

SECTION 09699
EPOXY COATINGS
CONCRETE MOISTURE CONTROL SYSTEM #1

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Surface preparation.
 - 2. Joint and crack treatment.
 - 3. Furnishing and installation of epoxy-based moisture control system.

1.02 RELATED SECTIONS

- A. Section 03300 – Cast-In-Place Concrete:
 - 1. Concrete shall meet the requirements for “Durable Concrete” according to ACI Committee 201.
- B. Section 09620 – Specialty Flooring, installation requirements.
- C. Section 09640 – Wood Flooring, installation requirements.
- D. Section 09650 – Resilient Flooring, installation requirements.
- E. Section 09660 – Static Control Flooring, installation requirements.
- F. Section 09690 – Fluid Applied Flooring, installation requirements.
- G. Section 09680 – Carpet, installation requirements.

1.03 SUBMITTALS

- A. Submit manufacturer’s product data including ASTM test reports on product performance.
- B. Submit manufacturer’s application instructions.
- C. Submit manufacturer’s warranty information.

1.04 QUALITY ASSURANCE

- A. All materials used in concrete moisture control system shall be supplied by Arizona Polymer Flooring, Glendale, AZ. No multiple sourcing or substitutions will be allowed.
- B. Application contractor must be approved by the manufacturer or be under the supervision of a factory trained technical service person for the duration of the application.

1.05 DELIVERY, STORAGE AND HANDLING

- A. All material shall be delivered to the job site in unopened containers clearly labeled and stored in a dry location at a minimum of 65 degrees F.

1.06 WARRANTY

- A. Manufacturer shall guarantee that the materials are free from defects and comply with the published specifications.
- B. Application contractor shall certify that the surface preparation and application have been done to meet the specifications listed in this document and in the product data sheets.
- C. Owner or contractor may opt to purchase the “silver” (2 year) warranty or the “gold” (10 year) warranty offered by the manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Resin system, crack and control joint filler shall be supplied by Arizona Polymer Flooring, Glendale, Arizona.
- B. Self-leveling cementitious underlayment used over the moisture control system shall be Ardex K-15, Mapei Ultraplan, Fritz F-10 or approved equal.

2.02 MATERIALS

- A. Joints and cracks shall be filled with a flexible epoxy compound, EMS Joint Filler.
- B. Moisture control epoxy shall be APF Epoxy Moisture Stop System.

2.03 SYSTEM DESCRIPTION

- A. One coat of EMS-100 applied at a rate of 100 sq. ft./gallon to achieve a minimum thickness of 16 mils.
- B. The coating shall have the following properties:
 - 1. Hardness Shore D (ASTM D 2240): 85
 - 2. Bond Strength to wet concrete (ASTM D 4541): 450 psi, concrete fails
 - 3. Permeability (ASTM E 96): 0.60 perms
 - 4. Permeability/MVT (ASTM E 96): Not more than 3 pounds/24 hrs./1,000 sq. ft.
 - 5. Resistance to alkalinity, (ASTM D 1308) – 60 day immersion
 - a. 35% Potassium Hydroxide: No visible change, weight gain of 0.09%.
 - b. 35% Sodium Hydroxide: No visible change, weight gain of 0.09%.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions:
 - 1. Inspect surfaces to receive moisture control system. Report in writing to the architect any unusual or unsatisfactory condition.
 - 2. This coating system is designed for use where it can be known with certainty that reactive silicates have never been applied to the concrete.
 - 3. A tensile bond test to verify the cohesive strength of the concrete is recommended, but not mandatory. The test is done in accordance with ASTM D-4541 using an Elcometer pull tester or similar device. Follow these steps to conduct this test:
 - a. Grind the concrete using a diamond cup wheel. Remove a minimum 20 mils from the surface.
 - b. Vacuum thoroughly to remove all dust.
 - c. Mix small kit of Epoxy 400 fast cure for one full minute.
 - d. Pour onto prepared surface, brush in well. Wait 10 minutes and apply a second coat.
 - e. Place dowel into wet epoxy. Allow to cure overnight.
 - f. Pull off dowel. Record failure mode and PSI.
Results must show a minimum concrete tensile strength of 250 psi.

3.02 SURFACE PREPARATION

- A. All surface contaminants such as grease, oil, animal fats, etc. must be removed prior to shot blasting. A floor machine with a nylogrit brush must be used with either APF Orange Clean or Maintex 7-11 degreaser depending upon the contaminant being removed.
- B. Surfaces to receive EMS coating system shall be shot blasted using a 50/50 blend of 280/330 shot. Floor shall be crosshatched (North-South, East-West) double blasted to achieve a CSP 3-4 profile (texture similar to 60-80 grit sandpaper). Diamond grinding is acceptable on the edges. After shot blasting, the surface must be thoroughly vacuumed. Cracks wider than 1/16 inch should be routed out to ¼ inch width. Cracks and joints must be filled flush with EMS Joint Filler. Joints must be filled to their complete depth. Honor all moving joints and do not bridge with floor covering materials. When remediation is to be done under polymer flooring, mark all moving joints and recut after polymer flooring has been installed. Saw cuts must be a minimum ¼ inch wide and 1 inch deep.
- C. Allow joint filler to cure firm before proceeding.

3.03 INSTALLATION

- A. Allow sufficient time for the installation of the flooring system. At no time shall the speed of project completion be allowed to detrimentally affect the application.
- B. Provide sufficient light, power, and heat to permit proper application of the material. Substrate temperature shall be at a minimum of 50 degrees F during the application and for 48 hours thereafter.
- C. Mix and apply EMS-100 at the rate of 100 sq. ft. per gallon. Pour material from the mixing pail and spread using a metal trowel or flat squeegee. Back roll with a ½ or ¾ inch nap roller. After the initial roll out, walk back onto the material with spiked shoes and roll a second time to insure optimal substrate wetting. Dry film thickness shall be 16 mils. Allow to cure firm before proceeding with self-leveling cementitious underlayment or finish flooring.

3.04 FIELD QUALITY CONTROL

- A. Installer shall monitor the thickness of the coverage of the material as the work progresses with a wet film gauge. Areas found to not meet the required thickness shall receive additional material until specified thickness is attained.

3.05 SELF-LEVELING CEMENTITIOUS UNDERLAYMENT

- A. Should a self-leveling cementitious underlayment be required by the flooring adhesive manufacturer or for the purposes of smoothing the substrate, the approved product manufacturers are Ardex, Mapei, Fritz or equal as approved by the architect.
- B. APF Tie Coat shall be applied to the moisture control system at the rate of 400-500 sq. ft. Allow to cure until tack free and apply the underlayment according to the manufacturer's recommendations.

END OF SECTION