

**SECTION 09 67 23-RESINOUS FLOORING  
POLYCRETE SLB Flintshot with Armor Top**

Date:4/2021

**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 DESCRIPTION OF WORK**

Extent of work is the limits of the existing apparatus bay, Eagle Hose Hook and Ladder Company #6, 1 Main St, Ansonia, CT. Work includes the removal of existing resinous floor coatings, preparation of remaining slab surface(s), and application of new resinous flooring system as specified herein.

**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 quartz aggregate broadcast with Epoxy grout coat and urethane topcoats.
- B. The system shall have the color and texture as specified by the Owner or Owner's Representative with a nominal thickness of 3/16 inch maximum. It shall be applied to the prepared area(s) identified as the "apparatus bay" strictly in accordance with the Manufacturer's recommendations.
- C. Cove base (if required) to be applied where indicated 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 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. System shall be in compliance with LEED v4 EPD and HPD as verified by a qualified third party validation.
- G. A pre-installation conference shall be held between Applicator, Controlling Contractor and the Owner or Owner's Representative for review and clarification of this specification, application procedure, quality control, inspection and acceptance criteria and production.

**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 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 60 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 manufacturer's approved fans, smooth bore tubing and closure of 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 be coated with cementitious urethane material.**

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 shall have a minimum design strength of 3,500 psi. and a maximum water/cement ratio of 0.45
5. 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. 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.

**PART 2 – PRODUCTS**

**2.1 FLOORING**

- A. Dur-A-Flex, Inc, Polycrete SLB (self leveling broadcast quartz), epoxy/aliphatic urethane topcoat seamless flooring system.
  - 1. System Materials:
    - a. Topping: Dur-A-Flex, Inc, Poly-Crete SL resin, hardener and SL aggregate.
    - b. The broadcast aggregate shall be Dur-A-Flex, Inc. Flintshot quartz aggregate.
    - c. Grout coat: Dur-A-Flex, Inc. Shop Floor, epoxy-based, two-component resin.
    - d. Top coat: Dur-A-Flex, Inc. Armor-Top aliphatic urethane multi-component resin.
  - 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. Manufacturer of Approved System shall be single source and made in the USA.

**2.3 PRODUCT REQUIREMENTS**

A.	Topping	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, No visible damage or deterioration	160 inch lbs
B.	Grout Coat	Shop-Floor™ Resin
1.	Percent Reactive,	100 %
2.	VOC	<8 g/L
3.	Water Absorption, ASTM D 570	0.04 %
4.	Tensile Strength, ASTM D 638	4,000 psi
5.	Coefficient of thermal expansion ASTM D 696,	2 x 10 <sup>-5</sup> in/in/F
6.	Flammability ASTM D-635	Self-Extinguishing
7.	Flame Spread/ NFPA 101 ASTM E-84	Class A
C.	Topcoat	Armor Top
1.	VOC	0 g/L
2.	60 Degree Gloss ASTM D523	75+/-5
3.	Mixed Viscosity, (Brookfield 25°C)	500 cps
4.	Tensile strength, ASTM D 638	7,000 psi
5.	Abrasion Resistance, ASTM D4060 CS 17 wheel (1,000 g load) 1,000 cycles	Gloss    Satin 10    12    mg loss
6.	Pot life @ 70° F 50% RH	2 hours
7.	Dry properties, 70°F, 50% R.H.	8 hours tack free, 12 hours Dry

- |                             |              |                                  |
|-----------------------------|--------------|----------------------------------|
|                             | 60°F, 30% RH | 12 hours tack free, 18 hours Dry |
|                             | 80°F, 70%RH  | 4 hours tack free, 6 hours Dry   |
| 8. 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. Mechanically remove all of the existing epoxy flooring system. 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 anhydrous calcium chloride test ASTM F 1869-98. Application will proceed only when the vapor/moisture emission rates from the slab is less than and not higher than 20 lbs/1,000 sf/24 hrs.
  - b. Perform relative humidity test using is situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 99% relative humidity level measurement.
  - c. If the vapor drive exceeds 99% relative humidity or 20 lbs/1,000 sf/24 hrs then the Owner, Owner's Representative 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 3-4 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. V-Cut cracks are to be treated with Elast-O-Coat thickened with No Sag #1 and imbed 6 inch wide fiberglass tape
4. 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 six distinct steps as listed below:
  - a. Substrate preparation
  - b. Topping/overlay application with quartz aggregate broadcast.
  - c. Grout coat application
  - d. Topcoat application.

- e. Joint sealant application
  - f. Line Striping
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 Owner or Owner's Representative.
  5. A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.
- B. Topping
1. The topping shall be applied as a self-leveling system as specified by the Owner or Owner's Representative. The topping shall be applied in one lift with a nominal thickness of 1/8 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 1/2 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 0.8 lbs/sf.
  7. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.
- C. Grout Coat
1. The grout coat shall be applied at the rate of 90 sf/gal.
  2. The grout coat shall be comprised of liquid components, combined at a ratio of 2 parts resin to 1 part hardener by volume and shall be thoroughly blended by mechanical means such as a high speed paddle mixer.
  3. The grout coat shall be squeegee applied and back rolled.
  4. Allow material to fully cure.
- D. Topcoat
1. The pigmented topcoat (Armor-Top) shall be roller applied with a coverage rate of 500 sf/gal with duragrip.
  2. The finish floor will have a nominal thickness of 3/16 inch.
- E. Flexible Joint Sealant
1. Apply a flexible urethane joint sealant in all construction and expansion joints according to manufacturers' guidelines of joint sealant.
- F. Line Striping
1. Apply Dur-A-Gard with superstick additive for line striping as directed on the drawings.

### 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. Protect existing, adjacent surfaces, materials, and equipment against damage from application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Owner or Owner's Representative, and leave in an undamaged condition.
- B. 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.
- C. After completing application, perform the following:
  - 1. Remove rubbish, empty cans, rags, and other discarded materials from Project site.
  - 2. Clean spattered surfaces. Remove spatters by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces
- D. Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface.

**3.6 FIELD QUALITY CONTROL**

- A. During or following application, Manufacturer's Representative shall perform a review of installation for compliance with product standards.

END OF SECTION 09 67 23