REPAIR GAS HEAT **B6604**

BARKSDALE AIR FORCE BASE, LA.

PROJECT NO. AWUB 10-0192

18 APRIL 2017

TO BAFB EAST GATE -

I-20 INDUSTRIAL DRIVE EXIT

S. E. Huey Co.

CONSULTING ENGINEERS MONROE, LOUISIANA

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BARKSDALE AIR FORCE BASE **LOUISIANA**

APPROVED

	Chief of
	Engineering
	Chief of
	Design
	Contracting
	User
ORDINA	ΓΙΟΝ
	Airfield
	Manager
	Ground
	Safety
	Communication Computers
	Bioenvironmenta
	Bioenvironmental Engineer
	Security
	Police
	Security
	Systems
	Fire Chief
	Chief of
	Operations
	Environmental
	Management
	Construction
	Management

S. E. Huey Co

DESIGN FIRM



S. E. Huey Co.

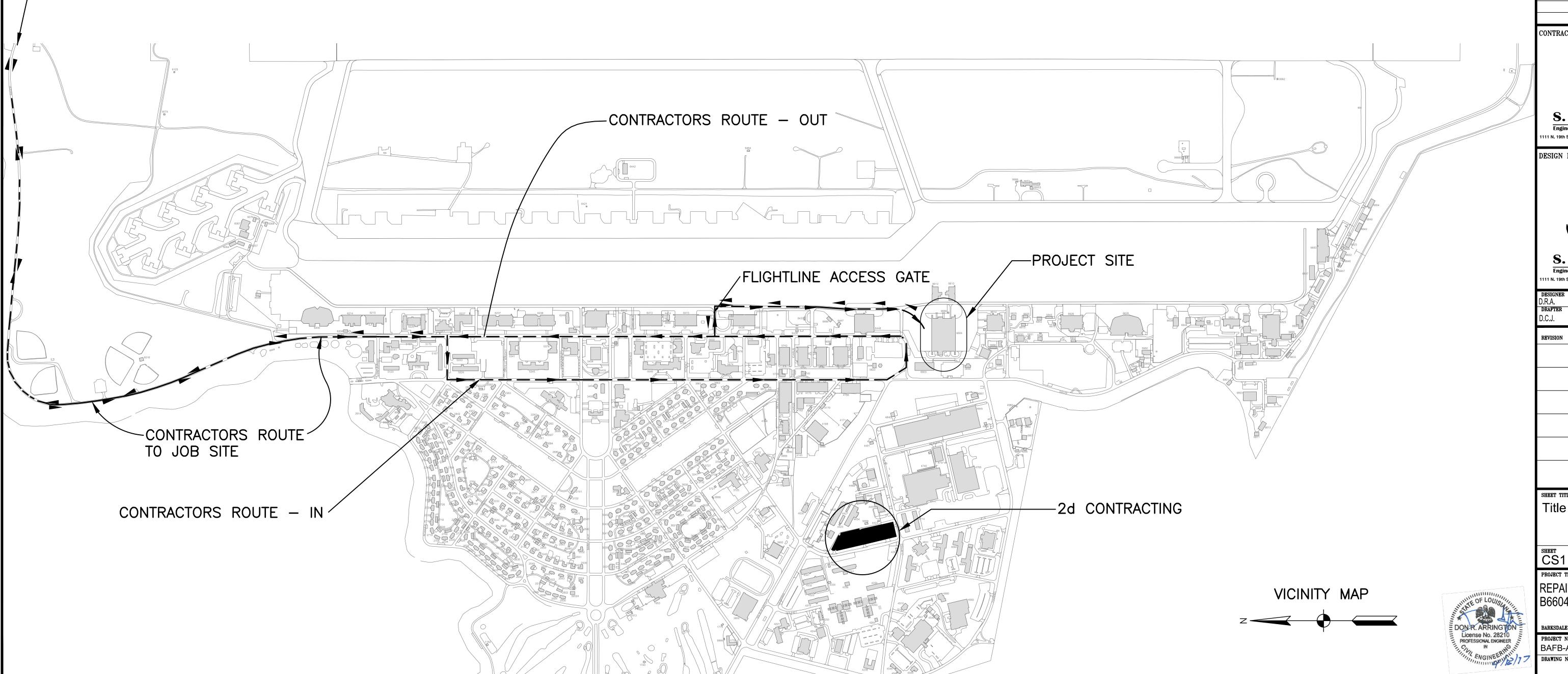
D.C.J.	18 APR 17
REVISION	BY/DATE

Title Sheet

SHEET	OF
CS1	1CS
PROJECT TITLE	

REPAIR GAS HEAT B6604 (307th BW)

BARKSDALE AIR FORCE BASE, LA. BAFB-AWUB 10-0192



5 PSI GAS PIPE SIZED ON 2012 INTERNATIONAL FUEL GAS CODE (IFGC) TABLE 402.4(7) FOR SCH 40 METALLIC PIPE. INLET PRESSURE 5.0 PSI, 3.5 PSI PRESSURE DROP AND 850' PIPE LENGTH.

LOW PRESSURE GAS PIPE SIZED ON 2012 INTERNATIONAL FUEL GAS CODE (IFGC) TABLE 402.4(1) FOR SCH 40 METALLIC PIPE. INLET PRESSURE < 2.0 PSI, 0.3" W.C. PRESSURE DROP AND 300' PIPE

CONNECTED GAS LOAD:

ZONE ZONE ZONE ZONE ZONE ZONE ZONE ZONE	A2 A3 B1 B2 C1 C2 C3 D1	5×200 5×200 4×200 5×200 6×200 6×200 6×200 5×200 5×200	CFH CFH CFH CFH CFH CFH CFH CFH	1000 1000 800 1000 1200 1200 1200 1200 1	CFH CFH CFH CFH CFH CFH CFH
ZONE ZONE		5x200 6x200		1000 1200	

