LifeLast®
Innovation through Formulation

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TECHNICAL SPECIFICATIONS FOR ELASTOMERIC CONCRETE COATING

ARTICLE 1. SCOPE

This specification is for the materials and installation procedures for an elastomeric concrete coating system. The coating is to be applied to the [XXX] of a concrete [XXXX] at the [XXXXX] Facility in [XXX, XXX].

ARTICLE 2. COATING MATERIALS AND PHYSICAL PROPERTIES

Coating materials shall be as follows:

1) LifeLast Primall-125 or Primall-160 Epoxy primer applied at 8 mils DFT with a minimum thickness of 4 mils DFT.

2) LifeLast DuraShield 310-61 Polyurethane shall be applied at a minimum thickness

    a. Potable and raw water applications
        - Minimum = 65 mils
        - Nominal ≤ 80 mils
    b. Wastewater structures
        - Minimum = 100 mils
        - Nominal ≤ 125 mils

3) Total minimum DFT
    a. Potable and raw water applications: 69 total mils
    b. Wastewater structures: 104 total mils

PHYSICAL PROPERTIES OF COATINGS: See technical data sheets for Primall-125, Primall-160 and DuraShield 310-61

ARTICLE 3. SURFACE PREPARATION

1) Prior to any installation the contractor shall get owners approval for final color of the urethane finish.

2) Allow new concrete to cure for 28 days.

3) Verify dryness by testing according to Plastic Film Tape Down Test, ASTM D4263.

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4) All parts that are not to be abraded or coated must be adequately protected.

5) Abrasive blast or mechanically abrade concrete to remove laitance, curing compounds, sealers and other contaminants. The use of high-pressure water is also acceptable for cleaning and preparing the substrate, however the minimum acceptable pressure shall be 4,500 psi, and the use of a turbo nozzle is recommended. If the substrate contains high levels of mineral content or other contaminants, it may be necessary to use high-pressure steam cleaning or abrasive blasting to adequately prepare the surface. If high-pressure steam cleaning is employed, the same minimum pressure of 4,500 psi is also required. In all instances the concrete should be prepared according to ASTM D4259 and SSPC-SP13 and have a profile/roughness consistent with ICRI CSP 4 or rougher.

6) Any metal surfaces, if present, shall be abrasive blasted to SSPC–SP 10 (near white metal blast) with a minimum, angular profile of 3 mils.

7) All cracks, expansion joints, and floor-to-wall seams greater than $^1/_8$" must be treated as follows:
    a.) Fill with Sika-1A or Sika-2C polyurethane sealant, depending on the size and type of the void. Follow application and overcoating instructions for Sika products if used.
    b.) Prime the surface with 8-10 mils of Primall-160. Be sure to prime beyond the width of the fiberglass being used.
    c.) Overlay the crack, joint or seam with 8 oz. fiberglass mat. The mat must extend a minimum of 4 inches beyond the outermost edge of the crack, joint or seam.
    d.) Roll additional primer into the fiberglass mat until it is completely saturated. Be sure to remove all bubbles and folds in the fiberglass.

8) If resurfacing is required – concrete demonstrates wormholes, excessive bugholing or other extremely rough areas, or a smooth ultimate surface is required – use a non-shrink, quick-setting mortar or parge coat to repair the areas. The resurfacer must achieve compressive strengths of 2000 psi after 2 hours and 4000 psi after 24 hours as per ASTM C109. Consult coating manufacturer for approved mortar systems.

9) Allow resurfacer to adequately dry/cure as per the manufacturer's recommendations prior to applying coating system.

10) Once properly dried/cured, the repair material shall be abraded to remove any contaminants or laitance prior to application of the priming system. Resurfacer shall have a surface cleanliness and profile in accordance with ASTM D4259 and ICRI CSP 4-6

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11) A keyway shall be cut into the concrete and/or parge coat at all edge termination points when they are located in an immersion environment. The recommended keyway dimensions are ¼" wide by ¼" deep. Ensure that the keyway is clean and dry prior to application of the coating system. Care should be taken to make sure that the keyway is completely coated with both the Primall-125/Primall-160 and DuraShield 310 during the coating application process (note: this may require forcing the coating into the keyway through use of a brush, trowel or putty knife).

12) Vacuum clean or blow down all surfaces with high psi air to remove all dust, dirt and other loose materials.

13) Verify that all surfaces are clean, dry and free of contaminants that could adversely affect adhesion of coatings system.

