed with a primary seal of polyisobutylene (PIB), or thermo plastic spacer (TPS) and a secondary seal of silicone or an organic sealant as determined by the manufacturer for the specific application.

1. Basis of Design: Fully tempered clear with *Sunguard* Low-E coating as manufactured by Insulguard or approved equivalent by specified manufacturer.

2. Edge Condition:
   a. Black edge seal.
   b. At typical exterior glazing fabricate for typical aluminum framing conditions with resilient glazing gaskets.

3. Performance, Low-E Insulating Glass Units – Fabricated panels shall provide the following tested values or better:
   a. Visible Light Transmission: 62%.
   b. Reflectance: 11% outdoor visible light reflectance.
   c. U-Value: Winter nighttime 0.29.
   d. Shading Coefficient: 0.31
   e. Solar Heat Gain Coefficient: 0.27

F. Laminated Glass: ASTM C1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.

1. Construction: Laminate glass with polyvinyl butyral interlayer, unless otherwise indicated to comply with interlayer manufacturer's written instructions.

2. Interlayer Thickness: Provide thickness not less than that indicated, but not less than 0.060 inch and as necessary to comply as a Type II Safety glass for doors and sidelights.

3. Interlayer Color(s): As selected by the Architect. Also frosted.

2.5 SCHEDULED GLAZING TYPES – Types as indicated in the drawings.

A. **Type GLZ- 1:** Interior Decorative single-pane for fire-rated glazing units at rated interior storefront vestibule systems.
   1. Single pane of 5/16" laminated clear glass clear glass with decorative color interlayer.
      a. Composition: 1/8" clear float glass pane, translucent color interlayer, 1/8" clear float glass pane,
      b. Interlayer: SGP translucent color and frosted film as manufactured by Vanceva. Color(s) to be selected by Architect.

B. **Type GLZ 2:** Interior single-pane for non-rated glazing for typical interior storefront systems, fixed windows, and door lights.
   1. 1/4" thick fully tempered clear, Class 2

C. **Type GLZ 2A**: Interior single pane for non-rated butt-gazed panels installed in interior storefront system without vertical mullions.
   1. Minimum 1/2" thick fully tempered clear, Class 2.
   2. Uniform 1/2" vertical butt joints filled with clear silicone sealant.

D. **TYPE GLZ 3**: Exterior Insulated Glass: Dual-pane system ASTM E2190 certified by Insulating Glass Certification Council; with aluminum and silicone edge seal; black edge seal color; purge interpane core space with dry hermetic air.
   1. Outer Pane: 1/4" thick fully tempered clear, with Low-E coating on No. 2 surface, Class 2.
   2. Inner Pane: 1/4" thick fully tempered clear, Class 1.
   3. Core: 1/2" inert.
   4. Total thickness of 1-inch.

E. **Type GLZ 4:** Exterior Insulated Spandrel Glass: Same construction as **GL-1** units except inner pane is spandrel glass with near-opaque ceramic coating on No. 2 surface.
   1. Color: Light gray closest to visual match of clear glass, as approved by the Architect.

F. **Type GLZ 5:** Exterior Insulated Decorative Colored Glass:
   1. Outer Pane: 5/16" laminated clear glass with decorative color interlayer.

a. Composition: 1/8" clear float glass pane, translucent color interlayer, 1/8" clear float glass pane.
b. Interlayer: SGP translucent color film as manufactured by Vanceva. Color(s) to be selected by Architect.

2. Inner Pane: 1/4" thick fully tempered clear, with Low-E coating on No. 5 surface, Class 1.
3. Core: 1/2" inert.
4. Total thickness of 1-1/16-inch

2.6 DOORS AND SIDELIGHTS

1. The glazing in entrance systems (doors and sidelights) shall meet federal requirements for door glazing and shall match the glazing type (color and insulating vs single pane) in storefront and/or curtainwalls into which they are installed, unless specifically indicated otherwise.

2.7 GLAZING SEALANTS

A. General:

1. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.

3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range of industry colors.

B. Neutral-Curing Silicone Glazing Sealant, Class 100/50: Complying with ASTM C920, Type S, Grade NS, Use NT.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

a. 790, Dow Corning Corporation 800-248-2481 www.dowcorning.com
b. SilPruf LM SCS2700, GE 877-943-7325 www.siliconeforbuilding.com
c. Spectrem 1 (Neutral-Basic), Tremco Incorporated 800-852-9068 www.tremco.com

2. Uses Related to Glazing Substrates: M, G, A, and, as applicable to glazing substrates indicated, O.

3. Applications (O Glazing Substrate): Coated glass; color anodic aluminum; aluminum coated with a high-performance coating; galvanized steel; and wood.

C. Neutral-Curing Silicone Glazing Sealant, Class 50: Complying with ASTM C920, Type S, Grade NS, Use NT.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

a. 795, Dow Corning Corporation 800-248-2481 www.dowcorning.com
b. UltraPruf II SCS2900, GE 877-943-7325 www.siliconeforbuilding.com
c. 895, Pecora Corporation 800-523-6688 www.pecora.com

2. Uses Related to Glazing Substrates: M, G, A, and, as applicable to glazing substrates indicated, O.

3. Applications (O Glazing Substrate): Coated glass; color anodic aluminum; aluminum coated with a high-performance coating; galvanized steel; and wood.

D. Neutral-Curing Silicone Glazing Sealant, Class 25: Complying with ASTM C920, Type S, Grade NS, Use NT.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

a. 799, Dow Corning Corporation 800-248-2481 www.dowcorning.com
b. UltraGlaze SSG4000, GE 877-943-7325 www.siliconeforbuilding.com
c. Proglaze SF, Tremco Incorporated 800-852-9068 www.tremco.com

2. Uses Related to Glazing Substrates: M, G, A, and, as applicable to glazing substrates indicated, O.
3. Applications (O Glazing Substrate): Coated glass; color anodic aluminum; aluminum coated with a high-performance coating; galvanized steel; and wood.

2.8 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; non-staining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C1281 and AAMA 800 for products indicated below:

1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:

1. AAMA 810.1, Type 1, for glazing applications in which tape acts as primary sealant.
2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.9 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, recommended in writing by manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks:

1. Elastomeric with Shore A durometer hardness of 85, plus or minus 5.
2. Type recommended in writing by sealant or glass manufacturer.

D. Spacers:

1. Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
2. Type recommended in writing by sealant or glass manufacturer.

E. Edge Blocks:

1. Elastomeric with Shore A durometer hardness per manufacturer's written instructions.
2. Type recommended in writing by sealant or glass manufacturer.

F. Cylindrical Glazing Sealant Backing: ASTM C1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.10 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

C. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications. Utilize gasket glazing over sealant glazing to the greatest extent possible without compromising performance and / or appearance.

B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.

C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

F. Provide spacers for glass lites where length plus width is larger than 50 inches.

1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.

2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and in accordance with requirements in referenced glazing publications.

H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended in writing by gasket manufacturer.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until right before each glazing unit is installed.

F. Apply heel bead of elastomeric sealant.

G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 GASKET GLAZING (DRY)

A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended in writing by gasket manufacturer.

D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended in writing by gasket manufacturer.

E. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET): For butt-jointed glazing panels without vertical mullions.

A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.

C. Install clear silicone sealant flush with faces of glazing panels. Prior to all sealant installation mask-off glazing faces with temporary tape to ensure sharp sealant lines. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 CLEANING AND PROTECTION

A. Immediately after installation, remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.

1. If, despite such protection, contaminating substances do contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.

C. Remove and replace glass that is damaged during construction period.

D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.8 MONOLITHIC GLASS SCHEDULE

A. Interior Clear Glass: Fully tempered float glass as manufactured by Guardian Glass or approved equivalent by specified manufacturer.

1. Minimum Thickness: 6 mm.

3.9 INSULATING GLASS SCHEDULE

A. Exterior Passive Solar (Clear) Low-E Insulating-Glass :

1. Basis-of-Design: *SunGuard 51/23* insulated unit clear + clear, as manufactured by Guardian Glass or approved equivalent by specified manufacturer.
2. Overall Unit Thickness and Thickness of Each Lite: 25 and 6.0 mm.
3. Interspace Content: Air as standard with manufacturer.
4. Outdoor Lite: Class 2 (clear) Kind FT (fully tempered) float glass.
5. Indoor Lite: Class 1 (clear) Kind FT (fully tempered) float glass.
6. Low-E Coating: Vacuum deposited low-Emissivity coating per ASTM C1376 applied to no. 2 surface.
7. Visible Light Transmittance: 51 percent minimum.
8. Winter Nighttime U-Factor: 0.29 maximum.
9. Solar Heat Gain Coefficient: 0.23 maximum.
10. Outdoor Visible Reflectance: 12 percent maximum

END OF SECTION 08 80 00

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Non-load-bearing steel framing systems for interior partitions.
2. Suspended framing systems for interior ceilings and soffits.
3. Grid suspension systems for gypsum board ceilings.

B. Related Requirements:

1. Section 05 40 00 "Cold-Formed Metal Framing" for exterior and interior load-bearing and exterior non-load-bearing wall studs; floor joists; roof rafters and ceiling joists.
2. Division 9 Section "Gypsum Board" for gypsum panels, and other panel materials supported by non-load bearing steel framing.

1.3 DEFINITIONS

A. Gypsum Board Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

B. International Code Council Evaluation Service, Inc. (ICC-ES).

C. Pony wall: A partial height wall, free-standing or supporting an interior or exterior ribbon window.

1.4 SUBMITTALS

A. Product Data: For each type of product including metal framing, furring, and fasteners.

B. Shop Drawings: Show locations, fabrication, and installation of studs and accessories including plans, elevations, sections, details of components, and attachments to other units of Work: for walls above allowable heights in accordance with Steel Stud Manufacturers Association, provide design and show installation details of bracing of walls to structure above; and show top-of-wall conditions of walls to deck.

C. Shop Drawings for Embossed Studs (additional to requirements for standard studs indicated above): Plan showing locations for nonstandard, embossed steel studs (lighter gage improved with dimples, bends, stamped, etc.) and tracks indicating proposed stud size (thickness) and stud spacing necessary for spans found on job.

D. Delegated-Design for Grid Suspension System: Engineering documentation for Grid Suspension System, if utilized. Documentation shall be signed, sealed, dated.

E. Delegated-Design for Improved (embossed) Stud Submittal: For embossed interior partition steel framing throughout the entire project. Documentation shall be signed, sealed, dated.

F. Product Certificates: For each type of code-compliance certification for studs and tracks.

G. Evaluation Reports: For enhanced, embossed steel studs and tracks, firestop tracks, post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.5 QUALITY ASSURANCE

A. Code-Compliance Certification of Studs and Tracks: Provide documentation from one of the following three organizations that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association or the Steel Stud Manufacturers Association.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.

C. Protect steel framing from corrosion, deformation, and other damage during delivery, storage, and handling as required by AISI's "Code of Standard Practice".

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

C. Horizontal Deflection for embossed steel studs: For wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft.

D. Delegated Design: Engage a qualified professional engineer (the Engineer), as defined in Section 01 40 00 "Quality Requirements," to design interior partition steel framing made of embossed studs. Or submit an analysis showing what embossed studs are comparable, or better, in performance than the studs indicated in the design of the partition walls.

2.2 FRAMING SYSTEMS

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
2. Protective Coating: Coating with equivalent corrosion resistance of ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated. A40 galvannealed products are not acceptable.

B. Studs and Tracks: ASTM C 645. Use either steel studs and tracks or embossed steel studs and tracks.

1. Steel Studs and Tracks:

a. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

1. CEMCO 800-775-2362 www.cemcosteel.com/ Fort Worth
2. ClarkDietrich, 214-350-1716, 513-870-1100 www.clarkdietrich.com/ less than 500 miles
3. Marino\Ware 800-627-4661 www.marinoware.com less than 500 miles
4. Mill Steel Framing 800-247-6455 www.millsteel.com/ <500 miles
5. The Steel Network, Inc. 888-474-4876 www.steelnetwork.com

b. Minimum Base-Metal Thickness: As required by performance requirements for horizontal deflection, but not less than 0.0179 inch (0.455 mm), unless otherwise indicated.

c. Depth: As indicated on Drawings, but not less than 3-5/8 inches (92 mm) for walls, unless otherwise indicated.

d. Fire Rated Assemblies: Return lips for rated assemblies may be required to be deeper than 3/16 inch – coordinate rated wall assembly design, steel stud requirements with the products being provided. The following are the minimum bare metal thicknesses for studs allowed by Underwriters Laboratories (UL) for rated assemblies. 25-gauge studs, of the thickness indicated, shall be provided unless otherwise indicated. These gauges and thicknesses are current as of June 2019 – before proceeding with bidding, confirm thicknesses are current with UL requirements for minimum steel stud base metal thicknesses.

1. 25 gauge: 0.0179 inch, bare metal
2. 22 gauge: 0.0269 inch, bare metal – this 27 mil varies from the ASTM C645 minimum thickness of 0.0296 inch (30 mil).
3. 20 gauge: 0.0329 inch, bare metal:
   a. The minimum thickness allowed for steel stud base metal in walls with "Abuse-Resistant" and "Impact-Resistant" gypsum wallboard, shall be this 20-gauge. Studs receiving "Abuse-Resistant" and "Impact-Resistant" gypsum wallboard shall be in accordance with section 4.3 and section 8.1 of ASTM C645.
   b. The minimum thickness allowed for steel stud base metal in walls with ceramic or other tile surfacing shall be this 20 ga. and meeting requirements of the Tile Council of North America (NTCA) *"Handbook for Ceramic, Glass, and Stone Tile Installation"*.
4. 18 gauge: 0.0428 inch, bare metal
5. 16 gauge: 0.0538 inch, bare metal
6. 14 gauge: 0.0677 inch, bare metal

2. Embossed Steel Studs and Tracks: This type of stud is not allowed for use with "Abuse-Resistant" and Impact-Resistant" gypsum wallboard products. This type of stud may only be used with types of gypsum wallboard that are not classified as "Abuse-Resistant" and "Impact-Resistant" gypsum wallboards. Basis-of-Design: ClarkDietrich ProSTUD Series Studs: ProSTUD 20 (20 mil thick, 65 ksi steel), ProSTUD 25 (15.8 mil thick, 50 ksi steel), ProSTUD 30 (31.2 mil thick, 33 ksi steel), ProSTUD 33 (34.6 mil thick, 33 ksi steel).

a. Manufacturers: Provide studs manufactured by ClarkDietrich or approved comparable product by specified manufacturers. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

1. CEMCO 800-775-2362 www.cemcosteel.com/ Fort Worth
2. ClarkDietrich, 214-350-1716, 513-870-1100 www.clarkdietrich.com/ less than 500 miles
3. Marino\Ware 800-627-4661 www.marinoware.com less than 500 miles
4. The Steel Network, Inc. 888-474-4876 www.steelnetwork.com

b. Minimum Base-Metal Thickness: As required by horizontal deflection performance requirements, but not less than 0.0147 inch. It is the responsibility of the Contractor Team to determine what is an appropriate thickness of steel for the studs being proposed, and to present in the submittal process for review. By using these studs, the members of the Contractor assume and take all responsibility and liability for their installation and performance.
c. Depth: 3-5/8 inches, same as conventional studs.
d. Flange Width: 1-1/4 inch.
e. Delegated Design: The building was not designed with the embossed (improved) studs in the design, and by using them, the Contractor takes full and complete responsibility for their suitability for use, implementation, and engineering on the project, as well as their failure should there be a failure.

C. Slip-Type Head Joints: Where indicated, provide one of the following:

1. Double-Track System: ASTM C 645 top outer tracks, inside track with 2-inch deep flanges in thickness not less than indicated for studs and fastened to studs, and outer track sized to friction-fit over inner track.]
2. Deflection Track (and clip systems): Slotted, steel sheet top track manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

a. Basis-of-Design (BOD): "The System" Slotted Deflection Track, Metal-Lite, Inc. 800-236-0302 www.metal-lite.net (BOD is fire rated - fire ratable system not required for unrated walls)
b. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

1) VertiClip SLD, The Steel Network, Inc. 888-474-4876 www.steelnetwork.com
2) VertiTrack VTD, The Steel Network, Inc. 888-474-4876 www.steelnetwork.com

D. Firestop Tracks: Top track manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.

1. Basis-of-Design: "The System" Slotted Deflection Track, Metal-Lite, Inc. 800-236-0302 www.metal-lite.net
2. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

a. Fire Trak attached to studs with Fire Trak Slip Clip, Fire Trak Corporation 800-394-9875 www.firetrak.com
b. VertiClip SLD, The Steel Network, Inc. 888-474-4876 www.steelnetwork.com
c. VertiTrack VTD, The Steel Network, Inc. 888-474-4876 www.steelnetwork.com

E. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in necessary length and width coordinated with stud location and items to be supported.

1. Minimum Base-Metal Thickness: 0.0296 inch (0.752 mm) unless otherwise indicated.

F. Cold-Rolled Channel Bridging: Steel, 0.0538-inch (1.367-mm) minimum base-metal thickness, with minimum 1/2-inch wide flanges.

1. Manufacturer: Match the studs, or as recommended by the stud manufacturer.
2. Depth: 1-1/2 inches (38 mm) unless otherwise indicated.
3. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch- (1.72-mm-) thick, galvanized steel.

G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Manufacturer: Match the studs, or as recommended by the stud manufacturer.
2. Minimum Base-Metal Thickness: 0.0179 inch (0.455 mm).
3. Depth: As indicated on Drawings.

H. Resilient Furring Channels: 1/2-inch deep, steel sheet members designed to reduce sound transmission.

1. Manufacturer: Match the studs, or as recommended by the stud manufacturer.
2. Configuration: Asymmetrical.

I. [Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.

1. Manufacturer: Match the studs, or as recommended by the stud manufacturer.]

2.3 SUSPENSION SYSTEMS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch diameter wire, or double strand of 0.048-inch diameter wire.

B. Hanger Attachments to Concrete:

1. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC308 as appropriate for the substrate.

a. Uses: Securing hangers to structure.
b. Type: torque-controlled, adhesive anchoror adhesive anchor.
c. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, unless otherwise indicated.

2. Power-Actuated Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.

D. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch (1.367 mm) and minimum 1/2-inch wide flanges.

1. Depth: 1-1/2 inches or as otherwise indicated on Drawings.

E. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.0538-inch (1.367-mm) uncoated-steel thickness, with minimum 1/2-inch wide flanges, 3/4 inch deep.
2. Steel Studs and Tracks: ASTM C 645.

a. Minimum Base-Metal Thickness: 0.0179 inch (0.455 mm).
b. Depth: As indicated on Drawings.

3. Embossed Steel Studs and Tracks: ASTM C 645.

a. Minimum Base-Metal Thickness: 0.0147 inch (0.373 mm).
b. Depth: As indicated on Drawings.

4. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.

    a. Minimum Base-Metal Thickness: 0.0179 inch (0.455 mm).

5. Resilient Furring Channels: 1/2-inch deep members designed to reduce sound transmission.

    a. Configuration: Asymmetrical.

F. Gypsum Board Hanging and Framing Systems: In lieu of suspended stud systems at ceilings, and subject to compliance with requirements, Engineered Systems which may be incorporated in the Work include, but are not limited to the following:

1. Drywall Grid Systems, Armstrong World Industries, Inc. 877-276-7876 www.armstrong.com
2. ShortSpan Drywall Framing System, Armstrong World Industries, Inc. 877-276-7876 www.armstrong.com
3. Furring Systems/Drywall, Armstrong World Industries, Inc. 877-276-7876 www.armstrong.com
4. Comparable systems by ChicagoMetallic/Rockfon 800-323-7164 www.rockfon.com/
5. Drywall Suspension System, USG Corporation 800-950-3839 www.usg.com

2.4 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.

1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide the following:

1. Asphalt-Saturated Organic Felt: ASTM D 226/D 226M, Type I (No. 15 asphalt felt), nonperforated.

C. Pony-Wall Bracing

1. 2 inch x 2 inch x 1/8 inch wall steel tube fully-welded to 3-1/2 inch x 5 inch deep x ¼ inch thick steel base plate with (4) pre-punched mounting holes.
2. Product: *SKB Knee Brace Kit* as manufactured by Softforms, www.kneewall.com or approved equivalent.
3. Fasteners: 3/8 inch x 3-1/2 inch long expansion bolts as recommended by the manufacturer. Use (4) bolts per mounting plate.
4. Height: Fabricate or job-cut height of brace tube to be no lower than 2 inch below knee-wall height.
5. Spacing: At ends of low stud walls which are part of island or peninsula configurations with countertops, provide braces at 32 inch maximum within the low stud island and peninsula walls. Where low walls without countertops are located between full height walls provide braces at 48 inch on center maximum. Where low walls with countertops are located between full height walls provide braces at 32 inch on center maximum. Provide and fasten one metal stud on each side of each brace using self-tapping screws at nominal 6 inch centers vertically.

D. Countertop Brackets

1. Cantilevered from a Wall: Provide brackets at countertops cantilevered out from walls. Supports shall be made of 2 inch wide, minimum x 0.25 inch thick, minimum x legs of steel sized to support counters sizes indicated. Brackets shall not have diagonal braces as part of their design – the design of the braces will be “angle” or “L” shaped. The brackets shall be sized to extend closer than 6 inches to edge of the counter supported, but no closer than 1 inch to the outer edge of the counter.

a. Spacing: As indicated, but no more than 32 inch on center and attached to studs or Concrete Masonry Units.
b. For countertops cantilevered out from full height walls, provide one of the following or a comparable product:

1) Front Mounting Countertop Support Bracket by Centerline Brackets 888-960-3854 www.countertopbracket.com/
2) Hamilton Bracket available through the Architectural Depot 888-573-3768 www.architecturaldepot.com/

2. Top of Pony Wall: Provide brackets at countertops on top of pony walls cantilevered from the floor. Supports shall be made of 2 inch wide, minimum x 0.25 inch thick, minimum x legs of steel sized to support counters sizes indicated. Brackets shall not have diagonal braces as part of their design – the design of the braces will be "angle" or "L" shaped, or . The brackets shall be sized to extend closer than 6 inches to edge of the counter supported, but no closer than 1 inch to the outer edge of the counter. Align pony wall brackes and countertop brackets to attach to the same studs.

a. Spacing: As indicated, but no more than 32 inch on center and attached to studs or Concrete Masonry Units.
b. For countertops mounted in island and pennisula configurations on top of pony walls, provide one of the following or a comparable product:

1) Front Mounting Countertop Support Bracket by Centerline Brackets 888-960-3854 www.countertopbracket.com/. Do not use there brackets where the edge of the counter is more than 21 inches beyond the face of the associated wall – the maximum counter depth these brackets may be used with is 21 inches deep.
2) Hamilton Bracket available through the Architectural Depot 888-573-3768 www.architecturaldepot.com/
3) Front Center Levered Bar Support Bracket by Centerline Brackets 888-960-3854 www.countertopbracket.com/]

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.

1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

B. Coordination with Sprayed Fire-Resistive Materials:

1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling tracks to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.

2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that are required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

3.3 INSTALLATION, GENERAL

A. Confirm requirements of fire and acoustically rated systems. Coordinate the gypsum board products, accessories and the framing where an assembly's components are required to be made by the same manufacturer.

B. Installation Standard: ASTM C 754.

1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.
2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.
3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.
4. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

C. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

D. Install framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

E. [Install pony wall supports in low walls which are not braced at their tops.]

F. Install bracing at terminations in assemblies.

G. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

H. Isolate partition framing and wall furring where it abuts structure, except at floor. Install slip-type joints at head of assemblies that avoid axial loading of assembly and laterally support assembly. Lateral support of walls may be provided by bridging through studs or by attachment of fastener to studs through slots in runner tracks. Subject to acceptance by the Architect, other methods of lateral support may be allowed if, in the sole opinion of the Architect, they work, and if they are clearly presented in the submittal data. Gypsum board is not an acceptable product to use to laterally brace wall flanges.

3.4 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.
2. Multilayer Application: 16 inches o.c. unless otherwise indicated.
3. Tile Backing Panels: As required by horizontal deflection performance requirements, but not more than 12 inches o.c.

B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb unless otherwise indicated.
    b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
    c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

    a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
6. [Curved Partitions:

    a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
    b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches o.c.

E. Direct Furring:

1. Screw to framing.
2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c. unless otherwise indicated.

F. Z-Shaped Furring Members:

1. Erect insulation, specified in Section 07 21 00 "Thermal Insulation," vertically and hold in place with Z-shaped furring members spaced 24 inches o.c.]
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.

G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.5 INSTALLING CEILING SUSPENSION SYSTEMS

A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

1. Hangers: 48 inches o.c.
2. Carrying Channels (Main Runners): 48 inches o.c.
3. Furring Channels (Furring Members): 16 inches o.c.

B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

C. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

    a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

    a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards but with a deflection limit not exceed 1/360.

3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
5. Do not attach hangers to steel roof deck.
6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
7. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
8. Do not connect or suspend steel framing from ducts, pipes, or conduit.

D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports, or otherwise attach as required to comply with requirements for assemblies indicated.

E. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track. <use for suspended ceilings if conventional framing is not to be used.

F. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.]

END OF SECTION 09 22 16

SECTION 09 29 00 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Interior gypsum board.
2. Tile backing panels.

B. Related Requirements:

1. Section 06 16 00 "Sheathing" for gypsum sheathing for exterior walls.
2. Section 09 21 16.23 "Gypsum Board Shaft Wall Assemblies" for metal shaft-wall framing, gypsum shaft liners, and other components of shaft-wall assemblies.]
3. Section 09 22 16 "Non-Structural Metal Framing" for non-structural steel framing and suspension systems that support gypsum board panels.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data on metal framing, gypsum board, cementitious backer board, glass mat sheathing, joint materials, acoustic insulation and sealant, and fasteners.

C. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

1.4 QUALITY ASSURANCE

A. Mockups: Build mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Build mockups for the following:
   a. Each level of gypsum board finish indicated for use in exposed locations.
2. Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.
3. Simulate finished lighting conditions for review of mockups.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion and allowed by and coordinated with the Architect in the field.

1.5 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, moisture damaged, or mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: Not applicable.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

C. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

A. Face Texture: Provide smooth faces only on gypsum panels with face sheets – other than smooth textured surface facings are not allowed.

B. Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

a. American Gypsum Co. 866-439-5800 www.americangypsum.com
b. CertainTeed Corporation 800-233-8990 www.certainteed.com
c. Georgia-Pacific 800-225-6119 www.gp.com
d. National Gypsum Company 704-365-7300 www.nationalgypsum.com Westwego FGD
e. USG Corporation 800-950-3839 www.usg.com Galena Park FGD

2. Thickness: 5/8 inch.
3. Long Edges: Tapered.
4. Face Texture: Products known to have textured surface facings, which Shall Not Be Incorporated into the Work include, but are not limited to the following:

a. EcoSmart Firecode X – USG Corporation
b. ToughRock Fireguard X & C – by Georgia-Pacific

C. Glass-Mat Interior Gypsum Board: ASTM C 1658/C 1658M. With fiberglass mat laminated to both sides. Specifically designed for interior use.

1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

    a. American Gypsum Co. 866-439-5800 www.americangypsum.com
    b. CertainTeed Corporation 800-233-8990 www.certainteed.com
    c. Georgia-Pacific 800-225-6119 www.gp.com
    d. National Gypsum Company 704-365-7300 www.nationalgypsum.com Westwego FGD
    e. USG Corporation 800-950-3839 www.usg.com Galena Park FGD

2. Core: 5/8 inch , Type X.
3. Long Edges: Tapered.
4. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.]

2.3 TILE BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with manufacturer's standard edges.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

    a. DensShield Tile Guard, Georgia-Pacific 800-225-6119 www.gp.com
    b. DiamondBack GlassRoc Tile Backer, CertainTeed 800-233-8990 www.certainteed.com]

2. Core: 5/8 inch, Type X.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.]

B. Cementitious Backer Units: ANSI A118.9 and ASTM C 1288 or ASTM C 1325, with manufacturer's standard edges.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

    a. Util-A-Crete Concrete Backer Board, Fin Pan, Inc. 800-833-6444 www.finpan.net
    b. PermaBase Cement Board, National Gypsum Company 704-365-7300 www.nationalgypsum.com
    c. DUROCK Cement Board, USG Corporation 800-950-3839 www.usg.com

2. Thickness: 5/8 inch.
3. Width: Manufacturer's standard width but not less than 32 inches.
4. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.]]

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
2. Shapes:

    a. Cornerbead.
    b. LC-Bead: J-shaped; exposed long flange receives joint compound.
    c. L-Bead: L-shaped; exposed long flange receives joint compound.
    d. U-Bead: J-shaped; exposed short flange does not receive joint compound.
    e. Expansion (control) joint.
    f. Curved-Edge Cornerbead: With notched or flexible flanges.

B. Exterior Trim: ASTM C 1047.

1. Material: Hot-dip galvanized-steel sheet, plastic, or rolled zinc.
2. Shapes:

a. Cornerbead.
b. LC-Bead: J-shaped; exposed long flange receives joint compound.
c. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removable strip covering slot opening.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper Tape.
2. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
3. Tile Backing Panels: Fiberglass Alkali Resistant Tape or as otherwise recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.
5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.

D. Joint Compound for Tile Backing Panels:

1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
2. Cementitious Backer Units: As recommended by backer unit manufacturer.
3. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.
a.]

2.6 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members (CFMF) from 0.033 to 0.112 inch thick.

2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

D. Sound-Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

E. Acoustical Sealant: Silicone-Acrylic.

F. Thermal Insulation: As specified in Section 07 21 00 "Thermal Insulation."

G. Gypsum Board Cants:

1. Use at elevator shafts above projections into shafts, should they be required. Projections into elevator shafts are greater than 4 inches are not permitted to be flat and horizontal, parallel to the floor surface, per the Elevator Code (ASME A17.1).
2. Gypsum Board Panels: Type X, 5/8-inch panels.
3. Surfaces shall slope at 75 degrees or greater as measured from the horizontal.
4. Adhesive: Laminating adhesive.
5. Non-Load-Bearing Steel Framing: As specified in Section 09 22 16 "Non-Structural Metal Framing."]

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.

C. Do not apply gypsum panels until all debris and dust have been respectively removed, and vacuumed from inside runner tracks and walls. Under no conditions shall debris of any kind be allowed to remain in the runner tracks and between studs after the panels are in-place. Take corrective actions to remove accidental spills and debris from wall cavities, up to, and including removing panels and reinstalling panels, if necessary to access spills and debris.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- (wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints and expansion joints, and at openings and penetrations with a continuous bead of acoustical sealant. Provide additional sealant at locations indicated above, as directed by Architect. Install acoustical sealant at both faces of partitions at: perimeters, behind control joints and expansion joints, and openings and through penetrations. Comply with ASTM C 919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:
1. Type X: At all typical rated or unrated wall, ceiling, and bulkheads use unless specialty board is indicated below or on drawings.
2. Ceiling Type: Ceiling surfaces and as indicated on drawings.
3. Mold-Resistant Type: As indicated on Drawings.
4. Glass-Mat Interior Type: As indicated on Drawings.

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.

3. On Z-shaped furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. On Z-shaped furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

D. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written instructions and temporarily brace or fasten gypsum panels until fastening adhesive has set.

E. Curved Surfaces:

1. Install panels horizontally (perpendicular to supports) and unbroken, to extent possible, across curved surface plus 12-inch- long straight sections at ends of curves and tangent to them.
2. For double-layer construction, fasten base layer to studs with screws 16 inches o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with screws spaced 12 inches (o.c.

F. Gypsum Board Cants: At projections into elevator shafts exceeding 4 inches. install gypsum board cants covering tops of projections.

1. Slope cant panels at least 75 degrees from horizontal. Set base edge of panels in adhesive and secure top edges to shaft walls at 24 inches o.c. with screws fastened to shaft wall framing.
2. Where non-load-bearing steel framing is required to support gypsum board cants, install framing at 24 inches o.c. and extend studs from the projection to shaft wall framing.]

3.4 APPLYING TILE BACKING PANELS

A. Cementitious Backer Units: ANSI A108.11, at all walls of showers and tubs, at back and side walls (wet walls) where lavatories, water closets and urinals are installed, and at other locations indicated.

B. Glass-Mat, Water-Resistant Backing Panels: Install at remainder of walls (non-wet walls) within toilet rooms where cementitious units are not installed, and where details and finish schedule may indicate. Install with tapered edges taped and finished to produce a flat surface. Comply with manufacturer's written installation instructions and install at locations indicated (those to receive tile). Install with 1/4-inch gap where panels abut other construction or penetrations.

C. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.]

3.5 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints at locations indicated on Drawings and according to ASTM C 840 and in specific locations approved by Architect for visual effect. In no instance, for walls and ceilings, shall the maximum spacing between control joints exceed 30 feet on center.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners unless otherwise indicated.
2. LC-Bead (J-Bead): Use at exposed panel edges.
3. L-Bead: Use where indicated.
4. U-Bead: Use where indicated.
5. Curved-Edge Cornerbead: Use at curved openings.

D. Exterior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners.
2. LC-Bead: Use at exposed panel edges.

3.6 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, on portions of walls above ceilings between the ceilings and the tops of walls, and where indicated.
2. Level 2: Panels that are substrate for tile at non-public service areas (such as janitor closets).
3. Level 3: Is suitable for surfaces receiving medium- or heavy-textured finishes before painting or heavy wallcoverings where lighting conditions are not critical. Embed tape and apply separate first and fill coats of joint compound to tape, fasteners, and trim flanges where panels are substrate for medium or heavy textures or heavy- grade wallcoverings.
4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated. Is suitable for surfaces receiving light-textured finish wallcoverings and flat paints, and is the standard exposed finish level. Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges where panels are substrate for light textures, flat paints, or wallcoverings, substrates for ceramic tile in public areas and in private, non-service areas.
5. Level 5: Is suitable for surfaces receiving gloss and semigloss enamels and surfaces subject to severe lighting, including curved wall and curved ceiling surfaces. Embed tape and apply separate first and fill coats, and finish coats of joint compound to tape, fasteners, and trim flanges, and apply skim coat of joint compound over entire surface where panels are substrate for gloss, semi- gloss, or enamel paints; non- textured flat paints; or where severe lighting conditions occur.
    a. Fiberglass reinforced gypsum board products, including abuse and impact resistant products shall receive a Level 5 finish.
    b. Surfaces to receive write-on finishes, i.e. liquid marker surfaces, shall receive a Level 5 finish.

c. Walls with Vinyl Wall Graphics shall receive a Level 5 finish.

3.7 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from all weather events, including standing water from weather events, condensation, direct sunlight, temperature extremes, wind, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, exhibiting mold, or e damaged from construction activities. New panel installation shall match the existing wall construction appearance at the originally required finish level.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, irregular shape, or brittle or discolored gypsum core.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00

SECTION 09 30 13 - TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Ceramic and porcelain wall and floor tiles installed with the thin-set or medium-set method.

B. Related Sections include the following:

1. Division 3 Section "Cast-In-Place Concrete" for monolithic slab finishes specified for tile substrates.
2. Division 7 Section "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.
3. Division 9 Section "Gypsum Board Assemblies" for gypsum board, moisture-resistant mortar board, and cementitious backer board installed in metal stud wall assemblies.

1.3 DEFINITIONS

A. Stated unit sizes are nominal as defined in ANSI A137.1, and tiles may have minor facial dimension variances as measured per ASTM C 499. There is no instance where joint widths shall be allowed to be greater than 1/8_inch, unless the drawings so indicate. Joint widths shall be one consistent size unless otherwise indicated. Joints shall be of unsanded grout unless they are greater than 1/8-inch.

B. Crack Isolation Membrane (or Anti-Fracture Membrane): A material installed over the concrete slab prior to thin-set installation of tile. This membrane is for isolating tile from shrinkage cracks, and when used under all areas of a tile installation, protecting the entire tile floor from potential crack telegraphing from the concrete below.

1.4 PERFORMANCE REQUIREMENTS

A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:

1. Level Surfaces: Minimum 0.6.
2. Step Treads: Minimum 0.6.
3. Ramp Surfaces: Minimum 0.8.
4. Wet Floors: Ensure that tiles proposed for shower floors, bathroom floors, and other floors likely to become wet are rated by the manufacturer for use as “Shower Floor”, in the proposed face size. Provide manufacturer’s documentation.

B. Load-Bearing Performance: For ceramic tile installed on walkway surfaces, provide installations rated for the following load-bearing performance level based on testing assemblies according to ASTM C 627 that are representative of those indicated for this Project:

1. Moderate: Passes cycles 1 through 10.

1.5 SUBMITTALS

A. Shop Drawings: For the following:

1. Tile patterns and locations. Provide plan drawings for floor installations and elevation drawings for wall installations – draw all conditions and show all patterns and transitions.

2. Widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

B. Samples for Verification: Of each item listed below, prepared on Samples of size and construction indicated. Where products involve normal color and texture variations, include Sample sets showing the full range of variations expected.

1. Each type and composition of tile and for each color and texture required, at least 12 inches (300 mm) square, mounted on braced cementitious backer units, and with grouted joints using product complying with specified requirements and approved for completed work in color or colors selected by Architect.

2. Full-size units of each type of trim and accessory for each color required.

3. Stone thresholds in 6 inch (150 mm) lengths.

4. Metal edge strips in 6 inch (150 mm) lengths.

C. PRODUCT DATA

1. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

2. Product Certificates: Signed by manufacturers certifying that the products furnished comply with requirements.

3. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names of architects and owners, and other information specified.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Source Limitations for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from one source with resources to provide products from the same production run for each contiguous area of consistent quality in appearance and physical properties without delaying the Work.

C. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

D. Source Limitations for Other Products: Obtain each of the following products specified in this Section from one source and by a single manufacturer for each product:

1. Stone thresholds.
2. Joint sealants.

E. Mockups: Prior to installing tile, construct mockups for each form of construction and finish required to verify selections made under Sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Mockups shall be built by the Subcontractor responsible for the Project Work. Build mockups to comply with the following requirements.

1. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Architect.
2. Notify Architect 7 days in advance of the dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Use materials indicated for the completed Work.
5. Build mockups of all job requirements/conditions wherever tile is indicated to be used (walls, stairs, floors, etc.).
6. Where two or more different types of tiles abut each other on walls, floors, other surfaces, stairs and at transitions, i.e. inside or outside corners, build mockups showing the transition between the different types of tiles. Discuss with the Architect all transitions between different types of tiles prior to constructing the mockups.
7. After initial mockups are completed, and the mockups are not "accepted" or not "accepted conditionally" by the Architect, and if requested by the Architect, build additional mockups until the Architect indicates he is adequately satisfied with the quality represented by the mockups.
8. Obtain Architect's approval of mockups before start of ceramic tile Work.
9. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
10. When directed, demolish and remove mockups from Project site.
11. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

F. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement of ANSI A137.1 for labeling sealed tile packages.

B. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

C. Handle tile with temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is completed and ambient temperature and humidity conditions are being maintained to comply with referenced standards and manufacturer's written instructions.

1.9 EXTRA MATERIALS

A. Deliver extra materials to Owner. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Tile Manufacturers: Refer to specific manufacturers and products indicated in the Drawings to determine the Project requirements. Subject to compliance with requirements, provide products listed in the drawings or equal product by one of the following manufacturers. Acceptance of products other than those listed on the drawings is contingent upon submittal of proposed alternate products to the Architect. Submittal of proposed alternate products must occur prior to bidding as described in Division One specification section "Product Substitutions". Submittals must demonstrate to the Architect that the proposed alternate product line has colors that match the "Design Basis" listed in the drawings. The Architect may reject the proposed product for technical non-compliance or, at his/her discretion, on the basis of the color match alone.

1. Tile Products: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include the following:

a. American Marazzi Tile, Inc. 877-832-8324 www.marzzitile.com
b. American Olean, a Division of Dal-Tile Corporation 214-398-1411 www.americanolean.com
c. Arizona Tile www.arizonatile.com/
d. Cerim-Floor Gres Ceramiche.
e. Crossville, Inc. 931-484-2110 www.crossvilleinc.com
f. Daltile, a Division of Dal-Tile Corporation 214-398-1411 www.dal-tile.com
g. Emser Tile 323-650-2000 www.emser.com
h. Florida Tile Inc. 800-352-8453 www.floridatile.com in DFW, HTN
i. GranitiFiandre.
j. Interceramic Inc. www.interceramic.com
k. KPT, Inc.
l. Laufen USA 866-696-2493 www.us.laufen.com
m. Lone Star Ceramics Company 800-256-5248
n. Metropolitan Ceramics 800-325-3945
o. Pantheon Tile, www.pantheontile.com
p. Porcelanosa. www.porcelanosa-usa.com/
q. Quarry Tile Company 509-536-2812 www.quarrytile.com
r. Seneca Tiles, Inc. 800-426-4335 www.senecatiles.com
s. Summitville Tiles, Inc. 330-223-1511 www.summitville.com
t. United States Ceramic Tile Company 800-321-0684

2.2 PRODUCTS, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard Grade requirements, unless otherwise indicated.
2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting Materials" and "Grouting Materials" articles.

C. ISO Standards: Not less than the following provisions shall be applicable to the project: ISO 13007 Ceramic tiles; Grouts and Adhesives (Parts 1, 2, 3, 4), latest edition at time of bidding.

D. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:

1. Match colors, textures, and patterns indicated by referencing manufacturer's standard designations for these characteristics.
2. Provide tile trim and accessories that match color and finish of adjoining flat tile.

E. Factory Blending: For tile exhibiting color variations within the ranges selected during Sample submittals, blend tile in the factory and package so tile units taken from one package show the same range in colors as those taken from other packages and match approved Samples.

F. Mounting: Where factory-mounted tile is required, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless another mounting method is indicated.

G. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating them with a continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

2.3 TILE PRODUCTS

A. Floor and wall tiles of the same design (designation) shall be from the same size caliber (caliber range). Do not install what is essentially the same tile design for a floor and an adjacent wall, but with slightly different tile sizes. Tile joints shall align face-to-face and joint-to-joint, with tiles and joints being the same size from floor to wall, unless otherwise indicated. Such adjacent floor and wall tiles, if determined to be of different size or installed alignment, shall be rejected and the installation redone.

B. Unglazed Porcelain Wall and Floor Tile: Provide flat tile complying with the following requirements:

1. Composition: Porcelain throughout.
2. Facial Dimensions: Large Format as indicated on Finish Schedule.
3. Thickness: 1/4" – 5/16".
4. Face: Pattern of design indicated, with square edges.
5. For latex-Portland cement mortared and grouted paver tile, precoat tile face with temporary protective coating.

C. Glazed Wall Tile: Provide flat tile complying with the following requirements:

1. Module Size: Large and small format as indicated on Finish Schedule.
2. Thickness: 3/16" – 5/16".
3. Face: Plain with cushion or square edges as selected.

D. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with the following requirements:

1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.
2. Shapes: As follows, selected from manufacturer's standard shapes:

    a. Base for Thin-Set Mortar Installations: Straight.
    b. Wainscot Cap: Factory-finished metal Schluter trim as selected.
    c. External Corners for Thin-Set Mortar Installations: Surface bullnose, unless indicated to receive Schluter trim.
    d. Internal Corners: Field-butted square corners, except with coved base and cap angle pieces designed to member with stretcher shapes. Allow for ¼" uniform sealant joint at inside vertical corners.
    e. Tapered Transition Tile: Shape designed to effect transition between thickness of tile floor and adjoining floor finishes of different thickness, tapered to provide a reduction in thickness from 1/2 to 1/4 inch across nominal 4 inch dimension – unless indicated to receive metal transition strip.

2.4 STONE THRESHOLDS

A. Marble Thresholds: Provide marble thresholds complying with ASTM C 503 requirements for exterior use and with a minimum abrasive-hardness value of 10 per ASTM C 241.

1. Provide white, honed marble complying with the Marble Institute of America's Group A requirements for soundness.

2.5 SETTING AND ADHESIVE MATERIALS AND ACCESSORIES

A. Manufacturers and Suppliers: Subject to compliance with requirements, provide a product by the Tile Manufacturer who supplies tile for the project or by a Manufacturer listed below acceptable to the tile Manufacturer. The products may be pre-packaged (bagged product) or job-site-mixed.

B. Adhesive and Setting Products designed for tiles larger than 8-inches (nominal) in any dimension shall be used as applicable to ANSI standards, TCNA or applicable ISO standards.

C. Materials and Products shall meet or exceed requirements of ANSI A118.4 and ISO 13007 (ISO minimum mortar and adhesive requirements: floors - C2E; walls - C2TE; designations corresponding to C2=Improved bond adhesive, E=Extended open time, T=slip-resistant).

1. Ardex Americas. 724-203-5500 www.ardexamericas.com
2. Atlas Minerals & Chemicals, Inc. 800-523-8269 www.atlasminerals.com dist not known
3. Boiardi Products Corporation 973-256-1100 www.boiardiproducts.com dist not known
4. Bostik, Inc. 800-726-7845 www.bostik-us.com
5. C-Cure Corporation 800-895-2874 www.c-cure.com
6. Custom Building Products 800-272-8786 www.custombuildingproducts.com
7. DalTile Corporation 214-398-1411 www.daltile.com
8. DAP Products Inc. 800-543-3840 www.dap.com
9. TEC from H.B. Fuller Construction Products Inc 800-552-6225 www.tecspecialty.com/
10. JAMO Inc. 800-826-6852 www.jamoinc.com
11. LATICRETE International, Inc. 800-243-4788 www.laticrete.com
12. MAPEI Corporation 800-426-2734 www.mapei.us
13. SGM 800-641-9247 www.sgm.cc
14. Summitville Tiles, Inc. 330-223-1511 www.summitville.com

D. Latex-Portland Cement Mortar: ANSI A118.4, composed as follows.

1. Mixture of Dry-Mortar Mix and Latex Additive: Mixture of prepackaged dry-mortar mix and liquid-latex additive complying with the following requirements:

a. Latex Additive: Acrylic resin.
b. For wall applications, provide nonaging, latex-Portland cement mortar complying with ANSI A118.4 for mortar of this type defined in Section F-2.1.2.

2. Thin-set Mortar Color: Provide mortar in white color where installed behind glass units, or ceramic or porcelain units to receive light colored grout joints.

E. Moisture Mitigation / Control:

1. Liquidam by TEC from H.B. Fuller Construction Products Inc 800-552-6225 www.tecspecialty.com/
2. "Planiseal VS", "Planiseal VS Fast" or "Planiseal MSP" by MAPEI Corporation 800-426-2734 www.mapei.us
3. Comparable products by one of the Setting and Adhesive Material Manufacturers listed in Part A, acceptable to the tile Manufacturer, will be allowed.

2.6 GROUTING MATERIALS

A. Manufacturers and Suppliers: Subject to compliance with requirements, provide a product by the Tile Manufacturer who supplies tile for the project or by a Manufacturer listed below acceptable to the tile Manufacturer. The products may be pre-packaged (bagged product) or job-site-mixed.

1. Ardex Americas. 724-203-5500 www.ardexamericas.com
2. Atlas Minerals & Chemicals, Inc. 800-523-8269 www.atlasminerals.com
3. Boiardi Products Corporation 973-256-1100 www.boiardiproducts.com
4. Bonsal American, Inc. 800-738-1621 www.bonsal.com dist not known
5. Bostik, Inc. 800-726-7845 www.bostik-us.com
6. C-Cure Corporation 800-895-2874 www.c-cure.com
7. Custom Building Products 800-272-8786 www.custombuildingproducts.com
8. DalTile Corporation 214-398-1411 www.daltile.com
9. DAP Products Inc. 800-543-3840 www.dap.com
10. JAMO Inc. 800-826-6852 www.jamoinc.com
11. LATICRETE International, Inc. 800-243-4788 www.laticrete.com
12. MAPEI Corporation 800-426-2734 www.mapei.us
13. SGM 800-641-9247 www.sgm.cc
14. Summitville Tiles, Inc. 330-223-1511 www.summitville.com
15. TEC from H.B. Fuller Construction Products Inc 800-552-6225 www.tecspecialty.com/

B. Latex-Portland Cement Grout: ANSI A118.6 for materials described in Section H-2.4, composed as follows.

1. Mixture of Dry-Grout Mix and Latex Additive: Mixture of factory-prepared, dry-grout mix and latex additive complying with the following requirements:

a. Dry-Grout Mix: Dry-set grout complying with ANSI A118.6.

1) Unsanded grout mixture for joints 1/8 inch (3.2 mm) and narrower.
2) Sanded grout mixture for joints larger than 1/8 inch (3.2 mm). Only where specifically indicated on the Finish Schedule.

b. Latex Additive: Acrylic resin.

C. Chemical-Resistant Epoxy Grout: ANSI A118.3, 100% Solids Epoxy grout - modified emulsion epoxy grout shall not be used. Color shall be as indicated.

1. Use at restroom floors and shower walls and floors unless specifically indicated otherwise in the Finish Schedule.
2. Provide product capable of resisting continuous and intermittent exposure to temperatures of up to 140 deg F and 212 deg F, respectively, as certified by mortar manufacturer for intended use.

2.7 ELASTOMERIC SEALANTS

A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements of Division 7 Section "Joint Sealants."

B. Chemical-Resistant Sealants: For chemical-resistant floors, provide sealants compatible with chemical-resistant mortars and grouts, approved for use indicated by manufacturers of both mortar/grout and sealant and with chemical-resistance properties equivalent to mortar/grout.

C. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

D. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended

for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes.

E. Multipart, Pourable Urethane Sealant for Use T: ASTM C 920; Type M; Grade P; Class 25; Uses T, M, A, and, as applicable to joint substrates indicated, O.

F. Manufacturers and Suppliers: Provide the indicated product below, or subject to compliance with requirements, provide a comparable product by one of the Grouting Material Manufacturers listed in above, acceptable to the tile Manufacturer.

G. Products: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

1. One-Part, Mildew-Resistant Silicone Sealants:

a. 786, Dow Corning Corporation 800-248-2481 www.dowcorning.com
b. Ardex SX 100% Silicone Sealant www.ardexamericas.com
c. Sanitary 1700, GE 877-943-7325 www.siliconeforbuilding.com
d. Mapesil T, MAPEI Corporation 800-426-2734 www.mapei.us
e. Pecora 898 Sanitary Silicone Sealant, Pecora Corporation 800-523-6688 www.pecora.com
f. Rhodorsil 6B White; Rhone-Poulenc, Inc.
g. Tremsil 600 White, Tremco, Incorporated 800-852-9068 www.tremco.com

2. Multipart, Pourable Urethane Sealants:

a. Chem-Calk 550, Bostik, Inc. 800-726-7845 www.bostik-us.com
b. Vulkem 245, Mameco International, Inc. 800-321-6412
c. Mapeflex P1 SL, MAPEI Corporation 800-426-2734 www.mapei.us
d. NR-200 Urexpan, Pecora Corporation 800-523-6688 www.pecora.com
e. THC-900, Tremco, Incorporated 800-852-9068 www.tremco.com

2.8 MISCELLANEOUS MATERIALS

A. Accessibility: All materials, products and accessories shall only be provided in ADA-compliant versions.

B. Trowelable Underlayments and Patching Compounds: Latex-modified, Portland-cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.

C. **[**Metal Floor Transition Strips: Provide brushed stainless steel transition strips designed to be used for transition of ceramic tile to other floor finishes, unless otherwise indicated. Transition strips shall be designed with integral provision for anchorage to mortar bed or substrate. Provide Brushed stainless steel transition pieces for Ceramic Tile to other flooring material transitions, manufactured by Schluter Systems www.schluter.com/, or subject to compliance with requirements, comparable products by other manufacturers**.**

1. Minimum Basis of Design: Schluter- "Schiene".

D. Metal Wall Edge Strips: Provide brushed anodized aluminum edge/corner strips in nickel color, or factory color-coated aluminum as scheduled. Provide corner strip products manufactured by Schluter Systems www.schluter.com/, or subject to compliance with requirements, comparable products by other manufacturers

1. Corner and edge strips shall be designed with integral provision for anchorage to mortar bed or substrate.

2. Provide stainless steel strips where rooms may be expected to be wet, unless otherwise indicated..

3. Minimum Basis of Design: Schluter-Jolly.]

E. Metal Cove Base Strips: Where indicated provide brushed stainless steel cove base strips, designed to be used at ceramic tile, unless otherwise indicated. Cove base strips shall be designed with integral provision for anchorage to mortar bed or substrate. Provide cove base strip products manufactured by Schluter Systems www.schluter.com/, or subject to compliance with requirements, comparable products by other manufacturers.

