APPLICATION / SPECIFICATION DATA

URADEK SYSTEM # 70-S

VEHICULAR TRAFFIC BEARING WATERPROOFING SYSTEM

1. GENERAL

1.1 Scope: This specification covers the installation of a proven durable, liquid applied, abrasion resistant polyurethane waterproofing system suitable for surfaces subject to 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 traffic bearing waterproofing system incorporates excellent adhesion, impact resistance and abrasion resistance, while exhibiting superior chemical resistance.

1.2 Work Included: Install waterproofing consisting of caulking and flashing reinforcement for joints, UI-7118 or UI-7119 Epoxy Primer, UI-7013 Base Membrane, UI-7016-AR-HS Aggregate Binder and UI-7016-AL-HS 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 finishing and 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 (4000 psi compressive strength recommended), of adequate design and thickness for vehicular traffic, and shall have a steel troweled followed by a fine broom finish, free of fins, ridges, voids or air entrained holes.

1.42 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 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 at the time the main deck is poured (i.e. monolithic).

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 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 warranty and any required project warranty.

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 Primer: Shall be UI-7118 (low VOC) or UI-7119 solvent-based Epoxy-Polyamine, low viscosity, two-component primer/sealer.

3.4 Base Membrane: Shall be UI-7013 single-component, high adhesion, moisture cured, elastomeric polyurethane membrane and shall meet or exceed the following typical properties:

UI-7013 Base Coat

PROPERTY	*TYPICAL VALUE*	*TEST METHOD*
Composition	Aromatic Urethane	
Weight Solids	86 ± 2%	
VOC Content	Less than 200 gm/l	
Hardness, Shore A	65 ± 5	ASTM D-2240
Tensile Strength	900 ± 100 psi	ASTM D-412
Ultimate Elongation	550 ± 100%	ASTM D-412
Tear Resistance	150 ± 25 lb./in.	ASTM D-1004
Weather Resistance	Slight Checking @ 500 hours	ASTM G-23
Bond Strength to Primed Concrete	195 psi	ASTM D-4541
Low Temp Flexibility	-30°F	

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

UI-7016-AR-HS Aggregate Binder

PROPERTY	*TYPICAL VALUE*	*TEST METHOD*
Composition	Aromatic, UV Stabilized Urethane	
Weight Solids	78 ± 2%	
VOC Content	Less than 250 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

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3.6 Traffic-Resistant Top Coat: Shall be UI-7016-AL-HS 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-HS Top Coat

PROPERTY	*TYPICAL VALUE*	*TEST METHOD*
Composition	Aliphatic, Saturated Polyester Urethane	
Weight Solids	78 ± 2%	
VOC Content	Less than 250 gm/l	
Hardness, Shore A	90 ± 5	ASTM D-2240
Tensile Strength	3300 ± 300 psi	ASTM D-412
Ultimate Elongation	250 ± 50%	ASTM D-12
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.	ASTM G-23
Abrasion Resistance	Negligible Change, CS-17 wheels,1000 cycles, 1000 gm. load	ASTM C-501

3.7 Aggregate: Shall be rounded, non angular, 16 mesh and 20 mesh flint shot silica, or equivalent sized, washed and kiln-dried aggregate. Aggregate shall be hard and stable to anticipated use conditions.

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 30 mils of UI-7013 Detail Membrane for a distance of 2 inches on either side of the crack.
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 ½ inch or less in width and all caulked cracks shall be stripe-coated with a 30 mil preparatory coat of UI-7013 Detail Membrane.
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, neoprene, and polyester flashing reinforcement shall be installed at this time. All sealant cants should be installed.
4.22 All metal shall be delivered shop primed with epoxy and then be field primed with UI-7118 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 UI-7013 Base Membrane is used as an adhesive for the polyester reinforcing fabric. The flashing fabric shall be laid into the wet base membrane with roller, brush or broad blade knife. The fabric shall be laid relaxed, smooth and wrinkle-free and over-coated with base membrane.
4.24 Flashing shall be coated (with base coats and top coats) each time the deck is coated.

4.3 Priming: Stir each side separately and then mix all of Part A with all of Part B. Use a mixing paddle on a slow speed drill motor. Mix for 2 to 3 minutes, scrape sides and bottom, re-mix and apply primer.

5. APPLICATION OF MEMBRANE

5.1 Primer: Apply UI-7118 (low VOC) or UI-7119 Epoxy Primers at the approximate rate of 300 square feet per gallon. Allow primer to dry until it is tack-free. Within 16 hours of application of the primer, the base coat must be applied. If the base coat can't be applied within 16 hours or if the primer is contaminated by rain, then re-prime.

5.2 UI-7013 Base Membrane: shall be trowel or squeegee applied, followed by backrolling, in one uniform coat at the rate of one gallon minimum per 50 square feet or as needed in order to obtain a minimum wet film thickness of 32 mils. Allow 16 to 48 hours curing time before applying the next coat. Do not apply coating system over joints greater than ½ inch wide. (If the base or elastomeric membranes should become dirty or contaminated, or loose their surface tack, wipe clean with xylene.)

5.3 After the UI-7013 has cured 16 to 48 hours UI-7016-AR-HS Aggregate Binder shall be trowel or squeegee applied, followed by backrolling, 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 and thoroughly encapsulate by backrolling 16 mesh aggregate into the coating at the rate of 15-25 lbs. per 100 square feet. Allow 16 to 36 hours curing time @ 77°F before applying the top coat.

5.4 UI-7016-AL-HS Top Coat shall be spray or 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.

5.5 Heavier Duty Traffic Areas:

5.51 After application in accordance with Sections 5.1, 5.2 and 5.3, additional UI-7016-AR-HS Aggregate Binder shall be trowel or squeegee applied, followed by backrolling, 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 and thoroughly encapsulate 20 mesh aggregate at the approximate rate of 15-25 lbs. of aggregate per 100 square feet. Allow 16 to 36 hours curing time before applying the top coat.

5.52 UI-7016-AL-HS Top Coat shall be spray or 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.

5.6 Thickness: Excluding the encapsulated aggregate, the Vehicular Traffic Coating thickness shall be a minimum of 45 dry mils. The coating thickness in the Heavier Duty Traffic Areas, excluding aggregate, shall be a minimum of 55 dry mils.

6. APPLICABLE STANDARDS/SPECIFICATIONS

This Traffic Bearing Coating System shall comply with applicable Federal EPA AIM VOC regulations, the Northeast Ozone Transportation Corridor VOC Regulations and applicable 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 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 the applicator's 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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