



Infinite Engineering Project Manual



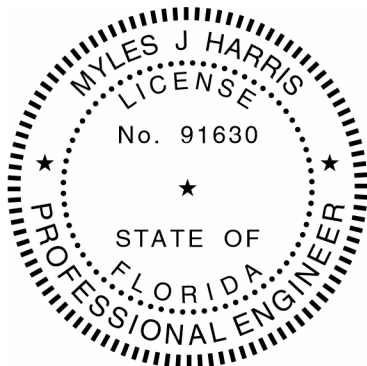
Surfside Palms Condominium Association, Inc.

8888 Collins Avenue

Surfside, Florida 33154

Restoration Project

Issue Date: 11/5/24



Myles J Harris
Digitally signed
by Myles J Harris
Date: 2024.11.05
16:10:05 -05'00'

This document has been digitally signed and sealed by Myles Harris, PE on the date adjacent to the seal.

Printed Copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Myles Harris, PE, SI Limited

Florida License No. 91630



TABLE OF CONTENTS

Specifications

Specification Section 001116: Invitation to Bid	1 page
Specification Section 002113: Instruction to Bidders	3 pages
Specification Section 004100: Bid Forms	12 pages
Specification Section 007200: General Conditions	2 pages
Specification Section 011100: Summary of Work	4 pages
Specification Section 030130: Structural Concrete Repairs	19 pages
Specification Section 071416: Cold Fluid-Applied Waterproofing	8 pages
Attachment: TREMproof PUMA Planter Package by Tremco	16 pages
Specification Section 071800: Traffic Coatings, Under Tile	9 pages
Attachment: Select Pages From NOA No.: 23-0614.04	5 pages
Attachment: Vulkem EWS Under Tile System Package by Tremco	15 pages
Specification Section 071813: Pedestrian Traffic Waterproofing	6 pages
Specification Section 079200: Joint Sealants	6 pages
Specification Section 092400: Stucco Maintenance and Repair	8 pages
Specification Section 099600: High-Performance Coatings	7 pages

Attachments

Surfside Palms Repaint Specification by Sherwin Williams	12 pages
Optional Attachment: Vulkem EWS Pool Package by Tremco	8 pages
Optional Attachment: Pool Detail Sheet by Tremco	1 sheet

SECTION 001116 – INVITATION TO BID

PART 1 – GENERAL

1.01 General

Dear Ladies and Gentlemen,

You are kindly invited to bid on the Restoration Project located at:

Surfside Palms Condominium Association, Inc.

8888 Collins Avenue

Surfside, FL 33154

The pre-bid meeting, which will be held on site, is set for:

9:00 AM Friday November 22, 2024

Bids will be due to the Owner and Engineer no later than:

5:00 PM Friday December 13, 2024

Please utilize the project manual and the corresponding drawings during the bidding process.
Kindly inform the Owner and Engineer of your intention to attend and bid.

END OF SECTION

SECTION 002113 – INSTRUCTIONS TO BIDDERS

PART 1 – GENERAL

1.01 Project and Description of Buildings

A. Project Location:

Surfside Palms Condominium Association, Inc.
Restoration Project
8888 Collins Avenue
Surfside, Florida 33154

B. Descriptions of Buildings:

The Surfside Palms Condominium property consists of two 5-story residential condominium building with approximately 55 units, ground level parking, and an elevated swimming pool with a pool deck. According to the Miami Dade County Property Appraiser, the building was constructed in 2000.

The two 5-story residential buildings are constructed of deep pile foundations with cast-in-place pile caps. Ascending through the buildings, the structures appeared to be comprised of cast-in-place reinforced concrete columns, beams, and traditionally reinforced floor slabs. In-fill walls consisted of concrete masonry unit (CMU) construction and were used throughout various locations within the buildings. The main roof slabs are covered with a built-up modified bitumen system overlain with silicone roof coating. The exterior walls were finished on the outside with stucco and coated with paint. The balconies had aluminum railings, and slabs finished with waterproofing and/or tile.

