**DUR-A-GARD SL EPOXY COATING WITH EPOXY OPF TOPCOAT (100 mils)**

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

 A. Agreement

1. Scope of Project
2. General Conditions
3. Drawings (Vehicle Storage Building and Shop)
4. DUR-A-FLEX DUR-A-GARD SL Product Data sheet and Application Instructions
5. DUR-A-FLEX Surface Preparation Guidelines
6. DUR-A-FLEX Joint Guidelines
7. DUR-A-FLEX DUR-A-GLAZE RAPID-PATCH Product Data Sheet
8. DUR-A-FLEX DUR-A-CRETE Product Data Sheet and Application Instructions
9. DUR-A-FLEX DUR-A-GLAZE #4 WB Primer Product Data Sheet
10. DUR-A-FLEX ARMOR-TOP Product Data Sheet
11. DUR-A-FLEX Standard Colors
12. DUR-A-FLEX Warranties; Limitations of Remedies and Liability

1.2 SYSTEM DESCRIPTION

1. The work shall consist of preparation of the substrate, the furnishing and application of a self-leveling pigmented epoxy based floor overlay system with epoxy ARMOR Top with grit topcoat. The system shall have the color (MEDIUM GREY) and texture as specified by the Owner with a nominal thickness of 100 mils. It shall be applied to the prepared area(s) as defined strictly in accordance with the Manufacturer's recommendations.

1.3 SUBMITTALS

1. Product Data: Latest edition of Manufacturer's literature including performance data and installation procedures.
2. Manufacturer’s Material Safety Data Sheet (MSDS) for each product being used.
3. 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.

1.4 QUALITY ASSURANCE

A. The Applicator shall have experience in installation of the DUR-A-FLEX flooring system as confirmed by the manufacturer in all phases of surface preparation and application of the product specified.

 C. No requests for substitutions to the DUR-A-FLEX system shall be considered.

D. 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.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

1. Packing and Shipping
2. 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 Material Safety Data Sheets (MSDS) for all components shall be kept on site for review by the Owner or other personnel.

C. Waste Disposal

 1. The Applicator shall be responsible for the disposal for all non-hazardous and hazardous waste generated during installation of the system.

1.6 PROJECT CONDITIONS

1. Site Requirements
2. Application may proceed while air, material and substrate temperatures are between 60 F and 90 F providing the substrate temperature is above the dew point. Outside of this range, the Manufacturer shall be consulted.
3. 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.

 4. The Applicator shall be supplied with lighting equal to the final lighting level during the preparation and installation of the system.

 B. Safety Requirements

 1. Applicator and Contractor shall ensure that all open flames and spark-producing equipment are disabled or removed from the work area prior to commencement of application.

1. "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.

1.7 WARRANTY

1. 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.
2. 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, Dur-A-Gard SL (self-leveling), Epoxy-Based seamless flooring system

 1. System Materials:

 a. Primer: Dur-A-Flex, Inc, Dur-A-Glaze# 4 WB resin and hardener.

 b. Base Coat: Dur-A-Flex, Inc, Dur-A-Gard SL resin and hardener, with aggregates and fillers.

 c. Topcoat: Dur-A-Flex, Inc. Dur-A-Gard OPF resin and hardener.

1. Patch Material

a. Shallow Fill and Patching: Use Dur-A-Flex, Inc. Dur-A-Glaze Rapid-Patch.

b. Deep Fill and Sloping Material (over ¼ inch): Use Dur-A-Flex, Inc. Dur-A-Crete.

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. Primer Dur-A-Glaze #4 WB

 1. Percent Solids 56 %

 2. VOC 2 g/L

 3. Bond Strength to Concrete ASTM D 4541 550 psi, substrates fails

 4. Hardness, ASTM D 3363 3H

 5. Elongation, ASTM D 2370 9 %

 6. Flexibility (1/4: Cylindrical mandrel), ASTM D 1737 Pass

 7. Impact Resistance, MIL D-2794 >160

 6. Abrasion Resistance ASTM D 4060,

 CS 17 wheel, 1,000 g Load 30 mg loss

 B. Base Coat Dur-A-Gard SL

 1. Percent Solids 100 %

 2. VOC 0 g/L

 3. Compressive Strength, ASTM D 695 16,000 psi

 4. Tensile Strength, ASTM D 638 3,000 psi

 5. Flexural Strength, ASTM D 790 4,000 psi

 6. Abrasion Resistance, ASTM D 4060

 C-10 Wheel, 1,000 gm load, 1,000 cycles 35 mg loss

 7. Flame Spread/NFPA-101, ASTM E 84 Class A

 8. Flammability, ASTM D 635 Self Extinguishing

 9. Impact Resistance MIL D-3134 Pass

 10. Water Absorption. MIL D-3134 0.04 %

 11. Potlife @ 70 F 20-25 minutes

 C. Topcoat Dur-A-Gard OPF

 1. Percent Solids 100 %

 2. VOC 59 g/L

 3. Compressive Strength, ASTM D 695 16,000 psi

 4. Tensile Strength, ASTM D 638 3,800 psi

 5. Flexural Strength, ASTM D 790 4,000 psi

 6. Abrasion Resistance, ASTM D 4060

 C-10 Wheel, 1,000 gm load, 1,000 cycles 35 mg loss

 7. Flame Spread/NFPA-101, ASTM E 84 Class A

 8. Flammability, ASTM D 635 Self Extinguishing

 9. Impact Resistance MIL D-3134 0.025 inch Max

 10. Water Absorption. MIL D-3134 0.04 %

 11. Potlife @ 70 F 20-25 minutes

PART 3 – EXECUTION

* 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

1. 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 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 3 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 75% relative humidity level measurement.

 c. If the vapor emission exceeds 75 % relative humidity or 3 lbs/1,000 sf/24 hrs then Dur-A-Flex, Inc Dur-A-Glaze MVP Primer moisture mitigation system must be installed prior to resinous flooring installation. Slab-on grade substrates without a vapor barrier may also require the moisture mitigation system.

 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

1. 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 profile of CSP 3-5 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.

 5. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and

 patch per manufactures recommendations.

* 1. APPLICATION
1. General

 1. The system shall be applied in four distinct steps as listed below:

 a. Substrate preparation

1. Priming
2. Base coat application.
3. 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.

 B. Primer

 1. The primer shall be Dur-A-Glaze #4 WB that is mixed at the ratio of 1 part resin to 4 parts hardener per the manufacturer’s instructions.

 2. The primer shall be applied by 1/8 inch notched squeegee and back rolled at the rate of 200-250 sf/gal to yield a dry film thickness of 4 mils.

 C. Base Coat

 1. The base coat shall be comprised of three components, a resin, hardener, aggregate and fillers as supplied by the Manufacturer.

 2. The resin shall be added to the hardener and thoroughly mixed into which the aggregate and fillers are added and mixed by suitably approved mechanical means.

1. The base coat shall be applied over horizontal surfaces using “v” notched squeegee to yield a thickness of 90 mils. The area is then backed rolled with a plastic spiked roller to ensure even distribution of aggregates.

 D. Topcoat

 1. The topcoat of Dur-A-Gard OPF shall be roller applied at the rate of 400 sf/gal to yield a dry film thickness of 4 mils.

 2. The topcoat shall be comprised 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.

3. The finish floor will have a nominal thickness of 100 mils.

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.

* 1. 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.