



APPLICATION / SPECIFICATION DATA

URADEK SYSTEM AFWM-60 MIL

HIGH PERFORMANCE, ANTI-FRACTURE WATERPROOFING MEMBRANE

1. GENERAL

1.1 Scope: This specification covers the installation of an extremely durable, liquid applied, anti-fracture waterproofing membrane system. It is a monolithic, trowel applied, under tile or under mortar bed waterproofing system designed to supply a positive seal from moisture penetration while aiding in the reduction of crack transmission from crack-prone substrates. This system can be applied over sound concrete or sound wood sub-surfaces. It is designed for exterior use under thin set ceramic, terrazzo, quarry and porcelain tile for waterproofing as well as sound deadening qualities.

1.2 Work included: Install waterproofing consisting of caulking and flashing for joints, UPI Epoxy Primer, UI-7013 Elastomeric Membrane, UPI Reinforcing Fabric, UI-7014-HT Reinforcing Membrane, and UPI Reinforcing Aggregate. 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 installation, finishing and corrective work in connection with sub surfaces to receive the liquid-applied waterproofing systems. 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 (2,500 psi compressive strength recommended), a minimum thickness of 3 inches 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 preferably be cured by the water curing method. If curing agents are used, they shall be of pure sodium silicate base only.

1.43 Concrete shall be cured at least 28 days and until completely dry. Concrete 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 Voids, rock pockets and excessively rough surfaces shall be finished with an epoxy grout or sand/cement/acrylic-latex smoothing coat.

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

1.47 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 Condition of Plywood Subsurfaces:

1.51 Plywood shall be of a minimum 3/4 inch thickness, tongue and groove, exterior grade B/C or better and shall be properly supported.

1.52 Plywood panels shall be butted flush with 1/16 inch spacing left between adjoining panels.

1.53 Plywood shall be nailed with non-corroding 10d annular ring or twist nails. Space nails 6 inches O.C. along panel edges and 12 inches O.C. over intermediate supports.

1.54 All decks shall be designed to eliminate vertical deflection by the proper selection of plywood thickness and the proper spacing of support joists. A double sheeting of 3/4 inch plywood is recommended.

1.55 All plywood edges and joints must be supported on blocking or primary framing and the plywood panels shall be continuous across two or more spans with face grain across supports.

1.56 All adjacent metal flashing, scuppers, vents, etc. shall be a minimum of 26 gauge galvanized metal, tightly screwed, or nailed with ring shank nails to the plywood at intervals no greater than 4 inches O.C.

1.57 Wood sub-surfaces to be used as heavy traffic areas or which will have heavy tile or a mortar bed installation must have a double sheeting of 3/4 inch plywood or equivalent. (Without this added rigidity, the natural flexure in wood is sufficient to cause tile grout retention problems.)

Job Conditions:

1.61 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 corrections made.

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

1.63 Warn personnel against breathing of vapors and contact of material with skin or eyes. In confined areas without adequate ventilation, workmen shall wear approved respiratory protective gear and protective clothing.

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

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 the required certificates of insurance prior to starting the project.

2.2 Sample Submittals: Submit samples not less than 4" x 3" in size, showing the approximate applied thickness and the type and size of reinforcing aggregate. 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.

2.3 Specifications and Standards: The UI-7013 membrane at 60 mils and the composite AFWM-60 Mil Waterproofing Membrane System meet or exceed the performance requirements of ASTM Specification ASTM-C-836-84.

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 UPI approved one-component, high adhesion, moisture cured, non-staining polyurethane compound.

3.2 Flashing Reinforcement: Shall be uncured neoprene sheet at 45-60 mils thickness, woven reinforcing fabric, or as recommended by the waterproofing membrane manufacturer.

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

3.4 Elastomeric Membrane: Shall be UI-7013 single component, VOC compliant, high adhesion, moisture cured, liquid polyurethane membrane and shall meet or exceed the following typical performance properties:

UI-7013 Base Membrane

| PROPERTY | TYPICAL | TEST METHOD |
|-----------------------------|---------------------|-------------|
| Composition | Aromatic Urethane | |
| Weight Solids | 90 ± 2% | |
| VOC Content | Less than 150 gm/l | |
| Hardness, Shore A | 63 ± 3 | ASTM D-2240 |
| Tensile Strength | 1000 ± 100 psi | ASTM D-412 |
| Ultimate Elongation | 550 ± 100% | ASTM D-412 |
| Tear Resistance, Die C | 175 ± 25 | ASTM D-624 |
| Water Permeability | 1.6 Perms @ 50 mils | ASTM E-96 |
| Adhesion to Primed Concrete | 30 pli | ASTM E-96 |
| Low Temp. Flexibility | -30°F | ASTM D-903 |

3.5 Reinforcing Fabric: Shall be one of the UPI woven, high tensile strength, synthetic reinforcing fabrics.

3.6 Reinforcing Membrane: Shall be UI-7014-HT high tensile strength, moisture cured elastomeric polyurethane and shall meet or exceed the following typical properties:

