

SECTION 09780

TROWELED EPOXY-QUARTZ 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 guarantee that his materials are free from defects and comply with his published specifications.
- B. Applicator shall warranty against faulty workmanship for a period of 3 years from substantial completion of the project.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Resin systems 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 first top coat shall be 100% solids, thermosetting epoxy resin.
- B. Aggregate shall be graded SpectraQuartz as specified by the manufacturer to meet system requirements.
- C. Two-component, aliphatic polyurethane shall be used as the finish coat.
- 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): 11,500 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 D520): 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): Unaffected by the following:
 - 1. Urine
 - 2. Blood
 - 3. Alcohol
 - 4. Gasoline
 - 5. Mineral Spirits
 - 6. Brake Fluid
 - 7. 25% Sodium Hydroxide
 - 8. 25% Hydrochloric Acid
 - 9. 25% Sulfuric Acid
 - 10. 10% Acetic Acid

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions:
 - 1. Inspect surfaces to receive epoxy flooring
 - 2. Conduct calcium chloride moisture vapor emission testing according to the recommendations of The Vaprecision Company, Newport Beach, CA. If test reading is above three pounds, consult Arizona Polymer Flooring before proceeding.
 - 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 5 mils using mechanical scarification, shot blasting or acid etching. If acid etching is used, it shall be done in strict accordance with the manufacturer's written instructions. Etching shall be accomplished using a mechanical scrubber with an aggressive "nylogrit" type brush.

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 installation of the coating. Substrate temperature shall be at a minimum of 50 degrees Fahrenheit 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. Install coved base, if required, to a thickness of 1/8" to 1/4". Cove shall be 4" to 6" high with 3/4" to 1" radius and terminated with a metal or plastic edge strip. Cove shall be reasonably smooth and uniform in appearance to provide an easily cleaned surface. The seam between the coved base and wall shall be sealed with an elastomeric polyurethane caulking.
- E. 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.
- F. 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.
- G. Prime prepared surface with Epoxy 400 immediately prior to application of troweled mortar. If surface has been acid etched or residual moisture in the substrate is suspected, priming must be done with clear Epoxy 400 Damp Surface.
- H. Mix Epoxy 400 and quartz 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.

- I. After troweled base has cured, sand or grind surface to remove trowel marks. Apply thickened Epoxy 400 at 75-100 sq. ft. per gallon.
- J. Apply Polyurethane 100 clear at the rate of 300-350 sq. ft. per gallon. Final surface texture shall be slip-resistant to reasonably match the texture of the submitted sample.
- 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