1. Minimum Basis of Design: Schluter – "Dilex-EHK".
2. Provide installation with all available accessory transition pieces (matching inside and outside corners, matching end caps and connectors).
3. Plan to provide in 11/32 (9mm) size unless selected tile size requires size adjustment.
4. The two sides of the cove base strip may be acquired with different sizes on either side of the cove base radius – coordinate prior to ordering.
5. Do not use metal cove base strips within showers or other areas requiring water-tight joint at floor wall interface.

F. Temporary Protective Coating: Provide product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; is compatible with tile, mortar, and grout products; and is easily removable after grouting is completed without damaging grout or tile.

1. Petroleum paraffin wax, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg F (49 to 60 deg C) per ASTM D 87.

G. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

H. Grout Sealer: Manufacturer's standard product for sealing grout joints that does not change color or appearance of grout.

1. Products: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

a. Grout Sealer, Bonsal American, Inc. 800-738-1621 www.bonsal.com
b. CeramaSeal Grout Sealer, Bostik, Inc. 800-726-7845 www.bostik-us.com
c. Penetrating Sealer 978, C-Cure Corporation 800-895-2874 www.c-cure.com
d. Surfaceguard, Custom Building Products 800-272-8786 www.custombuildingproducts.com
e. Ultracare Grout Sealer, MAPEI Corporation 800-426-2734 www.mapei.us
f. Silicone Grout Sealer, SGM 800-641-9247 www.sgm.cc
g. SL-15, Invisible Seal Penetrating Grout and Tile Sealer, Summitville Tiles, Inc. 330-223-1511 www.summitville.com
h. Comparable products by one of the Grouting Material Manufacturers listed in above, acceptable to the tile Manufacturer.

I. Vapor Retarder Membrane (for use with Cementitious Tile Backer Board in wet locations (walls)): Per TCNA-B412, install vapor retarder membrane directly behind cementitious backer board, overlapping joints including shower pans and shower receptors 4"-6":

1. Fire-Retardant, Reinforced-Polyethylene Vapor Retarders: 2 outer layers of polyethylene film laminated to an inner reinforcing layer consisting of either a nonwoven grid of nylon cord or polyester scrim and weighing not less than 22 lb/1000 sq. ft. (10 kg/100 sq. m), with maximum permeance rating of 0.1317 perm (7.53 ng/Pa x s x sq. m), and flame-spread and smoke-developed indices of not more than 5 and 60, respectively.

a. Products: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

I. DURA-SKRIM 2FR, Raven Industries Inc. 605-336-2750 www.ravenind.com
II. Griffolyn T-55 FR, Reef Industries, Inc. 800-231-6074 www.reefindustries.com

2. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.]

J. Crack Isolation Membrane:

a. Manufacturers and Suppliers: Provide materials complying with ANSI A118.12. Subject to compliance with requirements, Manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following Basis-of-Design Products and Manufacturers listed below. Manufacturers offering products with comparable performance, by one of the Setting and Adhesive Material Manufacturers listed in paragraph 2.[**5**].A, acceptable to the tile Manufacturer, will be allowed.

1) "Mapelastic CI" or **"**Mapeguard 2" by MAPEI Corporation 800-426-2734 www.mapei.us
2) "Fracture Guard" or "Fracture Guard Fast Drying" by Mer-Krete Tile & Stone Installation Systems, Parex USA, Inc. 800-851-6303 www.merkrete.com

K. Liquid-Applied Waterproofing Membrane

1. Apply over entire upper-floor restroom floor substrate, cleaned and prepared:
2. Type:

a. Self-curing liquid rubber polymer and reinforcing fabric forming a flexible, seamless waterproofing membrane.
b. Certified by The Greenguard Environmental Institute for low VOCs and no solvents.
c. Inhibits mold and mildew growth in the substrate by antimicrobial additive.
d. Minimum 0.02-in. dry thickness.
e. Basis of design: Mapelastic AquaDefense as manufactured by MAPEI or approved equivalent by Laticrete or W.R. Meadows.]

2.9 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm; dry; clean; free from oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 series of tile installation standards for installations indicated.
2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust latter in consultation with Architect.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove coatings, including curing compounds, and other substances that contain soap, wax, oil, or silicone and are incompatible with tile-setting materials by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.

B. Provide concrete substrates for tile floors installed with latex-Portland cement mortars that comply with flatness tolerances specified in referenced ANSI A108 series of tile installation standards for installations indicated.

1. Use trowelable leveling and patching compounds per tile-setting material manufacturer's written instructions to fill cracks, holes, and depressions. Provide floor leveling compounds and primers over all floor substrates where large format tiles (tiles with a dimension greater than an 8-inches) are indicated.
2. Remove protrusions, bumps, and ridges by sanding or grinding.
3. Provide Crack Isolation Membranes at all cracks in tile substrates. Coordinate membrane locations, prior to installation, with Architect in the field.

C. Where wall tiles with a dimension greater than an 8-inches are to be installed, take necessary precautions and actions to ensure that that the wall is flat behind the adhesive, and that the adhesive layer is uniform and flat as applied over the substrate. As indicated in the TCNA Handbook, for organic adhesives and epoxy bond coats, wall substrates may require flattening.

D. Blending: For tile exhibiting color variations within the ranges selected during Sample submittals, verify that tile has been blended in the factory and packaged so tile units taken from one package show the same range in colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

E. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent adhesion or staining of exposed tile surfaces by grout, protect exposed surfaces of tile against adherence of mortar and grout by precoating them with a continuous film of temporary protective coating indicated below, taking care not to coat unexposed tile surfaces:

1. Petroleum paraffin wax, applied hot.

3.3 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 series of tile installation standards in "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules or otherwise appropriate for the type of tile, material or accessory being installed.

B. TCNA Installation Guidelines: Latest edition of the TCNA's Handbook for Ceramic Tile Installation. Comply with TCNA installation methods indicated in ceramic tile installation schedules.

C. For Instances where a floor scheduled to receive a tile finish is to slope to a floor drain, or a similar sloping floor, and there is a depression in the foundation, fill the depression with mortar material to the required slope and then thin set the tile onto the sloping floor. Where there is a membrane required, like at a shower, embed the shower pan into the mortar material as necessary to create a complete, watertight installation.

D. Sequencing: Install wall base after floor below the base has been installed, so that wall base obscures and covers any gap between the floor edge and the face of the adjacent wall. Deviation from this requirement may result in rework being required until the Architect in the field is satisfied with the resulting appearance.

E. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

F. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

G. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are the same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.

    1. For tile mounted in sheets, make joints between tile sheets the same width as joints within tile sheets so joints between sheets are not apparent in finished work.

H. Lay out tile wainscots to next full tile beyond dimensions indicated. Advise Architect of floor variances over long distances (such as corridors) where first tile course must be cut more than 1/2-inch in order for subsequent horizontal joints to remain level.

I. Provide uniform 1/4" color-match sealant joints at interior corners of floor-to-wall, wall-to-wall, and wall-to-ceiling joints.

J. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated, during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

K. Locate joints in tile surfaces directly above joints in concrete substrates; where substrate materials change; and where floor tile abuts restraining surfaces such as perimeter walls, curbs and columns. Locate joints in field tile at maximum 24'-0" o.c. each way, and as directed by the Architect. Install control joints in accordance with current TCNA Method EJ171. Provide bullnosed or eased- edge tiles at expansion joints, control joints, and other sealant- filled joints, and where otherwise indicated.

    1. Prepare joints and apply sealants to comply with requirements of Division 7 Section "Joint Sealants."
    2. Apply sealant to all inside corners of tile-to-tile conditions. Sealant shall match grout color.

L. Locate joints in tile surfaces directly over joints in wall substrates. Locate joints in field tile at maximum 24'-0" o.c. each way, and as directed by the Architect. Install control joints in accordance with current TCNA Method EJ171.
    1. Prepare joints and apply sealants to comply with requirements of Division 7 Section "Joint Sealants."
    2. Apply sealant to all inside corners of wall tile to tile conditions. Sealant shall match grout color.

M. Transitions between different fields of tile: Provide smooth transitions between fields of tile where no transition pieces are indicated. Where tiles are of different thicknesses, adjust setting bed thicknesses of the thinner/lower tile to allow for flush, smooth transitions and joints between the different fields of tile. Start transitions at least two feet out from the nearby joint to make transitions inconspicuous. Transition shall be over a minimum of two tiles for large tiles; for tiles over two feet in dimension, transitions may need to start up to four feet from the nearby joint.

N. Where a floor transition piece is installed, size the height of the transition piece so that the top is flush with the face surface of the tile. The bottom edge of the transition piece, adjacent to the floor substrate, shall be flush with the floor substrate with no or very little adhesive visible. Maximum adhesive joint visible: 1/64-inch.

3.4 FLOOR TILE INSTALLATION METHODS

A. Installation - Floors - Thin-Set or Medium Bed Methods:
   1. Over interior concrete slabs, install with latex-Portland cement grout in accordance with TCNA Handbook Method F113-14 for slabs-on-grade and A113A-14 for slabs-above-ground:
      a. Where waterproofing membrane is indicated, install in accordance with TCNA Handbook Method F122, with latex-Portland cement grout.

B. Installation - Floors - Mortar Bed Methods at Recessed Slabs:
   1. Over interior concrete slabs, install in accordance with TCNA Handbook Method F112, bonded, with latex-Portland cement grout.
      a. Where waterproofing membrane is indicated, install in accordance with TCNA Handbook Method F121, with latex-Portland cement grout.

C. Where quarry tile is indicated, install in accordance with TCNA Handbook Method F112, with epoxy grout.

D. Installation - Wall Tile:

   1. Over cementitious backer units install in accordance with TCNA Handbook Method W244, with Portland-cement grout.

   2. Over moisture-resistant gypsum wallboard, install in accordance with TCNA Handbook Method W243, with latex-Portland cement grout.

   3. Over concrete masonry, install in accordance with TCNA Handbook Method W202, with Portland cement grout.

E. When bonding large-format tiles, wheter thin-set, medium-set, or mortar bed, install in accordance with TCNA and tile manufacturer's recommendations to achieve full coverage of mortar bed under tile surface. Back-butter tiles with full skim coat of mortar to ensure maximum coverage.

F. Grout Sealer: Apply grout sealer to grout joints at latex-portland cement grout according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

   1. Apply minimum two-coats sealer at all cement-grouted floor joints.

   2. Apply minimum two-coats sealer at all cement-grouted floor and wall joints in restrooms and other wet areas such as drinking fountain alcoves.

   3. Do not seal epoxy joints.

3.5 WALL TILE INSTALLATION METHODS

B. Installation - Wall Tile:

   1. Over cementitious backer units install in accordance with TCNA Handbook Method W244, with Portland-cement grout.

2. Over moisture-resistant gypsum wallboard, install in accordance with TCNA Handbook Method W243, with latex-Portland cement grout.
3. Over concrete masonry, install in accordance with TCNA Handbook Method W202, with Portland cement grout.

3.2 METAL EDGE STRIPS:

A. Install at floor or wall locations indicated or where tile edges will be left exposed.

B. Install at floor or wall locations indicated or exposed edge of tile meets carpet, wood, or other materials that finish flush or above top of tile.

3.6 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove grout residue from tile as soon as possible.
2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.

B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.

C. Provide final protection and maintain conditions, in a manner acceptable to the Manufacturer and the Installer, that ensure tile is without damage or deterioration at the time of Substantial Completion.

1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 09 30 13

SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes ceilings consisting of acoustical panels and concealed suspension systems.

1.3 SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Verification: Full-size units of each type of ceiling assembly indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.

1. 6 inch (150 mm) square samples of each acoustical panel type, pattern, and color.
2. Set of 12 inch (300 mm) long samples of exposed suspension system members, including moldings, for each color and system type required.

C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

D. Product Test Reports: Indicate compliance of acoustical panel ceilings and components with requirements based on comprehensive testing of current products.

E. Certification: Provide certification from manufacturer of products that all materials used in food preparation and food serving areas have USDA approval for use in food preparation and food serving areas.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who has completed acoustical panel ceilings similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Source Limitations for Ceiling Units: Obtain each acoustical ceiling panel from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

C. Source Limitations for Suspension System: Obtain each suspension system from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

D. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:

1. Fire-response tests were performed by UL, ITS/Warnock Hersey, or another independent testing and inspecting agency that is acceptable to authorities having jurisdiction and that performs testing and follow-up services.
2. Surface-burning characteristics of acoustical panels comply with ASTM E 1264 for Class A

materials as determined by testing identical products per ASTM E 84.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels and suspension system components to Project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. It is important that plenums have proper ventilation, especially in high moisture areas. There shall be no excessive build-up of heat in the ceiling areas.

C. Mechanical, electrical, and other utility service installations above the ceiling plane shall have been completed. No materials should rest against, or wrap around, the ceiling suspension components or connecting hangers.

D. Installation of wood panels shall be done only when the temperature and humidity closely approximate the interior conditions that will exist when the building is occupied and shall not exceed 86 degrees. The heating and cooling systems shall be operating before, during, and after installation, with the humidity of the interior spaces maintained between 25 percent and 55 percent.

1.7 COORDINATION

A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures – linear light systems will require additional accessory structure and possibly additional accessories, HVAC equipment, fire-suppression system, and partition assemblies.

1.8 MANUFACTURER'S WARRANTY

A. Manufacturer's written limited system warranty against visible sag, mold, and mildew for a period of 30-years.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

1. Acoustical Ceiling Units: Full-size units equal to 2.0 percent of amount installed.
2. Suspension System Components: Quantity of each exposed component equal to 2.0 percent of amount installed.

PART 2 – PRODUCTS

2.1 ACOUSTICAL PANELS, GENERAL

A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.

1. Mounting Method for Measuring Noise Reduction Coefficient: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches (400 mm) away from test surface per ASTM E 795.

B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.

C. Products: Subject to compliance with requirements, provide one of the named products that follow, in each designation:

2.2 MINERAL-BASE PANELS - WATER FELTED

A. Description: Mineral-base panels, water felted, with painted finish and perforated and fissured pattern, non-directional, non-fire-resistance rated.

B. Type, Form, and Finish: Type III, Form 2 units per ASTM E 1264 with painted finish that comply with pattern and other requirements indicated.

C. Manufacturers:

1. Armstrong World Industries, Inc., www.armstrong.com
2. CertainTeed/Saint Gobain, www.certainteed.com
3. USG Interiors, Inc., www.usg.com
4. Substitutions: Section 01 25 00 – Substitution Procedures.

D. **APC-1 – Non-Rated System**: Sag-resistant acoustic panels meeting requirements of ASTM E1264, conforming to the following:
1. Basis of Design: *Optima*, Class A, as manufactured by Armstrong or approved equivalent (performance, color, pattern, and texture) by specified manufacturer.
2. Size: 24 x 24 inches
3. Thickness: 1.0 inch.
4. Composition: Fiberglass.
5. Light Reflectance Coefficient: 0.90.
6. Edge Condition: Tegular square-edge unless otherwise indicated.
7. Face Color and Finish: Factory white latex paint, fine texture, no pattern.
8. NRC Rating: 0.95
9. CAC Rating: 26
10. Grid: 9/16" steel grid in factory white finish, for concealed grid application with tegular edge tiles.

E. **APC-2 – Non-Rated System**: Sag-resistant acoustic panels meeting requirements of ASTM E1264, conforming to the following:
11. Basis of Design: Same as **APC-1** but in 24" x 48" x 1" size.

2.3 METAL SUSPENSION SYSTEMS, GENERAL

A. Metal Suspension System Standard: Provide 1) manufacturer's standard direct-hung metal suspension systems complete with all accessories required and designed for the installation of the particular system being installed.

B. Finishes and Colors, General: Comply with applicable ASTM C 635 requirements and NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.

C. Manufacturers

1. Armstrong World Industries, Inc., www.armstrong.com
2. CertainTeed/Saint Gobain, www.certainteed.com
3. Chicago Metallic Corporation, www.chicagometallic.net
4. National Rolling Mills, Inc
5. USG Interiors, Inc., www.usg.com
6. Substitutions: Section 01 25 00 – Substitution Procedures.

D. Grid Members: Commercial quality cold rolled steel with galvanized coating.

1. Non-fire Rated Grid: ASTM C635, intermediate duty; exposed T; components die cut and interlocking.
2. Minimum 0.015 inch bare metal thickness.
3. Minimum 300 lb. tension/ compression connection value.
4. Basis of design, Prelude XL as manufactured by Armstrong
5. Typical Grid Finish: Factory painted white steel cap.
6. Exposed Grid Face Width: 15/16-inch unless indicated otherwise.

E. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:

1. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, Direct Hung) will be less than yield stress of wire, but provide not less than 0.106 inch (2.69 mm) diameter wire.

F. Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from extruded aluminum, or sheet metal of same material and finish as that used for exposed flanges of suspension system runners.

1. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
3. For narrow-face suspension systems, provide suspension system and manufacturer's standard edge moldings that match width and configuration of exposed runners.

2.4 NON-FIRE-RESISTANCE-RATED DIRECT-HUNG SUSPENSION SYSTEMS

A. Wide-Face Double-Web Steel Suspension System: Main and cross-runners roll-formed from prepainted or electrolytic zinc-coated cold-rolled steel sheet, with prepainted 15/16-inch-wide flanges; other characteristics as follows:

B. At all lighting systems installed in ceiling suspension systems, and particularly at linear lighting in ceilings, comply with all ceiling and lighting Manufacturers recommendations and requirements for supporting the light system on the ceiling support system.

1. Provide all recommended and required standard parts and all accessories designed for the installation of the particular suspension system being installed.
2. Accessories shall include, but are not limited to the following - braces, cross-light yokes, ties, wires, atypical connection and joining support structure and hardware, type and number of fasteners, spacings of all parts as recommended by the Manufacturers, and anything else necessary for a complete integrated installation of the lights and ceiling that will function as designed and that will not fall apart after installation.

2.5 FIRE-RESISTANCE-RATED DIRECT-HUNG SUSPENSION SYSTEMS: Not Applicable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage, and other conditions affecting performance of acoustical panel ceilings.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Coordination: Furnish layouts for cast-in-place anchors, clips, and other ceiling anchors whose installation is specified in other Sections.

B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION

A. General: Install acoustical panel ceilings to comply with publications referenced below per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

1. Standard for Ceiling Suspension System Installations: Comply with ASTM C 636.
2. Standard for Ceiling Suspension Systems Requiring Seismic Restraint: Comply with ASTM E 580.
3. U.B.C.'s "Metal Suspension Systems for Acoustical Tile and for Lay-in Panel Ceilings": U.B.C. Standard 25-2.

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
2. Splay hangers only where required and, if permitted with fire-resistance-rated ceilings, to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard

suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.

4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure; that are appropriate for substrate; and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, powder-actuated fasteners, or drilled-in anchors that extend through forms into concrete.
6. Do not attach hangers to steel roof deck or to steel deck tabs. Attach hangers to structural members.
7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
8. Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; and provide hangers not more than 8 inches from ends of each member.

C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

D. Install angle edge trim matching grid in material and color at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

1. Screw attach trim to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet.
2. Miter corners accurately and connect securely.
3. Do not use exposed fasteners, including pop rivets, on moldings and trim.

E. Install suspension system runners, including perimeter trim, so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fitted accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.
2. For reveal-edged panels on suspension system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
3. For reveal-edged panels on suspension system members with box-shaped flanges, install panels with reveal surfaces in firm contact with suspension system surfaces and panel faces flush with bottom face of runners.
4. Paint cut panel edges remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
5. Install hold-down clips in areas indicated, in areas required by authorities having jurisdiction, and for fire-resistance ratings; space as recommended by panel manufacturer's written instructions, unless otherwise indicated or required.

6. At rated ceiling systems protect lighting fixtures and air ducts to comply with requirements indicated for fire-resistance-rated assembly.

G. At all lighting systems installed in ceiling suspension systems, coordinate requirements of Lighting and Ceiling Manufacturers for a complete integrated installation where all parts of the lighting system will stay in place and function properly.

3.4 CLEANING AND ADJUSTING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.

B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

C. Contractor shall make final adjustments to level or contours.

1. Upon completion of ceiling installation, all Wood Panels and borders shall be cleaned free of dirt, dust, grease, oils, and fingerprints. Clean exposed surfaces of wood panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.

2. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 13

SECTION 09 54 23 – LINEAR METAL CEILINGS (Interior and Exterior)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Related Sections include the following:

1. Division 23 Sections for grilles, registers, and diffusers related to ceiling system.
2. Division 26 Sections for light fixtures related to ceiling system.

1.3 REFERENCES

A. ASTM International:

1. ASTM C635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
2. ASTM C636 - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
3. ASTM E580 - Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint.

B. Ceilings and Interior Systems Construction Association:

1. CISCA - Acoustical Ceilings: Use and Practice.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:

1. Ceiling pattern.
2. Edit subparagraphs below to suit Project.
3. Ceiling suspension members.
4. Method of attaching suspension system hangers to building structure.
5. Indicate all required end joints in panel lengths.
6. Ceiling-mounted or above-ceiling items including lighting fixtures, air outlets and inlets; speakers; sprinklers; access panels, column penetrations, and any other junctures, penetrations, or interfaces with specialty metal ceilings.
7. Submit details indicating special conditions.

C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

D. Physical Samples: Submit (2) 12" lengths of factory-finished sections, (2) 12" lengths of factory-finished support grid, and (2) 12" lengths of matching ceiling-penetration trim.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed specialty metal ceilings similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Source Limitations for Specialty Metal Ceilings: Obtain specialty metal ceilings from one source with resources to provide products of consistent quality in appearance and physical properties.

C. Fire-Test-Response Characteristics: Provide specialty metal ceiling components with the following surface-burning characteristics as determined by testing identical assemblies per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify ceiling units with appropriate markings of applicable testing and inspecting agency.
   1. Flame Spread: 25 or less.
   2. Smoke Developed: 50 or less.

D. Mockups: Prior to installing specialty metal ceilings, construct mockups for each form of construction and finish required to verify selections made under Sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Mockups shall be built by the Subcontractor responsible for the Project Work. Build mockups to comply with the following requirements, using all conditions and materials indicated for the completed Work:
   1. Build mockups on-site in the location and of the size indicated or, if not indicated, as directed by Architect.
   2. Erect mockups 10' by 10' (3 m by 3 m) using materials indicated for final Work.
   3. Notify Architect 7 days in advance of dates and times when mockups will be constructed.
   4. Demonstrate the proposed range of aesthetic effects and workmanship.
   5. Obtain Architect's approval of mockups before beginning final installation of specialty metal ceilings.
   6. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work. Approved mockups may be incorporated into the final installation.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."

1.6 DELIVERY, STORAGE, AND HANDLING

A. All materials shall be delivered to the Project site in the original, labeled, unopened packages.

B. Materials shall be stored off of the floor level, flat and level, in a fully enclosed space.

C. Exercise care in handling to avoid damage.

1.7 PROJECT CONDITIONS

A. Do not install specialty metal ceilings until spaces are enclosed and weatherproof, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.8 COORDINATION

A. Coordinate layout and installation of specialty metal panels and suspension system components with other construction that penetrates ceilings or is supported by them,

including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.

1.9 WARRANTY

A. Installed suspension system and ceiling panels shall be warranted by Contractor to be free from rusting, sagging, warping, shrinking, buckling, or delaminating for a minimum of one year from date of Substantial Completion of the Project.

B. For sag-resistant panels, provide ceiling panel manufacturer's written warranty against sagging, warping, shrinking, buckling or delaminating as a result of manufacturing defects for a period of ten years from date of Substantial Completion of the Project.

C. Provide suspension manufacturer's written warranty against material defects for a period of fifteen years from date of Substantial Completion.

1. Where suspension manufacturer and non-sag ceiling panel manufacturer are the same, provide combination warranty including protection from sagging, warping, shrinking, buckling or delaminating of ceiling panels as a result of manufacturing defects.

D. Provide suspension manufacturer's written warranty against the occurrence of 50% red rust on grid face for a period of thirty years from date of Substantial Completion.

1.10 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

1. Specialty Metal Ceiling Units: Full-length units equal to 2.0 percent of quantity installed.
2. Suspension System Components: Quantity of each exposed component equal to 2.0 percent of quantity installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

.A. Manufacturers:

1. Armstrong World Industries, Inc, www.armstrongceilings.com
2. Hunter-Douglass Architectural Products, Inc., www.hunterdouglas.com
3. Reference Section 01 25 13-Product Substitutions.

2.2 METAL CEILING SYSTEM TYPE

A. Suspended Aluminum Panels: Factory-formed and finished linear channel panel system designed for interior and exterior installation.

1. Basis of Design: *Linear* Woodwright™ *Linear Ceiling System* in Box4 design for interior and exterior applications, as manufactured by Hunter Douglas, or approved equivalent by specified manufacturer.
   a. Substitutions: Section 01 60 00 - Product Requirements.
2. Panel Module:
   a. Formed aluminum channels.
   b. Width: 4".
   c. Panel depths: 5/8"
   d. Panel Lengths: 3-ft. to 16-ft.
   e. Square-edge design.
3. Finish: Factory powder coat paint finish suitable for exterior and interior locations. Color/pattern selected from manufacturer's standard line of faux wood finishes as indicated in Finish Schedule.
4. Perforations: Manufacturer's *M1 Microperforated* with fiberglass infill to provide an NRC

of nominal 0.85. Provide perforations at interior locations only.

5. Edges:
   a. Long Edges Between Panels: Square with extended flange covered with manufacturer's black color filler strip creating a uniform 3/4-inch reveal. Provide weather-proof, insect-proof, and wind-resistant seal at exterior locations.
   b. Perimeter Edges: Where indicated provide manufacturer's matching *EdgeLine* Trim.
6. End Caps: Matching caps at exposed channel ends.
7. Splicing System: Manufacturer's back-mounted panel splice providing hairline joint between panel ends.
   a. Provide cross joints only where length of installed panels exceeds manufacturer's available panel lengths.
   b. Stagger cross joints uniformly a minimum of 12" between adjacent panels.
8. Fire Rating: Class A per ASTM E1264; Flame Spread Index of 25 or less and Smoke Developed Index of 50 or less per ASTM E84.

