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ICC-ES Evaluation Report
ESR-4587

Issued September 2023

This report is subject to renewal September 2024.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 18 13—Pedestrian Traffic Coatings

REPORT HOLDER:

TREMCO CPG, INC.

EVALUATION SUBJECT:

VULKEM® EXTREME WEARING SYSTEM

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021 and 2018 *International Building Code®* (IBC)
- 2021 and 2018 *International Residential Code®* (IRC)

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see ESR-4587 LABC and LARC Supplement.

Properties evaluated:

- Durability
- Fire classification
- Wind resistance

2.0 USES

Vulkem® Extreme Wearing System (EWS) is a walking deck and roof covering system for use directly over concrete substrates. When installed in accordance with this report, the walking deck complies with IBC Section 1505 and IRC R902 as a Class A roof covering.

3.0 DESCRIPTION

3.1 General:

The Vulkem® EWS, with polyurethane-methacrylate (PUMA) technology, is a walking deck and roof covering system that consists of a combination of the components described in Sections 3.2.1 to 3.2.7.

3.2 Materials:

3.2.1 Tremco PUMA Primer: Tremco PUMA Primer is a two-component, chemical curing, methyl-methacrylate (MMA) primer available in 6-gallon (22.7 L) pails.

3.2.2 Tremco PUMA BC: Tremco PUMA BC is a two component, chemical curing, modified polyurethane-methacrylate base coat available in 6-gallon (22.7 L) pails.

3.2.3 Tremco PUMA WC: Tremco PUMA WC is a two-component, chemical curing, modified polyurethane-methacrylate wear coat course available in 6-gallon (22.7 L) pails.

3.2.4 Tremco PUMA TC: Tremco PUMA TC is a two component, chemical curing, methyl-methacrylate surface topcoat available in 6-gallon (22.7 L) pails.

3.2.5 Tremco PUMA Filler Powder: Tremco PUMA Filler Powder is a calcium carbonate filler used to thicken PUMA resins and is available in 55 lb. (25 kg) bags.

3.2.6 Tremco PUMA Initiator: Tremco PUMA Initiator is a benzol peroxide-based initiator used to react to all components of the Vulkem® EWS and is available in 10 lb (4.5 kg) and 25 lb (11.3 kg) pails.

3.2.7 Silica Sand or Colored Quartz: Silica sand or colored quartz as described in Section 4.2.1 or 4.2.3.

3.3 Substrate:

Concrete decks must comply with the applicable requirements of the applicable code and must have a minimum compressive strength (f_c) of 2500 psi (17.2 MPa).

3.4 Impact Resistance:

The Vulkem® EWS described in this report meets the requirements of Resistance to Foot Traffic Test described in Section 4.6 of FM 4470, as referenced in 2021 IBC Section 1504.8 (2018 IBC Section 1504.7).

4.0 INSTALLATION

4.1 General:

The Vulkem® Extreme Wearing System must be installed in accordance with the report holder's published installation instructions, the applicable code and this report. The report holder's published installation instructions must be available on the jobsite at all times during installation.

Installation is limited to when the ambient temperature is above 14°F (-10°C) or the surface temperature is below 115°F (46°C). Substrates must be structurally sound, clean, dry and free of dust and other material contamination at the time of application.

4.2 System Installation:

Tremco PUMA Primer, Tremco PUMA BC (base coat), and Tremco PUMA TC (topcoat) components of Vulkem® EWS must be mixed with Tremco PUMA Initiator. All coatings must be mixed and cured in accordance with the report holder's published installation instructions prior to application.

4.2.1 Primer: Tremco PUMA Primer must be applied at a minimum application rate of 90 ft^2/gallon (2.2 m^2/L) to yield a minimum application thickness of 17 wet mils [0.017 inch (0.43 mm)] and following application of the primer, broadcast with 0.30 mm to 0.60 mm sized silica sand at a rate of 0.7lb/10 ft^2. Primer must be cured in accordance with the report holder's published installation instructions prior to application of the Tremco PUMA BC base coat.

