

SECTION 09780

TROWELED EPOXY FLOORING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 1. Moisture vapor emission testing.
 2. Surface preparation.
 3. Waterproofing membrane (if required).
 4. Integral covered base.
 5. Furnishing and installation of troweled epoxy flooring.

1.02 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete:
 1. Concrete slabs on or below grade shall be installed over an effective moisture vapor barrier.
 2. Concrete slabs shall be cured 30 days, be structurally sound and have a steel trowel finish.
 3. Surface shall be well sloped to drains, straight and level with the permissible degree of tolerance of 1/4" in 10'-0" in any direction.
 4. No curing compounds or surface contaminants shall be used in placing new concrete.

1.03 SUBMITTALS

- A. Submit manufacturer's product data, literature and brochures.
- B. Submit manufacturer's samples showing color choices and texture.
- C. Submit a statement from the manufacturer indicating the installer's certification.
- D. Prior to commencing work, installer shall prepare two 6" x 6" samples of the resinous flooring chosen for the project showing actual color, thickness and texture. These samples shall serve as a basis for comparison throughout the duration of the work.

1.04 QUALITY ASSURANCE

- A. All materials used in troweled epoxy flooring system shall be manufactured by a single manufacturer to ensure compatibility and proper bonding.
- B. Applicator shall have a minimum of 3 years experience in the installation of aggregate filled epoxy flooring and be certified by the manufacturer.
- C. Owner reserves the right to core drill the finished flooring system in 3 locations to verify the thickness of the application. If the specified thickness has not been achieved, the contractor may be directed to pay for testing and reapply flooring materials until the desired thickness is obtained.

1.05 DELIVERY, STORAGE AND HANDLING

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

1.06 WARRANTY

- A. Manufacturer shall furnish a single, written warranty covering both material and workmanship for a period of one (1) full year from date of installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Resin systems and graded silica filler shall be supplied by Arizona Polymer Flooring, Inc., Glendale, Arizona. Aggregate fillers shall be supplied by Arizona Polymer Flooring, Inc. or other suitable sources approved by the manufacturer.

2.01 MATERIALS

- A. Primer, aggregate binder and top coat shall be 100% solids, thermosetting epoxy resin.
- B. Aggregate shall be graded silica, quartz or "Monterey" sand as specified by the manufacturer to meet system requirements.
- C. Two component, aliphatic polyurethane may be used as the finish coat for selected systems as recommended by the manufacturer.
- D. Elastomeric caulking compounds shall be supplied by Vulkem, SIKA or Sonneborn.

2.03 SYSTEM DESCRIPTION

- A. Flooring system to be a minimum 1/4" thick with color and texture to match the sample chosen.
- B. Finished flooring system shall have the following performance characteristics:
 1. Compressive Strength (ASTM C 579): 9500 psi.
 2. Tensile Strength (ASTM C 307): 2500 psi.
 3. Flexural Strength (ASTM C 580): 4200 psi.
 4. Hardness, Shore D (ASTM D 2240): 85
 5. Impact Resistance (ASTM D 2794): passes 160 inch pounds.
 6. Thermal Shock Resistance (ASTM D 1044): passes.
 7. Tabor Abrasion (ASTM D 1044): 34 mg. loss.
 8. Water Absorption (ASTM D543): 0.2%
 9. Bond Strength (ACI 503.4-2.3.2): 350 psi, concrete failure.
 10. USDA Approval: Approved
- C. Chemical Resistance: (ASTM D 1308, 24 hour exposure).
 1. Urine.....no effect
 2. Blood.....no effect
 3. Whiskey.....no effect
 4. Black Ink.....no effect
 5. Brake Fluid.....no effect
 6. Gasoline.....no effect
 7. Skydrol B-4.....no effect
 8. Hydraulic Fluid #83282.....no effect
 9. Mineral Spirits.....no effect
 10. Xylene.....no effect
 11. MEK..... film softened
 12. 50% Sodium Hydroxide.....no effect
 13. 25% Hydrochloric Acid.....no effect
 14. 25% Sulphuric Acid.....no effect
 15. 25% Acetic Acid.....no effect
 16. 25% Nitric Acid..... film blistered

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions:
 - 1. Inspect surfaces to receive epoxy flooring
 - 2. Conduct relative humidity probe testing for concrete moisture according to ASTM 2170.
 - 3. Before starting work, report in writing to the Architect any unsatisfactory condition.
 - 4. Application of any material shall signify that surfaces have been inspected and are satisfactory.

3.02 SURFACE PREPARATION

- A. Remove old coatings, substrate ridges and protrusions by grinding or sanding. Surfaces to receive flooring system shall be profiled to a minimum of 20 mils using mechanical scarification or shot blasting. The prepared surface must be inspected and approved by the manufacturer or his representative before any materials are installed.

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, heat and working conditions to permit proper materials of the coating. Substrate temperature shall be at a minimum of 50 degrees F during application and for 48 hours thereafter.
- C. If waterproofing is required, apply elastomeric Polyurethane 300 according to manufacturer's instructions to achieve a 40 mil membrane.
- D. Fill control joints and large holes with thickened epoxy material prior to application of flooring system according to manufacturer's instructions. Mark location of all expansion joints for sawcutting after placement of flooring system.
- E. Where troweled flooring does not abut a vertical surface and around all floor drains, cut a keyway 1/4" deep by 1" wide to receive the flooring material. Do not feather edge the materials.
- F. Prime prepared surface with Epoxy 400 immediately prior to application of troweled mortar.
- G. Mix Epoxy 400 and graded aggregate together according to manufacturer's instructions and rake or screed the material onto the surface. Finish with hand or power trowel to a minimum 1/4" thickness.
- H. After troweled base has cured, sand or grind surface to remove trowel marks. Apply thickened Epoxy 400 at 75-100 sq. ft. per gallon. If slip-resistance is required, broadcast 24 grit bleached aluminum oxide into the wet material to achieve the desired texture. Allow to cure firm before proceeding.
- I. Apply finish coat of Epoxy 400 at 75-100 sq. ft. per gallon.
- J. Apply optional top coat of Polyurethane 100 or Polyurethane 501 at 300 sq. ft. per gallon.
- K. After curing, sawcut completely through the resinous flooring at the premarked expansion joints. Fill the joint with elastomeric polyurethane caulking according to manufacturer's instructions.

3.04 FIELD QUALITY CONTROL

- A. Installer shall monitor the thickness of the system as the work progresses. Areas found to not meet the required thickness shall receive additional material until specified thickness is attained.

3.05 PROTECTION

- A. Installation areas must be kept free from traffic and other trades during the application procedure and cure time.

END OF SECTION