B. Suspension System:

1. Non-fire Rated Grid: ASTM C635, 15/16" face, galvanized, intermediate duty; modified as indicated below; components die cut and interlocking.
   a. Commercial quality cold rolled steel with galvanized coating.
   b. Wire-suspended 12 ft. main beam carriers with 4 ft. grid cross tee stabilizers.
   c. Manufacturer's linear "J" clip system attached to face of main beam carriers for suspending turned long edges of panels: *Metalworks Linear Carrier*.
2. Screw-fastener or powder-actuated fastening system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for system with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.
3. Zinc-Coated Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper. Select wire diameter so its stress at three times hanger design load will be less than yield stress of wire but provide not less than 0.106-inch diameter wire.

2.3 FINISHES, GENERAL

A. Protect the specified finish on exposed surfaces by applying strippable temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine overhead construction prior to beginning installation of specialty metal ceilings to ensure that all overhead work including finish painting of deck, structure, ducting, conduits, piping, etc. is completed.

B. Proceed with installation only after unsatisfactory conditions have been corrected. Beginning of specialty ceiling installation indicates acceptance of overhead work.

C. Verify layout of hangers will not interfere with other work.

3.3 INSTALLATION

A. General: Install specialty metal ceilings in accordance with manufacturer's recommendations and requirements and to comply with the following:

1. Standard for Ceiling Suspension System Installations: Comply with ASTM C 636.
2. CISCA Recommendations for Acoustical Ceilings: Comply with CISCA's "Recommendations for Direct-Hung Acoustical Tile and Lay-in Panel Ceilings--Seismic Zones 0-2."
3. Space main tees and cross tees no more than 48" o.c.

B. Install system capable of supporting imposed loads to deflection of 1/360 maximum.

C. Suspend ceiling hangers from building's structural members and as follows:

1. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
2. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system.
3. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
4. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
5. Secure hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for structure to which hangers are attached and for type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, powder-actuated fasteners, or drilled-in anchors that extend through forms into concrete.
7. Do not attach hangers to steel deck tabs.
8. Do not attach hangers to steel roof deck. Attach hangers to structural members.
9. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported directly from hangers, unless otherwise indicated.
10. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs.
    a. Fasten bracing wires into concrete with cast-in-place or post-installed anchors.
    b. Bracing wires shall be located as to not be visible from below ceiling.

D. Install suspension system carriers so they are aligned and securely interlocked with one another. Remove and replace dented, deformed, or kinked members

E. Neatly cut finished units for accurate fit at interruptions and penetrations through ceilings. Stiffen edges of cut units as required to eliminate evidence of buckling or variations in flatness exceeding referenced standards for stretcher-leveled metal sheet.

F. Install finished units in coordination with suspension system and exposed moldings and trim.

1. Where finished length exceeds manufacturer's standard lengths, fit adjoining units to

form flush, tight joints.
2. Install panels with butt joints using internal panel splices and in aligned configuration.
3. Install directionally textured panels in directions indicated.
4. Install matching end caps at open ends of finished units.
5. Do not use exposed fasteners, including pop rivets, on moldings and trim.

3.4 CLEANING

A. Clean exposed surfaces of specialty metal ceilings, including visible support framing. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.

B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage, including dented and deformed units.

END OF SECTION

SECTION 09 54 26 – DECORATIVE WOOD CEILING AND WALL PANELING SYSTEM

PART 1 - GENERAL

1.2 SUMMARY

A. This Section includes the following:
   1. Factory finished suspended decorative wood panel ceiling system.
   2. Factory finished furring-mounted decorative wood wall panel ceiling.

B. Related Sections include the following:
   1. Division 5 Sections for steel structure and deck: Spacing of structural members for suspension of ceiling panels.
   2. Section 09 90 00 – Painting and Coating: Field painting of visible structure, deck, piping, and ducts above suspended decorative wood ceiling.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
   2. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot- Dip Process.
   3. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
   4. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

A. Product Data: Manufacturer's printed descriptive data indicating details materials, finish, and installation for the system.

B. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:
   1. Ceiling system layout within floor plan of room(s).
   2. Ceiling suspension system members.
   3. Method of attaching suspension system hangers to building structure.
   4. Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinklers; and special moldings at walls, column penetrations, and other junctures of suspended ceiling panels with adjoining construction.
   5. Minimum Drawing Scale: 1/8 inch = 1 foot (1:96).

C. Physical Samples:
   1. Minimum 12-inch long samples of wood slats in selected finish showing full range of color and grain.
   2. Set of nominal 12-inch (300 mm) long samples of exposed suspension system members.

D. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Product Test Reports: Indicate compliance of acoustical panel ceilings and components with requirements based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: The installer must have a minimum of two (2) years' experience in installation of suspended wood ceilings. The installer must be acceptable to the Architect, manufacturer, and Owner's representative.

B. Fire Performance Characteristics: Wood panels shall conform to Class 1, or A flame spread rating, when tested according to ASTM E-84.

C. Environmental Standards.

1.6 DELIVERY, STORAGE, AND HANDLING

A. All materials shall be delivered to the project site in the original, labeled, unopened packages.

B. Materials shall be stored flat and level in a dry, fully enclosed space. For a minimum of seventy-two (72) hours immediately prior to ceiling installation, the Wood Ceiling Systems shall be stored in the room in which they will be installed. The temperature and humidity of the room shall closely approximate those conditions that will exist when the building is occupied. Wood Ceiling Systems shall be stored off the floor. Products must not be exposed to extreme temperatures, for example, close to a heating source or near a window with direct sunlight.

C. Handle ceiling units carefully to avoid chipped edges or damage to units.

1.7 PROJECT CONDITIONS

A. Installation shall be done only when the temperature and humidity closely approximate the interior conditions that will exist when the building is occupied. The heating and cooling systems shall be operating before, during, and after installation, with the humidity of the interior spaces maintained between 25% and 55%. Wood ceiling materials should be permitted to reach room temperature and have a stabilized moisture content for a minimum of 72 hours before installation.

B. Prior to the start of installation, all exterior windows and doors are to be in place, glazed, and weather-stripped. The roof is to be watertight, and all wet trades' work is to be completed, and thoroughly dry.

C. Mechanical, electrical, and other utility service installations above the ceiling plane shall have been completed. No materials should rest against, or wrap around, the ceiling suspension components or connecting hangers.

1.8 WARRANTIES

A. Manufacturer:
   1. Wood panels: All materials supplied by the ceiling manufacturer shall be guaranteed against manufacturing defects for one-year from date of Substantial Completion of the Project.
   2. Grid System: 10-years from date of Substantial Completion of the Project.

B. Installer: Materials and workmanship shall be guaranteed for one (1) year from Substantial Completion of the Project.

PART 2 - PRODUCTS

2.1 WOOD PANELS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Architectural Components Group, Inc. www.acgiwood.com
   2. Armstrong World Industries, Inc. www.armstrong.com
   3. Rulon Company www.rulonco.com
   4. Norton Industries

B. Basis of design, *Woodworks Linear Solid Wood Veneer Panels* as manufactured by Armstrong or approved equivalent by specified manufacturer.

C. Description:
   1. Module Size: Nominal 24-inch x 96-inch x 3/4-inch.
   2. Planks: 3/4-inch x 3-3/4-inch solid *FSC* certified particle board with face-cut wood veneer with factory finish. Provide 4 slats per panel.
   3. Reveals: Uniform 3/4" between planks.
   4. Finish: Satin clear finished wood veneer; Wood species and color as indicated.

5. Acoustics: Standard factory-applied black-color acoustic fleece to cover each open reveal. NRC 0.45 or better.
6. Supports: Manufacturer's steel main beams and carrier tees with integrated clips.

D. Fire Performance:
1. Flame Spread Index: 25 or less per ASTM E84.
2. Smoke Developed Index: 50 or less per ASTM E84.
3. Rated Fire Classification "A" per ASTM E1264.

3.2 ACCESSORIES

A. Backer Clips: System manufacturer's black painted spring mounting clip for fastening panel backer strips to suspension tees and wall furring.

B. Wall Furring: 7/8" galvanized hat channels.

C. Ceiling and Wall Edge Molding Trim: Color-matching.

3.3 METAL SUSPENSION SYSTEMS

A. Metal Suspension and Support System Standard: Provide manufacturer's standard direct-hung (ceilings) and screw-fastened (walls) metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.
1. 12 ft. long x 1-11/16" deep HD main beam linear carriers with integral clips for specified module width.
2. Structural Classification: Heavy-Duty System.

B. Ceiling Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated.
1. Post-Installed Powder-Actuated Fasteners for Hardrock Concrete Floor Decking:
a. Fastener system of type suitable for application indicated.
b. Fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated.
c. Capability to sustain without failure a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190.
2. Do not fasten to metal roof deck with insulating concrete fill. Use secondary framing between joists as required.
3. Ceiling Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
a. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
b. Size: Minimum 12 ga. Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, Direct Hung) will be less than yield stress of wire.

C. Wall Attachment: Screw-fasten hat-channel furring horizontally through drywall into metal studs. Space vertically at 24" maximum. Attach manufacturer's vertical linear carriers to furring. Fasten finished planks to linear carriers using manufacturer's back clip system.

D. Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from extruded aluminum, or sheet metal covered in same veneer and finish as that used for exposed flanges of suspension system runners.
1. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
3. For narrow-face suspension systems, provide suspension system and manufacturer's standard edge moldings that match width and configuration of exposed runners.
4. For wall paneling edges

PART 3 – EXECUTION

3.1 PREPARATION

A. Layout: Measure ceiling and wall areas and establish the layout of the hangers, clips, and furring in accordance with installation instructions.

B. Environmental Conditions: Store system materials in the area of installation for a minimum of 48 hours prior to installation, with the following environmental conditions maintained:
   1. Relative Humidity: Between 25% and 55%.
   2. Temperature: Between 50^{O} F and 86^{O} F.

3.2 INSTALLATION

A. General: Install materials in accordance with manufacturer's instructions and processed submittals. Comply with applicable regulations and industry standards.

B. Install suspension system, wall furring, and panels in compliance with ASTM C636, ASTM E580, with the authorities having jurisdiction, and in accordance with the manufacturer's installation instructions.

C. Ceilings: Suspend main beam from overhead construction with #12-gauge wire hangers spaced 4-feet on center along the length of the main runners. Install hanger wires plumb and straight.
   1. Manufacturer's T-bars connected to main beams with T-bar connector clips.
   2. Suspension system must be leveled to within 1/4-inch in 10 feet and must be square to within 1/16-inch in 2-feet.
   3. Linear carriers must be supported not more than 2-feet from the ends and 4' on center along their length.
   4. Install main beams 48-inches on center with 48-inch cross tees every 24 inches at 90 degrees to the main beam. Install the 24-inch cross tees at midpoints of the 48 inch cross tees.

D. Cut panel edges that are exposed to view will have to be treated to match factory edges using pre-finished edge banding.

3.3 ADJUSTMENT, CLEANING AND REPAIR

A. Contractor shall clean all Wood Ceiling and Wall Paneling prior to installation according to manufacturer's recommended maintenance procedures.

B. Contractor shall make final adjustments to level, plumb, or contours.

C. Upon completion of installation, all Wood Ceiling, Wall Paneling, and borders shall be cleaned free of dirt, dust, grease, oils, and fingerprints. Clean exposed surfaces of wood panels, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.

D. All work that cannot be successfully cleaned or repaired, shall be removed and replaced. Deficiencies in the installed ceiling, including finishes, shall be corrected at no additional cost to the Owner.

END OF SECTION

SECTION 09 65 13 - RESILIENT WALL BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Resilient wall base.
2. Resilient flooring accessories.
3. Resilient carpet accessories.

B. Related Sections include the following:

1. Division 9 Section "Resilient Floor Tile."
2. Division 9 Section "Carpet".

1.3 SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Verification: In manufacturer's standard sizes, but not less than 12 inches (300 mm) long, of each product color and pattern specified.

C. Product Certificates: Signed by manufacturers of resilient wall base and accessories certifying that each product furnished complies with requirements

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing resilient products similar to those required for this Project and with a record of successful in-service performance.

B. Source Limitations: Obtain each type and color of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

C. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Critical Radiant Flux: 0.45 W/sq. cm or greater when tested per ASTM E 648.
2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver products to Project site in manufacturer's original, unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

B. Store products in dry spaces protected from the weather, with ambient temperatures maintained between 50 and 90 deg F (10 and 32 deg C).

C. Move products into spaces where they will be installed at least 48 hours before installation, unless longer conditioning period is recommended in writing by manufacturer.

D. Maintain a temperature of not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C) in spaces to receive resilient products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods. After post-installation period, maintain a temperature of not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).

E. Do not install products until they are at the same temperature as the space where they are to be installed.

F. Coordinate resilient product installation with other construction to minimize possibility of damage and soiling during remainder of construction period. Install resilient products after other finishing operations, including painting, have been completed.

1.6 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

1. Furnish not less than 10 linear feet (3 linear m) for each 500 linear feet (150 linear m) or fraction thereof, of each different type, color, pattern, and size of resilient product installed.

B. Deliver extra materials to Owner.

PART 2 - PRODUCTS

2.1 RESILIENT BASE

A. Manufacturers:
1. Rubber Cove Base, Armstrong www.armstrong.com
2. Rubbermyte, Burke Flooring www.burkeflooring.com
3. Base 2000 Wall Base, Flexco www.flexcofloors.com
4. Rubber Cove Base, Johnsonite www.johnsonite.com
5. 700 Series Base, Roppe Corporation www.roppe.com
6. Series 700 Cove Base, VPI www.vpicorp.com
7. Substitutions: Section 01 60 00 - Product Requirements.

B. Rubber Base: ASTM F1861, rubber, Type TP:
1. Height: 4 inch.
2. Thickness: 1/8 inch.
3. Finish: Smooth.
4. Length: Continuous rolls.
5. Style: Coved with top-set toe.
6. Modify resilient wall base and accessory schedule to suit Project. Do not duplicate requirements in Section Text. Remove brackets [ ]. Refer to a □ompleted example in the Evaluations for an explanation on how to use schedules.

C. Basis-of-Design: As indicated in the Finish Schedule.

D. Rubber Accessory Molding: Provide rubber accessory molding complying with the following – use at the locations indicated and additionally if indicated:

1. Reducer strip for resilient flooring to concrete, hard tile, or other flooring systems.

a. Profile and Dimensions: As specified by product designation below.

b. Color: As selected by Architect from manufacturer's full range of colors produced for rubber accessories complying with requirements indicated.

c. Products: #45 Tile Reducer Strip, Roppe Corporation, unless indicated otherwise.

2.2 INSTALLATION ACCESSORIES

A. Adhesives: Water-resistant latex type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer present, for compliance with manufacturer's requirements, including those for maximum moisture content. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with manufacturer's written installation instructions for preparing substrates indicated to receive resilient products.

B. Clean substrates to be covered immediately before installing resilient products. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. General: Install resilient products according to manufacturer's written installation instructions.

B. Sequencing: Install wall base after floor, below the base, has been installed, so that wall base obscures and covers any gap between the floor edge and the face of the adjacent wall. Deviation from this requirement may result in rework being required until the Architect in the field is satisfied with the resulting appearance.

C. Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

1. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
2. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
3. Do not stretch base during installation.
4. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
5. Form outside corners on job, from straight pieces of maximum lengths possible, without whitening at bends. Shave back of base at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness.
6. Form inside corners on job, from straight pieces of maximum lengths possible, by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

D. Place resilient products so they are butted to adjacent materials and bond to substrates with adhesive. Install reducer strips at edges of flooring that would otherwise be exposed.

E. Apply resilient products to stairs as indicated and according to manufacturer's written installation instructions.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after installing resilient products:

1. Remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.
2. Sweep or vacuum horizontal surfaces thoroughly.
3. Do not wash resilient products until after time period recommended by resilient product manufacture.
4. Damp-mop or sponge resilient products to remove marks and soil.

B. Protect resilient products against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by resilient product manufacturer.

C. Clean resilient products not more than 4 days before dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products according to manufacturer's written recommendations.

END OF SECTION 09 65 13

SECTION 09 68 16 - CARPET

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Modular Carpet (carpet tile).
2. Walk-Off carpet.

B. Related Sections include the following:

1. Division 9 Section "Resilient Wall Base and Accessories" for resilient wall base and accessories installed with carpet.

1.3 SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show the following:

1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet.
2. Carpet type, color, and dye lot.
3. Locations where dye lot changes occur.
4. Type of subfloor.
5. Modular and pattern layout.
6. Pile direction.
7. Type, color, and location of insets and borders.
8. Type, color, and location of edge, transition, and other accessory strips.
9. Transition details to other flooring materials.

C. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

1. Carpet: Full size modular Sample of each type and color.

D. Product Schedule: Use same room and product designations indicated on Drawings and in schedules.

E. Maintenance Data: For carpet to include in maintenance manuals specified in Division 1. Include the following:

1. Methods for maintaining carpet, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
2. Precautions for cleaning materials and methods that could be detrimental to carpet.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.

B. Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated and other tests indicated, as determined by testing by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

1. Critical Radiant Flux Classification: Not less than [0.45 W/sq. cm (Class I)] [0.22 W/sq. cm (Class II)] according to NFPA 253.

2. Comply with the requirements of the DOC FF-1 "pill test" (CPSC 16 CFR Part 1630) or with ASTM D 2859.

1.5 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with CRI 104, Section 5, "Storage and Handling."

1.6 PROJECT CONDITIONS

A. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."

B. Environmental Limitations: Do not install carpet until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

C. Do not install carpet over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet manufacturer.

D. Where demountable partitions or other items are indicated for installation on top of carpet, install carpet before installing these items.

1.7 WARRANTY

A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Special Carpet Warranty: Written warranty, signed by carpet manufacturer agreeing to replace carpet that does not comply with requirements or that fails within specified warranty period. Warranty does not include deterioration or failure of carpet due to unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.

1. Warranty Period: Minimum 20-years from date of Substantial Completion.

1.8 EXTRA MATERIALS

A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish 1 additional unopened box of carpet tiles to Owner for each type/color of carpet tile installed. Obtain receipt

PART 2 – PRODUCTS

2.1 COMPONENTS

A. **CPT-1:** Carpet Tiles; 100 percent nylon, tufted textured loop on synthetic backing.
1. Basis of design: *Threadcraft* as manufactured by Tarkett in scheduled patterns/colors.
2. Format type: Modular.
3. Construction: Stratatec® patterned loop.
4. Primary Tufting Substrate: Synthetic Non-Woven.

5. Secondary Backing: *Ethos*® Modular with *Omnicoat Technology*.
6. Face Weight: 23 oz. per S.Y
7. Average Pile Height: 0.157".
8. Total Thickness: 0.250".
9. Gauge: 5/64".
10. Fiber System: *Dynex SD*® Nylon.
11. Dye Method: 100% Solution dyed.
12. Stain Repel and Soil Release: Manufacturer's *Eco-Ensure (Fluorine-Free Soil Protection)* treatment.

B. **CPT-2:** Carpet Tiles; 100 percent nylon, tufted textured loop on synthetic backing.
1. Basis of design: *Light Shift* as manufactured by Tarkett in scheduled patterns/colors.
2. Format type: Modular.
3. Construction: Stratatec® patterned loop.
4. Primary Tufting Substrate: Synthetic Non-Woven.
5. Secondary Backing: *Ethos*® Modular with *Omnicoat Technology*.
6. Face Weight: 15 oz. per S.Y
7. Average Pile Height: 0.140"
8. Fiber System: *Dynex SD*® Nylon.
9. Dye Method: 100% Solution dyed.
10. Stain Repel and Soil Release: Manufacturer's *Eco-Ensure (Fluorine-Free Soil Protection)* treatment.

C. Walkoff Carpet: 100 percent nylon entry mat carpet with open-face construction by specified manufacturer.
1. Basis of design: Scheduled patterns/colors for *Abrasive Action II* .
2. Format type. Roll
3. Dye Method: Solution dyed.
4. Construction
a. Tufted, Accuweave Patterned Loop
b. Primary Backing: Synthetic Non-Woven and manufacturer's *Powerbond Cushion*.
5. Pile height: 0.185"

2.2 MANUFACTURER'S WARRANTIES:

A. Lifetime antimicrobial protection.
B. Lifetime anti-stain protection.
C. Lifetime edge ravel protection
D. Lifetime face fiber wear.
E. Lifetime antistatic.
F. Lifetime cushion delamination and resiliency.

2.3 INSTALLATION ACCESSORIES

A. Subfloor Filler: Latex-modified, portland cement-based product.

1. Basis-of-Design: ARDEX SD-F "Feather Finish" as manufactured by Ardex Engineered Cements.
2. Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and that is recommended by the Carpet manufacturer.

B. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet performance. Verify that substrates and conditions are satisfactory for carpet installation and comply with requirements specified.

B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

2. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

3. Moisture Testing:

a. Verify that moisture content of the concrete slab does not exceed maximum moisture content as recommended by manufacturer, and exhibit negative alkalinity, carbonization, and dusting. In no case shall moisture content exceed 85% RH per ASTM F 2170 testing.

1}. Perform deep-probe moisture meter testing per ASTM-F2170 for each area receiving the specified floor finish.

2), Perform number of tests recommended by the flooring system manufacturer per each floor area, but no less than one test per each 1000 sq. ft.

3). Provide written test results to the Architect, along with flooring manufacturer's recommended maximum moisture values.

4. Subfloor finishes comply with requirements specified in Division 3 Section "Cast-In-Place Concrete" for slabs receiving carpet.

5. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and carpet manufacturer's written installation instructions for preparing substrates indicated to receive carpet installation.

B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.

1. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by the Carpet manufacturer.

C. Broom and vacuum clean substrates to be covered immediately before installing carpet. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Carpet with Pre-applied Adhesive Installation: Comply with CRI 104, Section 10.4, "Pre-Applied Adhesive Systems (Peel and Stick)."

B. Procedures

1. Apply primer as recommended by manufacturer.

2. Do not mix carpet from different cartons unless from same dye lot.

3. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
4. Install carpet tile in square pattern, with pile direction alternating to next unit, set parallel to building lines.
5. Locate change of color or pattern between rooms under door centerline.
6. Adhere carpet tile with self-stick adhesive connectors at corners and edges of tiles to interconnect adjacent tiles to one another.
7. Roll with 100 lb. roller for complete contact of carpet backing to floor.
8. Trim carpet tile neatly at walls and around interruptions.
9. Complete installation of edge strips, concealing exposed edges.

C. Cut and fit carpet to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet manufacturer.

D. Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.

F. Install pattern parallel to walls and borders.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after installing carpet:

1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet manufacturer.
2. Remove yarns that protrude from carpet surface.
3. Vacuum carpet using commercial machine with face-beater element.

B. Protect installed carpet to comply with CRI 104, Section 15, "Protection of Indoor Installations."

C. Protect carpet against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet manufacturer.

END OF SECTION 09 68 16

SECTION 09 72 00 – WALL COVERINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
   1. Custom digital graphics vinyl wall covering.

B. Related Sections:
   1. Section 09 21 16 - Gypsum Board Assemblies: Wall substrate.

1.2 REFERENCES

A. ASTM International:
   1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. National Fire Protection Association:
   1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.
   2. NFPA 265 - Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Coverings on Full Height Panels and Walls.

C. Underwriters Laboratories Inc.:
   1. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data on covering and adhesive.

A. Shop Drawings: Indicate wall elevations with seaming layout.

C. Samples: Submit two samples of each selected wall covering, 12x12 inch in size illustrating color, finish, and texture.

D. Manufacturer's Installation Instructions: Submit special installation procedures and perimeter conditions requiring special attention.

1.4 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Operation and Maintenance Data: Submit data on cleaning, touch-up, and repair of covered surfaces.

1.5 QUALITY ASSURANCE

A. Surface Burning Characteristics:
   1. Comply with one or both of the following:
      a. Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
      b. Comply with requirements of applicable code when tested in accordance with NFPA 265 Method A or Method B test protocols.
   2. City of Houston: Approved for vertical wall applications per the City of Houston.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years' experience.

B. Installer: Company specializing in performing work of this section and approved by manufacturer.

1.7 MOCK-UP

A. Section 01 40 00 - Quality Requirements: Mock-up requirements.

B. Install full-size mock-up of each type of wall covering specified in location designated by Architect; include substrate preparation, trim and accessories, and seaming.
   1. Approved mock-up will be used as standard of quality to evaluate remainder of work.

C. Approved mock-up may be incorporated into the work.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Deliver materials to site in unbroken and undamaged original factory wrappings, clearly labeled with the manufacturer's identification label, quality or grade, and lot number.

C. Inspect roll materials on site to verify acceptance.

D. Protect packaged adhesive from temperature cycling and cold temperatures.

E. Store material in a flat position; do not store roll goods on end; do not cross stack material; support material off the floor in a manner to prevent sagging and warping.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by adhesive or wall covering product manufacturer.

C. Maintain these conditions 24 hours before, during, and after installation of adhesive and covering.

D. Provide lighting level of 80 ft candles measured mid-height at substrate surfaces.

PART 2 - PRODUCTS

2.1 WALL COVERINGS

A. Vinyl sheet formulated for factory-application of custom graphics.
   1. Basis of Design: Koroseal *Digital Surfaces*.
   2. Type: Type II commercial grade white color, smooth, matte-faced vinyl on poly-cotton osnaburg backing specially developed for use with wide-format digital printers and ink systems to duplicate customer-provided digital artwork or photographs.
   3. Product Weight: Nominal 20-oz. per square yard.
   4. Additives:
      a. Mildew inhibitors to pass ASTM G21
      b. Factory-applied Teflon film.
   5. Ink System: System manufacturer's inks for permanent transfer on vinyl faced wall covering using wide-format digital printers.
   6. Master Art: Multi-color digital art to be provided by the Architect.

2.2 ACCESSORIES

A. Adhesive: Use only type recommended by wall covering manufacturer. Adhesive shall be rated mildew resistant by the manufacturer.

B. Release Coat: Provide sealer or undercoat for new gypsum wallboard substrates as recommended by wallcovering manufacturer.

C. Substrate Filler: As recommended by adhesive and wall covering manufacturers; compatible with substrate.

D. Substrate Primer and Sealer: Type recommended by wall covering manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify substrate surfaces are ready to receive work and conform to requirements of covering manufacturer.
   1. Gypsum board shall be finished to Standard Level 4 finish or better in accordance with Section 09 21 16.