10,600 CFH TOTAL NEW CONNECTED

LOAD

NO SCALE

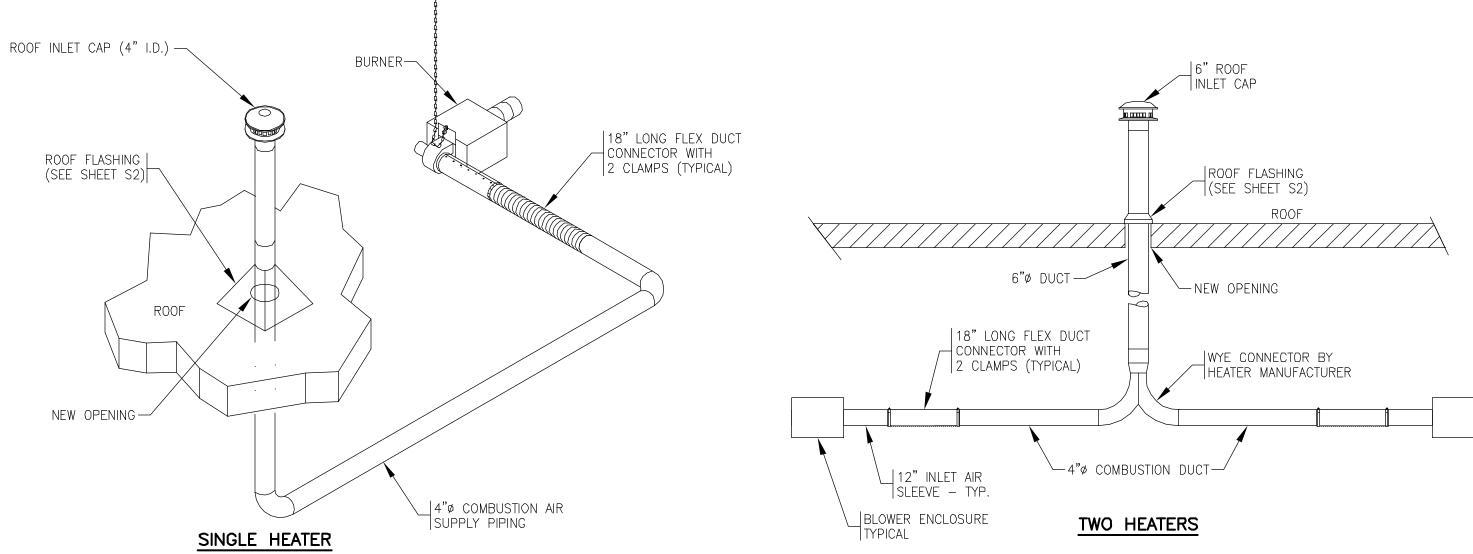
BUILDING VOLUME CALCULATION

LENGTH x WIDTH x HEIGHT

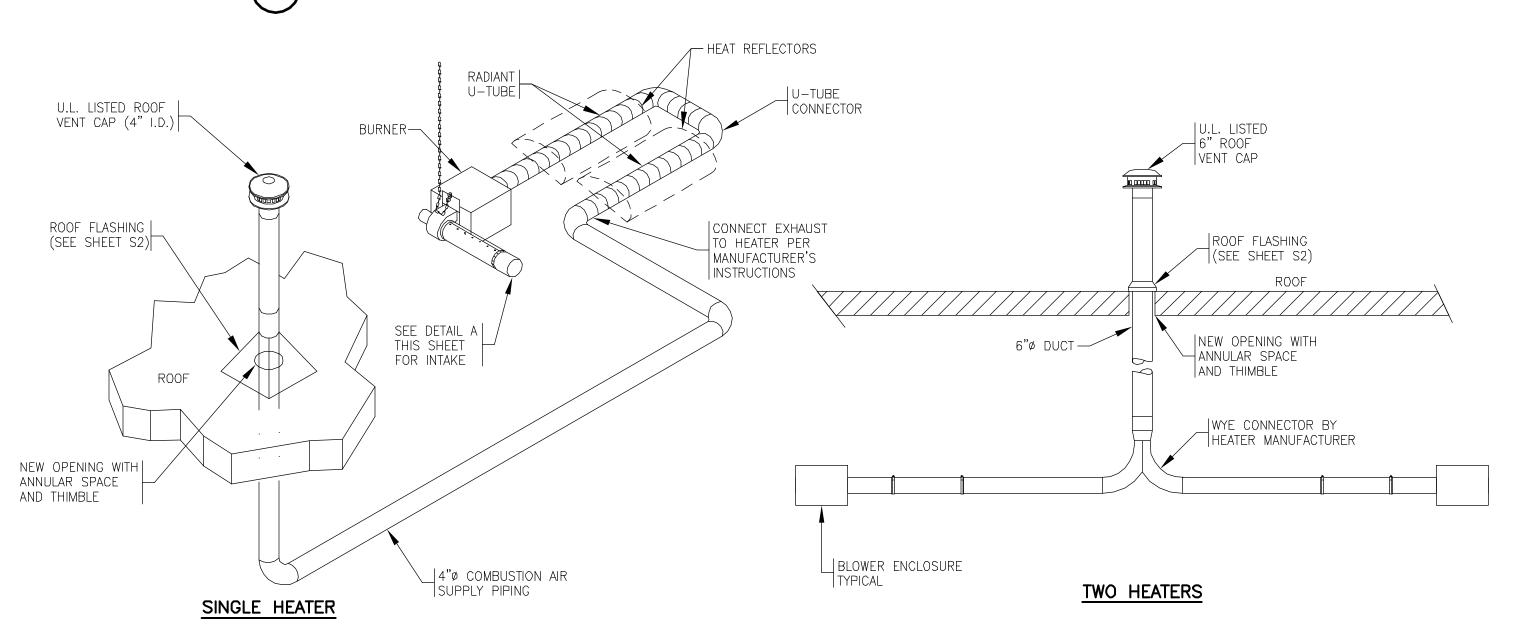
370' x 248' x 65.75' = 6,033,220.0 FT3

MINIMUM SPACE VOLUME $\frac{50 \text{ FT}}{1000 \text{ BTU/HR}} \times 8,000,000 \text{ BTU/HR} = 400,000$

BUILDING VOLUME EXCEEDS MINIMUM VOLUME REQUIRED FOR COMBUSTION AIR TO COME FROM SPACE.



A TYPICAL COMBUSTION AIR INTAKE



B TYPICAL RADIANT HEATER EXHAUST NO SCALE

- 1. BOTH HEATERS CONNECTED TO A COMMON VENT SHALL OPERATE ON THE SAME THERMOSTAT.
- 2. CONSTRUCT DUCTWORK AND SEAL ALL JOINTS AND SEAMS ON EXHAUST VENT DUCT PER RADIANT HEATER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

	GA	S FIRED	RADIANT	HEATER	SCHEDU	JLE
NO.	SERVICE	INPUT BTU/HR	GAS LINE PRESSURE	MOUNTING HT (AFF)	MOUNTING POSITION	REMARKS
RHA	HANGAR	200,000	5 PSI	FIELD VERIFY	VARIES	1,2

REMARKS:

1. LOW INTENSITY TYPE - 25' LONG U-TUBE. 2. PROVIDE SHEET METAL BLOWER ENCLOSURE.

PIPE AND FITTING MATERIAL SCHEDULE								
SERVICE	PIPE MATERIAL	JOINT TYPE	FITTING MATERIAL	REMARKS				
GAS PIPING	SCHEDULE 40 BLACK STEEL, ASTM A-53	SCREWED THRU 3/4" SIZE, WELDED FOR 1" AND LARGER AND ALL PIPING 1 PSI AND HIGHER.	MALLEABLE SCREWED TYPE, BUTT WELDED STEEL WHERE REQUIRED	SEE SPECIFICATIONS FOR PAINTING, FOR EXTERIOR MATCH COLOR OF ADJACENT PIPE, INTERIOR PIPING SHALL BE SAFETY YELLOW.				

