SECTION 09 67 23-RESINOUS FLOORING

PROSHIELD SF100B (1/8") Solid Color, Single Broadcast, "Shop Floor", Resurfacing System with Flexible Membrane and High Performance Urethane Topcoat

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 an epoxy based "shop floor" system with waterproof membrane and urethane topcoat. The system shall have the color and texture as specified by the Owner with a nominal thickness of nominal 1/8". It shall be applied to the prepared area(s) as defined in the plans strictly in accordance with the Manufacturer's recommendations.
B. Four inch cove base 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 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 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 review and clarification of this specification, application procedure, quality control, inspection and 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 90°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. Substrate
   1. The plywood subfloor must be structurally sound and able to support the installation. Resinous flooring is generally a rigid material. It can break or dislodge (just like a tiled floor) if the surface bends under the load. Joists should be 16 inch on center.
   2. Use exterior grade plywood. The plywood must be installed over an adequate subfloor and must be at least 1 ¼ inch thick when combined with the subfloor. Use two layers of exterior grade or better plywood, with the top layer screwed every 8 inches on the edge and 6 inch in the field. Make sure the joints of the second layer of plywood are at 90 degrees and well away from the joints of the first layer.
   3. Fiberglass mesh may be used to "bandage" across joints in plywood to reduce deflection through the finished system.
B. Site Requirements
   1. Application may proceed while air, material and substrate temperatures are between 60°F and 85°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 preparation and installation 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
A. ProREZ Performance Resins & Coatings: 1/8" "Shop Floor" with waterproofing membrane seamless flooring system

1. System Materials:
a. Membrane: ProREZ Performance Resins & Coatings, FlexPOXY resin and hardener. The prefilling of gaps between plywood is necessary together with option to install fiberglass reinforcement over the joints.
b. Broadcast Coat: ProPoxy S resin and Standard or Fast hardener. Clean dry 25 or 40 mesh silica quartz sand.
c. Grout Coat: Pigmented ProPoxy S resin and Standard or Fast hardener.
d. Topcoat: ProREZ Performance Resins & Coatings, ProThane S resin and hardener with optional ProWear abrasion resistant additive.
2. Patch Materials
a. Plywood joints, knots, or screw holes: Use FlexPoxy resin and hardener with ProThickener FX.

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.	Waterproofing membrane	FlexPoxy
1.	Hardness, Shore A, ASTM D 2240	60 %
2.	Tensile Strength ASTM D 412	1,200 psi
3.	Tensile Elongation ASTM D 412	300%
4.	Water Absorption ASTM D 570	<0.1%
B.	Broadcast Coat	ProPoxy S
1.	Percent Solids	100 %
2.	VOC	0 g/L
3.	Tensile Strength, ASTM D 638	5,780 psi
4.	Abrasion Resistance, ASTM D 4060 C 17 Wheel, 1,000 gm load, 1,000 cycles	30mg weight loss
5.	Flammability, ASTM D 684, NFPA 101, Type 1	Class 1
6.	Hardness, Shore D ASTM 2240	70-80
7.	Potlife @ 70 F	20-40 minutes
C.	Top Coat	ProThane S
1.	Tensile Strength ASTM D-2370	6,500 psi
2.	Adhesion ASTM D-4541	400 psi, concrete failure (applied over epoxy)
3.	Impact Resistance ASTM D-2794	>160 in./lb
4.	Abrasion Resistance CS17 Wheel 1000 GM Load 1000 Cycles ASTM D-4060	10-15 mg loss

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

3.3 APPLICATION

A. General
   1. The system shall be applied in five distinct steps as listed below:
      a. Filling of plywood joints, etc., and membrane application
      b. Broadcast coat application
      c. Grout coat application
      d. Topcoat application
   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. Membrane
1. The membrane shall comprise of 2 components, a resin and hardener as supplied by the Manufacturer.
2. The hardener shall be added to the resin in the ratio of 1 part resin to 1 part hardener and thoroughly mixed by suitably approved low speed drill mixer.
3. The primer shall be applied over horizontal surfaces using 1/4 inch V-notched squeegee and 3/8 inch roller approved by the Manufacturer (average coverage rate = 50-60 sf/gal.)
4. Allow material to fully cure.

C. Broadcast Coat
1. The Broadcast coat shall be applied as a single application as specified by the Architect.
2. The Broadcast coat shall be comprised of a resin, a hardener and a colorant, if required, as supplied by the Manufacturer and mixed in the ratio of 3 parts resin to 1 part hardener and 8-10 oz/gal. of ProColor. The broadcast sand will should be clean dry silica quartz similar to ProQuartz natural 40-mesh or 25-mesh.
3. The resin shall be added to the hardener and thoroughly mixed by suitably approved mechanical means for 60 seconds. The colorant can either be mixed in with "each mix" basis or by pre-pigmenting ahead of time. Use a slower speed mixer (up to 650 rpm) to reduce the risk of air entrapment during mixing.
4. An even bead of material should then be poured over the horizontal surfaces using a "v"-notched squeegee (3/16 inch notch size for 100 sf/gal or 1/8 inch notch size for 200 sf/ gal) to level material. Use a "non shed" 3/8 inch roller as approved by the manufacturer to roll out material - (average coverage rate = 100-200 sf/gal).
5. Broadcast natural quartz aggregate at a rate of .4-.5 lb/sf.
6. Allow material to fully cure.

D. Grout Coat (Pigmented)
1. The grout coat shall be applied as a single application as specified by the Architect.
2. The grout coat shall be comprised of a resin, hardener and colorant, as supplied by the Manufacturer and mixed in the ratio of 3 parts resin to 1 part hardener and 8-10 oz/ gal of ProColor colorant.
3. The resin shall be added to the hardener and thoroughly mixed by suitably approved mechanical means for 60 seconds. The colorant can either be mixed in with "each mix" basis or by pre-pigmenting ahead of time. Use a slower speed mixer (up to 650 rpm) to reduce the risk of air entrapment during mixing.
4. An even bead of material should then be poured over the open broadcast floor and evenly spread using a flat squeegee. A "non-shed" 3/8 inch roller as approved by the manufacturer to roll and cross-roll the floor, with average coverage rate of 50 sf/ gal for 25-mesh and 100 sf/gal for 40-mesh quartz aggregate.
5. Allow material to fully cure.

E. Topcoat (Clear or Pigmented)
1. The topcoat shall be roller applied at the rate of 400-550 sf/gal to yield a dry film thickness of 3-4 mils.
2. The topcoat shall be comprised of a liquid resin and hardener (optional ProColor colorant at 8-10 oz/gal (if required) that is mixed at the ratio of 1 part resin and 2 parts hardener per the manufacturer's instructions.
3. The finished floor will have a nominal thickness of 1/8 inch.

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.