**Tremco, Inc. Commercial Sealants and Waterproofing**

**Section 07 14 16 Elastomeric Waterproofing
Under Tile Coatings Guide Specification**

Specifier: This guide specification section specifies **Tremco Vulkem® 350NF/Tremco Epoxy Primer** under tile coating system for waterproofing concrete slabs and protecting occupied areas underneath from water damage.

**Vulkem 350NF/Tremco Epoxy Primer** is composed of a tough-curing liquid polyurethane base coat and highly durable, low-modulus epoxy top coat. Vulkem 350NF/EP may be used to apply a seamless, monolithic waterproofing membrane system to concrete, well-anchored AC plywood, and primed metal surfaces.

**Vulkem 350NF** is a one-part, aromatic, low-VOC elastomeric polyurethane membrane that bonds firmly to clean, dry concrete, wood or primed metal. Vulkem 350NF maintains waterproofing integrity even under the development of cracks up to 1/16 in. wide due to substrate movement. Vulkem 350NF is available in R (roller) and SL (self-leveling) grades for vertical or horizontal use.

**Tremco Epoxy Primer** is a two component (1:1), 100% solids material used as an aggregate laden top coat and protective barrier within the Tremco under tile system.

Basic Uses: Ideally designed for plazas, recreation decks, pool and recreation decks, balconies, terraces, walkways, athletic surfaces and similar applications requiring a non-exposed elastomeric waterproofing system.

This section is easily edited using several common commercial specification software tools.

We recommend you consult with your Tremco construction technical representative, who can be contacted through: Tremco, Inc., Commercial Sealants and Waterproofing Division, Beachwood OH; (866) 321-6357; email: techresources@tremcoinc.com; [www.tremcosealants.com](http://www.tremcosealants.com).

Tremco products appear in the following CSI MasterFormat guide specifications available from Tremco:

• Section 07 01 91 Joint Sealant Rehabilitation and Replacement

• Section 07 14 13.01 Hot Fluid-Applied Waterproofing, Deck (TREMproof 6100)

• Section 07 14 13.02 Hot Fluid-Applied Waterproofing, Vegetated Roof (TREMproof 6100)

• Section 07 14 16.01 Cold Fluid-Applied Waterproofing, Vertical and Deck (TREMproof 250GC)

• Section 07 14 16.02 Cold Fluid-Applied Waterproofing, Vertical (TREMproof 250GC)

• Section 07 14 16.03 Cold Fluid-Applied Waterproofing, Deck (TREMproof 250GC)

• Section 07 14 16.04 Cold Fluid-Applied Waterproofing, Vegetative Roof (TREMproof 250GC)

• Section 07 17 16.01 Bentonite Waterproofing (Paraseal)

• Section 07 17 16.02 Bentonite Waterproofing (Paraseal GM/LG 60 mil)

• Section 07 18 00.01 Traffic Coatings, Vehicular

• Section 07 18 00.02 Traffic Coatings, Pedestrian

• Section 07 18 00.03 Traffic Coatings, Mechanical Rooms

• Section 07 27 13 Modified Bituminous Sheet Air Barriers, Vapor-Retarding (ExoAir 110)

• Section 07 27 23 Board Product Air Barriers, Vapor Permeable (SECUREROCK ExoAir 230)

• Section 07 27 26.01 Fluid-Applied Membrane Air Barriers, Vapor-Retarding (ExoAir 120)

• Section 07 27 26.02 Fluid-Applied Membrane Air Barriers, Vapor Permeable (ExoAir 220)

• Section 07 27 26.03 Fluid-Applied Membrane Air Barriers, Vapor Permeable (ExoAir 230)

• Section 07 92 00 Joint Sealants

• Section 08 85 00 Glazing Sealants

• Section 32 13 73 Concrete Paving Joint Sealants

This document includes Specifier notes in hidden text. To view hidden text, [www.bim.net/displaying-hidden-text-in-microsoft-word-step-by-step-instructions-for-windows-and-mac/](http://www.bim.net/displaying-hidden-text-in-microsoft-word-step-by-step-instructions-for-windows-and-mac/)

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SECTION 07 14 16 – ELASTOMERIC WATERPROOFING

GENERAL

* + - 1. SECTION INCLUDES

Elastomeric, polyurethane and epoxy waterproofing system for under tile applications.

