



# APPLICATION / SPECIFICATION DATA

## URADEK SYSTEM #70-HD2-SC

### HEAVY DUTY, VEHICULAR TRAFFIC BEARING, WATERPROOFING SYSTEM

#### 1. GENERAL

**1.1 Scope:** This specification covers the installation of a durable, heavy duty liquid applied, abrasion resistant polyurethane waterproofing system suitable for rehabilitating structurally stable surfaces damaged or pitted by environmental exposure or vehicular traffic. It is a monolithic system, designed to seal the concrete slabs from deicing salts and moisture penetration during freeze-thaw cycling and high temperature, high humidity thermal cycling. This heavy-duty traffic system incorporates excellent adhesion and impact resistance while exhibiting superior wear resistance.

**1.2 Work Included:** Install waterproofing consisting of caulking and flashing reinforcement for joints, UPI 7118 Low VOC Epoxy Primer, UIM-6460 Base Membrane, UI-7016-AR-SC Aggregate Binding Top Coat and UI-7016-AL-SC Aliphatic, Weather-Resistant Top Coat. Apply in accordance with these specifications and latest general instructions supplied by Urethane Polymers International, Inc. (UPI).

**1.3 Work Not Included:** Work under this section shall not include concrete finishing and concrete corrective work in connection with the surfaces which are to receive the liquid-applied coating system. Nor does it include furnishing and installation of metal flashing, drains, vents, ducts, curbs or any other penetration through the deck.

#### 1.4 Condition of Concrete Surfaces:

1.41 The concrete surfaces shall be of sound structural grade (4,000 psi compressive strength recommended), of adequate design and thickness for vehicular traffic. Repair and replacement concrete shall have a steel troweled followed by a fine broom finish, free of fins, ridges, voids or air entrained holes.

1.42 New concrete shall be cured by water curing method or pure sodium silicate. Curing compounds or curing agents of any type shall not be used unless they have prior approval from UPI.

1.43 New concrete shall be cured at least 28 days and shall be sloped for proper drainage.

1.44 Saw-cut control joints and/or expansion joints shall have been properly installed at strategic points throughout the field of the deck to control cracking caused by deflection and shrinkage.

1.45 Any required crickets or drains should be installed in a manner which will make them monolithic with the main vehicular deck.

1.46 Voids, rock pockets and excessively rough surfaces shall be repaired with epoxy grout or ground to match the unrepaired areas.

1.47 When metal decking is used as the concrete form, it shall be of the "ventilating type".

1.48 All concrete decks poured over precast "T's", planks or slabs, shall have control joints placed directly over all corresponding joints or openings in the precast units.

#### 1.5 Job Conditions:

1.51 Before any waterproofing work is started the waterproofing applicator shall thoroughly examine all repaired surfaces for any deficiencies. Should any deficiencies exist, the architect, owner, or general contractor shall be notified in writing and application shall not begin until corrections are made.

1.52 Do not proceed with application of materials when deck temperature is less than 40°F or if precipitation is imminent.

1.53 Warn personnel against breathing of vapors and contact of material with skin or eyes. In confined areas, workmen shall wear the appropriate MSHA/NIOSH approved respiratory protective gear and protective clothing.

1.54 All gas flames and electrical apparatus shall be shut down prior to the start of and during coating application and curing.

1.55 Protect plants, vegetation, and animals which might be adversely affected by the coating operation.

1.56 UPI Elastomeric Coating Systems should not be installed onto on-grade slabs, split slabs with buried membrane or onto slabs over unvented metal pans without prior approval from UPI.

#### 2. QUALIFICATIONS

##### 2.1 Waterproofing Applicator:

2.11 Shall be experienced in successfully applying the same or similar materials and shall be specifically approved as a Factory Qualified Applicator in writing by UPI.

2.12 Shall be financially responsible and be ready and able to submit the required project installation warranty and any required project performance bonds.

2.13 Shall submit to the general contractor and the building owner the required certificates of insurance prior to starting the project.

**2.2 Sample Submittals:** Submit samples not less than 3" X 4" in size, showing the approximate applied thickness, texture and color. The submittal shall also include the manufacturer's application-specification sheet and a list of materials by name and quantity to be used on this project.

#### 3. MATERIALS

The materials shall be delivered to the job site in the original sealed containers bearing the product name, color, manufacturer's lot number, directions for use and precautionary labels. All products listed are manufactured or supplied by UPI.

**3.1 Caulking Compound:** Shall be a one-component or two-component polyurethane compound approved by UPI.

**3.2 Flashing Reinforcement:** Shall be non-staining, uncured neoprene sheet at 45-60 mils thickness, woven polyester reinforcing fabric, or as recommended by UPI.

**3.3 Aggregate:** The texturing aggregate shall be rounded, non angular, 20-16 mesh flint shot silica, or equivalent washed and kiln-dried aggregate. Aggregate shall be hard and stable to anticipated use conditions. The bonding aggregate shall be 30 mesh angular washed and dried crystalline silica.