4.2.2 Base Coat: Tremco PUMA BC must be applied with a metal notched rake at a rate of 27 ft^2/gallon (0.69 m^2/L) to yield a minimum application thickness of 60 wet mils [0.06 inch (1.52 mm)]. Following application of the base coat, the area must be spike rolled to release all air bubbles from the base coat and cured prior to application of the Tremco PUMA WC wear coat or Tremco PUMA TC topcoat.

4.2.3 Wear Coat: Tremco PUMA WC may be applied with a metal notched rake at a minimum application rate of 25 ft^2/gallon (0.61 m^2/L) to yield a minimum 60 wet mils [0.060 inch (1.52 mm)] thickness. Following application of the wear coat, the area must be spike rolled to release all air bubbles from the wear coat then fully broadcast with silica sand [20-30 mesh (0.6 to 0.84 mm)] at a rate of 1.0 lb/ft^2 and cured prior to application of Tremco PUMA TC topcoat.

Alternatively, Tremco PUMA WC may be applied in two layers. The first layer must be applied with a medium-nap roller at a minimum application rate of 80 ft^2/gallon (2.0 m^2/L) to yield a minimum 20 wet mils [0.02 inch (0.51 mm)] thickness then broadcast with silica sand or color quartz [(20-30 mesh (0.6 to 0.84 mm)] at a rate of 0.3 lb/ft^2. The first layer must be cured prior to application of the second layer of Tremco PUMA WC. Following curing of the first layer in accordance with the report holder's published installation instructions, the second layer of Tremco PUMA WC must be applied with a medium-nap roller at a minimum? application rate of 57 ft^2/gallon (1.4 m^2/L) to yield a minimum 28 wet mils [0.028 inch (0.71 mm)] thickness. Following application of the second layer to Tremco PUMA WC, a layer of 20-30 mesh (0.6 to 0.84 mm) sized silica sand or color quartz must be applied. The Tremco PUMA WC wear coat must be cured prior to application of the Tremco PUMA TC topcoat.

4.2.4 Topcoat: Tremco PUMA TC must be applied with a soft squeegee and roller at a minimum application rate of 160 ft^2/gallon (3.9 m^2/L) to yield a 10 [0.010 inch (0.25 mm)] thickness. The Tremco PUMA TC topcoat must be cured in accordance with the report holder's published installation instructions.

4.3 Roof Classification:

When installed in accordance with this report, the assemblies have the fire classification noted in Table 1.

4.4 Wind Resistance:

The maximum allowable wind resistance pressure is limited by the capacity of the roof deck construction except when installed as described in Table 2. The roof deck must be designed to resist the design wind pressures in accordance with the applicable code.

5.0 CONDITIONS OF USE

The Vulkem® Extreme Wearing System described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report, the report holder's published installation instructions and the applicable code. If there is a conflict between the report holder's published installation instructions and this report, this report governs.

5.2 The products are manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Walking Decks (AC39), dated June 2017 (editorially revised November 2020), including data in accordance with ASTM D7264 low temperature deflection testing as an alternative to AC39 Section 4.2.10 low-temperature flexibility testing.

6.2 Report on low temperature deflection testing in accordance with ASTM D7264 as an alternative to AC39 Section 4.2.10 low-temperature flexibility testing.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-4587) along with the name, registered trademark, or registered logo of the report holder (Tremco CPG, Inc.) must be included in the product label.

7.2 In addition, each container of Vulkem® Extreme Wearing System components described in this report must be identified by a label with the report holder's address, product designation, batch number, date of manufacture and product expiration date.