	AIR CONDITIONING SYMBOLS
SYMBOL	DESCRIPTION
① _{A1}	ROOM THERMOSTAT WITH ZONE DESIGNATION
CW	- CONTROL WIRING INSIDE CONDUIT
	- NEW FLUE GAS VENT
	RADIANT HEATER
— G —	EXISTING GAS PIPING
— G —	NEW GAS PIPING
——5PSI — G —	- 5 PSI GAS PIPING
•	PUSH BUTTON - EMERGENCY HVAC STOP
-K4− KC+	- GATE VALVE
-10 +0	ELBOW DOWN, ELBOW UP
-101-	TEE DOWN, TEE UP
- >	CONCENTRIC REDUCER, ECCENTRIC REDUCER
	- UNION
•	TERMINATION OF DEMOLITION
•	POINT OF CONNECTION
M1)	MECHANICAL NOTE REFERENCE
A	DETAIL DESIGNATION
M1	SHEET WHERE DETAIL IS LOCATED

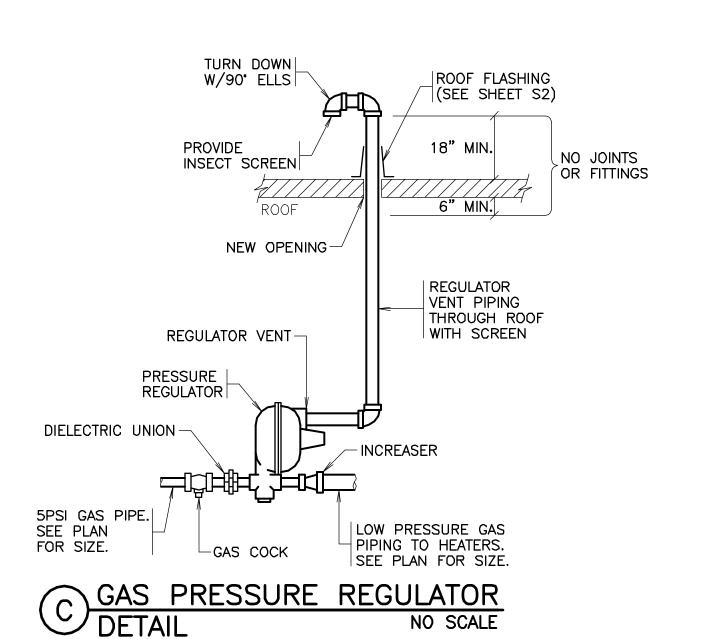
SEQUENCE OF OPERATION:

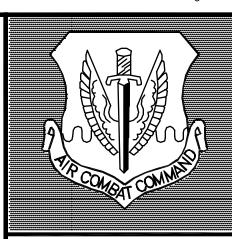
RADIANT HEATER:

INTERLOCK MULTIPLE HEATERS AS INDICATED ON DRAWING SO THAT ALL HEATERS IN A ZONE ENERGIZE AND DE-ENERGIZE TOGETHER TO MAINTAIN SPACE HEATING SET POINT IN THAT ZONE.

HVAC EMERGENCY STOP:

PROVIDE MANUALLY OPERATED SHUTOFF SWITCH TO DE-ENERGIZE ALL RADIANT HEATERS. SWITCH SHALL BE CLEARLY LABELED AND SHALL NOT BE THE SAME COLOR AS FIRE ALARM PULL STATIONS.





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Police
Security
Systems Fire Chief Chief of Chief of
Operations
Environments
Management
Construction
Management
Roofing
Engineer
Pavements
Engineer
Corrosion
Engineer
Protective
Coating Engr

CONTRACTING ORGANIZATION



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111 N. 19th ST. MONROE, LA. 71201 PH. 318-325-179

DESIGN FIRM JOHN J. GUTH ASSOCIATES,

MECHANICAL AND ELECTRICAL **ENGINEERS** 208 MILAM STREET

SHREVEPORT, LA 71101

PROJECT MANAGER MSM DRAFTER DATE 18 APR 17

GUTH PROJECT NO. 6637

REVISION BY/DATE

SHEET TITLE **MECHANICAL** SCHEDULES & DETAILS

MICHAEL S. MIDDLETON

REG. No. 27979
REGISTERED
PROFESSIONAL ENGINEER

PROJECT TITLE Repair Gas Heat B6604 (307th BW)

BARKSDALE AIR FORCE BASE, LA.

BAFB-AWUB 10-0192 DRAWING NO. FACILITY NO

4. REFER TO STRUCTURAL DRAWINGS FOR SUPPORT INFO.

PROVIDE EMERGENCY HVAC STOP BUTTON TO DE-ENERGIZE ALL RADIANT HEATERS.

BARKSDALE AIR FORCE BASE LOUISIANA

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Computers

Bioenvironments

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DESIGN FIRM JOHN J. GUTH ASSOCIATES, INC.

MECHANICAL AND ELECTRICAL **ENGINEERS** 208 MILAM STREET

SHREVEPORT, LA 71101 **GUTH PROJECT NO. 6637**

PROJECT MANAGER MSM DATE 18 APR 17

BY/DATE

MECHANICAL

FLOOR PLAN

PROJECT TITLE

Repair Gas Heat B6604 (307th BW)

BARKSDALE AIR FORCE BASE, LA.

BAFB-AWUB 10-0192 DRAWING NO. FACILITY NO

SYMBOL

-

\ \ \				
⟨RE⟩	NEW LOCATION OF RELOCATED DEVICES		3#500KCMIL 1#4/0G-(5)4"C.	INDICATES SIZE AND NUMBER OF CONDUCTORS INSTALLED IN EACH OF FIVE (5) 4"-CONDUITS
T	TRANSFORMER		KWH	KILOWATT-HOUR DEMAND METER (SINGLE LINE DIAGRAM)
₩ ₩	DISTRIBUTION TRANSFORMER (SINGLE LIN	IE DIAGRAM)		CURRENT TRANSFORMER (SINGLE LINE DIAGRAM)
^	CIRCUIT BREAKER (SINGLE LINE DIAGRAM	1)	NOTED O	SYMBOLS REPRESENT EXISTING EQUIPMENT TO BE REMOVED UNLESS SPECIFICALLY OTHERWISE.
40	GROUND CONNECTION		NOTED O	IGHT SYMBOLS REPRESENT EXISTING EQUIPMENT TO REMAIN AS IS UNLESS SPECIFICALLY DTHERWISE. JEAVY SYMBOLS REPRESENT NEW EQUIPMENT
	GENERAL NOTE: THE CONTRACTOR SHALL EXERCISE CARE IN THE FINISH WORK AROUND ANY BUILDING PENETRATION TO ENSURE THAT THE SURROUNDING AREA IS RETURNED TO ITS ORIGINAL APPEARANCE.		GALVANIZ STANCHIC BRACES BRACES APPROX. 14	GROUND LUGS EQUIPMENT GROUND GRD GRD GRD 480V-3ø TRANSFORMER GROUND CONNI

