

SECTION 09 67 23-RESINOUS FLOORING

Date:06/14

POLY-CRETE SLB WITH EPOXY AND URETHANE TOPCOAT AND WATERPROOFING MEMBRANE (Flintshot)

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 cementitious urethane based self-leveling seamless flooring system with flintshot quartz aggregate broadcast with epoxy grout coat and urethane topcoat.
- B. The system shall have the color and texture as specified by the Owner with a nominal thickness of 3/16 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 procedures.
- B. Manufacturer's Material Safety Data Sheet (MSDS) for each product being used.
- C. Samples: A 3 x 3 inch square sample of the proposed system. Color, texture, and thickness shall be representative of overall appearance of finished system subject to normal tolerances.

1.5 QUALITY ASSURANCE

- A. The Manufacturer shall have a minimum of 10 years experience in the production, sales, and technical support of epoxy and urethane industrial flooring and related materials.
- B. The Applicator shall have experience in installation of the flooring system as confirmed by the 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. System shall be in compliance with the Indoor Air Quality requirements of California section 01350 as verified by a qualified independent testing laboratory.
- F. A pre-installation conference shall be held between Applicator, General Contractor and the Owner to 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. Packing 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 dry 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 Material Safety Data Sheets (MSDS) 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 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 material.

1. Concrete shall be moisture cured for a minimum of 7 days and have fully cured a minimum of 14 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 or 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. The Owner shall be responsible for the removal of foodstuffs from the work area.
2. Non-related personnel in the work area shall be kept to a minimum.

1.8 WARRANTY

- A. Dur-A-Flex, Inc. warrants that material shipped to buyers at the time of shipment substantially free from material defects and will perform substantially to Dur-A-Flex, Inc. published literature if used in accordance with the latest prescribed procedures and prior to the expiration date.
- B. Dur-A-Flex, Inc. liability with respect to this warranty is strictly limited to the value of the material purchase.

FLOORING

- A. Dur-A-Flex, Inc, Poly-Crete SLB (self leveling broadcast quartz), seamless flooring system.
1. System Materials:
 - a. Double Layer Membrane: Dur-A-Flex, Inc Elast-O-Coat resin and hardener.
 - b. Topping and Skim Coat: Dur-A-Flex, Inc, Poly-Crete SL resin, hardener and SL aggregate.
 - c. The aggregate shall be Dur-A-Flex, Inc. Flintshot quartz aggregate.
 - d. Grout coat: Dur-A-Flex, Inc. Dur-A-Glaze Shop Floor resin and hardener.
 - e. Topcoat: Dur-A-Flex, Inc. Armor Top resin and hardener.
 2. Patch Materials
 - a. Shallow Fill and Patching: Use Dur-A-Flex, Inc. Poly-Crete MD (up to ¼ inch).
 - b. Deep Fill and Sloping Material (over ¼ inch): Use Dur-A-Flex, Inc. Poly-Crete WR.

2.2 MANUFACTURER

- A. Dur-A-Flex, Inc., 95 Goodwin Street, East Hartford, CT 06108, Phone: (860) 528-9838, Fax: (860) 528-2802
- B. Or approved equal.