ARTICLE 4. APPLICATION PARAMETERS

LifeLast Primall-125 or Primall-160 Epoxy Primer shall be applied to all surfaces according to the following instructions.

1) Before priming, make sure that the surface to be primed has been prepared properly (see preparation instructions) and is completely free of any rust, dirt, grease or any other types of contaminants. If the surface is not completely clean, vacuum, blow down or solvent wipe the substrate as necessary. Approved solvents are isopropyl alcohol (IPA), MEK and Acetone.

2) Please note that primer should only be applied to concrete substrates; steel surfaces do not require use of the primer.

3) Check ambient conditions to ensure they meet the requirements set forth in the *Primall-125* or *Primall-160 Epoxy Primer Technical Data Sheet*.

4) Allow the primer to cure prior to applying the polyurethane topcoat (see application instruction sheet or technical data sheet for cure rate information). Care should be taken to ensure the primer is not exposed to water – either from precipitation or condensation – prior to topcoating, as this may result in the formation of an amine blush. If the primer has developed an amine blush or been exposed to other contaminants prior to topcoating, the surface of the primer must be cleaned either by washing with a TSP detergent or wiping with an acceptable solvent wipe (acetone, IPA) to remove all contaminants and impurities.

5) If application of the DuraShield 310 will not happen within the recoat window, then a supplemental application of the primer can be used to

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refresh the open time of the system, provided of course that the supplemental coat is applied within the recoat window. After the supplemental application of the primer, the system will have an additional open time from the time of application.

6) If the primer has cured beyond its recoat window, then it must be sanded or abrasive blasted to clean and abrade the surface, followed by the application of a supplemental coat of the primer at a minimum thickness of 3 mils.

LifeLast DuraShield 310 shall be applied to all surfaces according to the following instructions:

1) Inspect all surfaces prior to coating to ensure they are clean and dry, and all concrete substrates have been completely primed with Primall-125 or Primall-160.

2) Check ambient conditions to ensure they meet the requirements set forth in the *DuraShield 310/310-61 Technical Data Sheet*.

3) Spray application equipment must be approved by the coating manufacturer and the application must be performed by an applicator certified by the manufacturer to apply the coating system.

4) DuraShield 310/310-61 shall be applied as follows: spray apply specified thickness of DuraShield 310/310-61 to the substrate; rougher surfaces may require more than 150 mils to completely seal the substrate. The DuraShield 310/310-61 can be applied to a concrete substrate with as much as 125 mils in one coat, however environmental and substrate conditions affect this thickness, so the contractor should test an area first to determine the build properties of the material under the given conditions.

5) Spray apply DuraShield 310/310-61 to all surfaces according to the *General Application Specification for LifeLast DuraShield 310 & DuraShield 310-61 Polyurethane Coatings* and the requirements of the specification. Regularly ensure that the minimum specified thickness is being achieved through the use of a wet mil gage.

6) Care should be taken to ensure that any keyways are completely sealed with DuraShield 310/310-61 during the coating application process (note: this may require forcing the coating into the keyway through use of a brush, trowel or putty knife).

7) Ensure that tie-in and overcoat areas are performed within the recommended recoat windows listed in the LifeLast *DuraShield 310/310-61 Technical Data Sheet*. If the DuraShield 310/310-61 has cured beyond its recoat window, please follow the instructions listed in Sections IV, J-N

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of the *Application Specification for LifeLast DuraShield 310 & DuraShield 310-61 Polyurethane Coating* when over-coating the existing coating.

8) Visually inspect the coating for pinholes and imperfections.

9) If required, spark testing of the coating should be accomplished as per NACE SP-0188 using 100 Volts/mil. Voltage shall be set according to the minimum specified thickness. For example, if the minimum specified thickness is 150 mils, then the voltage shall be set at 15,000 Volts. Coating must be cured to at least 75% of its final hardness prior to spark testing.

10) Follow recoat window guidelines set forth in the *DuraShield 310 Technical Data Sheet* for areas that need additional coating.

11) If an area needs to be repaired, and the last coat is outside the allowable recoat window, refer to Section IV, J-M of *Application Specification for LifeLast DuraShield 310 & DuraShield 310-61 Polyurethane Coating*.

12) Allow coating to cure according to schedule set forth in the *DuraShield 310 or DuraShield 310-61 Technical Data Sheet* prior to placing back into service.