ELECTRICAL SYMBOLS

DESCRIPTION

CONDUIT OR DUCT STUB-OUT - PROVIDE CAP AND MARK FOR FUTURE LOCATION

DUPLEX RECEPTACLE, 125V-1P-20A - HUBBELL #5362-MOUNT CENTERLINE 18"

GFCI RECEPTACLE (SEE RECEPTACLE SYMBOLS) SURFACE MOUNTED HORIZONTALLY-

DUPLEX RECEPTACLE, 125V-1P-20A, GROUND FAULT CURRENT INTERRUPTING TYPE - HUBBELL #GF5362-MOUNT CENTERLINE 18" AFF UNLESS NOTED

DOUBLE DUPLEX RECEPTACLE, 125V-1P-15A - HUBBELL #5262-MOUNT

MOTOR RATED TOGGLE SWITCH-MOUNT CENTERLINE 48" AFF

CONDUIT AND WIRING RUN CONCEALED IN WALLS OR ABOVE CEILING

CONDUIT AND WIRING RUN IN OR BELOW FLOOR OR BELOW GRADE

NEUTRAL AND PHASE OR SWITCHED CONDUCTOR RESPECTIVELY

CONDUIT TURNED UP; CONDUIT TURNED DOWN RESPECTIVELY

GROUND CONDUCTOR, GREEN INSULATED

WIRING IN FLEXIBLE METALLIC CONDUIT

CENTERLINE 18" AFF UNLESS NOTED

AFF UNLESS NOTED

JUNCTION BOX (JB)

PUMP MOTOR

AIR HANDLING UNIT MOTOR

VENTILATING FAN MOTOR

UNIT HEATER FAN MOTOR

FAN COIL UNIT MOTOR

UNIT VENTILATOR MOTOR

MOTOR, AS INDICATED

EXISTING TO REMAIN

EXISTING TO BE REMOVED

EXISTING DEVICE TO BE RELOCATED

DAMPER MOTOR

HOMERUN TO PANEL (CIRCUIT NUMBERS INDICATED)