C. Measure moisture content of surfaces using electronic moisture meter. Do not apply coverings unless moisture content of surfaces is below the following maximums:
   1. Plaster and Gypsum Wallboard: 5-percent.
   2. Masonry, Concrete, and Concrete Unit Masonry: 12-percent.
   3. Wood Surfaces: 15-percent, measured in accordance with ASTM D4442.

D. Verify flatness tolerance of surfaces does not vary more than 1/8 inch in 10 feet nor vary at rate greater than 1/16 inch/ft.

E. Verify substrate surfaces are clean, dry, smooth, structurally sound and free from surface defects and imperfections that would show through the finished surface.

F. Evaluate all marked, stained, or painted surfaces for the possibility of pigment bleed-through.

G. Beginning wall covering installation indicates acceptance of substrates and conditions.

3.2 PREPARATION

A. Prepare surfaces in accordance with manufacturer's instructions.

B. Fill cracks in substrate and smooth irregularities with filler; sand smooth.

C. Wash impervious surfaces with tetra-sodium phosphate, rinse and neutralize; wipe dry.

D. Surface Appurtenances: Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

E. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove existing coatings that exhibit loose surface defects.

F. Marks: Seal with shellac those which may bleed through surface finishes.

G. Apply primer sealer to substrate surfaces as required, in accordance with manufacturer's instructions. Allow to dry. Lightly sand smooth.

H. Vacuum clean surfaces free of loose particles.

I. Store unpackaged wall covering in environmentally controlled areas of installation a minimum of 24 hours before applying to finish surfaces.

J. Inspect and confirm product for uniform color, texture and quality.

3.3 INSTALLATION

A. Install wallcovering with long dimension vertical. Lay out accurately between corners, jambs, walls, or other interruptions to equalize spacing of joints.
   1. Do not locate joints at or within 2" of inside corners or within 6" of outside corners.
   2. Install seams vertically and plumb. Horizontal seams are not acceptable.

B. Use covering in roll number sequence. Change run numbers at partition breaks and corners only.

C. Razor trim edges on flat worktable, changing blade often to prevent rough cut edges. Do not razor cut on gypsum board surfaces.

D. Wall coverings shall be fully adhered to substrates using manufacturer's recommended adhesive capable of permanently supporting the weight of the wallcovering material to the particular substrate. Apply adhesive uniformly to back of wallcovering. Install wallcovering

with full substrate bond, smooth, clean without wrinkles, gaps, or overlaps. Eliminate air pockets and ensure full bond to substrate surface.

E. Place wallcovering panels consecutively in the same order as cut from rolls. Install rolls in consecutive order as numbered by the manufacturer.
   1. Trim selvages as required to assure color uniformity and pattern match at seams.
   2. Patterns shall come from same lot.
   3. Overlap and double-cut seams through overlapped edges, lifting and removing underlayer after cutting. Lay down seams butted tightly together smoothly and apply hand roller to flatten and smooth. Cut wallcovering neatly to all penetrations.

F. Remove excess adhesive while wet from seam before proceeding to next covering panel. Wipe clean with dry cloth.

G. Trim wall covering 3/4" below top of resilient base.

3.4 CLEANING

A. Reference Section 01 70 00 - Execution and Closeout Requirements: Final cleaning

B. Clean wallcovering of all adhesive, dirt, stains, or marks. Reinstall wall plates and any other removed accessories.

C. Clean coverings of excess adhesive, dust, dirt, and other contaminants.

D. Reinstall wall plates and accessories removed prior to work of this section.

E. Package and deliver to the Owner any partial or full rolls or usable scrap material.

END OF SECTION

SECTION 09 77 00 - FRP WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following types of FRP wall panels:
   1. FRP prelaminated wall panels.

1.3 SUBMITTALS

A. Product data including installation methods for each different type of substrate. Provide written data including physical characteristics, such as durability, resistance to fading, and flame resistance. Include the manufacturer's recommendations for maximum permissible moisture content of substrates.

B. Shop drawings showing location, extent, and installation details. Include indication of wall panel termination points. Provide elevations showing nonstandard conditions.

C. Samples for Initial Selection: For initial selection of color, pattern and surface texture, provide the manufacturer's standard color chips consisting of actual sections of each FRP wall panel and vinyl plastic material required showing the full range of materials, colors, and textures available.

D. Samples for Verification Purposes: Provide the following samples for verification of compliance with requirements indicated. Prepare samples from the same material to be used in the Work.
   1. 6 inch by 6 inch square samples of each wall panel material required for verification of color, pattern, and texture selected.
   2. 12 inch long sample of each molding accessory.]

E. Product test reports from a qualified independent testing laboratory showing compliance of FRP wall panel materials with requirements indicated based on tests performed by the laboratory within the past five years.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has previously installed FRP wall panel materials similar in design and extent to the materials required on this Project.

B. Fire Performance Characteristics: Provide FRP wall panels that are identical to those tested in accordance with ASTM E 84 for the fire performance characteristics indicated below. Identify wall panel materials with appropriate markings from the testing and inspection organization.
   1. Flame Spread: 25 or less.
   2. Smoke Developed: 450 or less.

C. Single Source Responsibility: Obtain each color, texture, grade, finish, and type of FRP wall panel material from a single source with resources to provided products of consistent quality in appearance and physical properties without delaying progress of the Work.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to Project site in original factory wrappings, clearly labeled with identification of manufacturer, brand name, lot number, quality or grade, and fire hazard classification.

B. Store materials inside in original undamaged packages in a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity. Do not store rolled goods upright; lay flat, blocked off the ground to prevent sagging and warping.

1. Maintain room temperature within the storage area at not less than 70 deg F (21 deg C) during the period FRP wall panel and accessory materials are stored. Keep material out of direct sunlight to avoid surface distortion.

1.6 PROJECT CONDITIONS

A. Environmental Conditions: Do not install FRP wall panel material until the space to receive the wall panel material is enclosed and weatherproof. Do not install materials until the ambient temperature within the building is maintained and stabilized at not less than 70 deg F (21 deg C) for not less than 72 hours prior to beginning of the installation.

1.7 SEQUENCING AND SCHEDULING

A. Schedule installation with other construction activities to minimize the possibility of damage and soiling during the remainder of the construction period.

1.8 MAINTENANCE

A. Maintenance Instructions: Provide the manufacturer's instructions for maintenance of installed work. Include recommended methods and frequency for maintaining materials in optimum condition under anticipated traffic and use conditions. Include precautions against cleaning materials and methods that may be detrimental to finishes and performance.

PART 2 - PRODUCTS

2.1 PRODUCTS

A. Basis-of-Design: Fiberglass Reinforced Plastic, 4 foot x 8 foot by Kemlite Company – provide FM fire-rated product. Subject to compliance with requirements, provide the indicated product or a comparable product by one of the following:
1. Crane Composites, Inc. A Crane Co. Company.
2. Products by Grupo Verzatec subsidiaries.
3. Substitutions: 01 16 00 - Product Requirements.

2.2 FRP WALL PANELS

A. Wall Panels: Provide manufacturer's standard, FRP wall panels. Panels shall consist of 0.09 inch thick, textured, USDA approved, panel.
1. Sheet Size: 4 by 9 feet.

B. Colors and Textures of Plastic Material: Provide plastic material that matches color and texture indicated by reference to the manufacturer's standard color and texture designation.

C. Adhesive: Provide the type of adhesive recommended by the manufacturer for use with the wall panel material on the substrate indicated.

D. Trim: Provide extruded, impact-resistant, vinyl plastic trim members matching color of wall panel materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates scheduled to receive FRP wall panel materials for compliance with manufacturer's requirements and conditions affecting performance.

1. Wall surfaces to receive FRP wall panel materials shall be dry and free from dirt, grease, loose paint, and scale.
2. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Prior to installation clean substrate to remove dust, debris, and loose particles. Provide skim coat over rough walls to smooth surface.
   1. Complete all finishing operations, including painting, before beginning installation of FRP wall panel materials.
   2. Test masonry and plaster substrates to receive FRP wall panel with an electronic moisture meter. Moisture content shall be within manufacturer's recommended limits.
   3. Prime and seal substrates, if required, in accordance with the FRP wall panel material manufacturer's recommendations for the type of substrate.

3.3 INSTALLATION

A. General: Install FRP wall panel materials in accordance with manufacturer's recommendations using adhesive recommended for use over the substrate.

   1. Moldings: Furnish moldings for perimeter edging where indicated. Install moldings in the longest practical lengths. Tightly butt end joints and miter corners.
   2. Installation Type: full-wall height, from top of wall base to 8 inches above ceiling.

3.4 CLEANING

A. General: Immediately upon completion of installation, clean FRP wall panels and accessories using a manufacturer's recommended cleaning agent. Clean moldings in accordance with the manufacturer's recommendations.

B. Remove excess adhesive, using methods and materials recommended by manufacturer.

C. Remove surplus materials, rubbish, and debris resulting from installation upon completion of Work, and leave areas of installation in neat, clean condition.

END OF SECTION 09 77 00

SECTION 09 91 00 - PAINTING AND COATING

PART 1 - GENERAL

1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.

1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.

1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.

C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

1. Prefinished items typically include the following factory-finished components:

a. Architectural woodwork.
b. Acoustical wall panels.
c. Toilet enclosures.
d. Metal lockers.
e. Finished mechanical and electrical equipment.
f. Light fixtures.

2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:

a. Foundation spaces.
b. Furred areas.
c. Ceiling plenums.
d. Utility tunnels.
e. Pipe spaces.
f. Duct shafts.
g. Elevator shafts.

3. Finished metal surfaces include the following:

a. Anodized aluminum.
b. Stainless steel.
c. Chromium plate.
d. Copper and copper alloys.
e. Bronze and brass.

4. Operating parts include moving parts of operating equipment and the following:

    a. Valve and damper operators.
    b. Linkages.
    c. Sensing devices.
    d. Motor and fan shafts.

5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

6. Do Not Apply Oil- Based Products Unless Specifically Indicated Otherwise:

    a. Under no circumstances apply oil-based products to interior surfaces of exterior walls.

    b. coordinate application of any oil-base product on the project with architect prior to application.

D. Related Sections include the following:

1. Division 5 Section "Structural Steel" for shop priming structural steel.
2. Division 5 Section "Metal Fabrications" for shop priming ferrous metal.
3. Division 6 Section "Interior Architectural Woodwork" for shop sealing or priming interior architectural woodwork.
4. Division 8 Section "Steel Doors and Frames" for factory priming steel doors and frames.
5. Division 9 Section "Gypsum Board Assemblies" for surface preparation of gypsum board.
6. Division 32 Section "Pavement Marking" for traffic-marking paint.

1.3 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

1. Flat refers to a lusterless or matte finish with a gloss level of 5 or below when measured at a 60 degree meter and a maximum of 10 at 85 degrees. MPI Gloss Level 1.
2. Eggshell refers to low-sheen finish with a gloss level between 10 and 25 when measured at a 60 degree meter and a gloss level between 10 and 35 units at 85 degrees. MPI Gloss Level 3.
3. Satin refers to low-sheen finish with a gloss level between 20 and 35 when measured at a 60 degree meter and a minimum gloss level of 35 units at 85 degrees. MPI Gloss Level 4.
4. Semigloss refers to medium-sheen finish with a gloss level between 35 and 70 when measured at a 60 degree meter. MPI Gloss Level 5.
5. Full gloss refers to high-sheen finish with a gloss level between 70 and 85 when measured at a 60 degree meter. MPI Gloss Level 6.

1.4 SUBMITTALS

A. Product Data: For each type of product.

B. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.

C. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material and related primer.

D. Samples for Verification: For each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.

1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
2. Provide a list of materials and applications for each coat of each Sample. Label each Sample for location and application.
3. Submit two Samples on the following substrates for Architect's review of color and texture only:
    a. Concrete: 4 inch (100 mm) square Samples for each color and finish.
    b. Concrete Unit Masonry: 4 by 8-inch (100 by 200 mm) Samples of masonry, with mortar joint in the center, for each finish and color.
    c. Painted Wood: 12 inch (300 mm) square Samples for each color and material on hardboard.
    d. Stained or Clear Finished Wood: 4 by 8-inch (100 by 200 mm) Samples of natural- or stained-wood finish on representative surfaces.

E. Qualification Data: For Applicator.

1.5 QUALITY ASSURANCE

A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.

C. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved Sample Submittals. Benchmark finish shall be applied by the Subcontractor responsible for the Project Work.

1. Architect will select one room or surface to represent surfaces and conditions for application of each type of coating and substrate.
    a. Wall Surfaces: Provide samples on at least 100 sq. ft. (9 sq. m).
    b. Small Areas and Items: Architect will designate items or areas required.
2. Apply benchmark samples, according to requirements for the completed Work, after permanent lighting and other environmental services have been activated. Provide required sheen, color, and texture on each surface.
    a. After finishes are accepted, Architect will use the room or surface to evaluate coating systems of a similar nature.
3. Final approval of colors will be from benchmark samples.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
    1. Product name or title of material.
    2. Product description (generic classification or binder type).
    3. Manufacturer's stock number and date of manufacture.
    4. Contents by volume, for pigment and vehicle constituents.
    5. Thinning instructions.

6. Application instructions.
7. Color name and number.
8. VOC content.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain storage containers in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.7 PROJECT CONDITIONS

A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F (10 and 32 deg C).

B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F (7 and 35 deg C).

C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.8 EXTRA MATERIALS

A. Furnish extra paint materials from the same production run as the materials applied and, in the quantities, described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.

1. Quantity: Furnish Owner with an additional 3 percent, but not less than 1 gal., unopened for each product type and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products indicated in other Part 2 articles, or for listed but discontinued products, provide a comparable current product.

B. Manufacturers' Names: The following manufacturers are referred to in other Part 2 articles by shortened versions of their name shown in parentheses:

1. Benjamin Moore & Co. (Benjamin Moore) www.benjaminmoore.com Coronado and Lenmar Products are acceptable as members of the Benjamin Moore Family of brands.
2. Kelly-Moore Paints (Kelly-Moore) www.kellymoore.com
3. PPG PAINTS (PPG), Inc. www.ppgpaints.com
4. The Sherwin-Williams Company (Sherwin-Williams) www.sherwin-williams.com

C. VOC Content: Products shall comply with VOC limits established in Green Seal Standard GS-11 and GC-03 for interior paints and coatings applied at the Project site. The following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints: 50 g/L.
2. Nonflat Paints: 150 g/L.

3. Dry-Fog Paints: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Floor Coatings: 100 g/L.
9. Sealers: 250 g/L.
10. Shellacs, Clear: 730 g/L.
11. Shellacs, Pigmented: 550 g/L.
12. Stains: 250 g/L.

2.2 MATERIALS - GENERAL

A. Applications Schedules:

1. Reference Schedules under Part 3 below for locations and applications of specific paint systems, coatings, stains, finishes, and sealers for this Project.
2. Certain of the paint and stain systems specified in Part 2 may not be required or scheduled for this particular Project.

B. Paints: Ready mixed, except field catalyzed coatings.

1. Prepare to soft paste consistency, capable of being readily and uniformly dispersed to homogeneous mixture.
2. For good flow and brushing properties.
3. Capable of drying or curing free of streaks or sags.

C. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve finishes specified; commercial quality.

D. Patching Materials: Latex filler.

E. Fastener Head Cover Materials: Latex filler.

F. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

G. Material Quality: Provide manufacturer's best-quality paint material of the various types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

H. Alternate Manufacturers: Sherwin-Williams products are specified. Equivalent products by listed manufacturers are acceptable upon approval by Architect.

I. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

J. Colors: As indicated in the Color Schedule in the Drawings.

2.3 CONCRETE UNIT MASONRY BLOCK FILLERS

A. Concrete Unit Masonry Block Filler: Factory-formulated latex block fillers.

1. Sherwin-Williams; PrepRite Interior/Exterior Block Filler B25W25: Applied at a dry film thickness of not less than 8.0 mils per coat.

2.4 EXTERIOR PRIMERS

A. Exterior Metal Field Primers:

1. Factory-formulated metal primer for galvanized or bare metal without shop primer.
   a. Sherwin-Williams; Pro-Cryl Universal Water Based Primer, B66 Series: Applied at a dry film thickness of 2.0 – 4.0 mils per coat

2. Field Welds in Galvanized Metal:
   a. ZRC Worldwide "Galvilite" zinc-rich coating.

B. Shop Primers: Typically applied by steel or miscellaneous metals fabricator.

1. Verify compatibility of finish paint with shop-applied primers.

2. Reference Division 5 metals sections for special epoxy shop primers required at items specified or indicated to be shop primed and field painted with urethane alkyd enamel.

C. Exterior Concrete and Masonry Primer: Factory-formulated masonry primer for exterior application:

1. Sherwin-Williams; Loxon Masonry Primer A24W300: Applied at a dry film thickness of not less than 3.0 mils.

2.5 EXTERIOR FINISH COATS

A. Urethane Alkyd Enamel: Factory-formulated full-gloss urethane alkyd enamel for exterior application.

1. Sherwin-Williams; Industrial Urethane Alkyd Enamel, B54E51: Applied at a dry film thickness of 2.0 – 4.0 mils per coat.

B. Alkyd Enamel: Factory-formulated formulated full-gloss alkyd enamel for exterior application.

1. Sherwin-Williams; Industrial Enamel B-54WZ101: Applied at a dry film thickness of not less than 2.0 mils per coat.

2. Apply two (2) coats over specified primer.

C. Exterior Low-Luster Acrylic Paint: Factory-formulated low-sheen (eggshell) acrylic-latex paint for exterior application.

1. Sherwin-Williams; A-100 Exterior Latex Satin House & Trim Paint A82 Series: Applied at a dry film thickness of not less than 1.5 mils.

2. Apply two (2) coats over specified primer.

D. Concrete Curb Enamel:

1. Sherwin-Williams; H&C Concrete Sealer Solid Color solvent-based flat enamel (fire lane curbs).

2. Finish Coats: Two coats specified exterior full-gloss alkyd enamel.

2.6 INTERIOR CONCRETE UNIT MASONRY BLOCK FILLER

A. Concrete Unit Masonry Block Filler: Factory-formulated latex block fillers.

1. Sherwin-Williams; PrepRite Interior/Exterior Block Filler B25W25: Applied at a dry film thickness of not less than 8.0 mils per coat.

2.7 INTERIOR PRIMERS

A. Interior Concrete and Concrete Masonry (CMU) Primer: Factory-formulated alkali-resistant acrylic-

latex interior primer for interior application.

1. Sherwin-Williams; Loxon Concrete & Masonry Primer, A24W8300: Applied at a dry film thickness of not less than 3.0 mils per coat
2. Use equivalent zero VOC primer when building will be occupied by students or staff within 5 days after application

B. Interior Gypsum Board Primer: Factory-formulated latex-based primer for interior application1.

1. Sherwin-Williams; Pro Mar 200 Zero VOC Latex Primer B28W2600 Series: Applied at a dry film thickness of not less than 1.5 mils per coat.

C. High Performance Gypsum Board Primer: Factory-formulated acrylic primer for application under epoxy finish coats.

1. Sherwin-Williams; Pro Green 200 Latex Wall Primer B28W600 Series: Applied at a dry film thickness of not less than 1.0 mils per coat.

D. Interior Ferrous Metal Primer: Factory-formulated for galvanized or bare metal not shop primed.

1. Sherwin-Williams; Pro Cryl Universal Water Based Primer B66 series: Applied at a dry film thickness of 2.0 – 4.0 mils per coat.
2. Reference Division 5 metals sections for special epoxy shop primers required at items specified or indicated to be shop primed and field painted with urethane alkyd enamel.

E. Interior Dryfall Undercoat: Factory-formulated acrylic undercoat for exposed roof structure, roof deck, piping and ducting both unprimed and primed.

1. Sherwin-Williams: Waterborne Acrylic Dry Fall, B42 Series.

2.9 INTERIOR FINISH COATS

A. Reference Schedule Information in Part 3 for specific usage of each paint system.

B. Interior Low-VOC Latex Enamel: Factory-formulated acrylic-latex interior enamel.

1. Sherwin-Williams; Pro Mar 200 Zero VOC Latex Enamel: Applied at a dry film thickness of not less than 1.7 mils per coat. Gloss, semigloss, and eggshell/satin as scheduled.
2. Sherwin-Williams; Pro Industrial Zero-VOC Acrylic Semigloss, B66W651 over shop primer: Applied at a dry film thickness of 2.5 – 4.0 mils per coat. Where specifically indicated for industrial finish.

C. Interior Dryfall Finish Coat: Factory-formulated acrylic finish coat for exposed and primed roof structure, roof deck, piping, ducting, and cementitious wood fiber planks.

1. Sherwin-Williams: Waterborne Acrylic Dryfall, B42 Series.

B. Interior Satin Epoxy: Factory-formulated, two-component, waterbased, catalyzed epoxy resin for high performance applications.

1. Sherwin-Williams*: Pro Industrial Water Based Catalyzed Epoxy* B73-360 Series: Applied at a wet film thickness of 5-10 mils to achieve a dry film thickness of not less than 2 mils per coat.

C. Interior Gloss Epoxy: Factory-formulated, two-component, waterbased, catalyzed epoxy resin for high performance applications.

1. Sherwin-Williams*: Pro Industrial Water Based Catalyzed Epoxy* B73-300 Series: Applied at a wet film thickness of 5-10 mils to achieve a dry film thickness of not less than 2 mils per coat.

D. 250 VOC Interior Wood Stain: Factory-formulated penetrating wood stain for interior application, 250 g/L VOC. Use where stain or color is specifically indicated, and verify with Architect:

1. Sherwin-Williams; Wood Classics Interior Oil Stain-250.

E. Interior Waterborne Polyurethane Varnish: Factory-formulated clear varnish, Gloss or Satin.

1. Sherwin-Williams; Wood Classics Waterborne Polyurethane Varnish, A68 Series: Applied at a dry film thickness of 0.8 - 1.0 mils per coat. Satin finish unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.

1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.

2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.

1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and reprime.

2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.

b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.

3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.

b. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.

4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.

a. Blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 10/NACE No. 2.

b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.

c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.

5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

6. Painted Surfaces: When painting over surfaces that have been previously painted, prepare surfaces in accordance with paint manufacturer's instructions, and verify with manufacturer that new coatings are compatible with the existing coatings.

a. Provide adhesion testing of existing paint. Remove completely any loose, flaking, or non-adhering paint.

b. Clean existing finishes of grease, oil, dust or other materials that may tend to adversely affect adhesion of new paint. Do not use cleaners that will leave a residue.

c. Remove by sanding any gloss or sheen on existing painted surfaces before application of paint. Remove all sanding dust.

d. Apply an alkyd bonding primer to all prepared existing painted surfaces prior to application of new paint. Use manufacturer's recommended epoxy primer for new epoxy. Verify proper primer for the specific application with the finish paint manufacturer and submit to the Architect.

e. Where encountering existing no-sheen finishes, primer may not be required if preparation of existing surfaces will produce sufficient bonding of new paint, as demonstrated to the Architect through industry standard pull testing.

f. If specified new coating is determined to be incompatible with exiting coatings, do not proceed, and notify Architect for direction.

D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.

2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.

3. Use only thinners approved by paint manufacturer and only within recommended limits.

E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
3. Provide finish coats that are compatible with primers used.
4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
10. Sand lightly between each succeeding enamel or varnish coat.

B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
2. Omit primer over metal surfaces that have been shop primed and touchup painted.
3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.

C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.

3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.

E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.

F. Mechanical items to be painted include, but are not limited to, the following:

1. Uninsulated metal piping.
2. Uninsulated plastic piping.
3. Pipe hangers and supports.
4. Tanks that do not have factory-applied final finishes.
5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
8. Paint all grilles, registers, diffusers, (including return air and supply air) and speaker grilles to match adjacent wall and ceiling surfaces, except that factory pre-finished items need not be painted if installed in a suspended acoustical ceiling system where the acoustical panels match the mechanical or electrical item color.

G. Electrical items to be painted include, but are not limited to, the following:

1. Switchgear.
2. Panelboards.
3. Electrical equipment that is indicated to have a factory-primed finish for field painting.

H. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.

I. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

K. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.

L. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

A. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:

1. Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
2. Testing agency will perform appropriate tests for the following characteristics as required by Owner:
    a. Quantitative materials analysis.
    b. Abrasion resistance.
    c. Apparent reflectivity.
    d. Flexibility.
    e. Washability.
    f. Absorption.
    g. Accelerated weathering.
    h. Dry opacity.
    i. Accelerated yellowness.
    j. Recoating.
    k. Skinning.
    l. Color retention.
    m. Alkali and mildew resistance.
3. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.

1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

1. Protection requirements apply to items located:
    a. Above ceilings which are closed to view, and
    b. To items located, and
    c. Above open ceilings.
    d. Protection is required in ALL instances.

B. Cabling Protection Goals: 1) To keep compatibility-interaction issues between cable jackets and paint from occurring, 2) to keep paint on cabling from voiding cable warranties, and 3) to keep identifying marks on the cabling from being obscured:

1. Non-metallic jacketed cabling (includes all non-metallic electrically insulated cabling) shall be fully protected and masked off so that cabling does **not** get painted, unless otherwise indicated.

2. Partial protection and masking will cause the entire length of cable to be required to be removed and reinstalled. At the Contractor's expense, painted cabling installations with any part of a cable not in compliance with this requirement shall be removed and reinstalled (fully replaced) to be in compliance with requirements.

3. Cleaning the overspray paint from cabling is not acceptable, will not be allowed and shall not be suggested, nor attempted.

4. Remove and dispose of masking devices and materials upon completion of painting activities, only after paint has fully dried. Collect and dispose of pieces of paint which flake off of painted masking devices and materials.

5. The previous requirements apply to all cabling, which includes, but is not limited to the following:

   a. Fire alarm cabling.

   b. Data cabling.

   c. Temperature control cabling.

   d. All audio and video cabling.

   e. Light cabling.

   f. Powered shade cabling.

   g. Low-voltage power cabling.

   h. Power cabling other than low-voltage power cabling, if visible.

6. For HVAC ducts exposed to view at the interior of the building and indicated to not be painted, (like exposed, galvanized ducts) the ducts shall be fully protected and masked-off so that they do not get coated with overspray paint from other painting activities. If ducts receive a coating of overspray paint when they are designated to remain unpainted, at the Contractor's expense, the overspray paint on the ducts shall be cleaned from the ducts without damaging the duct surface (color, texture, pattern) below the overspray. Ducts with damaged surfaces shall be removed and reinstalled. Ducts shall remain unpainted.

