

1/8" - 1/4" Urethane Concrete Slurry System

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of contract including General and Special Conditions and Division I, excepting special Submittal and Quality Assurance provisions in this section.

1.02 SUMMARY

A. This Section includes:

1. Furnish necessary material, labor, and equipment required to prepare designated areas and install a 1/8" - 1/4" Urethane Concrete Slurry.

1.03 SUBMITTALS

A. System Data

Submit manufacturer's specifications on cured system and individual components of the 1/8" - 1/4" Urethane Concrete Slurry, including physical properties and performance properties and tests described in part 2.01 B and submit Material Safety Data Sheets. Each individual component of the system will be evaluated on the basis of these standards. For any tests not listed in the manufacturer's standard nationally published data, the manufacturer must supply the missing data accompanied by the independent testing laboratory's test results which prove compliance in accordance with the referenced standard(s). Furnish ____ sets of this information. Manufacturer's standard color chart shall also be submitted and must afford the owner color selection from at least ____ standard colors and computerized custom color matching shall be available upon request. Furnish ____ sets of this information.

B. The contractor shall submit a 6" x 6" cured system sample which the contractor has made for verification purposes and finish texture approval.

C. Contractor Experience

The contractor shall furnish a list of projects using either specified material or equivalent that they have installed during the last ____ years. Information shall include: project name, square footage, owner contact name with owner's address and phone number. Also, the contractor shall furnish résumés detailing the experience of key project personnel including supervisors and mechanics.

D. It is the intention of this Section to provide the products as named. Substitutions will be considered only when received by the Architect, Engineer or Design Professional through a bidding Prime Contractor at least ten days prior to the date set for receipt of bids. Upon receipt of any such submission, the Architect, Engineer or Design Professional will determine whether or not the proposed product is an equal. In the event the Architect, Engineer or Design Professional determines that a proposed system is an approved equal, he will issue an addendum and notify all bidders at least 48 hours prior to receipt of bids. No substitutions will be considered after contract bid date.

E. The contractor shall submit a copy of the manufacturer's packing slip, tagged for this specific job, along with calculations, signed by an officer of the primary material supplier demonstrating that the quantity of material furnished for the project will achieve the specified coverage and mil thickness.

1.04 QUALITY ASSURANCE

A. Manufacturer's Qualifications

Obtain 1/8" - 1/4" Urethane Concrete Slurry materials from a single manufacturer with a minimum of ____ years verifiable experience providing materials of the type specified in this section.

B. Contractor's Qualifications

Installation must be performed by a manufacturer approved contractor with skilled mechanics having not less than three (3) years satisfactory experience in the installation of the type of system as specified in this section, and must be approved in writing by the manufacturer of the 1/8" - 1/4" Urethane Concrete Slurry.

C. Floor System Thickness Verification

At the owner's discretion and under his supervision the contractor shall take ____ 1" random cores per 1,000 sq. ft. through the system into the substrate to verify proper system thickness. Cored areas less than specified thickness shall be removed and replaced or increased in thickness by the installing contractor, in a manner that does not affect the performance or integrity of the system. Cored areas which comply with the recommended system thickness shall be built-up to match the surrounding surface elevation prior to applying the Top Coat(s). Cores taken and patched will be noticeable; therefore, cores should be taken from areas where aesthetics are less critical. Cost associate with repair of cored areas that comply with specification thickness are the responsibility of the owner.

1.05 DELIVERY, STORAGE AND HANDLING

A. Primary system materials shall be delivered in the manufacturer's undamaged, unopened containers. Each container shall be clearly marked with the following:

- Product name(s) and/or Number(s)
- Manufacturer's name
- Component designation (A, B, etc.)
- Product Mix Ratio
- Health and Safety Information
- CHEMTREC Emergency Response Information

B. Provide equipment and personnel to handle the materials by methods which prevent damage.

C. The contractor shall promptly inspect direct jobsite material deliveries to assure that quantities are correct, comply with requirements and are not damaged.

D. The contractor shall be responsible for materials furnished by him, and he shall replace, at his own expense, such materials that are found to be defective in manufacture or that have become damaged in transit, handling or storage.

E. Store material(s) in accordance with manufacturer's instructions, with seals and labels intact and legible. Maintain temperatures within the required range. Do not use materials which exceed the manufacturer's maximum recommended shelf life.

1.06 PROJECT CONDITIONS

A. The contractor shall visit the job site prior to the installation of the 1/8" - 1/4" Urethane Concrete Slurry to evaluate substrate condition, including substrate moisture transmission, quantity and severity of cracking, and the extent of repairs needed. Substrate imperfections should be repaired only after mechanical preparation of the substrate. Surface preparation reveals most imperfections requiring repair. Concrete substrates shall be tested to verify that the moisture vapor transmission of the substrate does not exceed the 1/8" - 1/4" Urethane Concrete Slurry manufacturers' recommendations. Cost associated with repair, leveling and remediation of the substrate are the responsibility of the provider of the substrate.