* + - 1. RELATED REQUIREMENTS

Specifier: If retaining this optional Related Requirements Article, edit to include only those sections included in project manual.

Section 03 31 00 "Cast-in-Place Concrete" for moisture curing of concrete traffic coating substrate.

Section 07 92 00 "Joint Sealants" for joint sealants and accessories and joint preparation.

Sections 07 90 00/07 95 00 Joint Protection/ Expansion Control

* + - 1. REFERENCES

Specifier: If retaining this optional References Article, edit to include only those references cited in the edited section.

* + - * 1. References, General: Versions of the following standards current as of the date of issue of the project apply to the Work of this Section.
				2. ASTM International (ASTM): [www.astm.org](http://www.astm.org):

ASTM C920 - Standard Specification for Elastomeric Joint Sealants

ASTM C957 - Standard Specification for High-Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane With Integral Wearing Surface

ASTM C1127 - Standard Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with an Integral Wearing Surface

ASTM C1193 - Standard Guide for Use of Joint Sealants

ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating

ASTM D4259 - Standard Practice for Abrading Concrete

* + - * 1. International Concrete Repair Institute (ICRI): [www.icri.org](http://www.icri.org):

ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair

* + - * 1. U. S. Environmental Protection Agency (EPA): [www.epa.gov](http://www.epa.gov):

40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings

* + - 1. ADMINISTRATIVE REQUIREMENTS
				1. Preinstallation Conference: Conduct conference at Project Site.

Review requirements for waterproofing system products and installation, including surface preparation, substrate conditions, expansion joints as required, project and manufacturer's details, installation procedures, mockups, testing and inspection requirements, protection and repairs, and coordination and sequencing of waterproofing work with work of other Sections.

* + - 1. ACTION SUBMITTALS
				1. Product Data: For each type of waterproofing product and expansion joint accessory specified, indicating compliance with requirements.
				2. LEED Submittals:

Subparagraph below applies to LEED-NC and LEED-CS.

Product Data for Credit IEQ 4.2 Low-Emitting Materials – Paints and Coatings: For interior waterproofing, documentation including printed statement of VOC content.

Subparagraph below applies to LEED for Schools.

Laboratory Test Reports for Credit IEQ 4 Low-Emitting Materials: For interior waterproofing documentation indicating that products comply with the testing and product requirements of CDHS.

* + - * 1. Shop Drawings: Show locations for waterproofing system components. Show details for each type of substrate, movement joints, corners, and edge conditions, including penetrations, transitions, and terminations.
			1. INFORMATIONAL SUBMITTALS
				1. Qualification Data: For Installer, manufacturer[, and waterproofing Inspector].
				2. Product Test Reports: Test data for waterproofing products and waterproofing system, by qualified testing agency, indicating proposed waterproofing system meets performance requirements, when requested by Architect.
				3. Warranty: Sample of unexecuted manufacturer and installer special warranties.
				4. Field quality control reports.
			2. QUALITY ASSURANCE
				1. Installer Qualifications: A manufacturer-approved firm with minimum [five] years' experience in installation of specified products in successful use on similar projects, employing workers trained by manufacturer, including a full-time on-site supervisor with a minimum of [three] years' experience installing similar work, and able to communicate verbally with Contractor[, Architect,] and employees.
				2. Manufacturer Qualifications: A qualified manufacturer [listed in this Section] with minimum five years experience in manufacture of waterproofing systems as one of its principal products.

Manufacturer's product submitted has been in satisfactory operation on five similar installations for at least five years.

Specifier: Retain "Approval of Manufacturers and Comparable Products" Paragraph below to provide control over qualifying of substituted manufacturers.

Approval of Manufacturers and Comparable Products: [Submit] [Prime Bidder must submit] the following in accordance with project substitution requirements, within time allowed for substitution review:

Completed and signed Substitution Request form.

Product data, including certified independent test data indicating compliance with requirements.

Sample shop drawings from similar project.

Project references: Minimum of five installations of similar system not less than five years old, with Owner and Architect contact information.

Name and resume of proposed qualified Inspector.

Sample warranty.

Specifier: Retain "Testing Agency Qualifications" Paragraph if Contractor is required to provide independent inspections under Part 3 Field Quality Control article.