The pool structure is constructed of shallow foundations with cast-in-place reinforced concrete columns, beams, and traditionally reinforced floor slabs.

The gazebo roofs are constructed of timber framing, plywood sheathing, and covered with roof tiles.

1.02 Owner

Surfside Palms Condominium Association, Inc.
c/o Mr. Angel Del Guercio, President
8888 Collins Avenue
Surfside, Florida 33154
Email: angeldelguercio@gmail.com

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

Telephone: 305-861-0242

1.03 Engineer

Infinite Engineering Group, LLC
c/o Myles Harris, PE, SI Limited
818 SE 4th St #204
Fort Lauderdale, Florida 33301
Email: myles@infiniteengineering.net
Telephone: 904-654-8802

1.04 Qualifications of Bidders

- A. Bidder shall be a current and licensed Florida General Contractor.
- B. Bidder shall be licensed and qualified at the time of bid submission to perform the scope of work in Florida and with the authority having jurisdiction.
- C. Bidders shall be insured as required by the General Conditions, specification section 007200.
- D. Bidder shall be experienced in projects similar to the Project and by submitting a bid for this project, acknowledges their satisfactory experience and means to perform the scope of work.
- E. By submitting a bid, Bidder authorizes Owner and/or Engineer to investigate, by any means Owner deems necessary, the Bidder's competency and financial ability to complete the scope of work.
- F. Bids shall be valid as submitted for at least thirty (30) calendar days from the date bids are due.
- G. Bidder shall be an approved applicator of each product to be utilized and shall inform the Owner and Engineer as soon as reasonably practicable if Bidder is not an approved applicator of any products.

1.05 Site Examination

- A. Bidder shall visit the project location prior to the submittal of their Bid to examine the site and provide Bidder's own verification and assessment.
- B. To the extent reasonably possible, Bidder is responsible for verifying existing conditions, dimensions, and site logistics.

1.06 Laws and Regulations

- A. All applicable federal laws, local laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over the project location and scope of work of the project shall apply to the project documents throughout and they will be included in the Contract the same as if written out in their entirety.

1.07 Withdrawal of Bids

- A. Bids may be withdrawn by written or electronic requested by the Bidder provided that such a request is received by Owner and Engineer prior to the bid due date contained within specification section 001116.

1.08 Rejections of Bids

- A. Owner reserves the right to reject a bid if the rejection of a bid is in the best interest of the Owner.

1.09 Award of Contract

- A. Owner will award the contract to a Bidder.
- B. Once the contract has been awarded, Bidder shall execute an AIA A101, AIA A107, or another provided contractual document, provided by Owner.
- C. Contractor to negotiate and execute the provided contractual document in good faith and as soon as practicable.

END OF SECTION

SECTION 004100 – BID FORMS

PART 1 – GENERAL

1.01 General Notes

- A. The following bid is furnished for complete execution of the scope of work as defined in the Project Manual. By signing this document, Bidder acknowledges that they have reviewed and understands the requirements of the Project Manual, specifications, and drawings, familiarized themselves with the existing conditions of the site, the Bidder is qualified to meet the requirements of the Project Manual, specifications, and drawings, and proposes to provide all labor, materials, equipment, necessary supervision, personnel, services, transportation services, and all other necessary labor or materials required to complete the scope of work. It is the Bidder's responsibility to verify all field measurements, takeoffs, and existing conditions on site (to the extent reasonably possible).

- B. Project:

Surfside Palms Condominium Association, Inc.
Restoration Project
8888 Collins Avenue
Surfside, Florida 33154

1.02 Base Bid Tabulation

Base Bid					
Item No.	Item description	Quantity	Unit	Unit Price	Total
Division 0 and 1 - Contracting and General Requirements					
1	General Conditions - all work not specifically referenced required to complete the scope of work.	1	LS		
2	Permitting Fees - paid by owner (no mark-up)	1	NA		
3	Mobilization	1	LS		
4	Temporary debris protection	1	LS		
5	Sound and mark horizontal, vertical, and overhead concrete or stucco locations in the area(s) of work. Allow engineer to review.	1	LS		
Division 2 - Existing Conditions					

