



# APPLICATION / SPECIFICATION DATA

## M-C-POXY SYSTEM "S-HD"\*

### HEAVY DUTY, SEEDED, EPOXY INDUSTRIAL FLOORING

#### 1. GENERAL

**1.1 Scope:** This specification covers the installation of a chemical resistant epoxy topping which consists of 100% solids epoxy resin combined with a cycloaliphatic amine hardener and properly sized quartz aggregate to form a minimum 1/8 inch thick self-leveling flooring system. M-C-POXY SYSTEM "S-HD" cures completely at ambient temperature to form an acid and alkali resistant topping which is intended for use in institutional, industrial and commercial facilities. This system is suitable for heavy foot traffic and moderate fork lift traffic.

**1.2 Work Included:** Furnish and install the M-C-POXY SYSTEM "S-HD" seamless flooring as manufactured by Urethane Polymers International, Inc. The flooring is to be installed to a minimum 1/8 inch thickness and shall be installed on a cove 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. Include all material, labor and equipment required to complete the installation over the surfaces designated.

**1.3 Work Not Included:** Work under this section shall not include finishing and corrective work in connection with surfaces to receive the epoxy 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 Substrate:

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 1/8 inch in 10 feet in any direction. Proper slope to drain must be maintained.

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 (3,000 psi compressive strength) and dry (9% maximum moisture content.) Concrete shall be free of fins, ridges, voids or air-entrained holes.

1.45 Concrete must be free of hydrostatic and/or capillary moisture pressure and should not be in direct contact with the ground. An effective vapor barrier under the concrete slab and properly engineered soil are required. 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.

1.46 Allow concrete to cure 28 days minimum before applying the seamless flooring.

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

**1.5 Temporary Services by General Contractor:** Temporary 120 V electrical services, 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 70° F shall be provided 24 hours prior, during and after completion of the work at no cost to the installer.

#### 1.6 Protection:

1.61 During work, protect all surfaces of other trades against damage from work specified in this Section. Warn 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 of application.

1.63 Allow no light foot traffic on the seamless flooring for 24 hours after completion. The General Contractor shall be responsible for installing and maintaining protection of surfaces after final coats and until final acceptance.

#### 2. QUALIFICATIONS

##### 2.1 Professional Installer:

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

2.12 Shall be financially responsible and be 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 Sample 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, aggregate, binders, seal coats, thickeners, and reinforcing materials, 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 Epoxy Resin Binder:** Shall be UI-7051, a low viscosity, two component, 100% solids, unfilled epoxy resin system and shall meet or exceed the following typical performance properties.

##### UI-7051 Epoxy Binder

PROPERTY	TYPICAL VALUE	TEST METHOD
Tensile Strength	6,500 psi	ASTM D-638
Tensile Elongation	.5%	ASTM D-638
Hardness (Shore D)	80	ASTM D-2240
Compressive Strength, Binder	10,900 psi	ASTM C-579
Compressive Strength, Mortar	9,200 psi	ASTM C-579
Water Absorption	0.2%	ASTM C-413
Impact Resistance, Mortar	Passes	MIL-D-24613
Bond Strength	350 + psi	ASTM C-882

**3.2 Epoxy Seal Coat:** Shall be UI-7128, a self-leveling, two component, 100% solids, chemical resistant and abrasion resistant cycloaliphatic amine modified epoxy resin system and shall meet or exceed the following typical performance properties.

##### UI-7128 Top Coat

PROPERTY	TYPICAL VALUE	TEST METHOD
Tensile Strength	6,000 psi	ASTM D-638
Tensile Elongation	5%	ASTM D-638
Hardness (Shore D)	83	ASTM D-2240
Compressive Strength	7,900 psi	ASTM D-695
Compressive Modulus	259,000 psi	ASTM D-695
Compressive Strength, Mortar	11,000 psi	ASTM C-695
Water Absorption	0.2%	ASTM C-413
Flexural Strength	9,400 psi	ASTM D-790
Flexural Modulus	305,000 psi	ASTM D-790
Bond Strength	400 + psi	ASTM C-882
Abrasion Resistance, CS-17 wheels	0.035 gm loss	ASTM D-4060
Flammability	Self Extinguishing	ASTM D-635

**3.3 Aggregate:** Shall be a blend of properly sized aluminum oxide, quartz granules or flint shot silica as supplied or approved by UPI. The granules shall be rounded, fresh water washed, kiln-dried, properly graded or sized, dust free and shall be hard and stable to the anticipated use conditions.