* + - * 1. Testing Agency Qualifications: Qualified independent agency experienced in the installation of the specified waterproofing system, and qualified to perform observation and inspection specified in Field Quality Control Article to determine Installer’s compliance with the requirements of this Project, acceptable to Architect, retained by the Contractor.
				2. Mockups: Provide waterproofing system mockup application within mockups required in other sections, or if not specified, in an area of not less than 150 sq. ft. (14 sq. m) of surface where directed by [Architect] [Owner] for each type of substrate condition. Include examples of surface preparation, crack and joint treatment, waterproofing system application and flashing, transition, and termination conditions, to set quality standards for execution.

Include intersections of waterproofing system with adjacent vertical coating and moisture control system applications.

If applicable, include no less than 13ft (3.96m) including a minimum of one splice joint of Willseal® Expansion Joint System.

* + - 1. DELIVERY, STORAGE AND HANDLING
				1. Accept materials on site in manufacturer's unopened original packaging.
				2. Store products in weather protected environment, clear of ground and moisture, within temperature ranges recommended by waterproofing manufacturer.

Specifier: Retain first option in "Construction Waste" Paragraph below for LEED projects; retain second option for other projects.

* + - * 1. Construction Waste: Store and dispose of packaging materials and construction waste in accordance with requirements of Division 01 Section ["Construction Waste Management"] ["Temporary Facilities and Controls."]
			1. ENVIRONMENTAL REQUIREMENTS
				1. Environmental Limitations: Apply waterproofing system within the range of ambient and substrate temperatures recommended by waterproofing manufacturer.

Protect substrates from environmental conditions that affect coating performance

Do not apply waterproofing accessories (or expansion joint accessories if applicable) to a damp or wet substrate or during snow, rain, fog, or mist or when dew is present.

* + - 1. SCHEDULING
				1. Coordinate installation of waterproofing system with completion of roofing and other work requiring interface with waterproofing system
				2. Schedule work so waterproofing system (including expansion joints if applicable) applications may be inspected prior to concealment.
			2. WARRANTY

Specifier: Consult Tremco representative for available special project warranty terms and conditions.

* + - * 1. Special Manufacturer's Warranty: Manufacturer's standard form in which waterproofing manufacturer agrees to furnish waterproofing system material to repair or replace those materials installed according to manufacturer's written instructions that exhibit material defects or otherwise fail to perform as specified under normal use within warranty period specified.

Access for Repair: Owner shall provide unimpeded access to the Project and the waterproofing system for purposes of testing, leak investigation, and repair, and shall reinstall removed cladding and overburden materials upon completion of repair.

Cost Limitation: Manufacturer's obligation for repair or replacement shall be limited to the original installed cost of the work.

Warranty Period: [] years date of Substantial Completion.

* + - * 1. Special warranties specified in this article exclude deterioration or failure of waterproofing system materials from the following:

Movement of the structure caused by structural settlement or stresses on the waterproofing system exceeding manufacturer's written specifications for elongation.

Mechanical damage caused by outside agents.

PRODUCTS

* + - 1. MANUFACTURERS

Specifier: Retain and edit option below if substitutions are allowed for project.

* + - * 1. Basis-of-Design Products: Provide waterproofing system products manufactured by **Tremco, Incorporated, Commercial Sealants and Waterproofing Division,** Beachwood OH; (866) 321-6357; email: techresources@tremcoinc.com; [www.tremcosealants.com](http://www.tremcosealants.com), [or comparable products of other manufacturer approved by Architect in accordance with Instructions to Bidders and Division 01 General Requirements].
				2. Source Limitations: Provide waterproofing system materials and accessory products from single-source manufacturer.
			1. PERFORMANCE REQUIREMENTS
				1. General: waterproofing system shall be capable of performing as a continuous watertight installation and as a moisture drainage plane transitioned to adjacent flashings and discharging water to the structure exterior. waterproofing system shall accommodate normal substrate movement and seal expansion and control joints, construction material transitions, opening transitions, penetrations, and perimeter conditions without resultant moisture deterioration.
				2. Compatibility: Provide waterproofing system materials that are compatible with one another and with adjacent materials under conditions of service and application required, as demonstrated by waterproofing manufacturer based on testing and field experience.

Specifier: Retain "Fire-Test-Response Characteristics" Paragraph below waterproofing system that are roof coverings; revise to suit Project. Indicate class for each waterproofing system when tested according to ASTM E108. Verify requirements of authorities having jurisdiction and of Owner's insurer.

