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

**Section 07 18 00 TRAFFIC COATINGS Heavy Duty Guide Specification**

Specifier: This guide specification section **specifies Tremco Vulkem® EWS Traffic Coating System with PUMA Technology.**

**Tremco PUMA Primer** is a methyl methacrylate (MMA) primer that is applied to the shot blast concrete to prepare it for the application of Tremco PUMA BC base coat.

**Tremco PUMA BC** is a polyurethane methacrylate (PUMA) base coat that bonds firmly to Tremco PUMA Primer. It retains its integrity even if substrate movement causes hair line cracks of up 1/16”. Tremco PUMA BC will prevent water migration between it and its substrate.

**Tremco PUMA BC LM** is a polyurethane methacrylate (PUMA) detail and/or base coat that bonds firmly to Tremco PUMA Primer. It retains its integrity even if substrate movement causes hair line cracks of up 1/16”. It has a higher modulus than Tremco PUMA BC and is used for detailing cracks and control joints prior to the Tremco PUMA BC base coat application.

**Tremco PUMA BC T** is a thixotropic polyurethane methacrylate (PUMA) base coat that bonds firmly to Tremco PUMA Primer. It retains its integrity even if substrate movement causes hair line cracks of up 1/16”. Tremco PUMA BC T will prevent water migration between it and its substrate. Tremco PUMA BC T is used on ramps, vertical rises, detailing and field applied cant beads.

**Tremco PUMA BC R** is a rollable version of Tremco PUMA BC that bonds firmly to Tremco PUMA Primer. It retains its integrity even if substrate movement causes hair line cracks of up 1/16”. Tremco PUMA BC R is used for ramps and upturns.

**Tremco PUMA WC** is a polyurethane methacrylate (PUMA) wear coat. Tremco PUMA WC is applied after Tremco PUMA BC has cured. The wear coat is loaded with aggregate to give the system excellent impact, abrasion and chemical resistance.

**Tremco PUMA TC** is a methyl methacrylate (MMA) top coat that is applied after Tremco PUMA WC has cured. Interlaminary adhesion to Tremco PUMA WC is exceedingly strong. The top coat affords excellent abrasion resistance, UV stability and chemical resistance to complete the Vulkem EWS system.

Basic Uses

Heavy-Duty vehicular traffic deck coating applications include waterproofing concrete slabs and protecting occupied areas underneath from water damage. The system also protects concrete from damaging effects of water deicing salts, chemicals, gasoline, oils and anti-freeze. The Heavy Duty System is ideal for heavily abused areas, such as loading docks and areas that are snow plowed..freeze. The Heavy Duty System is ideal for loading docks and areas requiring snow plow resistance.

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 (SECUROCK 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/)

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

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

This document is Copyright© 2014 by Tremco, Inc.

SECTION 07 18 00 – TRAFFIC COATINGS, HEAVY DUTY TRAFFIC

1. GENERAL

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

**Section 07 14 16 COLD FLUID-APPLIED WATERPROOFING
Vertical Deck Applications**

Specifier: This guide specification section specifies **Tremco TREMproof**® **PUMA**,

• Designed for use on foundation walls, retaining walls, and most backfilled applications.

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

We recommend you consult with your Tremco 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 sealant and waterproofing products appear in the following CSI MasterFormat specifications sections:

• 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 16.02 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 00 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, Vehicular and Pedestrian
• Section 07 27 13 Modified Bituminous Sheet Waterproofing, Vapor-Retarding (ExoAir 110)
• Section 07 27 23 Board Product Waterproofing, Vapor Permeable (SECUREROCK ExoAir 430)
• Section 07 27 26.01 Fluid-Applied Membrane Waterproofing, Vapor-Retarding (ExoAir 120)
• Section 07 27 26.02 Fluid-Applied Membrane Waterproofing, Vapor Permeable (ExoAir 220)
• Section 07 27 26.03 Fluid-Applied Membrane Waterproofing, Vapor Permeable (ExoAir 230)
• Section 07 84 13 Penetration Firestopping
• Section 07 84 46 Fire-Resistive Joint Systems
• Section 07 92 00 Joint Sealants
• Section 08 85 00 Glazing Sealants
• Section 32 13 73 Concrete Paving Joint Sealants

TREMproof®, ExoAir®, Spectrem®, Tremflex®, Dymeric®, and Proglaze® are registered trademarks of Tremco, Inc.
This document is Copyright© 2014 by Tremco, Inc.

* + - 1. SECTION INCLUDES

Polyurethane methacrylate and polymethyl methacrylate technology traffic coatings for heavy duty traffic 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.

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

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

* + - 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 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

CSA S413 for Parking Structures

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

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

Review requirements for traffic coating 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 traffic coating work with work of other Sections.

* + - 1. ACTION SUBMITTALS
				1. Product Data: For each type of traffic coating product and expansion joint accessory specified, indicating compliance with requirements.
				2. Shop Drawings: Show locations for traffic coating 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:

Certification of manufacturer's approval of Installer.

* + - * 1. Product Test Reports: Test data for traffic coating products and traffic coating system, by qualified testing agency, indicating proposed traffic coating 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 or similar 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.

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

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

* + - * 1. Mockups: Provide traffic coating 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, traffic coating application, slip-resistant aggregate application, and flashing, transition, and termination conditions, to set quality standards for execution.

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

If applicable, include no less than 13 ft (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 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 traffic coating within the range of ambient and substrate temperatures recommended by traffic coating manufacturer.

Protect substrates from environmental conditions that affect system performance.

Do not apply traffic coating ( or expansion joint accessories if applicable) to a damp or wet substrate or during snow, rain, fog, or mist.

