



DEPARTMENT OF THE AIR FORCE

105 AIRLIFT WING (ANG)
ONE MAGUIRE WAY
NEWBURGH NY 12550-5075

1. Background

The Logistics Readiness Squadron processes all of the parts and equipment for the C-17 Airlift mission at Stewart ANGB, they also order, handle and maintain all of the personnel protective equipment for approximately 1200 personnel assigned to Stewart ANGB. The warehouse floor requires some maintenance to ensure the squadron is able to maintain the mission needs. Filling cracks to prevent further propagation and sealing the floor to increase the aesthetics and increase the lifespan are a couple of the items required. Additionally, the concrete vehicle bay floor in the Firehouse will need to be refinished, approximately 10,500 SQFT.

2. Scope

Contractor shall furnish all tools, parts, material, labor, supplies, equipment and incidentals required to properly perform work outlined below.

All work shall be performed in a safe manner and shall be accomplished in accordance with all local, state, federal, and safety regulations to include any hazardous waste disposal if necessary.

3. Objectives

Seal approximately 20,000 SQFT of concrete floor and fill approximately 400 LF of cracks in the concrete floor. All cracks in floor will be filled prior to sealing. Cracks will be filled with the materials listed below based on crack width. Cracks will be prepared and filled according to manufacturer's recommendations.

1. Minor Patching and Small Cracks: Tenant "Eco-MPE" 100 percent solids epoxy and fumed silica.
2. Major Patching and Large Cracks (1/4 inch): Tenant "Eco-PT 250" 100 percent solids epoxy.

Cracks will be prepared and filled according to manufacturer's recommendations. An inspection with the Contracting Officer, or designated representative will be scheduled after the cracks have all been filled and prior to sealant application. Inspection will require a minimum of 24 hour notice. The floors will be sealed with material meeting or exceeding the following specifications. Basis of design is Tenant ReVue-DENSE.

The warehouse shelving will not be moved and the contractor will not be required to move it. All work will be accomplished around the existing shelving. The contractor will apply sealant as close to or as far under the shelving as possible. The distance should be uniform for each shelf.

All products will be submitted to the Contracting Officer prior to application. Approval is required. Prior to work commencing a site meeting will be scheduled to discuss work scheduling, manufacturer's application methods being used and any other issues that need to be

discussed prior to work starting.

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Concrete Hardener and Sealer.

1.2 RELATED REQUIREMENTS

A. Division 01: Administrative, procedural, and temporary work requirements.

B. Section 03 35 00 – Cast-in-Place Concrete

1.3 PRODUCT DESCRIPTION

A. Revue Dense™ surface densifier is a colloidal silica-based liquid compound that penetrates and reacts with calcium to form insoluble calcium silicate hydrate within the concrete.

B. Revue Dense™ surface densifier is a colloidal silica-based liquid compound that penetrates and reacts with calcium to form insoluble calcium silicate hydrate within the concrete.

1.4 REFERENCE STANDARDS

A. American Concrete Institute (ACI): ACI 302.1R-Guide for Concrete Floor and Slab Construction

B. American National Standards Institute (ANSI) Standards B-101.1/2009.

C. ASTM International (ASTM) (www.astm.org):

1. ASTM C 779 Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces

2. ASTM C 944 – Standard Test Method for Abrasion Resistance of Concrete by Rotating-Cutter Method

3. ASTM C 171 Standard Specification for Sheet Materials for Curing Concrete.

4. ASTM C150/150M – Standard Specification for Portland Cement

5. ASTM D 4060 – Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.

6. ASTM D 1475 – Standard Test Method For Density of Liquid Coatings, Inks, and Related Products

D. Product shall contain less than 300 mg/kg of a Sodium and Potassium component and a minimum of 7% solids.

E. Reunion Internationale des Laboratoires D'Essais et de Recherches sur les Matériaux et les Construction (RILEM): Rilem Test Method 11.4-Standard Measurement of Reduction of Moisture Penetration through Horizontal Concrete Surfaces.

F. National Floor Safety Institute (NFSI): NFSI Test Method 101-A-Standard for Evaluating High-Traction Flooring Material.

1.5 PREAPPLICATION MEETINGS

A. Pre-installation Meetings: Conduct a pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Review the following.

1. Environmental requirements.

2. Scheduling and phasing of work.

3. Coordinating with other work and personnel. Remind all trades that they are working on a surface that is to become a finished surface.
4. Protection of adjacent surfaces.
5. Surface preparation.
6. Repair of defects and defective work prior to installation.
7. Cleaning.
8. Installation of polished floor finished.
9. Application of liquid hardener, densifier.
10. Protection of finished surfaces after installation.
11. Placing of material on the concrete surface that may cause staining, etching or scratching.