* + - * 1. **Fire-Test-Response Characteristics**: Provide waterproofing system materials with the fire-test-response characteristics as determined by testing identical products per test method below for deck type and slopes indicated by an independent testing and inspecting agency that is acceptable to authorities having jurisdiction.

[Class A] covering per UL790

Specifier: Retain "VOC Content" Paragraph below if required for LEED-NC or LEED-CS Credit IEQ 4.2 and product is used inside the weatherproofing system such as for equipment rooms and underground parking. Coordinate product selection to ensure that products comply.

Paragraph below may apply to limitations on VOCs of authorities having jurisdiction; verify local requirements.

* + - * 1. **VOC Content**: 350 g/L maximum per 40 CFR 59, Subpart D (EPA Method 24) and complying with requirements of authorities having jurisdiction.
			1. WATERPROOFING SYSTEM, UNDER TILE APPLICATION
				1. **Waterproofing System**: Manufacturer's under tile, seamless, high-solids-content, cold liquid-applied, elastomeric waterproofing membrane system meeting ASTM C957.

Basis of Design Products: **Tremco, Inc., Vulkem 350NF/Tremco Epoxy Primer**.

Specifier: **Vulkem 350NF** is a low-odor, VOC compliant, water-cured, rapid-setting polyurethane basecoat specially formulated for the odor sensitive applications created in occupied areas. **Tremco Epoxy Primer** is a two component (1:1), 100% solids material used as an aggregate laden top coat and protective barrier within the Tremco under tile system

* + - * 1. Primer: Liquid primer recommended for substrate and conditions by waterproofing manufacturer.
				2. Base Coat: Aromatic Polyurethane.
				3. Topcoat: Epoxy Primer.

Broadcast to refusal with 30-40 mesh silica sand.

* + - 1. ACCESSORY MATERIALS
				1. General: Accessory materials as described in manufacturer's written installation instructions, recommended to produce complete waterproofing system meeting performance requirements, and compatible with waterproofing material and adjacent materials..
				2. Single-Component, Non-Sagging Polyurethane Joint Sealant: ASTM C920, Type NS, Class 50.

Basis of Design Product: **Tremco Inc., Dymonic 100**.

* + - * 1. Expansion Joint Pre-compressed or Closed Cell, Monolithic Foam System. Foam Structure Must not Contain Unbonded Foam Laminations;

**Willseal® 250** for use in both vehicular and pedestrian traffic applications.

**Willseal® 250-R** for use in both vehicular and pedestrian traffic applications requiring additional point load resistance.

**Willseal® 250-CR** for use in both vehicular and pedestrian traffic applications subject to chemical exposure, reference Willseal list of approved chemicals.

**Willseal® Coreseal** for use in both vehicular and pedestrian traffic applications requiring +/-25% movement capability, closed cell, and a lightweight seal.

**Willseal® Color Coreseal – H** for use in both vehicular and pedestrian traffic applications requiring +/-25% movement capability, closed cell, and a lightweight seal. For vertical applications refer to Color Coreseal – V.

**Willseal® Color Coreseal – CM** for use in both vehicular and pedestrian traffic applications requiring +/-25% movement capability, closed cell, and a lightweight seal with an integrated waterproofing membrane. For vertical applications refer to Color Coreseal – V.

**Willseal® FR-H** - for use in both vehicular and pedestrian traffic applications requiring hourly fire rated systems. For vertical applications refer to Willseal® FR-V.

Willseal® approved accessory sealants as per Willseal application instructions

EXECUTION

* + - 1. EXAMINATION
				1. Surface Condition: Before applying waterproofing materials and system accessories, examine substrate and conditions to ensure substrates are fully cured and free from high spots, depressions, loose and foreign particles and other deterrents to adhesion, and conditions comply with manufacturer's written recommendations.

Verify concrete surfaces are visibly dry, have cured for time period recommended by waterproofing manufacturer, and are free from release agents, curing agents, laitance, and other contaminates.

Test surfaces following cleaning and abrasion specified below.

Test for capillary moisture by method recommended in writing by waterproofing manufacturer.

Test for waterproofing product adhesion per manufacturer's recommended method.

Notify Architect in writing of unsatisfactory conditions.