UI-7014-HT Intermediate Coat

| PROPERTY | TYPICAL VALUE | TEST METHOD |
|-----------------------|------------------------------|-------------|
| Composition | Aromatic Urethane | |
| Weight Solids | 82 ± 2% | |
| VOC Content | Less than 250 gm/l | |
| Hardness, Shore A | 80 ± 5 | ASTM D-2240 |
| Tensile Strength | 2250 ± 250 psi | ASTM D-412 |
| Ultimate Elongation | 400 ± 100% | ASTM D-412 |
| Tear Resistance | 250 ± 50 lb./in. | ASTM D-1004 |
| Weather Resistance | Slight Chalk @ 1000 hours | ASTM D-822 |
| Adhesion to Base Coat | 25 pli | ASTM D-903 |

3.7 Reinforcing and Bonding Aggregate: Shall be equal to the UPI blended 16/20 mesh crystalline silica. All aggregates shall be fresh water washed, graded or sized, kiln dried and dust free.

4. SUBSTRATE PREPARATION

4.1 Concrete Surfaces:

4.11 The concrete surface must be thoroughly clean, dry and free from any surface contaminants or cleaning 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 striped-coated with 25 mils of UI-7013 Elastomeric Membrane coating for a distance extending to 2 inches on either side of the crack.

4.14 Any expansion and contraction joints shall be cleaned, primed, fitted with a backing rod and caulked with elastomeric polyurethane sealants.

4.2 Plywood Surfaces:

4.21 Sweep all plywood joints clean and free of sawdust. Caulk and strike smooth all cracks, splits or joint separations in the plywood. Apply joint reinforcements consisting of a 25 mils brush coat of UI-7013 Elastomeric Membrane centered over the joint. Imbed the 3 inch wide reinforcing tape into the wet detail membrane and smooth with a trowel.

4.22 Damaged plywood panels shall be repaired or replaced prior to installation of the elastomeric base membrane.

4.3 Flashing:

4.31 All required plywood joint reinforcement, flashing reinforcement and metal to deck reinforcement shall be installed at this time.

4.32 All metal shall be delivered shop primed and then be field primed with UPI Epoxy Primer (for metal surfaces which may exhibit adhesion difficulties, first prime with a zinc chromate type of epoxy primer).

5. APPLICATION OF MEMBRANE

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

5.2 Primer: Apply the properly mixed (A & B) UPI Epoxy Primer at the approximate rate of 250-300 square feet per gallon. Allow primer to dry until it is tack free. Within 12 hours after application of the primer, the UI-7013 Elastomeric Membrane must be applied. If the membrane cannot be applied within 12 hours then lightly re-prime.

5.3 UI-7013 Elastomeric Membrane: shall be trowel, squeegee or roller applied in one uniform coat at the rate of one gallon per 60 square feet or as needed in order to obtain an average thickness of 27 to 28 wet mils. Thoroughly and carefully imbed the reinforcing fabric and leave it relaxed and wrinkle free. Allow this installation to cure 16-36 hours before proceeding to the next step. Do not apply this waterproofing system over working or control joints greater than 1/8 inch wide.

5.4 Additional UI-7013 Elastomeric Membrane: shall be trowel, squeegee or roller applied at the rate of one gallon per 60 square feet or as needed in order to obtain an average thickness of 26 to 28 wet mils. (Carefully smooth out and thoroughly saturate the reinforcing fabric by laminating it between the first coat of UI-7013 membrane and the second coat of the UI-7013 membrane.) Allow the laminated coating system to cure 16-36 hours before the next application.

5.5 Reinforcing Membrane and Aggregate: UI-7014-HT Reinforcing Membrane shall be trowel, squeegee or roller applied in one uniform coat at the rate of 100-110 square feet per gallon or as needed in order to obtain an average thickness of 14 to 16 wet mils. While the coating is still fluid, immediately and uniformly broadcast the proper grade of 16/20 mesh reinforcing aggregate over the surface at the rate of 25-40 lbs. per 100 square feet. Allow the membrane and aggregate reinforcement to cure a minimum of 48 hours before applying the thin set adhesive, before performing a water test or before installing the protection layer.

5.6 (It is the responsibility of the general contractor to protect the finished work from damage by other trades.) As soon as possible after completion of a successful water test or other visual inspection and approval, cover and protect the membrane system with an 3/16 inch skim coat of direct bonded DEXCELCRETE Acrylic-Cement Mortar, or with a temporary layer of protective plywood.

5.7 Thickness: The overall dry film thickness of the composite laminated waterproofing system shall be a minimum of 60 mils. This thickness measurement, while including reinforcing fabric, is exclusive of reinforcing aggregate.

6. CONTROL JOINTS

6.1 Expansion-Contraction Control joints must be installed where tile abuts restraining surfaces such as perimeter walls, curbs, columns and directly over joints in structural subsurfaces and shall conform to ANSI Specifications A108.5 and current Handbook of the Tile Council of America.

6.2 Large areas of tile shall have control joints spaced a maximum of 20' x 20' on center for interior installations and 12' x 12' on center for exterior installations.

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 a 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.

AFWM-60 MIL (13)