1.6 SUBMITTALS

- A. Submit under provisions of Section 01 30 00-Administrative Requirements
- B. Shop Drawings: Indicate information on shop drawings as follows:
 1. Typical layout including dimensions and floor grinding schedule.
 2. Plan view of floor and joint pattern layout.
 3. Hardener, sealers, densifier identified in notes.
- C. Product Data: Submit product data, including manufacturer's SPEC-DATA product sheet for specified products.
 1. Material Safety Data Sheets (MSDS).
 2. Preparation and concrete grinding procedures.
- D. Quality Assurance Submittals:
 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties as cited in Performance Requirements.
 2. Certificates:
 - a. Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - b. Letter of certification from the National Floor Safety Institute confirming the system has been tested and passes phase Two Level of certification when tested by Method 101-A ANSI B-101.1 2009 non-slip properties.
 - c. Current contractor's certificate signed manufacturer declaring Contractor as an approved installer of polishing system.
 3. Manufacturer's Instructions: Manufacturer's installation instructions.
- E. Warranty: Submit warranty documents specified.
- F. Operation and Maintenance Data: Submit operation and maintenance data for installed products.
 1. Manufacturer's instructions on maintenance renewal of applied treatments.
 2. Protocols and product specifications for joint filling, crack repair and/or surface repair.

1.7 SUBMITTALS

- A. Applicator Qualifications:
 1. Minimum 5 years [documented] experience in work of this Section.
 2. Certified by equipment and chemical manufacturers.
 3. Certified by ASCC CPC.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Delivery: Deliver materials in manufacturer's original packaging with identification labels and seals intact.

C. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

1.9 PROJECT CONDITIONS

A. Close areas to traffic during finishing and for minimum time period after finishing as recommended by chemical manufacturer.

B. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimal results. Do not install products under environmental conditions outside manufacturer's recommended limits.

C. Waste Management and Disposal: a Separate waste materials for Reuse and Recycling in accordance with Section 01 74 19 Construction Waste Management and Disposal

1.10 PROJECT AMBIENT CONDITIONS

A. Installation Location: Comply with manufacturer's written recommendations.

1.11 SEQUENCING

A. Sequence with Other Work: Comply with manufacturer's written recommendations for sequencing construction operations.

PART 2 GENERAL

2.1 MANUFACTURERS

A. Manufacturer: Tennant Company, 701 North Lilac Drive, Minneapolis, Minnesota 55422. 800-553-8033. www.tennantco.com. info@tennantco.com.

B. Substitutions: [Not permitted.] [In accordance with Division 01.]

2.2 MATERIALS

A. Concrete Densifier:

1. Source: Tennant Coatings

2. Type: Revue Dense™ surface densifier is a colloidal silica-based liquid compound that penetrates and reacts with calcium to form insoluble calcium silicate hydrate within the concrete.

3. Product: "ReVue Dense"

4. Maximum volatile organic compounds (VOC) content: 50 grams per liter.

2.3 ACCESSORIES

A. Cleaning Products: Non-corrosive, neutral pH, of type recommended by concrete treatment manufacturer.

B. Joint Filler: Two-part filler or polyuria type.

PART 3 EXECUTION

3.2 EXAMINATION

A. Examine concrete surface to receive flooring system.

- B. Verify concrete is structurally sound and meets finish and surface profile requirements.
- C. Ensure concrete is sufficiently cured to accept polishing
- D. Preferred Concrete Curing/Application Sequence: Cure concrete before application of Revue Dense™ --7 day wet cure preferred or membrane forming cure such as C309 or C1315. Notify Architect of conditions that would adversely affect application or subsequent use.
 - 1. Alternate curing/application sequence: Revue Dense™ may be applied immediately after finishing operation and then a wet-cure, C309™, C1315, or Bond breaker/curing material shall be applied over the top of Revue Dense™ per curing material or bond breaker manufacturer's instructions.
- E. Do not begin surface preparation or application until unacceptable conditions are corrected.

3.3 PREPARATION

- A. Clean surfaces of loose and foreign materials and debris.
- B. Protect adjacent surfaces from damage.
- C. Surface Preparation:
 - 1. Prepare concrete surface in accordance with manufacturer's instructions.
 - 2. Foreign materials that may inhibit penetration (such as curing compounds, sealers, and/or bond breakers, loose patching materials, dirt, laitance or surface oil) shall be removed.
 - 3. Do not apply Revue Dense™ to frozen, or dirty surfaces or to standing water.
 - 4. Remove dirt, dust, debris, oil, grease, curing agents, bond breakers, paint, coatings, sealers, silicones, and other surface contaminants which could adversely affect application of concrete hardener and sealer
 - 5. Joints: Fill joints in accordance with manufacturer's instructions.