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

6	Remove and dispose of balcony toppings, finishes, waterproofings , and associated materials in the areas of work down to the structural slab. Allow engineer to review.	5,500	SF		
7	Remove and dispose of existing planter toppings, finishes, waterproofings and associated materials in the area of work down to the structural slab and stucco/concrete vertical surfaces. Allow engineer to review.	1	LS		
8	Remove and dispose of existing plaza and pool deck toppings, finishes, waterproofings and associated materials in the area of work down to the structural slab and stucco/concrete vertical surfaces. Allow engineer to review.	10,000	SF		
Division 3 - Concrete					
9	030130 - Horizontal concrete repair, as directed by a structural engineer and as per ICRI guidelines	400	CF		
10	030130 - Vertical concrete repair, as directed by a structural engineer and as per ICRI guidelines	75	CF		
11	030130 - Overhead concrete repair, as directed by a structural engineer and as per ICRI guidelines	100	CF		
12	030130 - Slab edge concrete repair, as directed by a structural engineer and as per ICRI guidelines	150	LF		

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

13	030130 - Post pocket replacement/repair, as directed by a structural engineer and as per ICRI guidelines. The current amount of post pockets is based off the existing railings.	50	EA		
14	030130 - Concrete crack repair with epoxy injection.	500	LF		
15	030130 - Install flash patching, before waterproofing or coating applications begin, to promote positive drainage to drains and free edges. Do not flash patch to a feather edge.	5,550	SF		
Division 7 - Thermal and Moisture Protection					
16	071416 - Apply a cold fluid-applied waterproofing membrane to planter horizontal and vertical surfaces. Include additional detailing at architectural cap finishes and railing locations (if applicable). A 20 year manufacturer's warranty is required.	1	LS		
17	071813 - Apply a pedestrian traffic waterproofing membrane to balcony top surfaces. Include additional detailing at sliding glass door, shutter, and railing locations (if applicable). Utilize the any system with a decorative overlay. A 5 year manufacturer's warranty is required. The desired finish is a knockdown finish.	5,500	SF		

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

18	071800 - Apply a traffic waterproofing coating membrane to plaza and pool deck top surfaces. Include additional detailing at sliding glass door, shutter, and railing locations (if applicable). Utilize the Vulkem EWS traffic waterproofing coating system under tile. A 20 year manufacturer's warranty is required.	10,000	SF		
19	079200 - Prepare existing hairline crack in existing concrete slabs and then route and seal with a joint sealant.	500	LF		
20	079200 - Remove, replace, and install joint sealants to all of the perimeter joints to the cast stone moldings.	1	LS		
21	079200 - Remove, replace, and install joint sealants to all of the sliding glass doors, windows, storefronts, and screen enclosure/rail interfaces: stucco/concrete to metal.	1	LS		
22	079200 - Provide sealant to all unsealed building envelope penetrations, joints, or other locations necessary in the areas of work.	250	LF		
Division 9 - Finishes					
23	092400 - Stucco repair, up to 7/8" in thickness. This includes all necessary accessories besides metal lath .	10,920	SF		

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

24	092400 - Stucco repair, up to 7/8" in thickness. This includes all necessary accessories including metal lath.	10	SF		
25	092400 - Excessive stucco repair, up to 1.5" in thickness. This includes all necessary accessories.	500	SF		
26	099600 - Install a high-performance coating to the interstitial space top surfaces and limited vertical surfaces (turn up). Include additional details at plumbing equipment, drains, mechanical equipment, electrical equipments, and penetration locations (if applicable).	210	SF		
27	Prime and paint as per Sherwin Williams specifications (new paint job).	1	LS		
Additional Work					
28	Plaza and Pool Deck - Remove, discard, and replace the existing drains and associated piping up to a coupling point within 12". New drains to be the same diameter as previously existing. Verify existing drain diameters in the field. Provide coupling at existing plumbing system. All work to be in compliance with FBC 2023.	18	EA		

