



# APPLICATION / SPECIFICATION DATA

## URADEK SYSTEM #55-INT

### LOW ODOR, MECHANICAL EQUIPMENT ROOM WATERPROOFING

#### 1. GENERAL

**1.1 Scope:** This specification covers the installation of a low odor, abrasion resistant, urethane plus epoxy waterproof coating system suitable for interior mechanical equipment room decks. It is a monolithic system, designed with integral flashing reinforcement around and over equipment pads to effectively seal the areas underneath from moisture penetration. This system incorporates excellent adhesion, flexibility and abrasion resistance while demonstrating superior chemical stability. Physical stresses imposed by vibration of equipment will not cause delamination or rupture of the waterproof coating system.

**1.2 Work Included:** Furnish and install the URADEK SYSTEM #55-INT seamless waterproof flooring as manufactured by Urethane Polymers International, Inc. The flooring is to be installed to a composite thickness of 1/16 inches minimum and shall be installed on a coved base to the height specified. Apply in accordance with the architectural drawings and room finish schedules as specified and the latest 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 surfaces to receive the waterproof flooring system. Nor does it include furnishing and installation of on-grade vapor barriers, metal flashing, curbs, drains, vents, or any other penetration through the floor.

#### 1.4 Condition of Concrete Surfaces:

1.41 Concrete shall have been designed and installed to minimize random cracking and slab deflection and to provide sufficient control joints and isolation joints.

1.42 Variation in plane shall not be greater than plus or minus ¼ inch in 10 feet in any direction. Proper slope to drain should be maintained in order to minimize puddles.

1.43 A power steel trowel followed by a fine broom finish is preferred for best results and to minimize surface preparation.

1.44 Concrete shall be clean, crack free, sound and durable (minimum thickness 3 inch, minimum compressive strength 3,000 psi) and dry (9% maximum moisture content.) Concrete shall be free of fins, ridges, voids or air-entrained holes. Concrete must be free of hydrostatic and/or capillary moisture pressure and should not be in direct contact with the ground. If in doubt, a rubber mat test in accordance with ASTM D-4263 or a RMC calcium chloride moisture test must be conducted and results evaluated.

1.45 Allow concrete to cure 28 days minimum before applying the elastomeric waterproofing system.

1.46 Sealers, wax or resinous concrete curing compounds shall not be used on concrete surfaces which are to receive this waterproofing system.

#### 1.5 Temporary Services by General Contractor:

5.1 Temporary 120 V electrical service, adequate hoisting where necessary, and water for installer's use shall be provided at no cost by the General Contractor to the installer. Adequate heat, without flame, to maintain a room temperature of not less than 60° F shall be provided 24 hours prior, during and after completion of the work at no cost to installer.

#### 1.6 Job Conditions:

1.61 During the installation work, protect all surfaces of other trades against damage from work specified in this Section. Caution installation mechanics against breathing of vapors and contact of material with skin or eyes.

1.62 No smoking, gas flames, or sparking from electrical outlets, telephones or electrical motors shall be allowed in area during the application.

1.63 Allow no traffic on the waterproofing system for 24 hours after completion and only light traffic for the first 96 hours.

The General Contractor shall be responsible for protection of surfaces after final coats and until final acceptance. Repair of damage to waterproof flooring by other trades is to be performed only by the authorized installer but at the expense of the General Contractor.

#### 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 any required project warranty.

2.13 Shall submit to the General Contractor and the building owner necessary certificates of insurance prior to starting the project.

**2.2 Samples Submittals:** Submit samples not less than 2 ½" 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 in order to demonstrate compliance with these specifications.

#### 3. MATERIALS

All materials used under this specification, including primers, waterproofing membranes, aggregate, aggregate binders, and reinforcing fabrics, shall be furnished or approved by UPI. The components shall be delivered to the job site in factory-sealed containers clearly marked with identifying labels.

**3.1 Primer:** Shall be UI-7050, two-component, solvent free, epoxy polyamine primer.

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

##### UREA-DEK 6460 Base Membrane

PROPERTY	TYPICAL VALUE	TEST METHOD
Composition	Polyurethane	
Solvent Content	Solvent Free	
Hardness, Shore A	63 ± 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	20-25 minutes	
Gel Time, @ 77°F	30 minutes	
Flash Point	Above 200°F	ASTMD-3278
Adhesion to Primed Concrete	30 pli	

**3.3 Epoxy Top Coat:** Shall be UI-7059, a flexibilized, two-component, 100% solids, low odor, chemical resisting and abrasion resisting epoxy coating and shall meet or exceed the following typical properties:

##### UI-7059 Top Coat

PROPERTY	TYPICAL VALUE	TEST METHOD
Composition	Flexibilized Epoxy	
Solids Content	99-100%	
Tensile Strength	3,200 ± 300 psi	ASTM D-638
Hardness (Shore D)	70 ± 5	ASTM D-2240
Compressive Strength	5,900 psi min.	ASTM D-695
Bond Strength	350 +psi	ASTM C-882
Abrasion Resistance	0.050 gm loss CS-17 wheels, 1000 gram weight	ASTM D-4060

**3.4 Aggregate:** Shall be a blend of 30-60 mesh or 20-40 mesh aluminum oxide, quartz granules or rounded flint shot silica as approved by the building owner. The granules shall be fresh water washed, kiln-dried, and shall be hard and stable to the anticipated use conditions.