3.4 APPLICATION

- A. Apply concrete hardener and sealer in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Ensure concrete is dry, clean and prepared in accordance with manufacturer's instructions.
- C. Apply concrete hardener and sealer at a coverage of 400-600 sq. ft. per gal.
- D. Apply and redistribute concrete hardener and sealer so surface remains wet for 30 minutes, then work excess material into concrete surface in accordance with manufacturer's instructions.

3.5 FIELD QUALITY CONTROL

- A. Measure slip resistance using BOT-3000 slip-tester; ensure compliance with specified slip resistance rating.

3.6 FINAL CLEANING

- A. Upon completion, remove surplus and excess materials, rubbish, tools and equipment.

3.7 PROTECTION

- A. Close areas to traffic until concrete treatment has cured.
- B. Protect completed work with nonstaining sheet coverings until just prior to Substantial Completion.

END OF SECTION

The contractor will also seal building 104, Fire Department, Vehicular Bay floor that is approximately 10,500 SQFT. The basis for design is Tenant Eco-Shop Floor Single Broadcast Eco RCE-F. The following specifications apply to the FD floor.

PART 1 - GENERAL

1.01 Summary

A. A filled two-component, 100% solids epoxy system that consists of epoxy resin and neutral silica sand aggregate for an attractive, slip-resistant surface on interior concrete floors topcoated with a high performance, proprietary three-component moisture-cure urethane with superior abrasion resistance. Complies with U.S. Federal VOC regulations.

1.02 Performance Requirements

A. See manufacturer's technical data bulletin for specific material, cured coatings and a complete list of chemical resistant properties.

1.03 Submittals

A. Product Data: Submit manufacturer's product data, including physical properties, chemical resistance, surface preparation and application instructions.

B. Submit list of five projects similar in nature, which have been installed by applicator during the last five years, identified with project name, location, name of owner's representative, their phone number and date.

C. Submit manufacturer's standard warranty and applicator's warranty.

1.04 Quality Assurance

A. Applicator Qualifications:

1. A minimum of three years' experience in the application of coatings or resurfacers to concrete floors.
2. A minimum of ten jobs or 1,000,000 square feet of successful applications.

B. Pre-Application Meeting: Convene a pre-application meeting 2 weeks before the start of application of floor coating system. Require attendance of parties directly affecting work of this section, including the Contractor, Architect, Applicator and Manufacturer's Representative. Review the surface preparation, application, cleaning, protection and coordination with other work.

1.05 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. Store materials in accordance with manufacturer's instructions.

1. Store materials in dry, enclosed area with adequate protection from moisture.
2. Keep containers sealed until ready for use.
3. Storage Temperature: 65°F (18°C) and 90°F (32°C).

1.06 Warranty

A. Written manufacturer's warranty covering materials only. Applicator to provide application warranty.

PART 2 - PRODUCTS

2.01 Materials

A. Primer / Epoxy Build Coat: Tennant Eco-RCE/F™ - Multi Purpose Epoxy with cleaned 30 mesh silica sand. A filled two-component epoxy.

1. Percent Solids, ASTM D2369
 1. Part A - 100%
 2. Part B - 100%
 3. Part C - 100%
2. Volatile Organic Compound (VOC), ASTM D3960
 1. 0 lb/gal or 0 g/L
3. Tensile Strength, ASTM D2370
 1. 8,000 psi or 55,200 kPa
4. Percent Elongation, ASTM D2370
 1. 5%

B. Coating: Tennant Eco-HTS™ 100 - 6 g/L, VOC Compliant, Satin Urethane Topcoat. A three-component moisture-cure urethane.

1. Volatile Organic Compound (VOC), ASTM D3960
 1. 0.05 lb/gal or 6 g/L
2. Abrasion Resistance, ASTM D4060
 1. 18 mg loss @ 1000 revolutions
3. Tensile Strength, ASTM D2370
 1. 6,250 psi, 43,088 kPa
4. Percent Elongation, ASTM D2370
 1. 6%
5. Percent Solids
 1. Part A - 99.35%
 2. Part B - 59.23%
 3. Part C - 100%
 4. Mixed - 94%

C. Colorant: Tennant Colorants

1. Light Gray, Canada Gray, Medium Gray, Battleship Gray, Sandy Beige, Smoke Blue, Regal Blue and Tile Red.

D. Cleaners and Related Products:

1. Industrial Grease Remover: Tennant Detergent

Tennant detergents are available in a range of formulations, which remove a variety of soilage.

PART 3 - EXECUTION

3.01 Examination

A. Examine concrete surface to receive floor coating system. Notify the Architect if surface is not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

B. Allow concrete substrate to cure a minimum of 30 days.

C. **CHECK FOR MOISTURE:** Concrete must be dry before application of this floor coating material. Concrete moisture testing must occur. Calcium chloride testing or in-situ relative humidity testing is recommended. Readings must be below 3 pounds per 1,000 square feet over a 24-hour period on the calcium chloride test or below 80% relative internal concrete humidity. Test methods can be purchased at www.astm.org, see ASTM F1869 or F2170, respectively or follow instructions from the suppliers of these tests.