7. For HVAC ducts indicated to be painted, ducts shall not be painted with overspray paint from other painting activities. When ducts are designated to be painted, and they receive overspray paint of a type of paint which is different than the type that they are designated to be painted, at the Contractor's expense, the overspray paint on the ducts shall be cleaned from the ducts without damaging the duct surface below the overspray and without altering the texture of the duct surface to be painted. A damaged surface shall be repaired to be smooth and otherwise made consistent with the undamaged duct surfaces prior to repainting with the correct type of paint. After the repaired surface is accepted by the Architect in the field, the ducts may be fully painted with the type and color of paint with which the ducts are required ed to be painted.

8. When HVAC ducts are designated to be painted, and they receive overspray of the correct paint type but the wrong color, at the Contractor's expense, the overspray paint on ducts shall be cleaned from the ducts without damaging the duct surfaces below the overspray which shall include not altering the texture of the duct surfaces to be painted. In lieu of cleaning the overspray paint off the ducts, the Contractor may fully paint the ducts with the overspray paint type and incorrect color to provide a consistent surface for repainting the duct with the correct type of paint in the correct, required color, if accepted by the Architect in the field.

9. For HVAC ducts hidden from view and not indicated to be painted, the ducts shall not be painted and shall not be coated with overspray from other painting activities. If ducts labels receive overspray paint, clean the paint from the labels without damaging the duct surface below the overspray.

10. Items that are not meant to be painted and / or items to which paint will not adhere, including but not limited to the following:
    a. Soft ducts, those with insulation at their exterior wrap.
11. Mechanical boxes and adjacent items, including but not limited to the following:
    a. Fan boxes.
    b. Fan-coil boxes
    c. Cabling coming out of, or going to boxes
12. Labels, Signs, Informational Markings: If labels, signs, informational markings receive obscuring overspray paint, clean the paint from the item without damaging the information declared on the informational item. Identification labels, signs and informational markings, include but not limited to the following:
    d. Door labels.
    e. Frame labels.
    f. Mechanical box labels.
    g. Light fixture labels.
    h. Mechanical, Electrical, Plumbing, Technology (Communications, Security, other) and other above the ceiling and above the head identification signs.

C. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
    1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1. Remove and reinstall overspray painted cabling, at the Contractor's expense. Cleaning the cabling is not acceptable and shall not be suggested and will not be allowed.

8.7 SCHEDULE - INTERIOR SURFACES (EXCEPT EPOXY)

A. Scheduling of paint types below is a general reference for the Project. Where specific paint types on the Color/Finish Schedule in the drawings vary from below, the Color/Finish Schedule shall govern.

B. Concrete (other than concrete masonry units): Provide the following paint systems over interior concrete:
    1. Primer: Specified interior concrete and masonry primer.
    2. Finish Coats: Interior low-VOC acrylic enamel.
        a. Semigloss finish in Classrooms and Laboratories.
        b. Eggshell/satin finish elsewhere unless otherwise scheduled.

C. Concrete Unit Masonry: Provide the following finish systems over interior concrete masonry units, except where scheduled for epoxy:
    1. Block Filler: Specified concrete unit masonry block filler.
    2. Finish Coats: 2-coats specified interior low-VOC latex enamel.
        a. Semigloss finish in Classrooms and Laboratories.
        b. Eggshell/satin finish elsewhere unless otherwise scheduled.

D. Gypsum Board Partitions: Provide the following finish systems over interior gypsum board partitions:
    1. Primer: Specified interior gypsum board primer.
    2. Finish Coats: 2-coats specified interior low-VOC latex enamel.
        a. Semigloss finish in classrooms, corridors, restrooms, custodial closets, wet areas.
        b. Eggshell finish elsewhere unless otherwise scheduled.

E. Gypsum Board Ceilings and Furrings: Provide the following finish systems over interior gypsum board ceilings and furrings in dry or normal humidity areas:

1. Eggshell/Satin: Zero-VOC Latex Enamel Finish: Two finish coats over specified primer.
2. Primer: Interior gypsum board primer.
3. Finish Coats at typical dry or low humidity areas: 2-coats specified interior Eggshell/Satin low-VOC latex enamel.
    a. Finish Coats in wet or high humidity areas: 2-coats specified interior Semigloss low-VOC latex enamel.

F. Metals: Provide the following finish systems over interior metal surfaces indicated to be painted:
1. Stair risers and stringers; railings: See epoxy specification below.
2. Miscellaneous piping, bollards, equipment supports; loose lintels.
    a. Primer: Specified metal primer or shop primer.
    b. Finish Coats: Two coats specified full-gloss alkyd enamel.
3. Field Welds and Cuts in Galvanized Metals: Apply 2-coats of specified zinc-rich coating over wire-brushed and cleaned galvanized metal.

G. Exposed roof structure and steel or cementitious wood fiber roof deck (including piping, conduit, etc.): provide the following finish systems:
1. Undercoat: Specified interior dryfall paint.
2. Finish coat: Specified interior dryfall paint.

3.8 SCHEDULE - INTERIOR EPOXY FINISHES

A. Scheduling of paint type below is a general reference for the Project. Where specific paint types on the Color/Finish Schedule in the drawings vary from below, the Color/Finish Schedule shall govern.

B. Stair risers, stringers, and railings; guard railings; other items specifically indicated for epoxy enamel.
1. Primer: Specified metal primer or shop primer.
2. Two coats specified waterborne gloss epoxy enamel over specified primer or shop primer. Spray-apply to eliminate brush strokes.

C. Concrete Unit Masonry or Concrete: Provide the following epoxy system over interior concrete masonry or rubbed concrete:
1. Gloss Epoxy Finish: Two finish coats over specified primer at restrooms, laboratory and prep.rooms, custodial.
    a. Block Filler: Concrete unit masonry block filler.
    b. Finish Coats: 2-coats specified interior water based gloss epoxy finish

D. Gypsum Board: Provide the following epoxy systems over interior gypsum board surfaces:

1. Satin Epoxy Finish: Two finish coats over specified prime.
    a. Primer: Specified high performance gypsum board primer.
    b. Finish Coats: 2-coats specified interior water based satin epoxy finish

3.9 SCHEDULE - INTERIOR TRANSPARENT FINISH

A. Transparent Finished Woodwork: Provide the following catalyzed lacquer system over wood surfaces:
1. Stain Coat: Specified interior oil wood stain where specifically indicated. Provide 1 or 2 coats as required to achieve selected uniform color.
2. Finish Coats: 2-coats specified interior polyurethane satin finish.
3. Lightly sand between all coats for best adhesion. Wipe with tack-cloth.

END OF SECTION 09 91 00

SECTION 10 14 00 – APPLIED BUILDING LETTERS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following types of signs:
   1. Individual dimensional metal letters and numbers.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 01 50 00 - Temporary Facilities: Temporary project identification signs.

1.2 SUBMITTALS

A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
   1. Product data for each type of sign specified, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.
   2. Shop drawings:
      a. Drawings showing fabrication and erection of letters. Include plans, elevations, and large-scale sections of typical members and other components. Show anchors, grounds, layout, reinforcement, accessories, and installation details.
   3. For letters supported by or anchored to structures or canopies, provide setting drawings, templates, and directions for installation of anchor bolts and other anchors to be installed as a unit of Work in other Sections.

B. Templates:
   1. Furnish full-size spacing templates for individually mounted dimensional letters and numbers.

C. Samples for verification of color, pattern, and texture selected and compliance with requirements indicated:
   1. Dimensional Letters: Provide full-size representative samples of each dimensional letter type required, showing letter style, color, and material finish and method of attachment. Approved samples may be utilized in the final installation.

1.3 PROJECT CONDITIONS

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication to ensure proper fitting. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

   1. Manufacturers of Dimensional Letters:
      a. Andco Industries Corp. www.andco.com
      b. A.R.K. Ramos Manufacturing Company, Inc. www.arkramos.com
      c. ASI Sign Systems, Inc. www.asisign.com
      d. Gemini, Inc. www.signletters.com
      e. Matthews International Corp. www.matthewsgsd.com
      f. Metal Arts. www.metalartslettersandplaques.com
      g. Metallic Arts, Inc. www.metallicarts.com
      h. The Southwell Company. www.southwellco.com/metalletters.html
      i. Spanjer Brothers, Inc.
      j. Vomar Products, Inc. www.vomarproducts.com

2.2 MATERIALS

A. Aluminum Castings: Provide aluminum castings of alloy and temper recommended by the sign manufacturer for the casting process used and for the use and finish indicated.

B. Fasteners: Use concealed fasteners fabricated from metals that are not corrosive to the material and mounting surface.

C. Anchors and Inserts: Use nonferrous metal or hot-dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

2.3 DIMENSIONAL LETTERS AND NUMBERS

A. Cast Letters and Numbers: Form individual letters and numbers by casting. Produce characters with smooth, flat faces, sharp corners, and precisely formed lines and profiles, free from pits, scale, sand holes, or other defects.

1. Cast aluminum with clear anodized finish, in styles and heights as indicated.

2. Depending on installation type cast lugs into the back or bottom of characters and tap to receive threaded mounting studs.

3. Thickness: 1" minimum.

4. Comply with requirements indicated for color, finish, style, and size.

B. Mounts

1. Back-Mounted: Cast lugs into the back of characters and tap to receive threaded brass or stainless steel mounting studs for epoxy mounting to building walls with pre-drilled mounting holes slightly larger than studs.

2. Free-Standing Mounted: Cast lugs into the bottom of characters and tap to receive threaded stainless steel mounting studs for bolting to continuous aluminum or stainless steel angle.

2.4 FINISHES

A. Colors and Surface Textures: For exposed sign material that requires selection of materials with integral or applied colors, surface textures or other characteristics related to appearance, provide color matches indicated, or if not indicated, as selected by the Architect from the manufacturer's standards.

B. Metal Finishes: Comply with NAAMM "Metal Finishes Manual" for finish designations and applications recommendations.

C. Aluminum Finishes: Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.
1. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: Nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 607.1.n.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Locate units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.
1. Install units level, plumb, and at the height indicated, with unit surfaces free from

distortion or other defects in appearance.

B. Individual Dimensional Letters and Numbers:

1. Back-Mounted Characters: Mount using threaded stainless steel or brass studs set in tapped lugs at backs of letters. Drill holes in finished masonry slightly larger than threaded studs and set in two-component clear epoxy adhesive. Use sufficient epoxy such that small amount of material pushes out of the mounting holes and seals to back of letters or spacers.
2. Freestanding Characters: Mount using threaded stainless steel studs set in tapped lugs at bottom of letters and shop-bolted to continuous anodized aluminum support plate. Alternate mounting using heli-arc welding prior to anodizing.
    a. Continuous Support: Bolt continuous aluminum angle supports to top of masonry walls using stainless steel expansion anchors.
    b. For security spot weld bolt heads to mounting angle.

3.2 CLEANING AND PROTECTION

A. After installation, clean soiled sign surfaces according to the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

END OF SECTION

SECTION 10 14 23 – ROOM IDENTIFICATION SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes room-identification signs that are directly attached to interior wall surfaces.

1.3 DEFINITIONS

A. Accessible: In accordance with the accessibility standard.

1.4 COORDINATION

A. Furnish templates for placement of sign-anchorage devices embedded in permanent construction by other installers.

B. Furnish templates for placement of electrical service embedded in permanent construction by other installers.

1.5 ACTION SUBMITTALS

A. Shop Drawings: For room-identification signs.
   1. Include fabrication and installation details and attachments to other work.
   2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
   3. Show message list, typestyles, graphic elements, including raised characters and Braille, and layout for each sign at least half size.

B. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.
   1. Include representative Samples of available typestyles and graphic symbols.

C. Samples for Verification: For each type of sign assembly showing all components and with the required finish(es), in manufacturer's standard size unless otherwise indicated and as follows:
   1. Room-Identification Signs: Full-size Sample.
   2. Variable Component Materials: Full-size Sample of each base material, character (letter, number, and graphic element) in each exposed color and finish not included in Samples above.
   3. Exposed Accessories: Full-size Sample of each accessory type.
   4. Full-size Samples, if approved, will be returned to Contractor for use in Project.

D. Product Schedule: For room-identification signs. Use same designations indicated on Drawings or specified.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Manufacturer.

B. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For signs to include in maintenance manuals.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.9 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Deterioration of finishes.
      b. Deterioration of embedded graphic image.
      c. Separation or delamination of sheet materials and components.
      d. Separation from mounting wall surface.
   2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design", the Texas Accessibility Standard (TAS) and ICC A117.1.

2.2 ROOM-IDENTIFICATION SIGNS

A. Room-Identification Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; adhesive applied letters and Braille dots will not be accepted; and as follows:
   1. Manufacturers: Subject to compliance with requirements, manufacturers offering comparable products (solely in the opinion of the Architect) which may be incorporated in the Work include, but are not limited to, the following:
      a. APCO Graphics 877-988-2726 www.apcosigns.com
      a. Architectural Graphic Products, Inc. 713-683-8942 www.agpsignsonline.com
      b. ASI Sign Systems, Inc. 800-274-7732 www.asisignage.com
      c. Bayuk Graphic Systems, Inc. 800-670-2316 www.bayukgraphics.com
      d. Building Image Group, Inc. 512-494-1466 www.buildingimagegroup.com
      e. Casteel Sign 214·352·7446 www.casteelsign.com/index.html
      f. Charleston Industries, Inc. 800-722-0209 www.cisigns.com
      g. DanSign 877-257-2062 www.dansign.com
      h. DGS Corp. 773-283-4411
      i. Diskey Sign Company 800-669-4472 www.diskeysign.com
      j. DiverseID (877) 446-2374 diverseid.com/
      k. Lettering Specialists, Inc., 847-674-3414 www.asigncompany.com
      l. Modulex 214-352-9140 www.modulex.com
      m. Mohawk Sign Systems 800-223-7705 www.mohawksign.com
      n. MooreCo. Inc. 800-749-2258 www.moorecoinc.com
      o. Poblocki Sign Company LLC 888-678-9995 www.poblocki.com
      p. South Texas Graphic Specialties, Inc. 713-467-4499
      q. Spanjer Brothers, Inc.
      r. Takeform 800-528-1398 www.takeform.net/
      s. Texas Star Engraving 877-989-7827 www.txstarengraving.com
      t. The Supersine Company 800-328-1988 www.supersine.com
      u. Vomar Products, Inc. 818-610-5115 www.vomarproducts.com
   2. Laminated-Sheet Sign: Use at all locations required to be accessible – everywhere in the building.][Use only where indicated.] Photopolymer or Sandblasted polymer face sheet with raised graphics laminated to acrylic backing sheet to produce composite sheet. Basis-of-Design is "InTouch" by ASI Sign Systems, Inc. 800-274-7732 www.asisignage.com.
      a. Composite-Sheet Thickness: As indicated on Drawings, or if not indicated, provide the Manufacturer's standard for size of sign, but not less than 0.125 inch.
      b. Subsurface Graphics: Reverse halftone or dot-screen image or Reverse etch image
      c. Color(s): As selected by Architect from manufacturer's full range.]
      a. Braille: Provide fully domed, Grade II Braille dots.]
   3. Sign-Panel Perimeter: Finish edges smooth.

a. Edge Condition at Edges: Square cut.
b. Corner Condition in Elevation: As indicated on Drawings.

4. Mounting: Manufacturer's standard method for substrates indicated for surface mounting to wall with adhesive or two-face tape.
5. Glass Mounted Blank Backers: For each sign mounted on glass, provide an opaque vinyl backer sheet with no design on it, in a color matching the tinted glass, if mounted on tinted glass, or matching the sign color if mounted on clear glass. Vinyl shall be shiny to match the glass.
6. Text and Typeface: Accessible raised characters and Braille with typeface matching Architect's drawing.
7. Graphic Content and Style: Provide sign copy that complies with the requirements indicated for size, style, spacing, content, position, material, finishes, and colors of letters, numbers, and other graphic devices.

2.3 SIGN MATERIALS

A. Acrylic Sheet: ASTM D 4802, category as standard with manufacturer for each sign, Type UVF (UV filtering).

B. Exterior Signs: Exterior located signs shall be wholly made from Ultraviolet-Light and water resistant materials.

2.4 ACCESSORIES

A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following:

1. Use concealed fasteners and anchors unless indicated to be exposed.

B. Two-Face Tape: Manufacturer's standard high-bond, foam-core tape, 0.045 inch (1.14 mm) thick, with adhesive on both sides.

C. Vinyl backer: Opaque backer with gloss to match the glass for each sign mounted on glass. Vinyl backer sheet shall be in a color matching tinted glass, if mounted on tinted glass, or matching the sign color and pattern if mounted on clear glass.

2.5 FABRICATION (Plastic Interior Signs)

A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
1. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
3. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
4. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.

B. Signs with Changeable Message Capability: Fabricate signs to allow insertion of changeable messages as follows:
1. For snap-in changeable inserts beneath removable face sheet, furnish one suction or other device to assist in removing face sheet. Furnish initial changeable insert. Furnish two blank inserts for each sign for Owner's use.
2. For slide-in changeable inserts, fabricate slot without burrs or constrictions that inhibit function. Furnish initial changeable insert. Furnish two blank inserts for each sign for Owner's use.
3. For frame to hold changeable sign panel, fabricate frame without burrs or constrictions that inhibit function. Furnish initial sign panel and additional blanks as specified above.

2.6 GENERAL FINISH REQUIREMENTS

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
   1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
   2. Install signs so they do not protrude or obstruct according to the accessibility standard.
   3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.

B. Accessibility: Install signs in locations on walls as indicated on Drawings and according to the accessibility standard.

C. Mounting Methods:

   1. Adhesive: Clean bond-breaking materials from substrate surface and remove loose debris. Apply linear beads or spots of adhesive symmetrically to back of sign and of suitable quantity to support weight of sign after cure without slippage. Keep adhesive away from edges to prevent adhesive extrusion as sign is applied and to prevent visibility of cured adhesive at sign edges. Place sign in position and push to engage adhesive. Temporarily support sign in position until adhesive fully sets.

   2. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position and push to engage tape adhesive.

D. Signs Mounted on Glass:

   1. Clean glass surface. Place sign in position and push to engage adhesive. Follow sign manufacturer's instructions for sign installation on glass.

   2. Provide a shiny opaque backer sheet matching the sign material, color, size, and pattern for signs on clear glass. At signs mounted on tinted glass, shiny backer sheet shall match the color of the tinted glass. Backer sheets shall be mounted onto the opposite side of the glass from the sign to conceal the back mounting method of the sign.

3.2 ADJUSTING AND CLEANING

A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.

B. Remove temporary protective coverings and strippable films as signs are installed.

C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 10 14 23.13

SECTION 10 21 13 – PHENOLIC CORE TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes: Phenolic-core through-color urinal screens and overhead braced toilet compartments.

B. Related Sections:
1. Section 06 10 00 - Rough Carpentry: Concealed wood framing and blocking for compartment support.
2. Section 10 28 00 - Toilet Accessories.

1.2 REFERENCES

A. ASTM International:
1. ASTM A666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall and floor supports, and door swings.

C. Product Data: Submit data on panel construction and each type of hardware and accessory.

D. Samples: Submit two samples, 12 x 12 inch in size, illustrating panel finish, color, and sheen.

E. Manufacturer's Installation Instructions: Submit special procedures and perimeter conditions requiring special attention.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with Texas Accessibility Standards (TAS).

B. Partition system installation company shall have a minimum of five (5) years' experience in the installation of similar systems for projects of similar size and scope and be authorized by the system manufacturer for this installation.

1.5 WARRANTIES

A. Toilet Compartment Contractor's Warranty: Provide written warranty against defects in materials and workmanship for a period of 1-year after date of Substantial Completion of the Project.

B. Manufacturer's Warranty: Provide written warranty against defects in materials including warping, cracking, crazing, or fading of panels, and corrosion or breakage of hardware and metal clips, feet, braces, and other accessories for a period of 15-years after date of Substantial Completion of the Project.

1.5 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Coordinate Work with placement of support framing and anchors in wall and ceiling.

PART 2 - PRODUCTS

2.1 TOILET COMPARTMENTS and URINAL SCREENS

A. Manufacturers:
1. Accurate Partitions Corporation, www.accuratepartitions.com
2. Ampco, www.ampco.com
3. Bobrick Washroom Equipment, Inc., www.bobrick.com

4. Bradley Corporation, www.bradleycorp.com
5. General Partitions Mfg. Corp. www.genpartitions.com
6. Metpar, www.metpar.com
7. PSISC (Columbia Partitions), www.psisc.com.
8. Tex-Lam Manufacturing, Inc., www.texlam.com
9. Substitutions: Section 01 60 00 - Product Requirements.

B. Product Description: Floor-mounted and overhead braced.

2.2 COMPONENTS

A. Door, Panel and Pilaster Construction: Solid phenolic-core panel material with plastic facing on both sides fused to substrate during panel manufacture (not separately laminated), and with eased and polished edges, and matching through-color cores. Provide minimum 3/4-inch material for all components.
1. Facing Sheet Color: Laminate manufacturer and color as indicated.
2. Core Color: Manufacturer's through-color material matching faces.

B. Urinal Screens: Wall-mounted and floor-braced, of same material as toilet compartments. Brace with 2" x 2" x 1/8" thickness clear anodized extruded aluminum tube with concealed stainless steel or aluminum floor mounting plate and bolted and braced to building structure above ceiling.

2.3 ACCESSORIES

A. Pilaster Shoe: Formed stainless steel sheet, ASTM A666 Type 304, with No. 4 finish, 3-inch high, concealing floor fastenings.

B. Head Rails: Hollow extruded aluminum tube with anti-grip profile and cast socket wall brackets; clear anodized finish.

C. Brackets: Polished stainless steel, full-height (continuous) type.

D. Attachments, Screws, and Bolts: Stainless steel, tamper proof type.
1. For attaching panels and pilasters to brackets: Through-bolts and nuts; tamper proof.

E. Hardware: Stainless steel:
1. Full length stainless steel piano hinge, self-closing, adjustable to hold door open at any angle up to 90 degrees.
2. Heavy-duty stainless steel sliding-type door latch with brushed finish; at compartments indicated to be handicapped accessible, provide latches that comply with accessibility requirements of authorities having jurisdiction.
3. Door strike and keeper with rubber bumper; mounted on pilaster in alignment with door latch.
4. Coat hook with rubber bumper; one for each compartment, mounted on doors of regular compartments and pilasters adjacent to doors at handicapped compartments.
5. Furnish door pull and rubber-tipped bumper for out-swinging doors. Provide pulls on both sides of doors at compartments indicated to be handicapped accessible.
6. Furnish continuous channel brackets at walls.

2.4 FABRICATION

A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, fasteners, and anchors at pilasters to suit floor conditions. Make provisions for setting and securing continuous head rail at top of each pilaster. Provide shoes at pilasters to conceal supports and leveling mechanism.

B. Doors:
1. Standard Compartments: Provide 24- inch wide in-swinging doors at toilet stalls unless indicated otherwise.
2. Handicapped Accessible Toilet Compartments: Provide 34-inch wide out-swinging doors with a minimum 32-inch wide clear opening.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify field measurements are as indicated on shop drawings.

C. Verify correct spacing of plumbing fixtures.

D. Verify correct location of built-in framing, anchorage, and bracing.

3.2 INSTALLATION

A. Maintain the following maximum clearances:
   1. Walls and panels: 1 inch.
   2. Walls and pilasters: 1 inch.
   3. Panels and pilasters: 1/2 inch.

B. Attach continuous panel brackets securely to walls using anchor devices.

C. Secure pilasters to floor; level, plumb, and tighten.

D. Secure continuous head rail to each pilaster with not less than two fasteners.

E. Hang doors to align tops of doors with tops of panels and adjust so tops of doors are parallel with overhead brace when doors are in closed position.

F. Urinal Screens: Attach to floors and walls with anchoring devices to suit supporting structure. Set units level and plumb and to resist lateral impact.

3.3 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation from Indicated Position: 1/4 inch.

C. Maximum Variation from Plumb: 1/8 inch.

3.4 ADJUSTING

A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.

B. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.

C. Adjust hinges to position doors in partially opened position when unlatched. Return out-swinging doors to closed position.

D. Adjust adjacent components for consistency of line or plane.

END OF SECTION

SECTION 10 28 00 – TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Accessories and equipment specified herein to be provided and installed by the Contractor:
   1. Surface mounted toilet tissue dispensers.
   2. Semi-recessed waste receptacles.
   3. Grab bars.
   4. Framed mirrors.
   5. Custodial mop and broom holder.

B. Other accessories and equipment indicated in the drawings to be provided by the Owner and installed by the Contractor:
   1. Surface mounted paper towel dispensers.
   2. Soap dispensers.

1.3 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.4 ACTION SUBMITTALS

A. Product Data for each toilet accessory item specified, including details of construction relative to materials, dimensions, gages, profiles, method of mounting, specified options, and finishes.

B. Setting Drawings: Where cutouts are required in other work, provide templates, substrate preparation instructions, and directions for preparing cutouts and for installation of anchorage devices.

C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
   1. Identify locations using room designations indicated.
   2. Identify accessories using designations indicated.

1.5 INFORMATIONAL SUBMITTALS

A. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For accessories to include in maintenance manuals.

1.7 WARRANTY

A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, visible silver spoilage defects.
   2. Warranty Period: 5-years from date of Substantial Completion of the Project.

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED MATERIALS

A. Owner-Furnished, Contractor-installed: Items are indicated on the drawings and shall be installed by the Contractor unless indicated otherwise.

B. Contractor Furnished and Installed: Items specified below are to be furnished and installed by the Contractor.

2.2 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Source Limitations: Obtain public-use washroom accessories from single source from single manufacturer.

2.3 Waste Receptacles:

A. Basis of Design: Model #0458 by American Specialties, Inc., requiring 4-inch deep wall void.

B. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include the following:
1. AJW Products, Inc. 845-562-3332 www.ajw.com
2. American Specialties, Inc. 914-476-9000 www.americanspecialties.com
3. Bobrick Washroom Equipment, Inc. 800-553-1600 www.bobrick.com
4. Bradley Corporation 800-272-3539 www.bradleycorp.com
5. GAMCO Commercial Restroom Accessories, A Division of Bobrick Washroom Equipment, Inc. 518-877-7444 www.gamcousa.com

C. Features:
1. Mounting: Self-closing cover, semi-recessed unit shall not protrude more than 4 inches from face of wall into which unit is mounted.
2. Material and Finish: Stainless steel, No. 4 finish (satin).
3. Liner: Reusable vinyl liner.
4. Lockset: Tumbler type for waste receptacle.