**3.5 Chemical Resistance:** UI-7059 Epoxy Top Coat has excellent resistance to intermittent contact at room temperature with the following chemicals:

Sulfuric Acid 10%	Bleach
Hydrochloric Acid 10%	Isopropyl Alcohol
Phosphoric Acid 5%	Crude Oil
Citric Acid 10%	Deionized Water
Battery Acid	Sea water
Ammonium Hydroxide 29%	Hydraulic Fluid
Sodium Hydroxide 50%	Xylene

#### 4. SUBSTRATE PREPARATION

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

4.12 If Acid etching is used, apply a solution of 2:1 muriatic acid and water at the rate of 1 gallon of solution per 100 square feet. Scrub with a stiff broom or mechanical scrubber. Neutralize with a solution of ammonia or TSP in water and give a final rinse by flushing with fresh water using a high pressure washer (2500 psi minimum).

4.13 Cracks or non-moving control joints shall be routed out to ¼ inch minimum in width and depth and filled flush with UI-7050 Epoxy Mortar plus sand and covered with UPI polyester reinforcing fabric imbedded in a stripe coat of UREA-DEK 6460 Base Coat.

4.14 Surfaces to receive coves or base coats shall be strong, durable, dry and free of contaminants. Surfaces with weak backings, such as drywall or plaster, are not acceptable unless reinforced with metal lath.

4.15 All expansion and contraction joints shall be cleaned, primed, fitted with a backing rod and caulked with elastomeric polyurethane sealants. Expansion joints ½ inch or less in width and all caulked cracks shall be stripe-coated with a 20 mil preparatory coat of UREA-DEK 6460 Base Coat and imbedded with polyester reinforcing fabric. Do not apply this waterproof coating system over joints greater than ½ inch wide.

**4.2 Priming:** Stir each side of the UI-7050 Primer separately and then mix all of Part A with all of Part B (using a 2:1, A:B mix ratio). Use a mixing paddle on a slow speed drill motor. Mix for 2 to 3 minutes and let mixed primer sit briefly before applying.

## 5. APPLICATION OF MEMBRANE

Application shall be in strict accordance with the latest printed instructions of UPI. It is recommended that the waterproof coating system be installed when the temperature of the concrete floor is above 50° F and the ambient temperature is not less than 55° F and rising. Areas to receive the primer and waterproofing coatings should be well ventilated. Mechanics should wear rubber gloves and a face shield or goggles should be used during mixing operations.

**5.1** All concrete substrates will require priming with one coat of UI-7050 epoxy primer. Apply primer by using a medium-nap roller or low pressure sprayer. Allow primer to dry until it is tack-free (3 to 16 hours depending upon ambient temperature and humidity) before applying the UREA-DEK 6460 Base Coat. For proper primer penetration, apply at a rate of 300-350 square feet per mixed gallon.

**5.2** Thoroughly mix all of the Part "B" from the premeasured kit of UREA-DEK 6460 with the Part "A" or base component. Apply the properly mixed UREA-DEK 6460 Base Coat onto the properly prepared and primed floor surface with a notched trowel or squeegee. Immediately backroll with a short nap roller. Apply at the minimum rate of 45 square feet per gallon in order to obtain a minimum membrane thickness of 35 mils.

**5.3** Allow the Base Coat to cure until firm (approximately 16-36 hours at 75° F) before applying the UI-7059 Top Coat. Do not allow the base coat to become dirty or lose its surface tack before applying the top coat.

**5.4** Thoroughly mix all of the UI-7059 Epoxy Top Coat Part "B" with the Part "A" and dump the entire mix onto the floor surface and spread uniformly with a notched trowel or squeegee followed by backrolling.

Apply at the rate of 125-150 square feet per mixed gallon in order to obtain an average topcoat thickness of 10-13 mils. Immediately and uniformly broadcast the 30-60 mesh aggregate into the wet top coat at the rate of 20-25 lbs. per 100 square feet. **Note:** It is always recommended that the proper quantity and proper size of aggregate is applied. **Caution:** The mixed UI-7059 Top Coat has a short 20 to 30 minute pot life once mixed and kept in the bucket.

**5.5** After a 16 to 24 hour cure remove excess or unbonded aggregate. Apply a second application of top coat by thoroughly mixing one complete kit consisting of all of the UI-7059 Top Coat Part "B" with the Part "A" and dump the entire mix onto the floor surface and spread uniformly with a notched trowel or squeegee. Apply at the approximate rate of 125-150 square feet per mixed gallon in order to obtain an average topcoat thickness of 10-13 mils. Backroll with a short to medium nap roller

**5.6** Allow the top coat to cure 24-36 hours at 75° F before subjecting the floor to light traffic.

**5.7 Thickness:** The overall dry film thickness of the completed waterproofing system, excluding aggregate, shall be a minimum of 60 mils. Note: This waterproof coating system is not designed to be installed without the proper quantity and the uniform application of properly sized silica or quartz aggregate.

## 6. MAINTENANCE

The mechanical equipment waterproof flooring system should be cleaned with a free-rinsing, non-abrasive detergent as often as necessary following recommended practices of the maintenance industry. Tar, chemical or mineral deposits and scuff marks should be removed wiping with isopropyl alcohol or a commercial grade water-based cleaner. Greater slip-resisting characteristics can be obtained by increasing the size of the aggregate or using "angular" aggregate. However, increasing the textured qualities of the waterproof flooring system also increases the maintenance efforts to remove dirt and film residue.

## 7. LIMITED 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 customary and 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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