D. **NOTE:** Although testing is critical, it is not a guarantee against future problems. This is especially true if there is no vapor barrier or the vapor barrier is not functioning properly and/or you suspect you may have concrete contamination from oils, chemical spills or excessive salts.

3.02 Preparation

A. Prepare surface in accordance with manufacturer's instructions.

1. Cleaning: Scrub with Tennant detergent and rinse with clean water to remove surface dirt, grease and oil.
2. Removing: Remove coatings and curing membranes with one of the following methods:
 1. Mechanical - Shot blast.

3.03 Application

A. Apply floor coating system in accordance with manufacturer's instructions.

1. Equipment: squeegees, rollers, mechanical blower and funnel for silica sand application, etc.
2. Epoxy Build Coat with Silica Broadcast (nominal 1/16"): Eco-RCE/F - Multi Purpose Epoxy with cleaned 30 mesh silica sand.
 1. Mix Eco-RCE/F primer components together.
 2. Mix only enough material, which can be applied within 25 minutes.
 3. Apply Eco-RCE/F body coat at a rate of 100 -160 ft².
 4. Back roll Eco-RCE/F to level and smooth out coating
 5. Immediately broadcast silica sand granules into the resin system at the rate of 1/2 lb/ft².
 6. Allow shop floor to cure 12 hours at 70 degrees F (20 degrees C).
3. Grout Coat: Eco-RCE/F - Multi-Purpose Epoxy
 1. Mix components together.
 2. Mix only enough material, which can be applied within 25 minutes.
 3. Apply Eco-RCE/F at the rate of 80 -100 ft²/gal.
 4. Allow coating to dry 16 hours at 75 degrees F (24 degrees C) and 50% relative humidity.
4. Coating: Eco-HTS™ 100 - 6 g/L, VOC-Compliant, Satin Urethane Topcoat. **NOTE:** Topcoat within 24 hours at minimum of 70 degrees F (21 degrees C) and 20% relative humidity.
 1. Open and mix only enough material which can be applied in a 2 hour period.
 2. Apply Eco-HTS™ 100 at the rate of 500 ft²/gal.
 3. Allow coating to dry 24 hours at 75 degrees F (24 degrees C) and 50% relative humidity.

3.04 Protection

A. Close job site to traffic for a period of 24 hours after coating application

END OF SECTION

4. Delivery

All materials shall be genuine materials and approved by the Contracting Officer. Only new materials shall be used in completing repairs. Performance shall take place at the 105th Airlift Wing, Stewart ANGB, Newburgh, NY.

5. Government Furnished Property: None

6. Security

Contractors should be aware that this is a Military Installation and that all access to this installation is granted by the 105 AW Base Defense Squadron. The U.S. government will not be held liable for any delays or breach of contract caused by refusal of the 105th AW Base Defense Squadron. If a gate pass is not granted to a contractor allowing the delivery of goods, execution

of warranty support, or performance of services please contact the contracting officer.

A contractor's badge will be issued once the contractor enters the main gate at Stewart Air National Guard Base. All employees are required to have the proper ID (social security card, driver's license, state ID, immigration card, U.S. Passport, etc.). If they do not have the proper ID, they will be turned away. Vendors should be aware that Anti- Terrorism Force Protection Measures are applicable to this contract. Vendors will be briefed on these measures by Base Defense personnel if recurring or long term access is required to Stewart ANG Base. Otherwise you will be escorted at all times by a member of Stewart ANG Base.

7. Safety Requirements

The contractor shall comply with all Occupational Safety and Health Act (OSHA), federal, state, and local laws, regulations, and requirements regarding safety, as applicable to the services provided under this contract. In the event safety laws or regulations change during the term of this contract, the contractor is required to comply as such laws come into effect.

8. Contractor Manpower Reporting

The contractor shall report ALL contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for the 105th Airlift Wing via a secure data collection site. The contractor is required to completely fill in all required data fields using the following web address: <http://www.ecmra.mil/>.

Reporting inputs will be for the labor executed during the period of performance during each Government fiscal year (FY), which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year, beginning with 2019. Contractors may direct questions to the help desk at: <http://www.ecmra.mil/>.

9. REGISTRATION/CERTIFICATIONS:

Prior to award, selected contractor must be registered in the System for Award Management (SAM). Registration in SAM is in order to receive payment for products/services rendered to the Government. If you are not registered you may request an application through the SAM website at <https://www.sam.gov> Lack of registration in SAM will qualify contractor as ineligible for award.