**3.4 Primer:** Shall be UI-7118, Low VOC Epoxy-Polyamine, low viscosity, two-component primer-sealer.

**3.5 Base Membrane:** Shall be UIM-6460 two-component, chemically cured, solvent free, high adhesion, medium hardness, elastomeric polyurethane membrane and shall meet or exceed the following typical properties:

<b>UIM-6460 Base Membrane</b>		
<b>PROPERTY</b>	<b>TYPICAL VALUE</b>	<b>TEST METHOD</b>
Color	Gray	
Weight per Gallon:		
Part A (Resin)	9.4 lbs.	
Part B (Hardener)	8.3 lbs.	
Solvent Content	Solvent Free	
Coverage sq.ft. per gal. @ 16 mils thickness	100 (One gal/sq)	
Hardness, Shore A	65 ± 3	ASTM D-2240
Tensile Strength	1600 ± 150 psi	ASTM D-412
Ultimate Elongation, %	650 ± 100%	ASTM D-412
Tear Resistance	225 ± 25 pli	ASTM D-1004
Chemical Resistance (commonly encountered acids, salts, and oils)	Superior Resistance	ASTM D-3476
Pot Life @ 77°F	30-40 minutes	
Gel Time, @ 77°F	45 minutes	
Low Temperature Flexibility @ -30°F	Passes	ASTMD-746
Flash Point	Above 200°F	ASTMD-3278

**3.6 Aggregate Binder:** Shall be UI-7016-AR-SC high tensile strength, moisture cured elastomeric polyurethane and shall meet or exceed the following typical properties:

**UI-7016-AR-SC  
Aggregate Binder Coat**

<b>PROPERTY</b>	<b>TYPICAL VALUE</b>	<b>TEST METHOD</b>
Composition	Aromatic Urethane	
Weight Solids	80 ± 2%	
VOC Content	Less than 100 gm/l	
Hardness, Shore A	80 ± 5	ASTM D-2240
Tensile Strength	3300 ± 300 psi	ASTM D-412
Ultimate Elongation	250 ± 50%	ASTM D-412
Tear Resistance	300 ± 50 lb./in.	ASTM D-1004
Weather Resistance	No Chalking @ 500 hours	ASTM D-822
Adhesion to Base Coat	30 pli	ASTM D-903

**3.7 Traffic-Resistant Top Coat:** Shall be UI-7016-AL-SC single component, high tensile strength, abrasion resistant and weather-resistant aliphatic polyurethane coating and shall meet or exceed the following typical performance properties:

**UI-7016-AL-SC  
Aliphatic Top Coat**

<b>PROPERTY</b>	<b>TYPICAL VALUE</b>	<b>TEST METHOD</b>
Composition	Aliphatic, Saturated Polyester Urethane	
Weight Solids	80 ± 2%	
VOC Content	Less than 100 gm/l	
Hardness, Shore A	90 ± 5	ASTM D-2240
Tensile Strength	3300 ± 300 psi	ASTM D-412
Ultimate Elongation	250 ± 50%	ASTM D-412
Tear Resistance	350 ± 50 lb./in.	ASTM D-1004
Water Permeability	Less than 0.1 Perm	ASTM E-96
Weather Resistance	No Chalking @ 2000 hrs. Negligible Change, CS-17 wheels, 1000 cycles, 1000 gm. load	ASTM G-23
Abrasion Resistance		ASTM C-501
Adhesion To Base Coat	30 pli	ASTM D-903

**4. SUBSTRATE PREPARATION**

**4.1 Concrete Surfaces:**

4.11 The concrete surface must be thoroughly clean, dry and free from any surface contaminates or cleaning residue. Acceptable methods of cleaning are shot-blasting, sandblasting, or mechanical grinding followed by the complete and thorough removal or any residue.

4.12 All cracks over 1/16 inch in width and all moving cracks under 1/16 inch in width shall be routed out to ¼ inch minimum in width and depth and filled flushed with polyurethane elastomeric sealant.

4.13 All cracks shall be stripe-coated with a 4 inch wide by 30 mils thick detail coat of UIM 6460.

4.14 Apply a ¾ inch cant of sealant around all pipes, drains and vertical junctions.

4.15 All expansion and contraction joints shall be cleaned, primed, fitted with a backing rod and caulked with elastomeric polyurethane sealants. Joints under ½ inch in width and all caulked cracks shall be stripe-coated with a 30 mil preparatory coat of UIM 6460.

4.16 Prior to commencing with the application, all surfaces to be coated shall be dry and free from any surface contaminates or cleaning residues.

**4.2 Flashing Reinforcement:**

4.21 All required metal or neoprene flashing and fabric flashing reinforcement and all sealant cants shall be installed at this time.