2.4 Grab Bars:

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include the following:
1. AJW Products, Inc. 845-562-3332 www.ajw.com
2. American Specialties, Inc. 914-476-9000 www.americanspecialties.com
3. Bobrick Washroom Equipment, Inc. 800-553-1600 www.bobrick.com
4. Bradley Corporation 800-272-3539 www.bradleycorp.com
5. GAMCO Commercial Restroom Accessories, A Division of Bobrick Washroom Equipment, Inc. 518-877-7444 www.gamcousa.com

B. Features
1. Mounting: Flanges with concealed fasteners.
2. Material: Stainless steel, 0.05 inch (1.3 mm) thick; No. 4 finish (satin).
3. Outside Diameter: 1-1/2 inches.
4. Configurations and Lengths: As indicated in the drawings.

2.5 Framed Mirror Units:

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include the following:
1. AJW Products, Inc. 845-562-3332 www.ajw.com
2. American Specialties, Inc. 914-476-9000 www.americanspecialties.com

3. Bobrick Washroom Equipment, Inc. 800-553-1600 www.bobrick.com
4. Bradley Corporation 800-272-3539 www.bradleycorp.com
5. GAMCO Commercial Restroom Accessories, A Division of Bobrick Washroom Equipment, Inc. 518-877-7444 www.gamcousa.com

B. Features
1. Frame: Stainless-steel angle, 0.05 inch (1.3 mm) thick.
2. Corners: Welded and ground smooth.
3. Size: As indicated on Drawings.

2.6 UNDERLAVATORY GUARDS: Provided and installed under the Plumbing Section

2.7 CUSTODIAL ACCESSORIES

A. Source Limitations: Obtain custodial accessories from single source from single manufacturer.

B. Mop and Broom Holder:
1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include the following:
a. AJW Products, Inc. www.ajw.com
b. American Specialties, Inc. www.americanspecialties.com
c. Bobrick Washroom Equipment, Inc. www.bobrick.com
d. Bradley Corporation www.bradleycorp.com
e. GAMCO Commercial Restroom Accessories, www.gamcousa.com

C. Features
1. Description: Unit with shelf, hooks, holders, and rod suspended beneath shelf. Holders made of 18 gage (0.050 inch) Type 304 stainless steel.
2. Length: 36 inches.
3. Hooks: Three.
4. Mop/Broom Holders: Four, spring-loaded, rubber hat, cam type.
5. Material and Finish: Stainless steel, No. 4 finish (satin).
6. Shelf: Not less than nominal 0.05-inch- (1.3-mm-) thick stainless steel.
7. Rod: Approximately 1/4-inch- (6-mm-) diameter stainless steel.]

2.8 MATERIALS - GENERAL

A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.

B. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.

C. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.

D. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.

E. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.

F. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).

2.9 FABRICATION

A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.

2.10 KEY TESTING AND DELIVERY

A. Keys: Provide universal keys for internal access to accessories for servicing and resupplying.

B. Test each key for proper operation of locking units. Group and package master keys and copies by manufacturer clearly marked as to manufacturer and the units that key copies will fit. One master key and its copies will fit all lockable units supplied by that manufacturer.

C. Deliver marked key packages to Owner's representative and obtain receipt. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

B. Grab Bars: Install to withstand a crushing and shape deforming load of at least 250 lbf applied in from any direction, when tested according to ASTM F 446. Install grab bars to resist bending tensile and moment forces generated by a load of 250 lbf. applied from any direction, or as otherwise required by authorities having jurisdiction, whichever is more stringent.

C. Do not allow any accessories to touch any plumbing pipes or other plumbing elements in the accessory vicinity that may impart chilling or heating effects to the accessory. i.e., move or reposition plumbing elements to create air space (1/4 inch minimum) between the accessory and plumbing elements.

3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.

B. Remove temporary labels and protective coatings.

C. Clean and polish exposed surfaces according to manufacturer's written instructions.

END OF SECTION 10 28 00

SECTION 10 28 10 - MISCELLANEOUS SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Miscellaneous specialties, including:
   1. Fire Department lock boxes.
   2. Art Rail

B. Related Sections:
   1. Section 09 29 00 – Gypsum Board: for preparation stud walls to receive art rails.
   2. Section 09 51 13 – Acoustical Panel Ceilings: for coordination of ceiling edge angle and art rail support

1.2 QUALITY ASSURANCE

A. For installation use only personnel who are skilled in the work required.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: For each miscellaneous specialty and accessory specified.

C. Installation Instructions: Submit manufacture's recommended installation instructions showing all requirements for blocking and bracing.

D. Samples: Submit samples of each finish material exposed to view, 6 x 6 inches in size, showing full range of colors and patterns.

E. Shop drawings: Show location and extent of miscellaneous specialty items. Include plans, elevations, large-scale details of anchorages, and accessory items. Indicate typical and special details.
   1. Changing Station: Provide drawings prepared by manufacturer showing location of steel support members within wall cavity for full support of changing station.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Protection: Protect specialties before, during and after installation. Protect installed work of other trades.

C. Replacements: In event of damage, make necessary replacements.

PART 2 - PRODUCTS

2.1 LOCK BOXES:

A. Provide locking security boxes for fire department access to building and service courtyard as required by local authorities. Coordinate specific requirements with local authorities.

B. Building Mounted: Fire Department Lock Box: #3275 recessed-mount with flange as manufactured by Knox Company.
   1. Coordinate box type and general location with local area fire department having jurisdiction. Normally located at main entry.
   2. Coordinate specific location on the building front with Architect.
   3. Substitutions: None.

2.2 ART RAILS:

A. Provide manufactured art display wall rails at wall/ceiling interface at locations as indicated in the drawings.

B. Components

1. Basis of Design: U-Rail Picture Hanging System as manufactured by STAS, the Netherlands, www.stasgroup.com.

2. Type: Extruded aluminum rail, sized 14mm x 6.5mmx length(s) indicated.

a. Factory finished black aluminum.

b. Selected Combination: Color-coated steel cables, and *Zipper Pro*.

c. Published Load Capacity: 20 kg (44-lbs)

PART 3 - EXECUTION

3.1 PREPARATION

A. Review manufacturer's installation instructions and notify Architect in the event of discrepancies or incompatibility with existing conditions; do not proceed with installation until all such discrepancies have been resolved.

3.2 INSTALLATION

A. Install items in accordance with manufacturer's instructions using manufacturer's recommended adhesive for the specific substrate.

B. Anchor specialties securely in place in accordance with manufacturer's instructions.

C. Provide fire department security boxes at locations indicated and at mounting heights as approved by local authorities. Install in trimmed watertight metal panel openings at exterior walls.

D. Coordinate installation of *Art Rail* with standard pre-finished perimeter ceiling edge support angle as indicated.

3.3 CLEANING

A. Section 01 71 00 - Execution and Closeout Requirements: Final cleaning.

B. Remove packing material from items, and leave in clean condition, ready for Owner acceptance.

END OF SECTION

SECTION 10 44 13 - FIRE PROTECTION AND EMERGENCY AID CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Manufactured cabinets for the following:
      a. Portable fire extinguishers.
      b. Semi-recessed alarm cabinet for automated external defibrillator (AED).

B. Related Requirements:
   1. Section 10 44 16 - "Fire Extinguishers."

1.3 ACTION SUBMITTALS

A. Product Data: For each product specified, submit operational features, color and finish, and anchorage details.
   1. Cabinets: Include rough-in dimensions, mounting details, door hardware, cabinet type, and trim style.

B. Manufacturer's Installation Instructions: Submit special criteria and wall opening coordination requirements.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

D. Shop Drawings: For fire-protection cabinets. Include plans, elevations, sections, details, and attachments to other work.

E. Samples: For each type of exposed finish required.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For fire-protection cabinets to include in maintenance manuals.

1.5 COORDINATION

A. Coordinate sizes and locations of fire-protection cabinets with wall depths.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.

2.2 FIRE-PROTECTION CABINET

A. Cabinet Type: Suitable for the selected fire extinguisher.
   1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporation in the Work include the following:
      a. J.L. Industries, Inc. 800-554-6077 www.jlindustries.com
      b. Larsen's Manufacturing Company 800-527-7367 www.larsensmfg.com
      c. Nystrom Products Co., www.nystrom.com.
      d. Potter Roemer 866-644-3473 www.potterroemer.com/home

B. Cabinet Construction:

1. Semi-recessed Cabinet: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend). In compliance with 2010 ADA, ANSIA117.1 and 2012 TAS, cabinets shall not extend more than 4 inches from wall surface from which they project.
    a. Cabinets in Rated Walls: Construct fire-rated cabinets with double walls lined with minimum 5/8-inch-thick fire-barrier material.
2. Rolled-Edge Trim: 2-1/2-inch backbend depth.
3. Shelf: Same metal and finish as cabinet.

C. Door Style: Fully glazed panel with clear anodized frame and matching wall trim.

D. Door Glazing: Clear fully tempered float glass.

E. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
1. Provide projecting door pull and friction latch.
2. Provide continuous hinge, of same material and finish as trim, permitting door to open 180 degrees.

F. Accessories:

1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to fire-protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
2. Door Lock: Cam lock that allows door to be opened during emergency by pulling sharply on door handle.
3. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated or as directed by Architect.
    a. Identify fire extinguisher in fire-protection cabinet with the words "FIRE EXTINGUISHER."
        1) Location: Applied to cabinet door.
        2) Application Process: Pressure-sensitive vinyl letters.
        3) Lettering Color: Red or White in contrasting color to the cabinet color, as selected by the Architect.
        4) Orientation: Vertical.

G. Materials:
1. Cold-Rolled Steel: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
    a. Finish: Baked enamel or powder coat.
    b. Color: As selected by Architect from full range of industry colors and color densities.
2. Tempered Float Glass: ASTM C 1048, Kind FT, Condition A, Type I, Quality q3, 3 mm thick, Class 1 (clear).

2.3 RATED CABINETS

A. Where cabinets are indicated to be installed in fire-rated walls, provided cabinets listed and labeled to meet requirements of ASTM E 814 for fire-resistance rating of wall.

B. Match construction of non-rated cabinets except as follows:
1. Construct fire-rated cabinets with double walls fabricated from 0.0478 inch thick, cold-rolled steel sheet lined with minimum 5/8 inch thick fire-barrier material.
2. Provide factory-drilled mounting holes.

2.4 REQUIREMENTS

A. Comply with NAAMM's AMP 500, "Metal Finishes Manual for Architectural and Metal Products," for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces of fire-protection cabinets from damage by applying a strippable, temporary protective covering before shipping.

C. Finish fire-protection cabinets after assembly.

D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls and partitions for suitable framing depth and blocking where semirecessed cabinets will be installed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare recesses for fire-protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

A. General: Install fire-protection cabinets in locations and at mounting heights indicated or, if not indicated, at heights indicated below and acceptable to authorities having jurisdiction.
   1. Fire-Protection Cabinets: Adjust cabinet height as needed to cause the top of the extinguisher handle to be as high as possible, but not greater than 44 inches (1372 mm) above the floor, in compliance with 2010 ADA, ANSIA117.1 and 2012 TAS for worst-case possible reach condition. These heights are applicable to all age groups.

B. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
   1. Fasten mounting brackets to inside surface of fire-protection cabinets, square and plumb.

C. Identification: Apply vinyl lettering at locations indicated.

3.4 ADJUSTING AND CLEANING

A. Remove temporary protective coverings and strippable films, if any, as fire-protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.

B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.

C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.

D. Touch up marred finishes or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet and mounting bracket manufacturers.

E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 10 44 13

SECTION 10 44 16 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for wall-mounted fire extinguishers not indicated to be located in cabinets.

B. Related Requirements:
1. Section 10 44 13 - "Fire Protection Cabinets".

1.3 ACTION SUBMITTALS

A. Product Data: For each product specified, submit operational features, color and finish, and anchorage details.
1. Fire extinguishers: Include rating and classification.
2. Exterior dimensions: Coordinated with proposed cabinets.

1.4 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of manufacturer’s warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
a. Failure of hydrostatic test according to NFPA 10.
b. Faulty operation of valves or release levers.
2. Verify available warranties and warranty periods for fire extinguishers with manufacturers.
3. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
1. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Size, and capacity for each type of fire extinguisher indicated.
1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporation in the Work include the following:
a. Badger Fire Protection 800-446-3857 www.badgerfire.com
b. J.L. Industries 800-554-6077 www.jlindustries.com

c. Kidde, A UTC Fire & Security Company 800-8806788 www.kidde.com
d. Larsen's Manufacturing Company 800-527-7367 www.larsensmfg.com
e. Potter Roemer 866-644-3473 www.potterroemer.com/home

2. Valves: Manufacturer's standard.
3. Handles and Levers: Manufacturer's standard.
4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 4-A:60-B:C, 10-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container. This type of extinguisher is to be used everywhere except kitchens.
1. Rooms where microwaves are the only installed cooking appliance installed, shall receive this type of extinguisher.

2.3 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or black baked-enamel finish.
1. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporation in the Work include the following:
a. Badger Fire Protection 800-446-3857 www.badgerfire.com
b. J.L. Industries 800-554-6077 www.jlindustries.com
c. Kidde, A UTC Fire & Security Company 800-8806788 www.kidde.com
d. Larsen's Manufacturing Company 800-527-7367 www.larsensmfg.com
e. Potter Roemer 866-644-3473 www.potterroemer.com/home

B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fire extinguishers for proper charging and tagging.
1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Place fire extinguishers inside recessed cabinets with face of charging dial facing outward.

2. Coordinate bracket selection with selected fire extinguisher and wall condition.

3. Mounting Brackets: Locate bracket at approximately 40 inches to the top of the bracket above finished floor. Adjust bracket height as needed to cause the top of the extinguisher handle to be as high as possible, but not greater than 44 inches above the floor, in compliance with 2010 ADA, ANSIA117.1 and 2012 TAS for worst possible reach condition.] These heights are applicable to all age groups.

B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 10 44 16

SECTION 10 75 16 - GROUND-SET FLAGPOLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section

1.2 SUMMARY

A. Section includes ground-set flagpoles, in concrete footings, made from aluminum.

B. Related Sections
1. 03 30 00 - Cast-In-Place Concrete: Concrete footings for flagpoles.
2. 07 92 00 – Sealants: Elastomeric sealant filling the top of the foundation tube.
3. 10 83 10 – Flags: for specified flags to be installed on ground-set flagpoles.

1.3 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design flagpole assemblies.

B. Structural Performance: Flagpole assemblies, including anchorages and supports, shall withstand design loads indicated within limits and under conditions indicated.
1. Wind Loads: Determine according to NAAMM FP 1001. Basic wind speed for Project location is 90 mph.
2. Base flagpole design on polyester flags of maximum standard size suitable for use with flagpole or flag size indicated, whichever is more stringent.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Delegated-Design Submittal: For flagpoles.
1. Structural Calculations: For flagpoles indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
2. Qualification Data: For professional engineer.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For flagpoles to include in operation and maintenance manuals.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Spiral wrap flagpoles with heavy paper and enclose in a hard fiber tube or other protective container.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain flagpoles as complete units, including fittings, accessories, bases, and anchorage devices, from single source from single manufacturer.

2.2 ALUMINUM FLAGPOLES

A. Entasis-tapered flagpoles fabricated from seamless extruded tubing complying with ASTM B 241/B 241M, Alloy 6063, with a minimum wall thickness of 3/16 inch.
1. American Flagpole; a Kearney-National Inc. Company. www.hapcopoles.com
2. The Baartol Company Inc. 800-537-4143 www.baartol.com
3. Concord Industries, Inc. 811-527-3902 www.flagpoles.com

4. Lingo Inc.; Acme Flagpole Division. 800-260-1897 www.lingoinc.com
5. Pole-Tech Company Inc. 800-633-6733 www.poletech.com

B. Exposed Height: 30 feet unless otherwise indicated.

C. Construct flagpoles in one piece if possible. If more than one piece is necessary, comply with the following:
1. Fabricate shop and field joints without using fasteners, screw collars, or lead calking.
2. Provide flush hairline joints using self-aligning, snug-fitting, internal sleeves.

D. Sleeve for Aluminum Flagpole: Fiberglass or PVC pipe foundation sleeve, made to fit flagpole, for casting into concrete foundation.
1. Flashing Collar: Same material and finish as flagpole.

E. Cast-Metal Shoe Base: Made from aluminum with same finish and color as flagpoles for anchor-bolt mounting; furnish with anchor bolts.
1. Furnish ground spike.

2.3 FITTINGS

A. Finial Ball: Flush-seam ball, sized as indicated or, if not indicated, to match flagpole-butt diameter.
1. 0.063-inch spun aluminum, finished to match flagpole.

B. External Halyard: Ball-bearing, nonfouling, revolving truck assembly of cast metal with continuous 5/16-inch- (8-mm-) diameter, braided polypropylene halyard and 9-inch (228-mm) cast-metal cleats with fasteners. Finish exposed metal surfaces to match flagpole.
1. Halyards and Cleats: Two per flagpole.
2. Cleat Covers: Cast metal, finished to match flagpole, secured with cylinder locks.
3. Halyard Covers: 2-inch (50-mm) channel, 60 inches (1500 mm) long, finished to match flagpole.
4. Halyard Flag Snaps: Stainless-steel swivel snap hooks with neoprene or vinyl covers. Furnish two per halyard.

2.4 MISCELLANEOUS MATERIALS

A. Concrete: Comply with requirements in Division 3 Section "Cast-In-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3,000 psi (20 MPa, unless otherwise indicated.)

B. Nonshrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M.

C. Drainage Material: Crushed stone or crushed or uncrushed gravel; coarse aggregate.

D. Sand: ASTM C 33/C 33M, fine aggregate.

E. Elastomeric Joint Sealant: Single-component neutral-curing silicone joint sealant complying with requirements in Section 079200 "Joint Sealants."

F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

2.5 ALUMINUM FINISHES

A. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: non-specular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare uncoated metal flagpoles that are set in foundation tubes by painting below-grade portions with a heavy coat of bituminous paint.

B. Foundation Excavation: Excavate to neat clean lines in undisturbed soil. Remove loose soil and foreign matter from excavation and moisten earth before placing concrete. Place and compact drainage material at excavation bottom.

C. Provide forms where required due to unstable soil conditions and for perimeter of flagpole base at grade. Secure and brace forms to prevent displacement during concreting.

D. Foundation Tube: Place foundation tube, center, and brace to prevent displacement during concreting. Place concrete. Plumb and level foundation tube and allow concrete to cure.

E. Anchor Bolts: Locate and secure anchor bolts in forms with templates and by tying to reinforcement.

F. Place concrete, as specified in Section 03 30 00 "Cast-in-Place Concrete." Compact concrete in place by using vibrators. Moist-cure exposed concrete for no fewer than seven days or use non-staining curing compound.

G. Trowel exposed concrete surfaces to a smooth, dense finish, free of trowel marks, and uniform in texture and appearance. Provide positive slope for water runoff to perimeter of concrete base.

3.2 FLAGPOLE INSTALLATION

A. General: Install flagpoles where indicated and according to manufacturer's written instructions.

B. Foundation Tube: Place flagpole in tube, seated on bottom plate between steel centering wedges, and install hardwood wedges to secure flagpole in place. Place and compact sand in foundation tube and remove hardwood wedges. Seal top of foundation tube with a 2-inch layer of elastomeric joint sealant and cover with flashing collar.

END OF SECTION 10 75 16

SECTION 10 83 10 - FLAGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Flags prepared for mounting on specified ground-set flagpole(s).

B. Related Sections include the following:
   1. Section 10 75 16 – Ground Set Flagpoles.

C. Drawings and general provisions of Contract, apply to Work of this Section.

1.2 QUALITY ASSURANCE:

A. For installation use only personnel skilled in the Work required.

1.3 PRODUCT HANDLING:

A. Protection: Do not install flags until building is ready for occupancy.

B. Replacements: In event of damage, make necessary replacements.

PART 2 - PRODUCTS

A. Basis-of-Design: The design, fabrication, and construction is based on products manufactured by Behrens Seibert Associates 512-459-7497

B. Manufacturers:
   1. Manufacturer: Subject to compliance with requirements, provide products by the named manufacturer or comparable products by other manufacturers.

C. Flags:
   1. Material: Polyester (100%), with Class A flame resistance.
   2. Size: All flags shall be 4'-0" high by proportionally correct length.
   3. Colors: Provide colors as determined by:
      a. The state of Texas for the Texas state flag.
      b. The United States of America for the American national flag.
   4. Mounting: To be clip-fastened to flagpole halyards.
   5. Number Required: One Texas flag, and one US flag.

PART 3 - EXECUTION

A. Inspection:
   1. Inspect halyard and clips to ensure that flag mounting grommets are coordinated for size and location.
   2. Verify that flag attachment can be made in accordance with accepted practices.
   3. In event of discrepancy, notify Architect and do not proceed with installation until discrepancies have been resolved.

B. Installation and Instruction:
   1. Clip-fasten U.S. and Texas flags to Project flagpole halyard in the presence of the Owner.
   2. Instruct the Owner's representative of proper operation features and routine maintenance requirements for flags and halyards.
   4. Inspect halyard and clips to ensure that flag mounting grommets are coordinated for size and location.

END OF SECTION 10 83 10

SECTION 11 31 00 - RESIDENTIAL APPLIANCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Provide and install certain items of residential-grade appliances as indicated in the drawings.
2. Install certain items of residential-grade appliances as indicated in the drawings.

B. Related Work Described Elsewhere: Utility hook-up to equipment is described in Plumbing and Electrical Sections of these Specifications; cooperate as necessary with all other trades to ensure proper and adequate provision for the required utility sizing and locations.

1.2 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is an authorized representative of the residential appliance manufacturer for both installation and maintenance of appliances required for this Project.

B. Source Limitations: Obtain residential appliances through one source from a single manufacturer.

C. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of residential appliances and are based on the specific types and models indicated. Other manufacturers' appliances with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."

D. Electrical Appliances: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

E. UL and NEMA Compliance: Provide electrical components required as part of residential appliances that are listed and labeled by UL and that comply with applicable NEMA standards.

F. AGA and ANSI Standards: Provide gas-burning appliances that carry the design certification seal of AGA and that comply with ANSI Z21-Series standards.

G. AHAM Standards: Provide appliances that comply with the following AHAM standards:
1. Refrigerators and Freezers: Total volume and shelf area ratings certified according to ANSI/AHAM HRF-1.

H. Energy Ratings: Provide residential appliances that carry labels indicating energy-cost analysis (estimated annual operating costs) and efficiency information as required by the Federal Trade Commission.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: For each appliance, indicating product specifications and options

C. Operation and Maintenance Instructions: For each appliance.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Deliver appliances only after utility rough-in is complete and construction in the spaces to receive appliances is substantially complete and ready for installation.

C. Protect appliances before, during, and after installation, including the installed work and materials of all other trades.

D. Replacements: In the event of damage, immediately make all repairs and replacements

necessary to the approval of the Architect and at no additional cost to the Owner.

1.5 WARRANTY

A. Section 01 70 00 - Execution and Closeout requirements: Product warranties and product bonds.

B. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

C. Special Warranties: Written warranties, executed by manufacturer of each appliance specified agreeing to repair or replace residential appliances or components that fail in materials or workmanship within specified warranty period.

PART 2 - PRODUCTS

2.1 RESIDENTIAL APPLIANCES

A. Manufacturers:
1. General Electric, www.ge.com
2. Maytag Co., www.maytag.com
3. Sears, Roebuck & Co., www.sears.com
4. Raytheon Co., www.raytheon.com
5. Whirlpool Home Appliances., www.whirlpool.com

2.2 COMPONENTS

A. Reference the Drawings for indicated appliances.

PART 3 - EXECUTION

3.1 PREPARATION

A. Review manufacturer's installation instructions and notify Architect in the event of discrepancies; do not proceed with installation until all such discrepancies have been resolved.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions and with requirements of authorities having jurisdiction.

B. Anchor equipment securely in place in accordance with manufacturer's instructions.

C. Built-in Equipment: Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and rough openings are completely concealed.

D. Sequence installation to accommodate required utility connections.

E. Touch-up surfaces damaged during installation. Replace damaged components that cannot be satisfactorily repaired.

F. Furnish openings through walls or roofs for installation of dryer vents.

3.3 ADJUSTING

A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.

B. Test each appliance to verify proper operation. Make necessary adjustments.

C. Verify that accessories required have been furnished and installed.

3.4 CLEANING

A. Section 01 71 00 - Execution and Closeout Requirements: Final cleaning.

B. Remove packing material from residential appliances and leave units in clean condition, ready for operation.

END OF SECTION

SECTION 12 24 13 - ROLLER SHADES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes both electric and manually operated roller shades.

B. Related Sections:
1. Section 06 10 53 - Miscellaneous Rough Carpentry: Blocking for attachment of roller shades.
2. Section 09 21 16 – Gypsum Board Assemblies: Suspension framing for attachment of roller shade housings.
3. Section 09 51 13 – Acoustical Panel Ceilings: Additional ceiling hanger wires at roller shade locations.
4. Division 26 Sections – Electrical power and final connections.

1.2 REFERENCES

A. WCMA - Window Covering Manufacturer's Association.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal requirements.

B. Shop Drawings: Indicate opening sizes, tolerances required, method of attachment, clearances, and operation.
1. Include wiring diagrams, showing power, system, and control wiring.

C. Product Data: Submit data indicating physical and dimensional characteristics, fabric(s), and finishes.

D. Samples:
1. Submit two samples, 12 x 12 inches in size, of shade material.
2. Submit 24" square section of shade material with full scale section of custom graphics made from master art provided by Architect.

E. Manufacturer's Installation Instructions: Submit special procedures, and perimeter conditions requiring special attention.

1.4 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Provide roller shade band materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
1. Flame-Resistance Ratings: Passes NFPA 701.

B. Product Standard: Provide roller shades complying with WCMA A 100.1.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years' experience.

B. Installer: Company specializing in installing products specified in this section with minimum three years' experience and approved by manufacturer.

1.6 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.7 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Coordinate the Work with window installation and placement of concealed blocking to support blinds.

