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

**Section 07 16 00 Cementitious & Reactive Waterproofing Guide Specification**

Specifier: This guide specification section specifies **Tremco Permaquik® 200 crystalline waterproofing for positive and negative side waterproofing,**  a capillary waterproofing formulation of proprietary blends of chemicals, quartz sand, and cement. The chemicals contained in the crystalline waterproofing materials require the presence of moisture to set off a chemical reaction from within the matrix of the concrete.

Basic Uses

Few products in the waterproofing industry offer the total protection to the concrete itself that Permaquik 200 provides. Where moisture is present, there is always the danger of damage not only to the concrete but also to the steel as well as interior finishes. No special below-grade protection is necessary.

Permaquik 200 is used for negative side waterproofing in conjunction with a positive side membrane. For positive side waterproofing, consult your local Tremco Sales Representative.

Permaquik 200 provides fast, economical waterproofing for foundation walls and floor slabs, suspended or in-ground pools, and protects against spalling due to oil, salt, and freeze/thaw action in parking garage floor a

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

• Section 07 14 13.02 Hot Fluid-Applied Waterproofing, Vegetated Roof

• Section 07 14 16.01 Cold Fluid-Applied Waterproofing, Vertical and Deck

• Section 07 14 16.02 Cold Fluid-Applied Waterproofing, Vertical

• Section 07 14 16.03 Cold Fluid-Applied Waterproofing, Deck

• Section 07 14 16.04 Cold Fluid-Applied Waterproofing, Vegetative Roof

• Section 07 16 00 Cementitious and Reactive Waterproofing

• Section 07 17 16.01 Bentonite Waterproofing

• Section 07 17 16.02 Bentonite Waterproofing

• 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

• Section 07 27 23 Board Product Air Barriers, Vapor Permeable

• Section 07 27 26.01 Fluid-Applied Membrane Air Barriers, Vapor-Retarding

• Section 07 27 26.02 Fluid-Applied Membrane Air Barriers, Vapor Permeable

• Section 07 27 26.03 Fluid-Applied Membrane Air Barriers, Vapor Permeable

• 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/)

Paraseal®, TREMproof®, ExoAir®, Spectrem®, Tremflex®, Dymeric®, and Proglaze® are registered trademarks of Tremco, Inc.

SECUREROCK® is a registered trademark of United States Gypsum Company.

This document is Copyright© 2014 by Tremco, Inc.

SECTION 07 16 00 – CEMENTITIOUS & REACTIVE WATERPROOFING

Part 1 – GENERAL

* + - 1. SECTION INCLUDES

Crystalline Waterproofing Coating for Positive and Negative Side Waterproofing.

* + - 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 D92 – Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester

ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

ASTM D5084 – Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM E96 – Standard Test Method for Water Vapor Transmission of Materials

* + - * 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 crystalline waterproofing products and installation, including surface preparation, substrate conditions, expansion joint requirements, 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. 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.
			2. INFORMATIONAL SUBMITTALS
				1. Qualification Data: For Installer, manufacturer[, and waterproofing Inspector].

Certification of manufacturer's approval of Installer.

* + - * 1. Product Test Reports: Test data for waterproofing products and waterproofing system, by qualified testing agency, indicating proposed waterproofing meets performance requirements, when requested by Architect.
				2. Warranty: Sample of unexecuted manufacturer and installer special warranties.
				3. Field quality control reports.
			1. 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 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 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 application, finishing (texture& color) and termination conditions, to set quality standards for execution.

Notify Engineer at least 7 days in advance of date and time mockup will be constructed.

Obtain approval of mockup by owner’s representative before starting construction.

Maintain approved mockup in undisturbed condition throughout construction as standard for completed pavement.

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

Demolish and remove mockup from site at completion of Work unless approved by owner’s representative to become part of completed work.

* + - 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 traffic coating 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 within the range of ambient and substrate temperatures recommended by traffic coating manufacturer.

Protect substrates from environmental conditions that affect waterproofing performance.

* + - 1. SCHEDULING
				1. Coordinate installation of traffic coating with completion of roofing and other work requiring interface with traffic coating.
				2. Schedule work so traffic coating 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 and waterproofing 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 materials from the following:

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

Mechanical damage caused by outside agents.

1. PRODUCTS
	* + 1. MANUFACTURERS

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

* + - * 1. Basis-of-Design Products: Provide waterproofing 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 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 for traffic coatings that are roof coverings; revise to suit Project. Indicate class for each traffic coating when tested according to ASTM E 108. Verify requirements of authorities having jurisdiction and of Owner's insurer.

Specifier Retain "Energy Performance" paragraph below to specify cool-roof performance for traffic coatings that are installed on exposed decks. Verify availability of compliant products with manufacturers..

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..

Specifier:Vulkem® 350FC/950NF/EWS Hybrid Vehicular Traffic Deck Coating System is designed to have a tenacious bond to concrete and extreme abrasion resistance. It can be driven on in one hour after final application, which will minimize operational disruption.

* + - 1. WATERPROOFING
				1. Waterproofing: NSF/ANSI Standard 61 approved, VOC compliant, breathable, crystalline waterproofing that can be applied by brush or spray. Crystalline waterproofing shall have minimum compressive strength of 3,500 psi at 28 days per ASTM C 109, minimum flexural strength of 900 psi at 28 days per ASTM C 348, minimum freeze/thaw resistance after 300 cycles of 98% per ASTM C 666, and be tested in accordance with CRD C 48-92.

Basis of Design Products: **Tremco, Inc. Permaquik 200**

To ensure compatibility, all products shall be from the same manufacturer, who shall have ISO 9001 certification.

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

Basis of Design Product: **Tremco Incorporated; 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.

1. 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.

* + - * 1. Proceed with installation once unsatisfactory conditions have been corrected.
			1. PREPARATION
				1. Concrete shall be a minimum of 7 days old.
				2. Concrete substrate shall be structurally sound and free from deteriorated concrete, dust, dirt, paint, oil, efflorescence, laitance, curing compounds and other contaminants. Blow clean using unoiled air.
				3. Concrete honeycombs, cavities, joints, cracks, voids, tie holes and other defects must be opened and routed to sound material.
				4. No active water leaks should be present at the time of application.
				5. Surface profile shall be CSP 1-3 per ICRI Guideline 310.2–1997 (formerly 03732) “Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays”.
				6. Once prepared, the substrate needs to be soaked with water to a saturated, surface-dry (SSD) condition just prior to the application of the material
			2. WATERPROOFING APPLICATION

Specifier: Retain first paragraph below if applicable; recommended for large scale or critical applications.

* + - * 1. Mix waterproofing and apply first coat at rate of 1.4 pounds per square yard per manufacturer’s written recommendations..
				2. While the first coat is still “green” but can support the second coat, mix waterproofing and apply second coat at rate of 1.4 pounds per square yard per manufacturer’s written recommendations..
				3. Hand Brush Application: Apply Waterproofing at manufacturer’s published coverage rates using a masonry brush. Load bristles with material and apply a heavy coat using long, smooth horizontal strokes. Apply sufficient material to fill all voids. Final strokes should all be in one direction to produce an even texture and finish.
				4. Spray Application: Use heavy-duty spray equipment capable of spraying cement coatings or mastics. Contact manufacturer for recommendations.
				5. Wet cure for minimum 5 days per manufacturer’s written recommendations.
			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, traffic coating 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.

END OF SECTION