**3.4 Chemical Resistance:** M-C-POXY SYSTEM "S-HD" has excellent resistance to continuous contact at room temperature with the following chemicals:

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

For additional details on specific chemical resistance, please contact the UPI Technical Service Department.

## 4. SUBSTRATE PREPARATION

4.1 The concrete surface must be thoroughly cleaned by shot blasting, acid-etching or mechanical grinding, followed by the complete and thorough removal of the resulting residue.

4.2 If Acid etching is used, apply a solution of 1:1 muriatic acid and water at the rate of 2 gallons 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).

4.3 Cracks or non-moving control joints shall be routed out to ¼ inch minimum in width and depth and filled flush with high hardness elastomeric caulking.

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

## 5. APPLICATION

Application shall be in strict accordance with the latest printed instruction of UPI. The epoxy flooring system shall be installed when the temperature of the concrete floor is above 50° F and the ambient temperature is not less than 50° F. and rising. Areas to receive the primer and epoxy flooring shall be well ventilated. Mechanics shall wear rubber gloves and goggles or face shield should be used during mixing operations.

5.1 Most concrete substrate conditions will require priming with one coat of UI-7051 epoxy binder using a medium-nap roller or rubber squeegee. For proper primer penetration, the mixed UI-7051 may be thinned up to 10% with toluene. Apply at a rate of 250-350 square feet per gallon.

5.2 Mix the UI-7051 at the ratio of two gallons of Part A to one gallon of Part B. Immediately spread all of the mixed UI-7051 epoxy binder onto the designated area of the properly prepared floor with a 1/16 inch notched trowel or squeegee. Backroll with a short nap roller. Apply at the approximate rate of 80 to 100 square feet per gallon of mixed material.

5.3 Allow the UI-7051 epoxy binder to briefly level and immediately sprinkle the reinforcing aggregate into the wet binder at the approximate rate of 50-60 lbs. per 100 square feet. Carefully sprinkle the aggregate until the binder is completely covered and no wet binder is visible.

5.4 NOTE: Wear spiked shoes during this operation. Do not mix size of aggregate granules. Sprinkle at least one foot back from areas where there will be adjoining pours of binder.

5.5 Allow the epoxy resin flooring to cure until firm (approximately 24 hours at 70F). Sweep or vacuum excess granules. Scrape floor firmly with edge of trowel to remove loose granules. Re-sweep or re-vacuum to remove debris.

5.6 Install another application of UI-7051 epoxy binder and decorative aggregate by repeating steps 5.2 and 5.3.

5.7 Allow the floor to cure until firm (approximately 24 hours at 75° F). Sweep or vacuum excess granules. Scrape floor firmly with edge of trowel to remove projecting or loose granules. Re-sweep or vacuum to remove debris. (Smoother floors can be obtained by using a floor disc sander to remove high spots. Selected hand sanding should be employed at base and tight spots. Remove all sanding dust by vacuuming and wipe floor clean.)

5.8 Apply a sealer coat of UI-7128 Top Coat. Thoroughly mix the UI-7128 Top Coat and spread uniformly over the entire floor surface with flat trowels, squeegees, or rubber grouting-floats. Keep a puddle or "head" of sealer in front of the tool. Draw or pull sealer down tight. Always reroll wet sealer with short napped rollers, rolling in all directions to insure even application. Coverage of the sealer coat will vary due to finishing techniques, porosity, and also will be dependant upon the degree of texture that is desired. Typical installations will average 80 to 125 square feet per gallon.

5.9 Allow the floor to cure 24 hours at 77° F before subjecting to light traffic.

## 6. MAINTENANCE

This Epoxy Industrial Flooring 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 with xylene or isopropyl alcohol. When greater slip-resisting characteristics are needed, increasing the textured qualities of the chemical resistant flooring also increases the maintenance efforts to remove dirt and film residue.

## 7. GUARANTEE / WARRANTY

When this Seamless Epoxy Flooring System is installed by a Factory Qualified Installer, is inspected and approved in accordance with these specifications, and after receipt of the final payment, the Factory Qualified Installer 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.

\* Manufactured under license from MCP Chemicals International, Inc.

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