1.8 WARRANTIES

A. Installer's Warranty: Provide written warranty against defects in materials and workmanship for a period of 1-year after date of Substantial Completion of the Project.

B. Manufacturer's Warranty: Provide manufacturer's written 25-year warranty covering brackets, rollers, and shades.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. BTX Window Automation, Inc. www.btxinc.com.

B. Draper Shade & Screen Co., Inc. 800-238-7999 www.draperinc.com

C. Hunter Douglas Contract. 800-727-8953 www.hunterdouglascontract.com

D. Lutron Shading Solutions by VIMCO www.lutron.com/shadingsolutions.

E. MechoShade Systems, Inc. www.mechoshade.com.

F. SWF Contract, www.swfcontract.com

G. Sol-R-Veil www.solrveil.com.

H. Substitutions: Section 01 60 00 - Product Requirements

2.2 COMPONENTS

A. Basis-of-Design: SWF Contract or approved equivalent by specified manufacturer.

B. Shade Band Material: Vinyl-coated polyester.
1. General:
a. Material Width: As required to eliminate or minimize vertical seams.
b. Bottom Hem: Straight.
c. Characteristics: Durable, washable, mold and mildew resistant. Non-fading and 100% UV resistant.
2. Decorative:
a. Material Openness Factor: Nominal 3%.
b. Material Color: As selected from manufacturer's standard colors/patterns.
3. Blackout:
a. Material Openness Factor: 0%.
b. Material Color: Black.
c. Accessories: Provide manufacturer's factory finished channel runners along full sides of opening to prevent light leaks.

C. Rollers: Electrogalvanized or epoxy primed steel or extruded-aluminum tube of diameter and wall thickness required to support and fit internal components of operating system and the weight and width of shade band material without sagging; designed to be easily removable from support brackets; with manufacturer's standard method for attaching shade material. Provide capacity for one roller shade band per roller, unless otherwise indicated on Drawings.

D. Direction of Roll: Regular, from back of roller.

E. Mounting Brackets:
1. End Brackets: Fabricated from steel finished to match fascia or headbox.

F. Pocket with Ceiling Slot Opening: Six-sided box units for recessed installation; fabricated from formed-steel sheet, extruded aluminum, or wood; with a bottom consisting of slot opening of minimum dimension to allow lowering and raising of shade and a removable or an openable, continuous metal access panel concealing rollers, brackets, and operating hardware and operators within.

G. Mounting: Recessed in ceiling pocket mounting permitting easy removal and replacement without damaging roller shade or adjacent surfaces and finishes.

H. Bottom Bar: Steel or extruded aluminum, with plastic or metal capped ends. Provide exposed-to-view, external-type bottom bar with concealed weight bar as required for smooth, properly balanced shade operation.

2.3 FABRICATION

A. Product Description: Roller shade consisting of a roller, a means of supporting the roller, a flexible sheet or band of material carried by the roller, a means of attaching the material to the roller, a bottom bar, and an operating mechanism that lifts and lowers the shade.

B. Concealed Components: Non-corrodible or corrosion-resistant-coated materials.
1. Lifting Mechanism: With permanently lubricated moving parts.

C. Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows, measured at 74 deg F:
1. Adjacent shades: Make open gaps between adjacent shades as close as possible, but no closer than 1/4".
2. Shade Units Installed between (Inside) Jambs: Edge of shade not more than 1/4 inch from face of jamb. Length equal to head to sill dimension of opening in which each shade is installed.

D. Installation Brackets: Designed for easy removal and reinstallation of shade, for supporting fascia, roller, and operating hardware and for hardware position and shade mounting method indicated.

E. Installation Fasteners: Not fewer than two fasteners per bracket, fabricated from metal noncorrosive to shade hardware and adjoining construction; type designed for securing to supporting substrate; and supporting shades and accessories under conditions of normal use.

F. Color-Coated Finish: For metal components exposed to view, apply manufacturer's standard baked finish complying with manufacturer's written instructions for surface preparation including pretreatment, application, baking, and minimum dry film thickness.

G. Colors of Metal and Plastic Components Exposed to View: As indicated by manufacturer's designations, unless otherwise indicated.

2.4 MOTORIZED ROLLER SHADE OPERATORS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Manufacturer of roller shade.
2. Elero USA Inc.
3. SIMU US, Inc.
4. SOMFY Systems.

B. General: Provide factory-assembled motorized shade operation systems designed for lifting shades of type, size, weight, construction, use, and operation frequency indicated. Provide operation systems of size and capacity and with features, characteristics, and accessories suitable for Project conditions and recommended by shade manufacturer, complete with electric motors and factory-prewired motor controls, remote-control stations, remote-control devices, power disconnect switches, enclosures protecting controls and all operating parts, and accessories required for reliable operation without malfunction. Include wiring from motor controls to motors. Coordinate operator wiring requirements and electrical characteristics with the building electrical system.

C. Comply with NFPA 70.

D. Control Equipment: Comply with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6.

E. Electric Motors: UL-approved or -recognized, totally enclosed, insulated motor, complying with NEMA MG 1, with thermal-overload protection, brake, permanently lubricated bearings, and limit switches; sized by shade manufacturer to start and operate size and weight of shade considering service factor or considering Project's service conditions without exceeding nameplate ratings.
   1. Service Factor: According to NEMA MG 1, unless otherwise indicated.
   2. Motor Characteristics: Single phase, 110 V, 60 Hz.

F. Controls: Electric controls with NEMA ICS 6, Type 1 enclosure for recessed or flush mounting. Provide the following devices for remote-control activation of shades:
   1. Remote Group Control Stations: Keyed, momentary-contact, three-position, switch-operated control station with open, close, and off functions for single switch group control of all shade units.
   2. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop shade at fully raised and fully lowered positions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify openings are ready to receive work.

C. Verify structural blocking and supports are correctly placed.

3.2 INSTALLATION

A. Install roller shades level, plumb, ~~square,~~ and true according to manufacturer's written instructions.

3.3 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Offset from Level: 1/8 inch.

3.4 CLEANING AND ADJUSTING

A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.

B. Adjust blinds for smooth operation.

C. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer that ensures roller shades are without damage or deterioration at time of Substantial Completion.

D. Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

E. Clean roller shade surfaces after installation and just prior to occupancy, according to manufacturer's written instructions.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain roller shades.

END OF SECTION

SECTION 12 32 16 - MANUFACTURED PLASTIC LAMINATE FACED CASEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, and Division 01 Specification Sections, apply to this Section.

B. Drawings and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes plastic-laminate-faced cabinets of stock design.

B. Related Requirements:
1. Section 06 10 00 "Rough Carpentry" for wood blocking for anchoring casework.
2. Section 09 22 16 "Non-Structural Metal Framing" for reinforcements in metal-framed partitions for anchoring casework.
3. Section 09 65 13 "Resilient Base and Accessories" for resilient base applied to plastic-laminate-faced casework.

1.3 DEFINITIONS

A. Definitions in the AWI's, AWMAC's, and WI's collaborative work: Architectural Woodwork Standards (AWS Edition 2, or later) apply to the work of this Section, except as otherwise indicated.

B. MDF: Medium-density fiberboard.

C. "Hardwood Plywood" Paragraph below is based on definition in HPVA HP-1.

D. Plywood: As defined for this Project, a panel product composed of wood layers or plies of wood veneer, joined with adhesive between all layers, and faced both front and back with hardwood veneers. Hardboard core, MDF core, lumber core and particleboard core plywood will not be allowed.

E. Only Veneer Core Hardwood and Softwood Plywood, with 7 plies minimum (per 3/4" thickness), will be allowed and considered "Plywood" for this job.

F. Base: The bottom support for base cabinets: the substructure on which the top of the cabinet stands or rests; occurs at cabinets mounted on the floor. The Cabinet Base shall be a water resistant solid wood structure upon which the top of the cabinet shall be built. It shall be provided from the floor surface to a height that is four (4) inches above the finished floor. The base shall be provided at all faces/sides of all cabinets. For rectilinear and four-sided cabinets, the base shall be provided at the front, left side, right side and rear of the cabinet. Where cabinets are more than four-sided, and there is not a single front, left side, right side or rear, the base shall be provided at all the sides of the polygon shaped cabinet. Where the cabinet has a curved footprint, the bottom of the curved panel, and all the other sides of the cabinet shall be provided with a base. At cabinets with less than four sides, all the sides shall be provided with a base.

G. Thermoset Decorative Overlay (TDO): Melamine. This material will not be allowed.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

B. Retain "Keying Conference" Paragraph below if locks are required to be keyed as directed.

C. Keying Conference: Conduct conference at Project site. Incorporate keying conference decisions into final keying requirements.

1.5 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that casework can be supported and installed as indicated.

1.6 ACTION SUBMITTALS

A. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work. Show fabrication details, including types and locations of hardware. Show installation details, including field joints and filler panels. Indicate manufacturer's catalog numbers for casework. Comply with AWS Section 1 – Submittals, and, in addition, the following
   1. Coordinate shop drawings with other work involved.
   2. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in plastic laminate faced casework.
   3. Comply with Section 10 of the American Woodwork Institute - Architectural Woodwork Standards – latest published version unless indicated otherwise in this specification.

B. Samples for Verification: Comply with AWS Section 1 – Submittals. 8-by-10-inch Samples for each type of finish and the following:
   1. Submit section of countertop showing top, front edge, and backsplash construction.
   2. Submit hinged door sample.
   3. One full-size finished base cabinet complete with hardware, doors, and drawers.
   4. One full-size finished wall cabinet complete with hardware, doors, and adjustable shelves.
   5. Maintain full-size Samples at Project site during construction in an undisturbed condition as a standard for judging the completed Work. Unless otherwise indicated, approved sample units may become part of the completed Work if in undisturbed condition at time of Substantial Completion. Notify Architect of their exact locations.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranty: For special warranty.

1.8 QUALITY ASSURANCE

A. General: The work and the administration of the work shall comply with the requirements of the AWS Edition 2, or later edition if published, where compliance with the AWS is indicated.

B. Installer Qualifications: An authorized representative who is trained and approved by manufacturer for installation of units required for this Project.

C. Provide a mock-up of a typical base (lower) cabinet with a file drawer (if one cabinet on the job has a file drawer), a typical tall cabinet and a typical wall cabinet, and any other type of cabinet indicated on the drawings – the type of cabinet indicated to be provided, need not be provided in the mock-up if the cabinet is not included in the building design.
   1. Provide the mock-up in a location as directed by the Architect in the field that is separated from exterior environmental elements and the by-products of construction, such as dirt, dust, moisture, and in and air conditioned space, enclosed and conditioned for temperature and humidity.
   2. Once the mock-up is installed, the mechanical system(s) that are conditioning the air space shall not be turned off.
   3. Provide the mock-up with each type of accessory to the type of cabinet in the mock-up, i.e. closure, end, filler panels, and other accessories.
   4. Revise mock-up cabinets and accessories as directed by the Architect in the field. Mock-up cabinets shall remain mocked-up during casework installation and until after the casework for the project is installed – they shall become the reference by which to judge the initial and the final casework installation and the cabinet construction.
   5. Do not remove the mock-up cabinets without approval from the Architect in the field.

6. Mock-up cabinets may be incorporated into the final work if allowed by and coordinated with the Architect in the field.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver casework only after painting, utility roughing-in, and similar operations that could damage, soil, or deteriorate casework have been completed in installation areas. If casework must be stored in other than installation areas, store only in areas where environmental conditions meet requirements specified in "Project Conditions" Article.

B. Keep finished surfaces covered with polyethylene film or other protective covering during handling and installation.

1.10 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install casework until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period. Maintain temperature and relative humidity during the remainder of the construction period in range recommended for Project location by the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."

B. Established Dimensions: Where casework is indicated to fit to other construction, establish dimensions for areas where woodwork is to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

C. Locate concealed framing, blocking, and reinforcements that support casework by field measurements before being enclosed, and indicate measurements on Shop Drawings.

1.11 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of casework that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Delamination of components or other failures of glue bond.
      b. Warping of components.
      c. Failure of operating hardware.
      d. Deterioration of finishes.
   2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work only include the following – that means that only the following may bid the project without receiving prior approval to bid from Stantec:
   1. A&M Casework, Inc. 281-227-6259
   2. Cabinets by Design 770.418.1200 www.cabinetsbydesigninc.com/
   3. Calmar Manufacturing Co. 563-562-3261 www.imperialwoodworking.com/calmar.html
   4. Use Imperial Mill & Fixtures Inc. for Austin, Corpus Christi, Houston, San Antonio office projects only.
   5. LSI Corporation of America 763-559-4664 www.lsi-casework.com
   6. A&M Casework, Inc. 281-227-6259
   7. Imperial Mill & Fixtures Inc. 361-883-4630
   8. South Texas Woodmill, Inc.
   9. TMI Systems Design Corporation 800-456-6716 www.tmisystems.com
   10. Westmark Products, Inc. 800-755-3470 www.westmarkproducts.com

B. Millwork Companies: Millwork Companies, with or without product lines comparable to the listed manufacturers, are not allowed to bid the project, until it is proven to the Architect that the company has the capacity and can provide cabinets of a satisfactory level of quality as indicated by submitted cabinet mockups meeting these specifications.

1. In order to bid the casework part of the work, you shall express your desire to bid the casework to Stantec at least twenty (20) days prior to the bid date. Include with your letter of introduction adequate information to allow Stantec to forward to you our Interior Architectural Millwork specification section (an e-mail address will do). You will be required to comply with this newly issued Interior Architectural Woodwork specification.

2. Millwork Companies: Millwork Companies shall comply with the requirements of the AWI Architectural Woodwork Standards Edition 2 (Custom quality level) and the additional requirements of this specification. Subject to compliance with requirements, acceptable Millwork Companies are:

a. JC Manufacturing 903-473-3770 www.jcmfgcorp.com/
b. The Koehler Company

C. Source Limitations: Obtain plastic-laminate-faced cabinets from single manufacturer.

2.2 CASEWORK, GENERAL

A. Quality Standard: Unless otherwise indicated, comply with the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" for grades of casework indicated for construction, finishes, installation, and other requirements.

1. Grade: Custom.

B. Product Designations: Drawings indicate sizes, configurations, and finish materials of manufactured plastic-laminate-faced cabinets by referencing designated manufacturer's catalog numbers or by referencing designations of Casework Design Series numbering system in Appendix A of the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards.". Other manufacturers' casework of very similar sizes and door and drawer configurations (in the opinion of the Architect, of same finish materials, and complying with the Specifications may be considered. See Section [01 25 13 "Product Substitutions"][01 60 00 "Product Requirements]".

2.3 CASEWORK

A. Design:

1. Reveal overlay.

B. Exposed Materials:

1. Plastic Laminate: Grade HGS on horizontal surfaces and Grade VGS on vertical surfaces.

a. Colors and Patterns: Match Architect's sample.

2. Unless otherwise indicated, provide specified edge-banding on all exposed edges.

C. Semi-exposed Materials:

1. Plastic Laminate: Grade VGS unless otherwise indicated. Provide plastic laminate for semi exposed surfaces unless otherwise indicated.

a. Provide plastic laminate of same grade as exposed surfaces for interior faces of doors and drawer fronts and other locations where opposite side of component is exposed.

2. Unless otherwise indicated, provide specified edge-banding on all semi-exposed edges.

D. Concealed Materials (use where indicated):

1. Solid Wood: Any hardwood or softwood species, with no defects affecting strength or utility.
2. Plywood: Wood veneer plywood.

3. Plastic Laminate: Grade BKL.
4. MDF

2.4 MATERIALS

A. General: Use materials where they are indicated.

B. Maximum Moisture Content for Lumber: 7 percent for hardwood and 12 percent for softwood.

C. Hardwood Plywood: HPVA HP-1, minimum 7-ply veneer core.

D. Softwood Plywood: DOC PS 1, minimum 7-ply veneer core.

E. Particleboard: Not allowed

F. Plastic Laminate: High-pressure decorative laminate complying with NEMA LD 3.

1. Basis of Design: As indicated on the Finish Schedule

2. Manufacturers: Subject to compliance with requirements, manufacturers offering products (where approved by Architect for matching color(s) and finish may be incorporated in the Work include, but are not limited to, the following:
   a. Formica Corporation 800-367-6422 www.formica.com
   b. Lamin-Art, Inc. 800-323-7624 www.laminart.com
   c. Nevemar Surface Systems 203.925.1556 part of Panolam Surface Systems www.nevamar.com/
   d. Pionite Surface Systems part of Panolam Surface Systems 203.925.1556 www.pionite.com
   e. Wilsonart International, Inc., a Division of Illinois Tool Works Inc. 800-433-3222 www.wilsonart.com

G. Edge-banding for Plastic Laminate: Rigid PVC extrusions, through color with satin finish, 3 mm thick at countertops, doors and drawer fronts, 1 mm thick elsewhere.

H. Glass for Glazed Doors: Clear fully-tempered glass complying with ASTM C 1048, Kind FT, Condition A, Type I, Class 1, Quality-Q3; not less than 5.0 mm thick.

2.5 COLORS AND FINISHES

A. Plastic-Laminate Colors, Patterns, and Finishes: As indicated by manufacturer's designations, or if not indicated, as selected by Architect from plastic-laminate manufacturer's full range.

B. PVC Edge-banding Color: Match plastic laminate color.

2.6 FABRICATION

A. Plastic-Laminate-Faced Cabinet Construction: As required by referenced quality standard, but not less than the following:
1. Balanced Construction Throughout. Laminate clad panels shall be constructed in accordance with AWI requirements for "Balanced Construction"
2. Bottoms and Ends of Cabinets (over side panels), and Tops of Wall Cabinets and Tall Cabinets: 3/4-inch plywood or MDF. Bottoms here refers to the bottom of the cabinet above the "Base" of the cabinet.
3. Cabinet bases (see definition of base) shall be of dimensional lumber.
4. Frames, side panels, and structural parts of the cabinets shall be of plywood and or dimensional lumber.
5. Shelves: 3/4-inch and 1-inch thick plywood.
   a. Shelves Up To 32 inch Span: Adjustable and fixed shelves with end supports only, with end-to-end spans, shall be 3/4 inch minimum thick. Fixed shelves with support along at least one of their long edges, shall also be 3/4 inch minimum thick.
   b. Shelves, 32 inch to 42 inch Span: Adjustable and fixed shelves with end supports only, with end-to-end spans, shall be 1 inch minimum thick. Fixed shelves with support along at least one of their long edges, shall also be 1- inch minimum thickness.

c. All fixed shelves shall be full shelf thickness "stop dado" jointed to their supports. The full depth of the stop dado joint shall begin no more than 1-1/2 inch from the face of the shelf and end at the back of the shelf. Such joint shall be continuous.

d. Full Sub-top: Required on all base units, except sink base units. Provide 3/4-inch panel product, glued and pinned or screwed. Sink units are provided with open top and a stretcher at the front, attached to the sides. Back of sink bases to be split removable access panel.

6. Backs of Cabinets: 1/2-inch wood veneer-core plywood dadoed into sides, bottoms, and tops where not exposed.
7. Drawer Fronts: 3/4-inch MDF.
8. Drawer Sides and Backs: 1/2-inch wood veneer-core plywood, with glued dovetail.
9. Drawer Bottoms: 1/4-inch hardwood plywood glued and dadoed into front, back, and sides of drawers. Use 1/2-inch material for drawers more than 24 inches wide.
10. Doors 36 Inches High or Less: 3/4 inch thick, with MDF cores and solid-wood stiles and rails.
11. Doors More Than 36 Inches High: 1-1/16 inches thick, with honeycomb cores and solid hardwood stiles and rails.
12. Stiles and Rails of Glazed Doors 36 Inches High or Less: 3/4 inch thick, with MDF cores.
13. Stiles and Rails of Glazed Doors More Than 36 Inches High: 1-1/16-inch thick, with solid stiles and rails.

B. Filler Strips: Provide as needed to close spaces between cabinets and walls, ceilings, and indicated equipment. Fabricate from same material and with same finish as cabinets.

C. Owner Specific Requirements
1. General Contractor shall field verify dimensions.
2. General Contractor shall submit the following:

a. Provide mock-up of the lower cabinet with file drawer and Teacher's Cabinet.
b. Submit sample of casework hardware.

3. General Contractor shall coordinate electrical and plumbing requirements with casework manufacturer.
4. General Contractor shall ensure all millwork/casework is sealed to gypsum board walls and or ceramic tile walls.
5. Provide marine grade plywood at all countertops and backsplashes.
6. Provide 2x minimum size solid wood blocking at walls at all casework locations (including all upper and lower cabinets).
7. Provide a 1x2 wood nailer OR blocking behind gypsum board at each counter top "SpeedBrace".
8. Provide 1/3-inch-thick minimum plywood back or 1x4 nailer's at all upper cabinets.
9. File drawer cabinets = 4-sided drawer box with drawer front attached.
10. Ensure file drawers will accommodate 8-1/2x11 Pendaflex hanging files with tabs front to rear, typical.
11. Open shelf cabinet's interiors to be plastic laminate.
12. Minimum number of splices at all laminate. No splices on pieces less than 12 feet.
13. Provide PVC edge banding at all adjustable shelves, typical. PVC edge banding to match color of exterior face laminate. Provide samples. PVC edging to be machine applied with hot melt glue under pressure.
14. All casework doors over 3 feet tall shall be 1 inch thick minimum.
15. Provide two (2) door bumpers at each door 42 inches or less tall.
16. Provide three (3) door bumpers at doors over 42 inches tall.
17. Filler panel pieces shall be 3 inch wide maximum.
18. Fill the top and bottom voids between corner cabinets and filler panels and gypsum board on all walls, bookcases, and tall cabinets (including the typical teacher's cabinets).
19. Close top horizontal face of filler panels and corners of upper cabinets. All filler panels shall be closed at their tops so that nothing may fall behind the fillers. Fillers shall also be closed at the toe spaces. Voids behind fillers shall be inaccessible and completely closed-off and sealed off.
20. Locks: Coded on face of lock with key code – physical impression stamping or engraved.

21. Provide locks at doors and drawers as indicated.
22. Provide two (2) 2-inch diameter grommets at each knee space, typical. Location by Owner.
23. Pull out drawers to have hanging file folder provisions.
24. Teacher Cabinet locks must be the specified product – substitutions not accepted.

2.7 CASEWORK HARDWARE AND ACCESSORIES

A. Hardware, General: . The hardware indicated establishes a "Basis of Design" for appearance and performance. Comparable products by other manufacturers may be allowed where the design is, solely in the opinion of the Architect, equal or better than the "Basis of Design". Caution, and attention to understanding the "Basis of Design", should be exercised where substitutions to the "Basis of Design" are planned. Unless otherwise indicated, provide manufacturer's standard satin-finish, commercial-quality, heavy-duty hardware.

1. Use threaded metal or plastic inserts with machine screws for fastening to MDF except where hardware is through-bolted from back side.

B. Butt Hinges: Stainless-steel, semi-concealed, five-knuckle hinges complying with BHMA A156.9, Grade 1, with antifriction bearings and rounded tips. Provide two hinges for doors less than 48 inches high, and provide three hinges for doors more than 48 inches high.

C. Frameless Concealed Hinges (European Type): Not allowed.

D. Pulls: Solid aluminum wire pulls, fastened from back with two screws. For sliding doors, provide recessed stainless-steel flush pulls. Provide two pulls for drawers more than 24 inches wide.

E. Drawer Slides: BHMA A156.9, Type B05091.
1. Standard Duty (Grades 1, 2, and 3): Side mounted; full-extension type; zinc-plated steel with polymer rollers.
2. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension type; zinc-plated, steel ball-bearing slides.
3. Box Drawer Slides: Grade 1HD-100, for drawers not more than 6 inches high and 24 inches wide.
4. File Drawer Slides: Grade 1HD-200, for drawers more than 6 inches high or 24 inches wide.
5. Pencil Drawer Slides: Grade 1, for drawers not more than 3 inches high and 24 inches) wide.
6. Keyboard Slides: Grade 1HD-100, for computer keyboard shelves.
7. Trash Bin Slides: Grade 1HD-200, for trash bins not more than 20 inches high and 16 inches wide.

F. Label Holders: Stainless steel, sized to receive standard label cards approximately 1 by 2 inches attached with screws or brads.

1. Provide label holders where indicated.

G. Drawer and Hinged Door Locks: Cylindrical (cam) type, five-pin tumbler, brass with chrome-plated finish, and complying with BHMA A156.11, Grade 1.

1. Provide a minimum of two keys per lock and six master keys.
2. Provide locks where indicated.

H. Sliding-Door Hardware Sets: Manufacturer's standard, to suit type and size of sliding-door units.

I. Adjustable Shelf Supports: Two-pin locking plastic shelf rests complying with BHMA A156.9, Type B04013.

1. Basis-of-Design: Dual Peg Locking Tongue Support, Clear, 5mm x 3/4 inch (19 mm) or 1 inch (25 mm), Model # 3220CL, Bainbridge Manufacturing, Inc. 800-255-4702 www.bainbridgemfg.com. Provide near back and front of shelf. Other AWS accepted methods of adjustable shelf support will not be allowed. Design load is 300 pounds per support.

J. Cabinet Finished Base: 4-inch high rubber base provided under Section 09 65 13. Provide on exposed sides and fronts of floor-mounted cabinets, and on 3 sides of open knee spaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of framing and reinforcements, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 CASEWORK INSTALLATION

A. Grade: Install cabinets to comply with same grade as item to be installed.

B. Install casework level, plumb, and true; shim as required, using concealed shims. Where casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.

C. Base Cabinets: Set cabinets straight, level, and plumb. Adjust subtops within 1/16 inch of a single plane. Align similar adjoining doors and drawers to a tolerance of 1/16 inch. Bolt adjacent cabinets together with joints flush, tight, and uniform.

D. Wall Cabinets: Hang cabinets straight, level, and plumb. Adjust fronts and bottoms within 1/16 inch of a single plane. Fasten to hanging strips, masonry, framing, wood blocking, or reinforcements in walls and partitions. Align similar adjoining doors to a tolerance of 1/16 inch.

E. Fasten cabinets to adjacent cabinets and to masonry, framing, wood blocking, or reinforcements in walls and partitions to comply with the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."

F. Install hardware uniformly and precisely. Set hinges snug and flat in mortises unless otherwise indicated. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.

G. Adjust casework and hardware so doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

3.3 CLEANING

A. Repair or remove and replace defective work as directed on completion of installation.

B. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.

END OF SECTION 12 32 16