WITH TAYMAC #60310 WEATHERPROOF DEVICE PLATE

SYMBOL

BCG

TVSS

SWBD

DESCRIPTION

KILOWATT-HOUR DEMAND METER

MOTOR STARTER, COMBINATION STARTER

DISTRIBUTION PANELBOARD OR SWITCHBOARD

ELECTRICAL MANHOLE

TRANSFORMER

WEATHERPROOF

BARE COPPER GROUND

ABOVE FINISHED FLOOR

MAIN CIRCUIT BREAKER

UNLESS OTHERWISE NOTED

POINT OF CONNECTION

DETAIL DESIGNATION

SHEET NUMBER

ELECTRICAL NOTE REFERENCE

FIRE ALARM CONTROL PANEL

SWITCHBOARD

TRANSIENT VOLTAGE SURGE SUPPRESSION

SIPRNET DATA OUTLET CONSTRUCTED TO CURRENT STANDARDS

FIRE ALARM SYSTEM DUCT MOUNTED SMOKE DETECTOR

FIRE ALARM REMOTE TEST STATION WITH INDICATING LIGHT

B TRANSFORMER GROUND CONNECTION NO SCALE

FIRE ALARM SYSTEM SPRINKLER VALVE TAMPER SWITCH - SUPERVISORY SERVICE

FIRE ALARM SYSTEM SPRINKLER FLOW SWITCH

MAIN LUGS ONLY

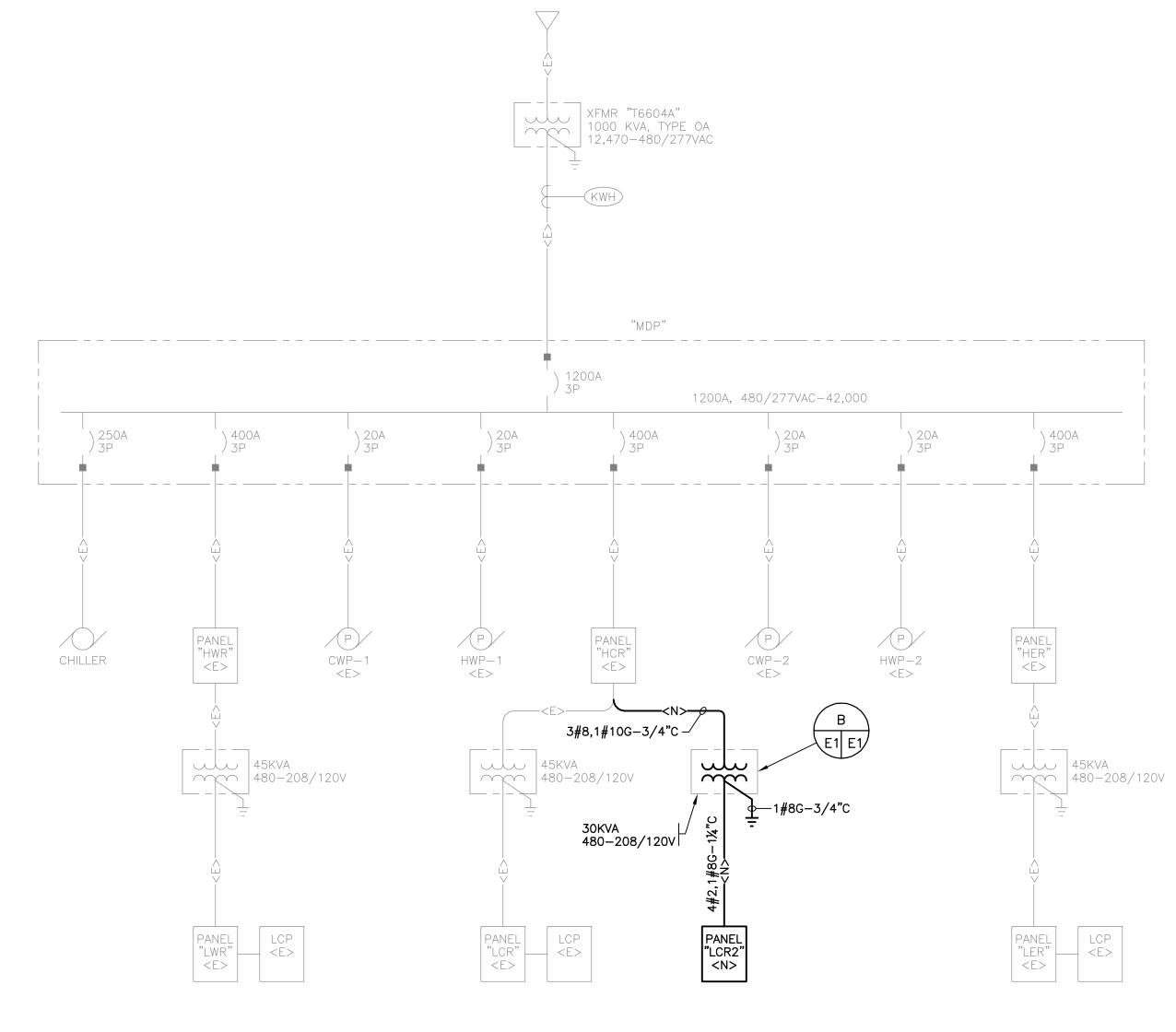
SAFETY SWITCH, FUSED AND NON-FUSED RESPECTIVELY

LIGHTING CONTACTOR, TIMECLOCKS ENCLOSED CIRCUIT BREAKER

OR SAFETY SWITCH AS REQUIRED BY CODE FOR MOTOR RATING

PANELBOARD, SURFACE MOUNTED AND FLUSH MOUNTED RESPECTIVELY

MOTOR WITH DISCONNECT SWITCH - PROVIDE TOGGLE SWITCH, MANUAL STARTER



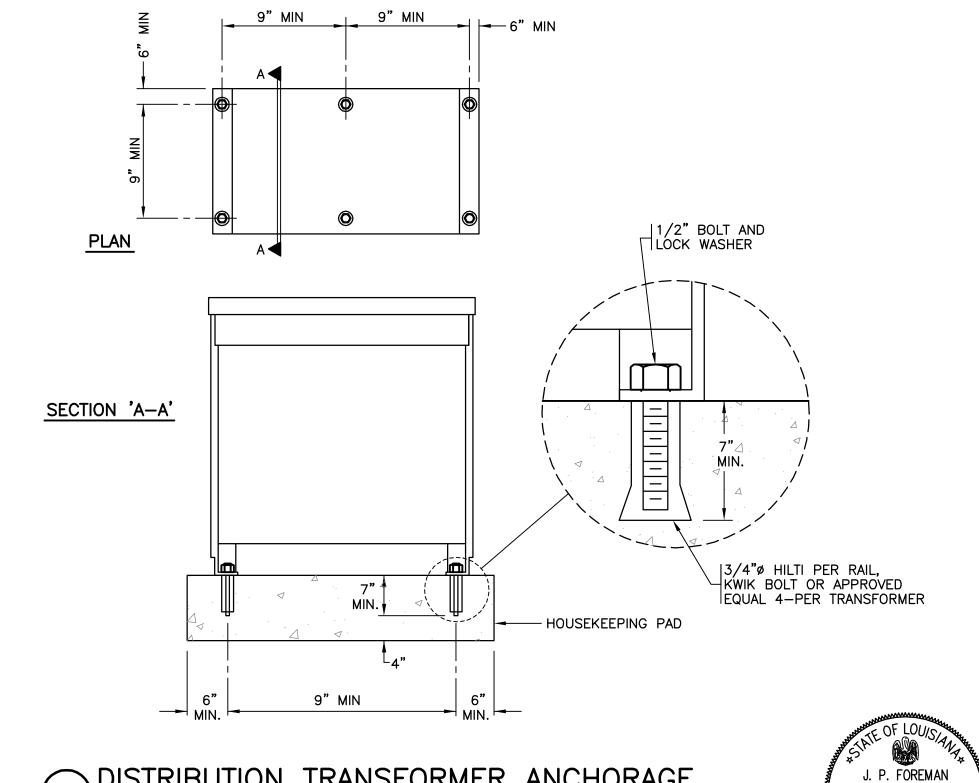
SINGLE LINE DIAGRAM NO SCALE POWER

TO NEAREST GROUND BAR OR NEAREST COLD WATER PIPE

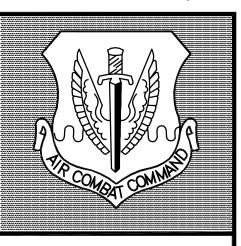
-TRANSFORMER HOUSING

208/120V-3ø

SECONDARY—



DISTRIBUTION TRANSFORMER ANCHORAGE
NO SCALE



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Security
Police
Security
Systems

Fire Chief Fire Chief Chief of Operations
Environment Management
Construction Management
Roofing Engineer
Pavements
Engineer
Corrosion
Engineer
Protective
Coating Engr

CONTRACTING ORGANIZATION



111 N. 19th ST. MONROE, LA. 71201 PH. 318-325-179 DESIGN FIRM JOHN J. GUTH

ASSOCIATES, MECHANICAL AND ELECTRICAL **ENGINEERS** 208 MILAM STREET SHREVEPORT, LA

GUTH PROJECT NO. 6637 PROJECT MANAGER MSM 18 APR 17

BY/DATE REVISION

SHEET TITLE **ELECTRICAL** SCHEDULES & DETAILS

Repair Gas Heat B6604 (307th BW)

BARKSDALE AIR FORCE BASE, LA. PROJECT NO. BAFB-AWUB 10-0192 DRAWING NO. FACILITY NO.

BARKSDALE AIR FORCE BASE LOUISIANA

APPROVED SIGNATURE

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111 N. 19th ST. MONROE, LA. 71201 PH. 318-325-1791

DESIGN FIRM JOHN J. GUTH ASSOCIATES,

MECHANICAL AND ELECTRICAL **ENGINEERS**

208 MILAM STREET SHREVEPORT, LA 71101

GUTH PROJECT NO. 6637 18 APR 17

REVISION BY/DATE

SHEET TITLE ELECTRICAL

FLOOR PLAN

PROJECT TITLE
Repair Gas Heat B6604 (307th BW)

BARKSDALE AIR FORCE BASE, LA. PROJECT NO. BAFB-AWUB 10-0192

FACILITY NO.

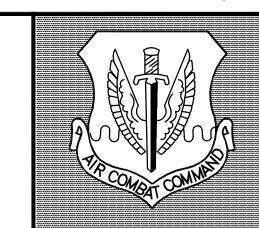
DRAWING NO.