* + - 1. SCHEDULING
				1. Schedule work so traffic coating system (including expansion joints if applicable) applications may be inspected prior to concealment.
			2. WARRANTY
				1. Applicator:  Company specializing in performing the work of this section qualified by system manufacturer for warranted membrane installation. Applicator shall submit the following certification for review:

Applicator shall submit documentation from the membrane manufacturer to verify contractor’s status as a qualified approved applicator for warranted installations.

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

* + - * 1. Special Manufacturer's Warranty: Manufacturer's standard form in which traffic coating manufacturer agrees to furnish traffic coating 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 traffic coating system for purposes of testing, leak investigation, and repair,

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

Warranty Period: Ten years from date of Substantial Completion.

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

Movement of the structure caused by structural settlement or stresses on the traffic coating 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 traffic coating products manufactured by **Tremco, Inc., Commercial Sealants and Waterproofing Division**, Beachwood OH; (866) 321-6357; email: techresources@tremcoinc.com; [www.tremcosealants.com](http://www.tremcosealants.com), Source Limitations: Provide traffic coating system materials and accessory products from single-source manufacturer.
			1. PERFORMANCE REQUIREMENTS
				1. General: Traffic coating 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. Traffic coating 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 traffic coating system materials that are compatible with one another and with adjacent materials under conditions of service and application required, as demonstrated by traffic coating 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: Vulkem 950NF Topcoat can be used both as an intermediate coat for the Tremco heavy duty system and a topcoat for interior applications. Vulkem 951NF is a low-odor topcoat designed for exterior applications and for use over Vulkem 950NF in heavy duty applications.

* + - 1. TRAFFIC COATING FOR HEAVY DUTY TRAFFIC, EXTREME WEAR SYSTEM (EWS)
				1. Traffic Coating: Manufacturer's polyurethane methyl methacrylate system for extreme exterior exposure conditions, traffic-bearing, seamless, high-solids-content, cold liquid-applied, elastomeric, waterproofing membrane system with integral wearing surface for heavy duty traffic.

Basis of Design Products: Tremco, Inc., Vulkem EWS Heavy Duty System

* + - * 1. Primer: Two-component, chemically curing methyl methacrylate

Tremco PUMA Primer

* + - * 1. Base Coats: Polyurethane methacrylate

Tremco PUMA BC

* + - * 1. Wear Coat: Polyurethane methacrylate

Tremco PUMA WC mixed with Tremco PUMA Filler Powder

* + - * 1. Top Coat: Methyl Methacrylate

Tremco PUMA TC

Color: As selected by Architect from manufacturer's full range.

* + - * 1. Aggregate: Manufacturer's standard aggregate for each use indicated of particle sizes, shape, and minimum hardness recommended in writing by traffic-coating manufacturer.

30-50 Mesh silica sand for the primer

1-3 mm-sized aluminum oxide, heavy duty aggregate for the wear coat

* + - 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. Initiator; Benzoyl Peroxide

Tremco PUMA Initiator/Initiator+

* + - * 1. Cleaner; One component methyl methacrylate

Tremco PUMA Cleaner

* + - * 1. Crack and Joint Detailing Coating

Tremco PUMA BC LM and/or Tremco PUMA WC with silica

* + - * 1. Vertical and Ramp Application Coating

Tremco PUMA BC R

* + - * 1. Cant Beads and Detailing of Penetrations

Tremco PUMA BC T

* + - * 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® 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 traffic coating materials and system accessories, examine substrate and conditions to ensure substrates are fully cured, smooth, 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 traffic coating 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 traffic-coating manufacturer.

Test for traffic coating 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 traffic coating 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.

Mechanically abrade concrete surfaces by method of shot blasting to a uniform profile in accordance with ASTM D4259 and meeting ICRI Surface Profile CSP 3. 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 manufacturers application instructions.
			1. TERMINATIONS AND PENETRATIONS
				1. Prepare vertical and horizontal surfaces at horizontal to vertical transitions, terminations, joints, and penetrations through traffic coatings in accordance with ASTM C1127 and manufacturer's written instructions, using accessory materials specified.
				2. At terminations of traffic coating exposed to traffic, rout 1/4 by 1/4 inch keyway in concrete.
				3. Detail Preparation: 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 Coating Installation: Comply manufacturer's written instructions. Allow joint coatings to cure adequately before coating with traffic coating.

Provide coating cants at penetrations and at horizontal-to-vertical intersections. Tool coating material to form 45 degree angle transition. Penetrations must be grouted solid at all instances.

Rout and fill cracks with coating and tool flush with surface.

Feather edges of joint coating applications.

Allow coating to cure.

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

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

* + - 1. HEAVY DUTY TRAFFIC-COATING APPLICATION
				1. Primer: Prime surfaces to receive traffic coating system. Allow to cure before proceeding.

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

* + - * 1. Start traffic-coating application in presence of manufacturer's technical representative.
				2. Apply traffic coating according to manufacturer's written instructions.

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

Specifier: Edit number of coats below based upon manufacturer's recommendation for type of traffic. Intermediate coat is typically recommended for heavy traffic areas.

* + - * 1. Apply number of coats of specified compositions for vehicular traffic coating at locations indicated on Drawings, per manufactures written installation instructions
				2. Apply traffic coatings to prepared wall terminations and vertical surfaces to height indicated; omit aggregate on vertical surfaces.
				3. Cure traffic coatings. 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: 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.
			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 traffic coating from damage from subsequent work. Protect traffic coating materials from exposure to UV light for period in excess of that acceptable to traffic coating manufacturer; replace overexposed materials and retest.

END OF SECTION