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Guide Specification

SECTION 09 96 35

CHEMICAL-RESISTANT COATINGS

(ChemXP-VE)

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Two-component, chemical-resistant flooring system, based on vinyl ester resin, for concrete.

1.2 RELATED REQUIREMENTS

- A. Section 03 30 00 – Cast-in-Place Concrete.

1.3 REFERENCE STANDARDS

- A. ASTM International (ASTM) (www.astm.org):
 1. ASTM C 579 – Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
 2. ASTM D 638 – Standard Test Method for Tensile Properties of Plastics.
 3. ASTM D 1475 – Standard Test Method for Density of Liquid Coatings, Inks, and Related Products.
 4. ASTM D 2196 – Standard Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational Viscometer.
 5. ASTM D 4263 – Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
 6. ASTM D 7234 – Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers.
- B. US Environmental Protection Agency (EPA) (www.epa.gov):
 1. EPA Method 24 – Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings.

1.4 PREAPPLICATION MEETINGS

- A. Convene preapplication meeting 2 weeks before start of application of flooring system.
- B. Require attendance of parties directly affecting work of this Section, including Contractor, Architect, applicator, and manufacturer's representative.
- C. Review materials, moisture testing of concrete, protection of in-place conditions, surface preparation, application, protection, and coordination with other work.

1.5 SUBMITTALS

- A. In accordance with Division 01.
- B. Product Data: Submit manufacturer's product data, including surface preparation and application instructions.
- C. Samples: Submit manufacturer's sample of each color available.
- D. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
- E. Manufacturer's Project References: Submit manufacturer's list of successfully completed flooring system projects, including project name and location, name of architect, and type and quantity of flooring systems furnished.
- F. Applicator's Project References: Submit applicator's list of successfully completed flooring system projects, including project name and location, name of architect, and type and quantity of flooring systems applied.
- G. Warranty Documentation: Submit manufacturer's standard warranty.

1.6 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Manufacturer regularly engaged, for a minimum of 10 years, in the manufacturing of flooring systems of similar type to that specified.
- B. Applicator's Qualifications:
 - 1. Applicator regularly engaged, for a minimum of 5 years, in application of flooring systems of similar type to that specified.
 - 2. Employ persons trained for application of flooring systems.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and batch number.
- B. Storage and Handling Requirements:
 - 1. Store and handle materials in accordance with manufacturer's instructions.

2. Keep materials in manufacturer's original, unopened containers and packaging until application.
3. Store materials in clean, dry area indoors.
4. Store materials out of direct sunlight.
5. Keep materials from freezing.
6. Protect materials during storage, handling, and application to prevent contamination or damage.

1.8 AMBIENT CONDITIONS

- A. Do not apply flooring system under ambient conditions outside manufacturer's limits.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Tennant Coatings Inc., which is located at: 701 N. Lilac Dr.; Minneapolis, MN 55440; Toll Free Tel: 800-228-4943; Email: request info (Coatings@tennantco.com); Web: <http://www.tennantcoatings.com>
- B. Substitutions permitted in accordance with Division 01.
- C. Single Source: Provide materials from single manufacturer.

2.2 FLOORING SYSTEM

- A. Flooring System: "ChemXP-VE".
 1. Description: Two-component, chemical-resistant flooring system, based on vinyl ester resin, for concrete.
- B. System Components – Broadcast Floor Coating System:
 1. Primer: "ChemXP-VE Primer".
 2. Basecoat: "ChemXP-VE".
 - a. Color: [Clear] [Industrial Gray] [Crimson].
 3. Broadcast Aggregate: 30 to 50 mesh.
 4. Topcoat: "ChemXP-VE".
 - a. Color: [Clear] [Industrial Gray] [Crimson].
- C. Properties:
 1. VOC Content, EPA Method 24: 0.93 lbs per gal (111 g/L).
 2. Density, ASTM D 1475: 8.6 plus or minus 0.25 lbs per gal (1.03 kg/L).
 3. Viscosity, Mixed (Colored Resin), ASTM D 2196: 1,000 cps (1,000 mPa-s).
 4. Adhesion Strength, Concrete, ASTM D 7234: Exceeds concrete strength.
 5. Compressive Strength (Troweled/Filled System), ASTM C 579: 8,500 to 9,000 psi (59 to 62 MPa).
 6. Tensile Strength (Binder Only), ASTM D 638: 2,500 psi (17 MPa).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to receive flooring system.
- B. Verify surfaces are structurally sound.
- C. Notify Architect of conditions that would adversely affect application or subsequent use.
- D. Do not begin surface preparation or application until unacceptable conditions are corrected.

3.2 PREPARATION

- A. Protection of In-Place Conditions: Protect surfaces not to receive flooring system from contact with flooring system materials.
- B. Surface Preparation:
 - 1. Prepare concrete surfaces in accordance with manufacturer's instructions.
 - 2. Minimum Compressive Strength: 3,500 psi (25 N/mm²).
 - 3. Minimum Surface Strength:
 - a. For Coating Application: 200 psi (1.4 N/mm²).
 - b. For Lining Application: 300 psi (2.1 N/mm²).
 - 4. Ensure concrete is thoroughly cured and dry at time of application.
 - 5. Residual Moisture Content: Maximum 4 percent.
 - 6. Use plastic sheet test method in accordance with ASTM D 4263 to ensure concrete is moisture free.
 - a. If moisture is detected, repeat test until dry.
 - 7. Abrasive Blast or Mechanically Abrade Surfaces to Remove:
 - a. Loose, delaminated, and damaged concrete.
 - b. Dirt, dust, debris, oil, grease, curing agents, bond breakers, paint, coatings, sealers, silicones, and other surface contaminants which could adversely affect application of flooring system.

3.3 APPLICATION

- A. Apply flooring system in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Ensure surfaces are dry, clean, and prepared in accordance with manufacturer's instructions.
- C. Mixing:
 - 1. Mix material components together in accordance with manufacturer's instructions.
 - 2. Mix only enough material that can be applied within working time.
- D. Apply flooring system materials to obtain consistent mil thickness.
- E. Broadcast Floor Coating System:
 - 1. Primer: Apply primer to prepared surfaces in accordance with manufacturer's instructions at 2 to 5 mils (50 to 125 microns) DFT.
 - 2. Basecoat: Apply basecoat in accordance with manufacturer's instructions at 20 to 24 mils (500 to 600 microns) DFT.

3. Broadcast Aggregate:
 - a. Apply broadcast aggregate into wet basecoat in accordance with manufacturer's instructions.
 - b. After basecoat has cured, remove excess aggregate from flooring surface in accordance with manufacturer's instructions.
4. Topcoat: Apply topcoat in accordance with manufacturer's instructions at 20 to 24 mils (500 to 600 microns) DFT.

3.4 PROTECTION

- A. Allow flooring system to cure in accordance with manufacturer's instructions before placing in service.
- B. Protect completed flooring system from damage during construction.

END OF SECTION