ELECTRICAL FLOOR PLAN 1/16"=1'-0"

2'0" 10' 20' 30' 40' 50' SCALE: 1/16 INCH = 1 FOOT

		VOLTS	<u>480/277</u> PHASE <u>3</u> WI				_OBUS_AMPS_400		RACK	
CIRC. NO.	TRIP AMPS	NO. POLES	LOAD SERVED	PHAS A	E LOAD \ B	/.A. C	LOAD SERVED	CIRC. NO.	TRIP AMPS	NO. POLE
1	60	_	EXISTING	7170 15000	\rightarrow		EXISTING	2	60	_
3	_	_	_		7170 15000		_	4	_	_
5	_	3	_		<	7170 15000	_	6	_	3
7	100	_	EXISTING	3432	>		TRANSFORMER	8	40	_
9	_	_	_		22000 2496	>	_	10	_	_
11	_	3	_		<	22000 2516	-	12	_	3
13	100	_	EXISTING	22000 X	>			14		
15	_	_	_		22000 X	>		16		
17	_	3	_		<	22000 X		18		
19	100	_	EXISTING	< 22000 X	>			20		
21	_	_	_		22000 X	>		22		
23	_	3	_		<	22000 X		24		
25				X	>			26		1
27					X	>		28		
29					<	X		30		1
31				X	>			32		
33					X	,		34		
35						X		36		1
37				X	>			38		1
39					X	>		40		1
41					<u> </u>	X		42		
43				X	>	/\		44		
45					X	,		46		
47					<u> </u>	X		48		
49				X	>	/\		50		
51					X	,		52		
53					^	X		54		1
		1	SECTION TOTA 22,000 AIC SYMM. TOTAL	L X 76602	X 75667	X 75686		NNECTED L	!	

PANELBOARD SCHEDULE											
PANEL	PANEL LCR2 VOLTS 208/120 PHASE 3 WIRES 4 AMPS 100 MAIN 80/3P BUS AMPS 100 MTG. RACK										
CIRC. NO.	TRIP AMPS	NO. POLĖS	LOAD SERVE)	PHAS A	E LOAD V B	.A.	LOAD SERVED	CIRC. NO.	TRIP AMPS	NO. POLĖS
1	20	1	HEATER	<	936 780	>		HEATER	2	20	1
3	20	1	HEATER		<	936 624	>	HEATER	4	20	1
5	20	1	HEATER				780 936	HEATER	6	20	1
7	20	1	HEATER	<	936 780	>		HEATER	8	20	1
9	20	1	HEATER		<	936 X	>	SPARE	10	20	1
11	20	1	HEATER				780 X	SPARE	12	20	1
13	20	1	•		X	>		SPARE	14	20	1
15	20	1	•		<	X	>	SPARE	16	20	1
17	20	1				<	X	SPARE	18	20	1
19	Х	Х	SPACE		X	>		SPACE	20	Х	X
21	Х	Х	SPACE			X	>	SPACE	22	Х	X
23	Х	Х	SPACE				X	SPACE	24	X	X
	TOTAL CONNECTED LOAD 23.44 KVA TOTAL 3432 2496 2516 DEMAND LINE AMPS 81.4 ESTIMATED DEMAND LOAD 5.86 KVA INTERRUPTING RATING 10,000 AIC SYMM.										



BARKSDALE AIR FORCE BASE LOUISIANA

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DESIGN FIRM JOHN J. GUTH ASSOCIATES,

