SECTION 09 67 23-RESINOUS FLOORING

PROKRETE SLF – Cementitious Urethane, Decorative Flake Broadcast 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 seamless, self-leveling, cementitious urethane flooring system broadcasted with polymer flakes, and grouted with either a clear epoxy Novolac or Polyaspartic topcoat.
B. The system shall have the color blend and texture as specified by the Owner with a nominal thickness of 3/16 -1/4 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 manufacturers standard details unless otherwise noted.

1.4 SUBMITTALS

A. Product Data: Latest edition of Manufacturer's literature including performance data and installation.
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.
   3. MR Credit 6: For flooring system, documentation includes renewable content and chemical composition.

1.5 QUALITY ASSURANCE

A. The Manufacturer shall have a minimum of 5 years' experience in the production, sales, and technical 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 would 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 clarification of this specification, application procedure, quality control, inspection acceptance criteria and 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 85°F, dry, out of direct sunlight and in accordance with the Manufacturer's recommendations and 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 generated during installation of the system.

1.7 PROJECT CONDITIONS

A. Site Requirements
   1. Application may proceed while air, material and substrate temperatures are between 55°F and 85°F providing 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% 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. This shall include the use of manufacturers approved high CFM fans (if necessary), smooth bore ducting, and suitable enclosure around the work area, including relevant signage.
   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 be Coated with Cementitious Urethane
   1. Concrete shall be moisture cured for a minimum of 3 days and have fully cured a minimum of 5 days in accordance with ACI-308 prior to the application of the coating system pending moisture tests.
   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 vapor transmission and possible delamination of the system.

C. Safety Requirements
   1. All open flames and spark-producing equipment shall be removed from the work area prior to commencement of application.
   2. "NO SMOKING" signs shall be posted at the entrances to the work area.
   3. The Owner shall be responsible for the removal of foodstuffs from the work area.
   4. 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 buyers at the time of shipment 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 SLF (Self- Leveling, Colored Polymer Flake) Seamless Flooring System.
   1. System Materials:
      a. Topping: ProREZ Performance Resins & Coatings, ProKrete SL Resin, Hardener and SL Aggregate.
      b. Broadcast Media: Blended Polymer Flakes (Micro- 1/16" or Macro- 1/4").
      c. Optional 2nd Broadcast Coat: ProREZ Performance Resins & Coatings, ProPoxy CR Resin and Standard or Fast Hardener, or ProREZ Performance Resins & Coatings, ProSpartic S-Resin & Hardener or replace ProSpartic S-Resin with F-Resin for a more *Fastrack* cure. Broadcast with blended Polymer Flakes (Micro-1/16" or Macro-1/4").
      d. Topcoat – Option1: ProREZ Performance Resins & Coatings, ProPoxy CR Epoxy Resin (Clear) and Hardener.
         Topcoat – Option2: ProREZ Performance Resins & Coatings, ProSpartic Polyaspartic S-Resin (Clear) and Hardener, or replace ProSpartic S-Resin with F-Resin (Clear), for *Fastrack* cure.
   2. Patch Materials
      a. Shallow/Deep Fill and Patching: ProREZ Performance Resins & Coatings, ProKrete SL (up to 1/4").
      b. Deep Fill and Sloping Material (over 1/4"): Use ProREZ Performance Resins & Coatings, ProKrete CM or KreteFill.

2.2 MANUFACTURER

A. ProREZ Performance Resins & Coatings, 47 Inwood Road, Rocky Hill, CT 06067.
B. Manufacturer of Approved System shall be single source and made in the USA.

2.3 PRODUCT REQUIREMENTS

A.	Primer/Resurfacer (Topping)	ProKrete SL
1.	Percent Reactive	100 %
2.	VOC	0 g/L
3.	Compressive Strength, ASTM C 579	9,500 psi
4.	Tensile Strength, ASTM C307	1,500 psi
5.	Flexural Strength, ASTM C580	2,200 psi
B.	Grout/Topcoat Options:	ProPoxy CR or ProSpartic

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. Verify that the concrete substrate(s) are dry enough to accept the resinous flooring system using one of the following standard test methods for determining relative levels of dryness/wetness:
      a. Perform most current version of internal relative humidity (“in situ”) probe test in general conformance with ASTM F2170.
      b. Perform most current version of anhydrous calcium chloride test in general conformance with ASTM F1869.
      c. If the relative “wetness” of the substrate(s) exceeds the manufacturer’s guidelines for this resinous flooring system, then the Owner and/or Engineer shall be notified and of any additional measures recommended by the manufacturer to adequately mitigate the substrate or to lower the substrate “wetness” value to the acceptable limit.
   3. Mechanical surface preparation
      a. Shot blast all surfaces to receive flooring system with a mobile steel shot, dust 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 3/16" 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 inch wide are to be chiseled or chipped-out and repaired per manufacturer's recommendations.

4. Patching
   a. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and patch per manufactures recommendations.

3.3 APPLICATION

A. General
1. The system shall be applied in five distinct steps as listed below:
   a. Substrate preparation
   b. Resurfacer application with blended polymer flake broadcast
   c. Optional second broadcast
   d. Clear Grout/Topcoat application
   e. Additional Top Coat (if required)
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 achieve 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. Resurfacer
1. The resurfacer shall be applied as a self-leveling system as specified by the Architect. The resurfacer shall be applied in one lift with a nominal thickness of 1/8 – 3/16 inch.
2. The topping shall be comprised of three components, a resin, hardener and filler as supplied by the Manufacturer.
3. The hardener shall be added to the resin and thoroughly dispersed by suitably approved mechanical means. SL Aggregate shall then be added to the catalyzed mixture and mixed in a manner to achieve a homogenous blend.
4. The topping shall be applied over horizontal surfaces using ½ inch "v" notched squeegee, trowels or other systems approved by the Manufacturer.
5. Immediately upon placing, the topping shall be degassed with a loop roller.
6. Blended Polymer Flake shall be broadcast to excess into the wet material at the rate of .2lbs/sf.
7. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose flake particle.

C. 2nd Broadcast Coat and Grout Coat
1. Sweep and vacuum loose flake and repeat steps 1-7 replacing notched squeegee with flat blade squeegee. Average coverage rate is 90 -110s.f. per gal.

D. Grout/Topcoat
   1. The Grout/Topcoat shall be comprised of a Part A Resin and Part B Hardener, which is mixed and installed per the manufacturer's recommendations.
   2. The Grout/Topcoat shall be squeegee applied and back rolled with a coverage rate of 100-110 s.f./gal.
   3. An optional second Topcoat may be applied if a smoother surface is required. Application will be the same as 1st Grout/Topcoat, coverage rate to be 200-225 s.f./gal.

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 their 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 subsequent work of other sections.