* + - * 1. Proceed with installation once unsatisfactory conditions have been corrected.
			1. PREPARATION
				1. Surface Preparation: Clean, prepare, and treat substrates in accordance with ASTM C1127 and waterproofing manufacturer's written instructions.

Remove contaminants, curing compounds, and film-forming coatings from substrates.

Remove projections and excess materials and fill voids with manufacturer's recommended substrate patching material.

Prepare surfaces to a uniform profile in accordance with ASTM D4259 and meeting ICRI Surface Profile CSP 2 - 4. Do not acid etch.

Clean prepared surfaces in accordance with ASTM D4258.

* + - * 1. Protect adjacent finished surfaces by masking. Mask termination point on vertical surfaces. Protect weep holes and drains.
				2. For accessory materials, follow manufacturer's application instructions.
			1. TERMINATIONS AND PENETRATIONS
				1. Detail Preparation: Prepare vertical and horizontal surfaces at horizontal to vertical transitions, terminations, joints, and penetrations through waterproofing in accordance with ASTM C1127 and manufacturer's written instructions, using accessory materials specified.

Prepare non-moving shrinkage cracks, large cracks, construction joints, expansion joints, projections and protrusions, penetrations, drains, and changes in plane in accordance with manufacturer's written instructions and details.

Prepare joints and cracks in substrate in accordance with ASTM C1127 and ASTM D4258 and manufacturer's written instructions.

* + - * 1. Joint Sealant Installation: Comply with ASTM C1193 and manufacturer's written instructions. Allow joint sealants to cure adequately before coating with waterproofing products.

Provide joint sealant cants with backer rods at penetrations and at horizontal-to-vertical intersections. Tool sealant material to form 45 degree angle transition.

Rout and fill cracks with joint sealant and tool flush with surface.

Feather edges of joint sealant applications.

Allow joint sealant to cure. Apply detail coat of base coat over unfilled and filled cracks and joints, and feather terminating edges.

Fill expansion joints less than 1” with backer rod and joint sealant contact Tremco for sealant recommendation. Do not apply waterproofing system over expansion joints.

Fill expansion joints greater than 1” with specified Willseal Expansion Joint material, contact Tremco for sealant recommendation. Do not apply waterproofing system over expansion joints.

* + - 1. UNDER TILE SYSTEM APPLICATION
				1. Primer: Prime metal surfaces, porous surfaces (when required), and preceding coats left uncoated for more than 24 hours or that have lost surface tack, with manufacturer's recommended primer. Allow to cure before proceeding.
				2. Apply waterproofing system according to ASTM C1127 and manufacturer's written instructions. Use roller-applied or self-leveling formulations as recommended by manufacturer for project conditions.

Verify that wet film thickness of each coat complies with requirements every [100 sq. ft. (9 sq. m)].

* + - * 1. System:

Base Coat: Single application of not less than 40 mil.

Top Coat: Single application at not less than 10 mil.

Aggregate: Uniformly broadcast aggregate in top coat. Embed aggregate according to manufacturer's written instructions.

* + - * 1. Cure waterproofing system. Prevent contamination and damage during application and curing stages.
			1. FIELD QUALITY CONTROL

Specifier: Retain "Testing Agency" Paragraph below if applicable to Project, and edit to identify party retaining independent agency to perform tests and inspections.

* + - * 1. Testing Agency: [Owner will engage] [Engage] a qualified testing agency to inspect substrate conditions, surface preparation, waterproofing application, protection, and drainage components, and to furnish reports to Architect.
				2. Coordination of Testing: Cooperate with testing agency. Allow access to work areas and staging. Notify testing agency in writing of schedule for Work of this Section to allow sufficient time for testing and inspection.

Do not cover Work until testing and inspection is completed and accepted.

* + - * 1. Reporting: Forward written inspection reports to the Architect within 3 working days of the inspection and test being performed.
				2. Correction: Correct deficient applications not passing tests and inspections, make necessary repairs, and retest as required to demonstrate compliance with requirements.
			1. CLEANING AND PROTECTING
				1. Clean spills, stains, and overspray resulting application utilizing cleaning agents recommended by manufacturers of affected construction. Remove masking materials.
				2. Protect waterproofing system from damage from subsequent work. Protect waterproofing system materials from exposure to UV light for period in excess of that acceptable to waterproofing manufacturer; replace overexposed materials and retest.

END OF SECTION