7.3 The report holder's contact information is the following:

TREMCO CPG, INC.
3735 GREEN ROAD
BEACHWOOD, OHIO 44122
(800) 321-7906
http://www.tremcosealants.com

TABLE 1 — FIRE CLASSIFICATION — FLUID APPLIED COATINGS SYSTEMS

SYSTEM NO.	FIRE CLASSIFICATION	ROOF DECK[1]	MAX. SLOPE	VULKEM® EWS SYSTEM COMPONENTS				
				PRIMER	BASE COAT	INTERMEDIATE WEAR COAT	AGGREGATE	TOPCOAT
1	A	Noncombustible	3:12	Tremco PUMA Primer applied at 17 to 20 mils thick followed by silica quartz sand	Tremco PUMA BC applied at a minimum of 80 mils thick	Tremco PUMA WC applied at a minimum of 60 to 65 mils thick	Aluminum oxide or silica sand at a minimum of 125 lbs./100 ft^2	Tremco PUMA TC applied at 12 to 20 mils thick
2	A	Noncombustible	3:12	Tremco PUMA Primer applied at 17 to 20 mils thick followed by silica quartz sand	Tremco PUMA BC applied at a minimum of 60 mils thick	---	Aluminum oxide or silica sand at a minimum of 80 lbs./100 ft^2	Tremco Puma TC applied at 15 to 20 mils thick

For SI: 1 mil = 0.001 inches; 1 inch = 25.4 mm; 1 lb./ft^2 = 4882.67 g/m^2

[1]Concrete roof deck as specified in Section 3.3.

TABLE 2 — WIND RESISTANCE — FLUID APPLIED COATING SYSTEMS

SYSTEM NO.	ROOF DECK[1]	VULKEM® EWS SYSTEM COMPONENTS				ALLOWABLE UPLIFT CAPACITY (psf)
		PRIMER	BASE COAT	INTERMEDIATE WEAR COAT	TOPCOAT	
1	Structural Concrete	Tremco PUMA Primer applied at 125 ft^2/gallon (20 wet mil) followed by 20 -30 mesh silica quartz sand at a rate of 7lbs/100ft^2	Tremco PUMA BC applied at 20ft^2/gallon (80 wet mil)	Tremco PUMA WC applied at 24 ft^2/gal (65 wet mil) ***Aggregate:*** 20-30 mesh silica quartz	Tremco PUMA TC applied at 160 ft^2/gallon (10 wet mil)	503
2	Structural Concrete	Tremco PUMA Primer applied at 125 ft^2/gallon (20 wet mil) followed by 20-30 mesh silica quartz sand at a rate of 7lbs/100ft^2	Tremco PUMA BC at a rate of 29 ft^2/gallon (55 wet mil)	---	Tremco PUMA TC applied at 160 ft^2/gallon (10 wet mil)	503

For **SI**: 1 mil = 1000 inches; 1 inch = 25.4 mm; 1 lb./ft^2 = 4882.67 g/m^2

[1]Concrete roof deck as specified in Section 3.3.

DIVISION: 00 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 18 13—Pedestrian Traffic Coatings

REPORT HOLDER:

TREMCO CPG, INC.

EVALUATION SUBJECT:

VULKEM® EXTREME WEARING SYSTEM

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Vulkem® Extreme Wearing System, described in ICC-ES evaluation report ESR-4587, has also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

■ 2023 *City of Los Angeles Building Code* (LABC)

■ 2023 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The Vulkem® Extreme Wearing System, described in Sections 2.0 through 7.0 of the evaluation report ESR-4587, complies with the LABC and LARC, and is subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The Vulkem® Extreme Wearing System described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report ESR-4587.
- The design, installation, conditions of use and identification of the system is in accordance with the 2021 *International Building Code®* (IBC) and the 2021 International Residential Code® (IRC), as applicable, provisions noted in the evaluation report ESR-4587.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 15,16 and 17 or LARC Chapter 9, as applicable.
- The installation of the system must comply with the City of Los Angeles Information Bulletin P/BC 2020-16, “Dwellings in High Wind Velocity Areas (HWA).”

This supplement expires concurrently with the evaluation report issued September 2023.