4.22 All metal shall be delivered shop primed and then be field primed with UI-7118 Epoxy Primer prior to coating with the base membrane. (For metal surfaces which may exhibit adhesion difficulties, first prime with a zinc-rich or zinc chromate epoxy primer.)

4.23 UIM-6460 Base Membrane is used as an adhesive for the polyester reinforcing fabric. The reinforcing fabric shall be laid into the wet base membrane with roller, brush or broad blade knife. The fabric shall be laid smooth and wrinkle-free and thoroughly embedded in the Base Membrane.

4.24 Flashing and polyester reinforcing fabric shall be coated (with base coats and top coats) each time the deck is coated.

**4.3 Priming:** Stir each side of Primer separately and then mix all of Part A with all of Part B. Use a mixing paddle on a slow speed drill motor. Mix thoroughly for 2 to 3 minutes.

**5. APPLICATION OF MEMBRANE**

**5.1 Primer:** Apply UI-7118 Epoxy Primer at the approximate rate of 300 square feet per gallon and immediately broadcast the 60 mesh or 30 mesh crystalline silica bonding aggregate. (The degree of surface porosity will determine the optimum application rate of primer and aggregate). Allow primer to dry until it is tack-free. Within 24 hours of application of the primer plus bonding aggregate, the base coat should be applied. If the base coat application is delayed or if the primer is contaminated by rain, then lightly re-prime.

**5.2 UIM-6460 Base Membrane:** shall be squeegee and roller applied in one uniform coat at the rate of one gallon minimum per 50 square feet or as needed in order to obtain a uniform wet film thickness of 32 mils. Allow a maximum of 36 hours curing time before applying the next coat. Do not apply coating system over joints ½ inch wide or greater. (If the base membranes should become dirty or contaminated, or loose their surface tack, wipe clean with xylene).

**5.3 Standard Duty Vehicular Areas:**

5.31 After application in accordance with Sections 5.1 and 5.2, UI-7016-AR-SC Aggregate Binder shall be squeegee and roller applied in one uniform coat at the rate of one gallon minimum per 100 square feet (16 wet mils). While the coating is still fluid, uniformly broadcast the 20-16 mesh aggregate into the coating at the rate of 15-20 lbs. per 100 square feet. Allow 16 to 36 hours curing time @ 77°F before applying the next coat.

5.32 UI-7016-AL-SC Top Coat shall be squeegee and roller applied in one uniform coat at the rate of one gallon minimum per 100 square feet in order to obtain a minimum coating thickness of 16 wet mils and to completely coat the aggregate.

**5.4 Double Texture Vehicular Traffic Areas:**

5.41 After application in accordance with Sections 5.1 and 5.2, UI-7016-AR-SC Aggregate Binder shall be squeegee and roller applied in one uniform coat at the rate of one gallon minimum per 100 square feet (16 wet mils). While the coating is still fluid, uniformly broadcast the 20-16 mesh aggregate into the coating at the rate of 15-20 lbs. per 100 square feet.

5.42 After the UI-7016-AR-SC has been cured 16 to 36 hours additional UI-7016-AR-SC Aggregate Binder shall be squeegee and roller applied in one uniform coat at the rate of one-gallon minimum per 80 square feet (20 wet mils). While the coating is still fluid, uniformly broadcast 20-16 mesh aggregate at the approximate rate of 25-35 lbs. of aggregate per 100 square feet. Allow 16 to 36 hours curing time before applying the next final coat.

5.43 UI-7016-AL-SC Top Coat shall be squeegee and roller applied in one uniform coat at the rate of one gallon minimum per 100 square feet in order to obtain an average coating thickness of 16 wet mils and to completely coat the aggregate.

**5.5 Thickness:** Excluding the encapsulated aggregate, the Standard Duty Coating thickness shall average 54 dry mils (90 mils including aggregate). Excluding aggregate the Double Texture Traffic Coating thickness shall average 68 dry mils (150 mils including aggregate).

**6. APPLICABLE STANDARDS / SPECIFICATIONS**

This Traffic Bearing Coating System shall comply with applicable Federal EPA VOC regulations, the Northeast Ozone Transportation Corridor VOC Regulations and applicable Southern California Regional Air Quality Regulations and shall meet the performance requirements of ASTM C-957-87, High Solids Content, Cold Liquid Applied Elastomeric Waterproofing Membrane with Integral Wearing Surface.

**7. GUARANTEE / WARRANTY**

When this Elastomeric Coating System is installed by a UPI Factory Qualified Applicator, is inspected and approved in accordance with these specifications, and after receipt of the final payment, the Factory Qualified Applicator shall issue their standard installation guarantee covering defects in material and workmanship.

UPI warrants its products to be free of defects in workmanship and materials only at the time of shipment from our factory. If any UPI materials prove to contain manufacturing defects that substantially affect their performance UPI will, at its option, replace the material or refund the purchase price.

The dollar value of UPI's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the UPI materials in question.

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