2.3 PRODUCT REQUIREMENTS

A. Membrane (Double Application)		Dur-A-Flex Elast-O-Coat
1. Percent Solids		100 %
2. VOC		4.34 g/L
3. Elongation, ASTM D 412		150 %
4. Tensile Strength, ASTM D 412		2,400 psi
B. Topping and Skim Coat		Poly-Crete SL
1. Percent Reactive		100 %
2. VOC		0 g/L
3. Bond Strength to Concrete ASTM D 4541		400 psi, substrates fails
4. Compressive Strength, ASTM C 579		9,000 psi
5. Tensile Strength, ASTM D 638		2,175 psi
6. Flexural Strength, ASTM D 790		5,076 psi
7. Impact Resistance @ 125 mils, MIL D-3134,		160 inch lbs
No visible damage or deterioration		
C. Grout Coat		Dur-A-Glaze Shop Floor
1. VOC		7.9 g/L
2. Compressive Strength, ASTM D 695		17,500 psi
3. Tensile Strength, ASTM D 638		4,000 psi
4. Flexural Strength, ASTM D 790		6,250 psi
5. Flexural Modulus of Elasticity, ASTM D 790		6.2 x 10 ⁵
6. Abrasion Resistance, ASTM D 4060		
C-10 Wheel, 1,000 gm load, 1,000 cycles		24 mg loss
7. Flame Spread/NFPA-101, ASTM E 84		Class A
8. Flammability, ASTM D 635		Self Extinguishing
9. Indentation, MIL D-3134		0.025 Max
10. Impact Resistance MIL D-3134		Pass
11. Water Absorption. MIL D-24613		0.04%
D. Topcoat		Armor Top
1. Percent Solids		95 %
2. VOC		0 g/L
3. Tensile Strength, ASTM D 2370		7,000 psi
4. Adhesion, ASTM 4541		Substrate Failure
5. Hardness, ASTM D 3363		4H
6. 60° Gloss ASTM D 523		70
7. Abrasion Resistance, ASTM D4060	Gloss	Satin

CS 17 wheel (1,000 g load) 1,000 cycles	4	8	mg loss with grit
	10	12	mg loss without grit
8. Pot Life, 70 F, 50% RH		2 Hours	
9. Full Chemical Resistance		7 days	

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.
 - b. If the relative humidity exceeds 99% then the Owner and/or Engineer shall be notified and advised of additional cost for the possible installation of a vapor mitigation system that has been approved by the manufacturer or other means to lower the value to the acceptable limit.
 - c. If the vapor drive exceeds 99% relative humidity or 20 lbs/1,000 sf/24 hrs then the Owner and/or Engineer shall be notified and advised of additional cost for the possible installation of a vapor mitigation system that has been approved by the manufacturer or other means to lower the value to the acceptable limit.
3. 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 inch 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. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and patch per manufacturer's recommendations.

3.3 APPLICATION

A. General

1. The system shall be applied in four distinct steps as listed below:
 - a. Substrate preparation
 - b. Waterproofing Membrane (Double Layer)
 - c. Topping/overlay application with quartz aggregate broadcast. (Extra skim coat if needed)
 - d. Grout coat application.
 - e. 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 the Applicator.

A. Membrane – Double Application

1. The Elast-O-Coat membrane shall consist of a liquid resin and hardener that is mixed at the ratio of 2 parts resin to 1 part hardener per the manufacturer's instructions.
2. The first coat of Elast-O-Coat waterproofing membrane shall be applied by flat squeegee and back rolled at the rate of 80 sf/gal to yield a dry film thickness of 20 mils.
3. A second coat of Elast-O-Coat shall be applied at the rate of 100 sf/gal and broadcast to rejection with flintshot quartz aggregate to ensure bond to the topping.

B. Topping

1. The topping shall be applied as a self-leveling system as specified by the Architect. The topping shall be applied in one lift with a nominal thickness of 1/8 inch. If substrate is uneven concrete or well-bonded tile with no failing areas, topping may be used as an extra skim coat to improve substrate condition.
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. Quartz aggregate shall be broadcast to excess into the wet material at the rate of 1 lbs/sf.
7. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.

C. Grout Coat

1. The topcoat shall be squeegee applied and back rolled with a coverage rate of 80-90 sf/gal.
2. The topcoat shall be comprised of a liquid resin and a liquid hardener that is mixed in the ratio of 1 part hardener to 2 parts resin and installed per the manufacturer's recommendations.

D. Topcoat

1. The topcoat shall be roller applied at the rate of 450 sf/gal to yield a dry film thickness of 3 mils.
2. The topcoat shall be comprised of a liquid resin and hardener that is mixed per the manufacturer's instructions.
3. The finish floor will have a nominal thickness of 3/16 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.

2013/POLY-CRETE SLB Shop Floor Armor Top Flintshot

Please recycle - Thank you!