MECHANICAL AND ELECTRICAL ENGINEERS 208 MILAM STREET SHREVEPORT, LA 71101

DESIGNER PROJECT NO. 6637

DESIGNER PROJECT MANAGER MSM

DRAFTER DATE

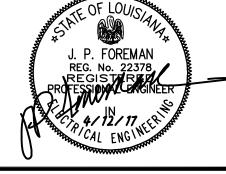
AJL 18 APR 17

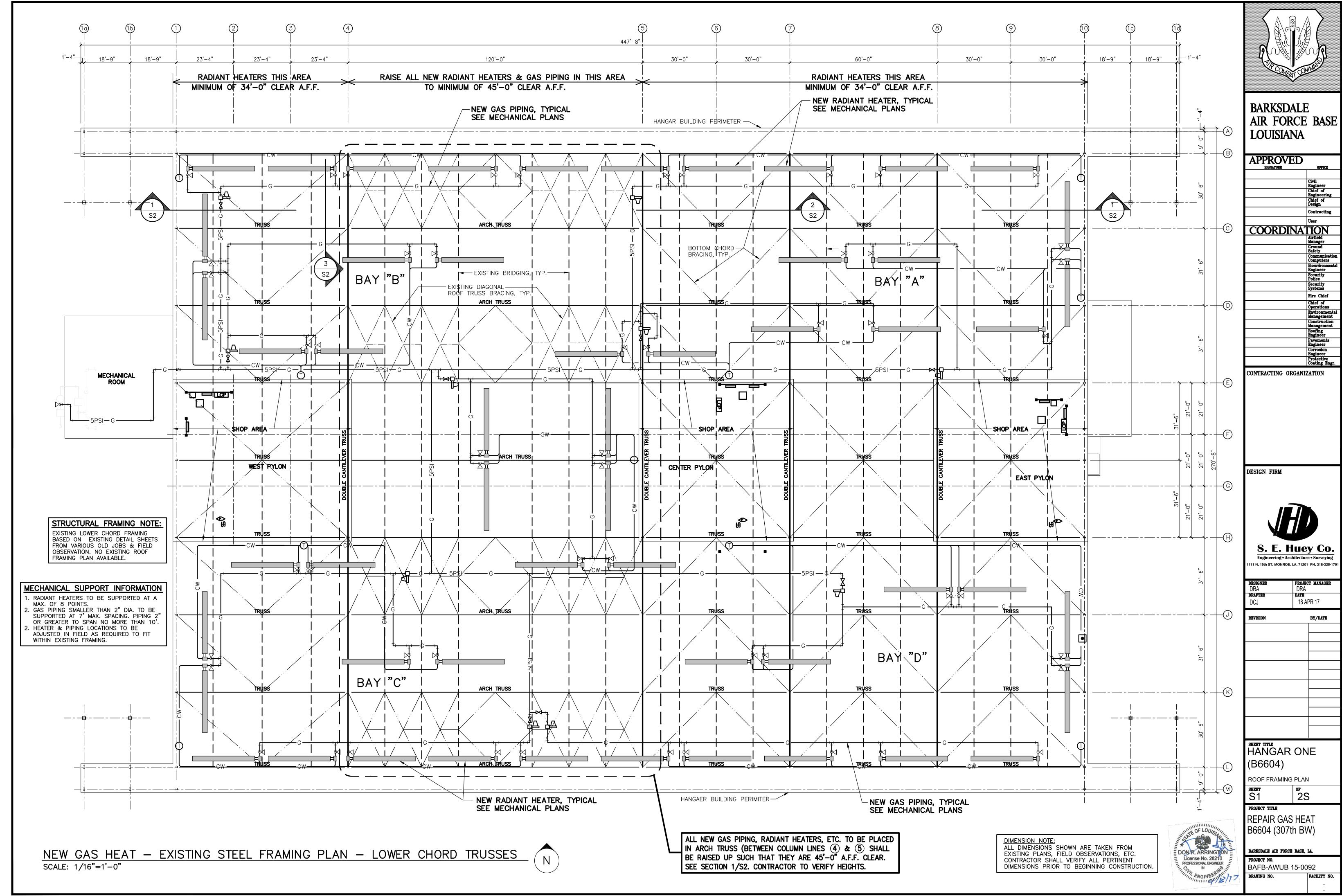
REVISION BY/DATE

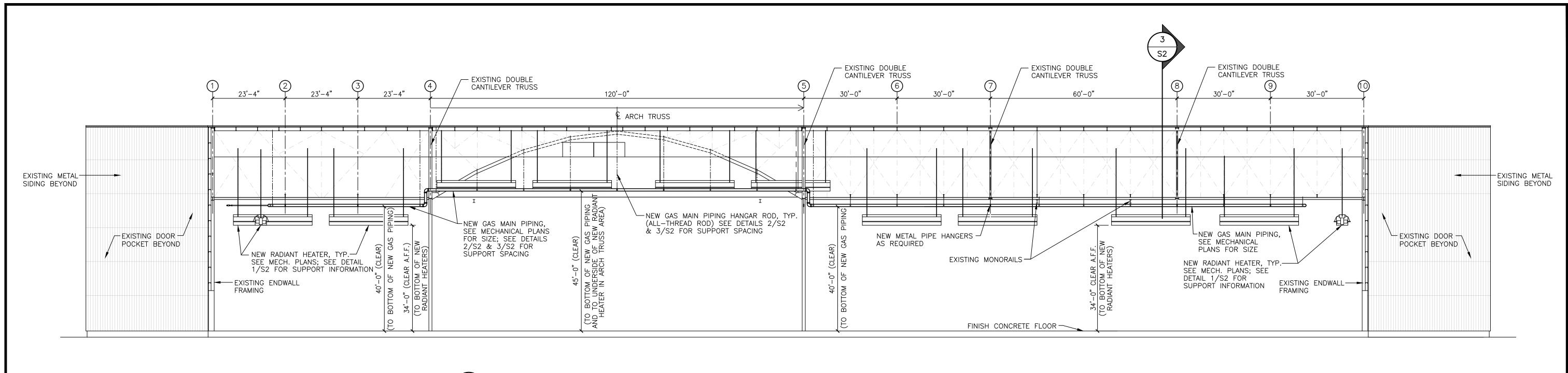
SHEET TITLE PANELBOARD SCHEDULES

Repair Gas Heat B6604 (307th BW)

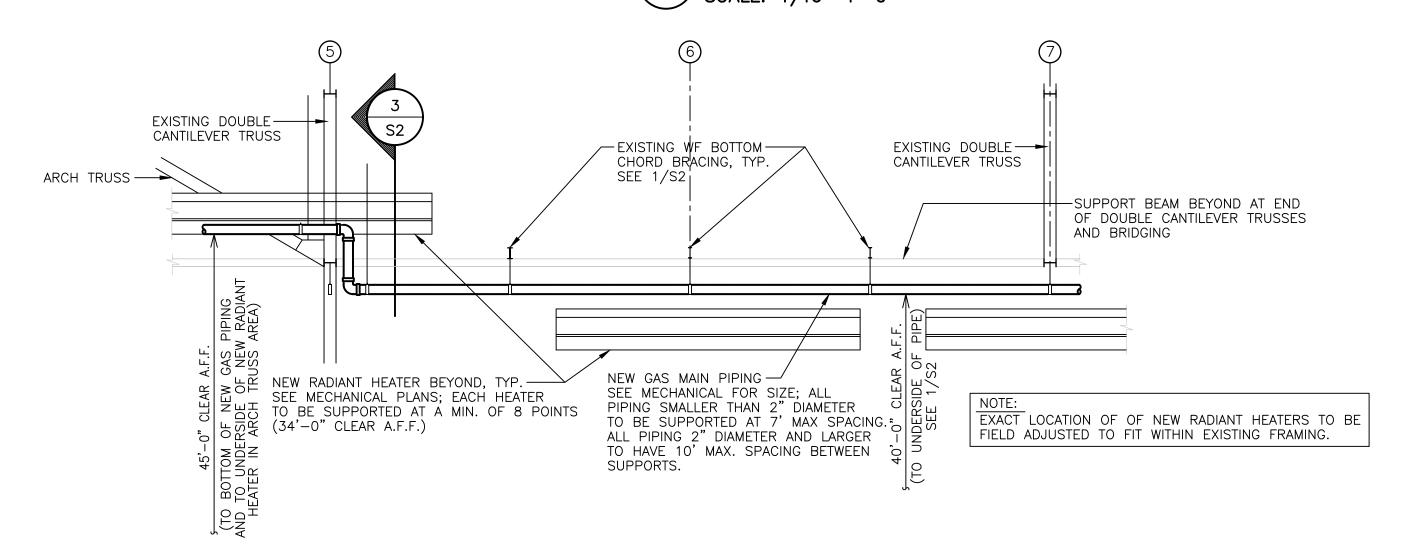
BARKSDALE AIR FORCE BASE, LA.
PROJECT NO.
BAFB-AWUB 10-0192 DRAWING NO. FACILITY NO.