B. The contractor should exercise care during surface preparation and system installation to protect surrounding substrates and surfaces, as well as in-place equipment. The contractor shall prepare the substrate to remove laitance and open the surface. This shall be achieved by light brush grit blasting. Surface profile achieved shall be similar to medium grit sandpaper and free from bond-inhibiting contaminants.

C. Sub floor tolerances are specified in Section _____ (in accordance with ACI 302). Each drain in the installation area must be working and raised or lowered to the actual finished elevation of the 1/8" - 1/4" Urethane Concrete Slurry.

D. System must be protected by the General Contractor or, as a separate bid item, by the installing contractor until it is inspected and turned over to the owner.

E. The minimum slab temperature must be conditioned to 60 degrees F before commencing installation, during installation, and for at least 72 hours after installation is complete. The substrate temperature must be at least 5 degrees F above the dew point during installation.

F. Maintain lighting at a minimum uniform level of 50 or more foot candles in areas where the 1/8" - 1/4" Urethane Concrete Slurry is being installed. It is the recommendation of the manufacturer that the permanent lighting be in place and working during the installation.

G. Leaks from pipes and other sources must be corrected prior to the installation of the 1/8" - 1/4" Urethane Concrete Slurry.

1.07 Warranty

A. The contractor and the manufacturer shall furnish a standard guarantee of the 1/8" - 1/4" Urethane Concrete Slurry for a period of one year after installation. The labor and material guarantee shall include loss of bond and wear-through to the concrete substrate from normal use.

B. Not included in the warranty are damage due to structural design deficiencies including but not limited to slab cracking from lateral, vertical or rotational movement, and gouging or other damage due to fork lifts, other equipment, delamination caused by vapor transmission, Acts of God, or other elements beyond the scope of protection of this system nor causes not related to the system materials.

C. In case of a warranty claim, the owner will notify the manufacturer and contractor in writing within 30 days of the first appearance of problems covered under this warranty. The owner will provide free and unencumbered access to the area during normal working hours for warranty rework. Property protection is also the owner's responsibility. Remedy is limited to direct repair of the 1/8" - 1/4" Urethane Concrete Slurry.

PART 2 – PRODUCTS

2.01 MATERIALS

A. System Overview

Terroxy 1/8" - 1/4" Urethane Concrete Slurry, as manufactured by Terrazzo & Marble Supply Companies, consists of Terroxy Primer, Terroxy Urethane Concrete as the slurry resin, Aggregate, and optional top coating.

Select Top coat:

Terroxy UV Clear
 Terroxy Polyaspartic
 Essential Polymers T-Rx Coating

B. Typical Physical Properties

Property	Method	Results
Flexural Strength	ASTM-C 580	2,300 psi (14.7 MPa)
Abrasion Resistance	ASTM D-4060 C-S17 Wheel 1000 Cycles	10-20 mg loss
Flammability	ASTM D-635	Self-extinguishing over concrete
Hardness	ASTM D-2240, Shore D	75-80
Tensile Strength	ASTM C-307	1,000 psi minimum (6.9 MPa)
Compressive Strength	ASTM C-579	5000 psi (34.5 MPa)
Adhesion	ACI 503R	350 psi (2.4 MPa) 100% Concrete Failure
Impact Resistance	MIL D-3134F 4.7.3	Withstands 16 ft/lbs without cracking, delaminating or chipping
Thermal Coefficient of Expansion	ASTM C-531	0.89 x 10 ⁻⁵ inches per inch/degrees Fahrenheit maximum (1.6 x 10 ⁻⁵ mm/°C)
Fungus & Bacterial Resistance	MIL F-52505 4.4.2.11	Will not support growth of fungus or bacteria
Water Absorption	ASTM C-413	0.10%
Chemical Resistance	ASTM D-1308	No deleterious effects when exposed to: Alcohol Ethylene Glycol Fats, Oils & Sugars Gasoline, Diesel & Kerosine Hydrochloric Acid (<35%) Lactic Acid (Milk) Mineral Oils Most Organic Solvents Muriatic Acid Nitric Acid (<10%) Nitric Acid (<30%) Slight Softening PM Acetate Phosphoric Acid (<50%) Potassium Hydroxide (<50%) Sodium Hydroxide (<50%) Sulfuric Acid (<50%) Slight Gloss Loss Water Xylene

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates and areas, with Contractor present, for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions, including level tolerances, have been corrected.

3.02 PREPARATION

A. Clean substrates of substances, including oil, grease and curing compounds, that might impair Terroxy Resinous Flooring bond. Provide clean, dry and neutral substrate for Terroxy Resinous Flooring application.

