

SECTION 09 67 23-RESINOUS FLOORING

PROKRETE HD (1/4-1/2") Trowel-Applied, Heavy-Duty, Solid Color Cementitious Urethane System

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Resinous flooring system as shown on the drawings and in schedules.
- B. Related sections include the following:
 - 1. Cast-in-Place Concrete, section 03 30 00
 - 2. Concrete Curing, section 03 39 00

1.3 SYSTEM DESCRIPTION

- A. The work shall consist of preparation of the substrate, the furnishing and application of a heavy-duty cementitious urethane monolithic flooring system.
- B. The system shall have the color and texture as specified by the Owner with a nominal thickness of 1/4 - 1/2 inch. It shall be applied to the prepared area(s) as defined in the plans strictly in accordance with the Manufacturer's recommendations.
- C. Cove base (if required) to be applied where noted on plans and per manufacturer's standard details unless otherwise noted.

1.4 SUBMITTALS

- A. Product Data: Latest edition of Manufacturer's literature including performance data and installation procedures.
- B. Manufacturer's Safety Data Sheet (SDS) for each product being used.
- C. Samples: A 3 x 4 inch sample of the proposed system. Color, texture, and thickness shall be representative of overall appearance of finished system.
- D. LEED Submittals:
 - 1. Product data for Credit EQ 4.2: For flooring system, documentation including VOC content and chemical composition.
 - 2. MR Credit 2.1, 2.2: Construction waste management, packaging can be recycled.

1.5 QUALITY ASSURANCE

- A. The Manufacturer shall have a minimum of 5 years' experience in the production, sales, and technical support of epoxy and urethane industrial flooring and related materials.
- B. The Applicator shall have been approved by the flooring system manufacturer in all phases of surface preparation and application of the product specified.

- C. No requests for substitutions shall be considered that change the generic type of the specified System.
- D. System shall be in compliance with requirements of United States Department of Agriculture (USDA), Food & Drug Administration (FDA), and local Health Department.
- E. A pre-installation conference shall be held between Applicator, General Contractor and the Owner for review and clarification of this specification, application procedure, quality control, inspection and acceptance criteria as well as production schedule.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Packaging and Shipping
 - 1. All components of the system shall be delivered to the site in the Manufacturer's packaging, clearly identified with the product type and batch number.
- B. Storage and Protection
 - 1. The Applicator shall be provided with a storage area for all components. The area shall be between 60°F and 90°F, dry, out of direct sunlight and in accordance with the Manufacturer's recommendations, as well as relevant health and safety regulations.
 - 2. Copies of Safety Data Sheets (SDS) for all components shall be kept on site for review by the Engineer or other personnel.
- C. Waste Disposal
 - 1. The Applicator shall be provided with adequate disposal facilities for non-hazardous waste during installation of the system.

1.7 PROJECT CONDITIONS

- A. Site Requirements
 - 1. Application may proceed while air, material and substrate temperatures are between 60°F and 90°F provided the substrate temperature is above the dew point. Outside of this range, the Manufacturer shall be consulted.
 - 2. The relative humidity in the specific location of the application shall be less than 85% but no less than 30% and the surface temperature shall be at least 5°F above the dew point.
 - 3. The Applicator shall ensure that adequate ventilation is available for the work area.
 - 4. The Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.
- B. Conditions of New Concrete to Receive Coating
 - 1. Concrete shall be moisture cured for a minimum of 5 days (**Consult with ProREZ Technical department for application of ProKRETE systems on floors less than 28 days old**).
 - 2. Concrete shall have a flat rubbed finish, float or light steel trowel finish (a hard steel trowel finish is neither necessary nor desirable).
 - 3. Sealers and curing agents should not to be used.
 - 4. Concrete surfaces on grade shall have been constructed with a vapor barrier to protect against the effects of moisture vapor transmission and possible delamination of the system.
- C. Safety Requirements
 - 1. Non-related personnel in the work area shall be kept to a minimum.

1.8 WARRANTY

- A. ProREZ Performance Resins & Coatings warrants that material shipped to buyer(s) at the time of shipment be substantially free from material defects and will perform substantially to ProREZ Performance Resins & Coatings published literature if used in accordance with the latest prescribed procedures and prior to the expiration date.
- B. ProREZ Performance Resins & Coatings liability with respect to this warranty is strictly limited to the value of the material purchase.
- C. ProREZ Performance Resins & Coatings has no responsibility for the application and processing of products and is under no circumstances liable to any third party whatsoever.