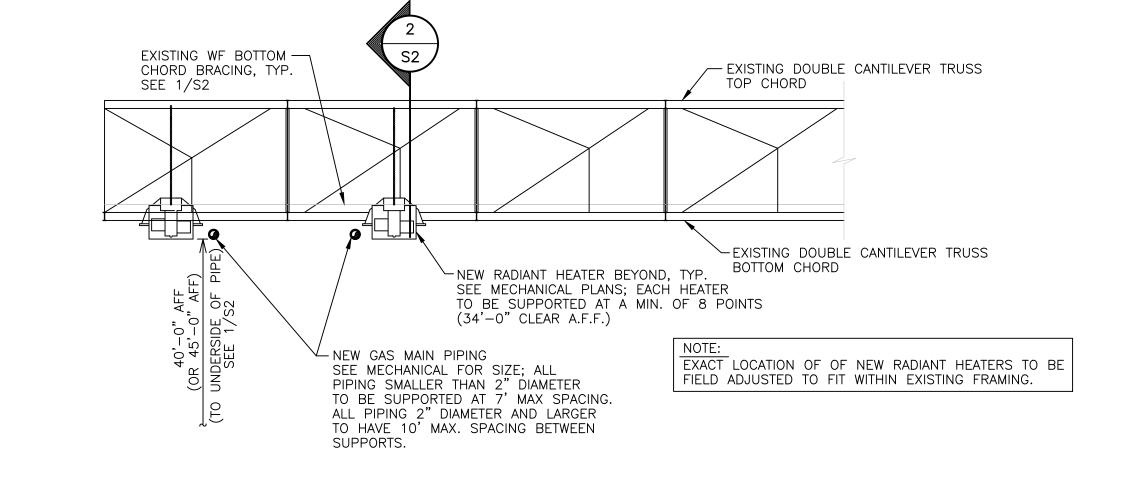






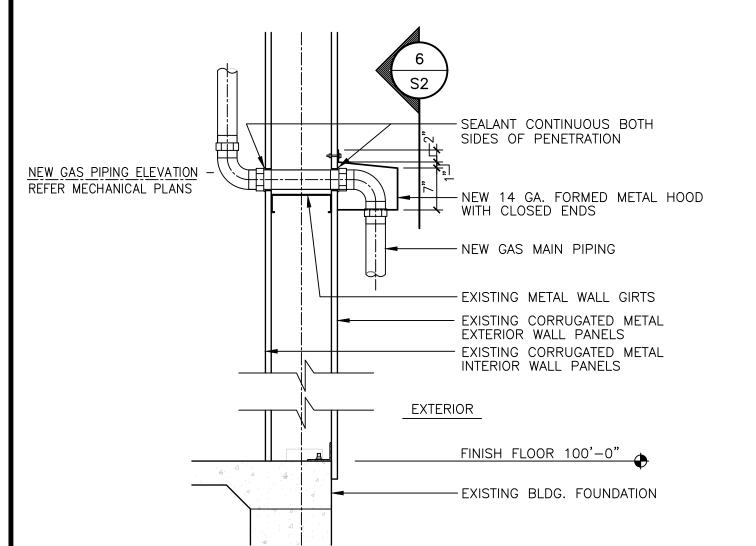
SECTION LOOKING NORTH - EXISTING STRUCTURAL FRAMING & NEW GAS PIPING SCALE: 1/16"=1'-0"





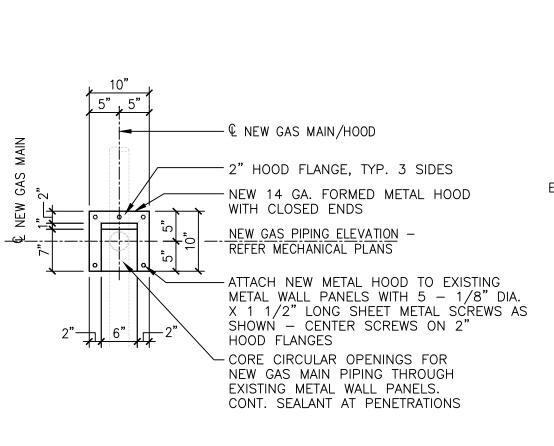
TRUSS SECTION PERPENDICULAR TO DOUBLE CANTILEVER TRUSSES S2 NO SCALE

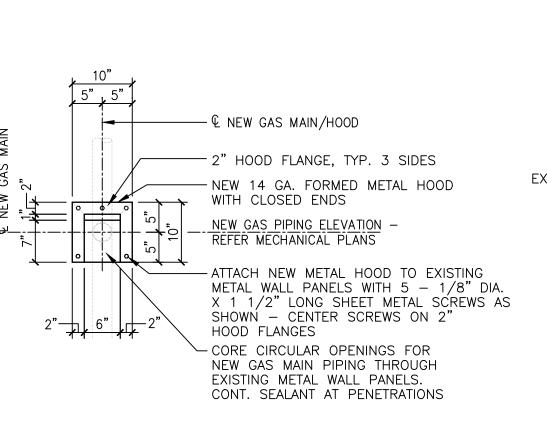
TRUSS SECTION PARALLEL TO DOUBLE CANTILEVER TRUSSES S2 NO SCALE

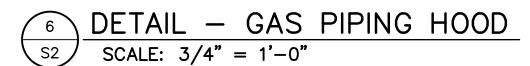


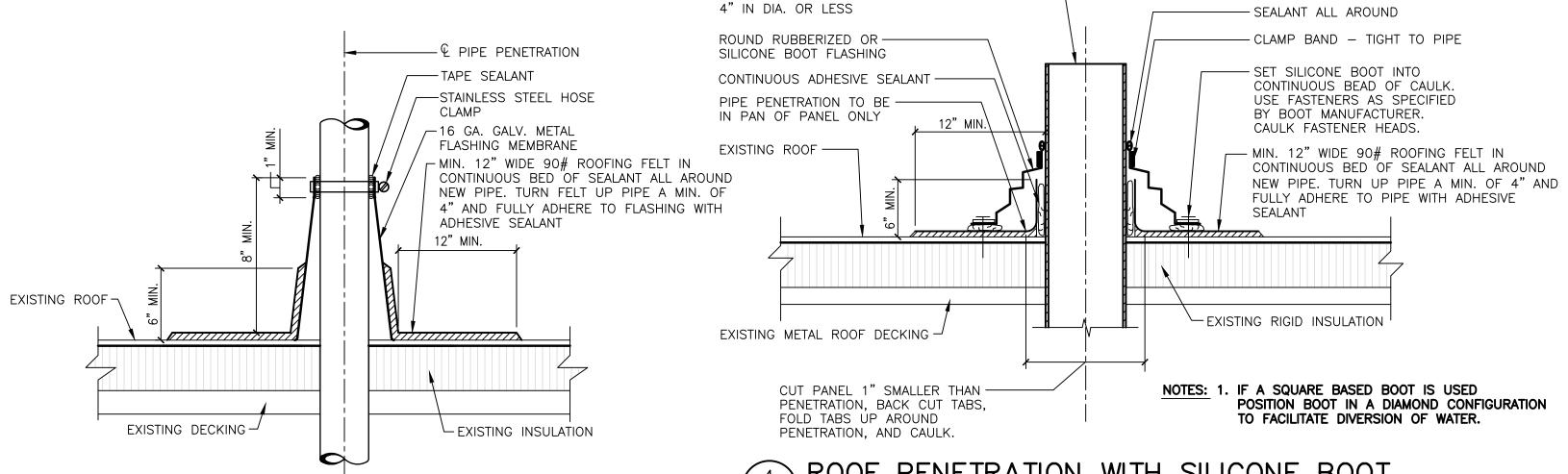
DETAIL - THRU-WALL GAS MAIN PIPING

SCALE: 3/4" = 1'-0"



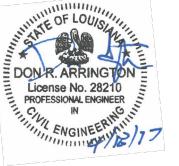






ROOF PIPE PENETRATION OF ---

ROOF PENETRATION WITH SILICONE BOOT S2 NO SCALE





BARKSDALE AIR FORCE BASE LOUISIANA

APPROVED SIGNATURE	OFFICE
	Civil Engineer
	Chief of Engineering
	Chief of Design
	Contracting
	User
COORDINA'	ΓΙΟΝ
	Airfield Manager
	Ground Safety
	Communication

CONTRACTING ORGANIZATION

DESIGN FIRM



DESIGNER	PROJECT MANAGER
DRA	DRA
DRAFTER	DATE
DCJ	18 APR 17
REVISION	BY/DATE

INANGAR ONE (B6604)STRUCTURAL SECTIONS AND ARCH. PENETRATION DETAILS 2S

PROJECT TITLE REPAIR GAS HEAT

B6604 (307th BW)

BARKSDALE AIR FORCE BASE, LA. BAFB-AWUB 10-0192

5 ROOF PENETRATION WITH CONE FLASHING