B. Concrete Slabs:

1. Provide sound concrete surface free of laitance, glaze, efflorescence, curing compounds, form- release agents, dust, dirt, grease, oil and other contaminants incompatible with resinous flooring system.
 - a. Prepare concrete mechanically by shot blasting. Surface preparation results should achieve a CSP3-CSP5 profile according to International Concrete Repair Institute Guideline No. 03732.
 - b. For Terroxy Resinous Flooring Systems refer to Resinous Flooring Concrete Surface Preparation(RFCSP).
 - c. Repair or level damaged and deteriorated concrete according to Terroxy Resin Systems Technical Bulletin 008 Substrate Leveling Requirements.
2. Verify that concrete substrates are visibly dry and free of moisture.
3. Moisture Testing:
 - a. Slab on grade requires 15mil vapor/moisture poly-barrier. Moisture limits for moisture vapor transmission of Terroxy Urethane Concrete are 20lbs. /1000 sq. ft. /24 hours using the calcium chloride test per ASTM F-1869 or 99% relative humidity using in-situ RH testing per ASTM F-2170.

C. Protect other work from dust generated by grinding operations. Control dust to prevent air pollution and comply with environmental protection regulations.

1. Erect and maintain temporary enclosures and other suitable methods to limit dust migration and to ensure adequate ambient temperatures and ventilation conditions during installation.

3.03 INSTALLATION**A. General**

Apply each component of the Urethane Concrete Slurry in compliance with manufacturer's written installation instructions and strictly adhere to mixing and installation methods, recoat windows, cure times and environmental restrictions. The Urethane Concrete Slurry is to be installed directly over non-moving control joints and cracks which have been treated with Terroxy Iso-Crack Membrane or Joint Filler. It is recommended that the perimeter edges of the floor area and doorways be keyed to produce a cross section ¼ inch deep by ¼ inch wide running at 2-3 inches away from and parallel to doorways, drains, walls, and penetrations. Integral cove base shall be installed where specified in the drawings.

B. Cracks

After preparation, evaluation of quantity and severity of cracks in concrete will determine the needed repairs. Original bid assumes repair and treatment of ____ linear feet of cracks and control joints. Additional treatment is considered excessive and must be bid on a per linear foot basis. For information pertaining to the treatment of cracks in concrete substrates, consult Terroxy Technical Bulletin 009.

C. Control Joints

Original bid assumes repair and treatment of ____ linear feet of cracks and control joints. Additional treatment is considered excessive and must be bid on a per linear foot basis. For information pertaining to the treatment of cracks in concrete substrates, consult Terroxy Technical Bulletin 009.

D. Isolation/Expansion and Other Joints Subject to Movement

All expansion joints must be honored through the flooring system. For information pertaining to the treatment of cracks in concrete substrates, consult Terroxy Technical Bulletin 009.

E. Waterproofing

To achieve waterproofing a continuous membrane of at least two coats (20 mils each) of Terroxy Iso-Crack Membrane are required over the entire surface. Apply the membrane in compliance with Terroxy written installation instructions and strictly adhere to mixing methods. You should end up with a continuous membrane of at least 40 mils in order to achieve waterproofing properties. Coat cured Iso-Crack Membrane with Terroxy Binder Resin or UV Clear broadcast to rejection using a well graded aggregate. This will ensure a satisfactory bond with the Urethane Concrete Slurry.

F. System Slurry

Terroxy Urethane Concrete

G. Broadcast Coat

Dry Silica

Aggregate

20 -40 Mesh Dry Silica Sand or Other Approved Skid Resistant Aggregates

H. Optional Top Coat

Terroxy UV Clear

Terroxy Polyaspartic

Essential Polymers T-Rx Coating

3.04 CLEANING AND PROTECTION

A. Cure the 1/8" - 1/4" Urethane Concrete Slurry materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of the installation and prior to completion of the curing process.

B. Protect the 1/8" - 1/4" Urethane Concrete Slurry from damage and wear during other phases of the construction operation, using temporary coverings as recommended by the manufacturer, if required. Remove temporary covering just prior to final inspection.

C. Clean the 1/8" - 1/4" Urethane Concrete Slurry just prior to final inspection, using materials and procedures suitable to the system manufacturer.

D. Some cleaners will affect the color, gloss or texture of your polymer floor surfaces. To determine how your cleaner will perform, first test each cleaner, in a small area, utilizing your cleaning technique. This precaution will demonstrate the effect of your cleaner and technique. If no deleterious effects are observed, continue with the procedure. If deleterious effects do occur, modify the cleaning material and/or procedure. For recommendations regarding types of cleaners, contact the 1/8" - 1/4" Urethane Concrete Slurry manufacturer.