PART 2 – PRODUCTS

2.1 FLOORING- ProREZ Performance Resins & Coatings: ProKrete HD, a Heavy-Duty Cementitious Urethane Overlay

- 1. System Materials:
 - a. Overlay: ProREZ LLC, ProKrete HD resin, hardener, bag of Aggregate and ProColor.
- 2. Patch Materials
 - a. Shallow, Cracks, Control Joints (if non-dynamic), and Deep Fill Patching: Use ProKrete SL, and for Deeper Repairs Use ProKrete CM or Extend ProKrete HD with clean & dry pea-stone.

2.2 MANUFACTURER

- A. ProREZ Performance Resins & Coatings, 47 Inwood Road, Cromwell, CT 06416-0153.
- B. Manufacturer of Approved System shall be single source and made in the USA.

2.3 PRODUCT REQUIREMENTS

A. Topping	ProKrete HD
Percent Reactive	100 %
VOC	0 g/L
Compressive Strength, ASTM C 579	9,000 psi
Tensile Strength, ASTM C307	1,000 psi
Flexural Strength, ASTM C580	3,500 psi

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas and conditions, with Applicator present, for compliance with requirements for maximum moisture content, installation tolerances and other conditions affecting flooring performance.
 - 1. Verify that substrates and conditions are satisfactory for flooring installation and comply with requirements specified.

3.2 PREPARATION

A. General

1. New and existing concrete surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, and bituminous products.
2. Moisture Testing: Perform tests recommended by manufacturer and as follows:
 - a. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 99% relative humidity level measurement.
3. There shall be no visible moisture present on the surface at the time of application of the system. Compressed oil-free air and/or a light passing of a propane torch may be used to dry the substrate.
4. Mechanical surface preparation
 - a. Shot blast all surfaces to receive flooring system with a mobile steel shot, dust recycling machine (Blastrac or equal). All surface and embedded accumulations of paint, toppings hardened concrete layers, laitance, power trowel finishes and other similar surface characteristics shall be completely removed leaving a bare concrete surface having a minimum profile of CSP 4-5 as described by the International Concrete Repair Institute.
 - b. Floor areas inaccessible to the mobile blast machines shall be mechanically abraded to the same degree of cleanliness, soundness and profile using diamond grinders, needle guns, bush hammers, or other suitable equipment.
 - c. Where the perimeter of the substrate to be coated is not adjacent to a wall or curb, a minimum 1/4" key cut shall be made to properly seat the system, providing a smooth transition between areas. The detail cut shall also apply to drain perimeters and expansion joint edges.
 - d. Cracks and joints (non-moving) greater than 1/8" wide are to be chiseled or chipped-out and repaired per manufacturer's recommendations.
5. Patching
 - a. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound surface and patch per manufacturer's recommendations.

3.3 APPLICATION

A. General

1. The system shall be applied in two distinct steps as listed below:
 - a. Substrate preparation
 - b. Application of Cementitious Urethane Overlay
2. Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free compressed air.
3. The handling, mixing and addition of components shall be performed in a safe manner to the desired results in accordance with the Manufacturer's recommendations.
4. The system shall follow the contour of the substrate unless pitching or other leveling work has been specified by the Architect.
5. A neat finish with well-defined boundaries and straight edges shall be provided by Applicator.

B. Overlay

1. The overlay coat shall be Trowel or Screed Box & Trowel applied.
2. The overlay shall be comprised of four components, a resin, hardener, aggregate bag in a kit form and colorant as supplied by the Manufacturer and mixed in a ratio of 1 resin to 1 hardener to 1 bag of prepackaged aggregate to 5 oz of Pigment.
3. The resin shall be added to the hardener and thoroughly mixed by suitably approved mechanical means into which the aggregate and Pigment is then added.
4. The batch of mortar is then spread at the specified thickness with a screed box or hand trowel.
5. Use a nylon Loop roller to remove any trowel marks and to bring liquid to the surface.
6. Aluminum Oxide or Silica Quartz may be broadcast and back-rolled to increase non-skid performance.
7. The finish floor should be allowed to cure at room temperature for 10-12 hrs to sustain foot traffic, 24 hrs light wheeled traffic and 72 hrs for heavy wheeled traffic and full chemical resistance. ***ProKrete Catalyst may be used (onsite dosing) to reduce cure time or when installation is below 50° F.***

3.4 FIELD QUALITY CONTROL

A. Tests, Inspection

1. The following tests shall be conducted by the Applicator:
 - a. Temperature
 1. Air, substrate temperatures and, if applicable, dew point.
 - b. Coverage Rates
 1. Rates for all layers shall be monitored by checking quantity of material used against the area covered.

3.5 CLEANING AND PROTECTION

- A. Cure flooring material in compliance with manufacturer's directions, taking care to prevent any contamination during stages of application and prior to completion of the curing process.
- B. Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface for work of other sections.