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

29	Install a minimum 12" x 12" x 1/4" thick ceramic tile in thinset. Thinset as per NOA 23-0614.04 Table 2. Thinset to be 257 TITANIUM by Laticrete. Grout to be SPECTRALOCK PRO Premium Grout by Laticrete. Grout joints shall be a minimum of 1/16" and must comply with the TCNA Handbook and ANSI 108.02. The tile material shall be slip resistant when wet by having a dynamic coefficient of friction of at least 0.42. Tile material to be supplied by the Owner.	10,000	SF		
30	Pour/apply flowable fill in areas of undermining/excavation along and underneath the structure. Include basic forming to control overflow.	100	CF		
31	Shoring plans/designs. Provide signed and sealed drawings and calculations. Allow engineer to review the drawings and calculations. Shoring designs will be required for repairs to balcony concrete slabs, garage concrete beams, garage concrete slabs, garage concrete joists, and garage concrete columns.	1	LS		

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

32	Installation of necessary shoring for repairs to balcony concrete slabs, garage concrete beams, garage concrete slabs, garage concrete joists, and garage concrete columns. This includes all shoring accessories/materials such as plywood, wood, stringers, fasteners, plates, etc.	1	LS		
33	Demolish and/or remove, dispose, and replace damaged precast balustrade. Provide onsite mock up of balustrade installation. Color and texture to be approved by Owner. Installation shall be in accordance with shop drawings.	10	EA		
34	Shop drawings and submittals prepared and signed and sealed by a licensed professional engineer in the state of Florida. Shop drawings and submittals to include material data, manufacturer's shop details including profiles, cross-sections, reinforcement, exposed facets, arrangement of joints, anchoring methods, anchors, and engineering calculations that prove compliance with FBC 2023.	1	LS		
Total Base Bid Cost					

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

1.03 Optional Tabulation**Options**

Item No.	Item description	Quantity	Unit	Unit Price	Total
Balcony Finishes					
35	071813 - Apply a pedestrian traffic waterproofing membrane to balcony top surfaces. Include additional detailing at sliding glass door, shutter, and railing locations (if applicable). Utilize the any system with a decorative overlay. A 5 year manufacturer's warranty is required. The desired finish is a tile-like finish.	5,500	SF		
36	071813 - Apply a pedestrian traffic waterproofing membrane to balcony top surfaces. Include additional detailing at sliding glass door, shutter, and railing locations (if applicable). Utilize the any system with a decorative overlay. A 5 year manufacturer's warranty is required. The desired finish is a smooth finish.	5,500	SF		
Pool Refinishing					
37	Pool - Remove and dispose of pool toppings, finishes, waterproofings , and associated materials in the areas of work down to the structural slab. Allow engineer to review.	1	LS		
38	Pool - Apply a VULKEM EWS waterproofing as per the optional attachments to the horizontal and vertical pool surfaces. Install a bond coat and Pebbletech.	1	LS		

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

39	Pool - Replace the existing pool coping, tiles, and all other finishes to match the existing configuration. All lights, ladders, and other components to be repaired as needed.	1	LS	
Hot Tub Refinishing				
40	Hot Tub - Remove and dispose of pool toppings, finishes, waterproofings , and associated materials in the areas of work down to the structural slab. Allow engineer to review.	1	LS	
41	Hot Tub - Apply a VULKEM EWS waterproofing as per the optional attachments to the horizontal and vertical pool surfaces. Install a bond coat and Pebbletech.	1	LS	
42	Hot Tub - Replace the existing pool coping, tiles, and all other finishes to match the existing configuration. All lights, ladders, and other components to be repaired as needed.	1	LS	
Other				
43	Performance and Payment Bond	1	LS	
44	079200 - Remove, replace, and install joint sealants to all of the sliding glass doors, windows, storefronts, and screen enclosure/rail interfaces: metal to metal.	1	LF	
45	Weather wall installation and removal	1	LF	

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

1.04 Schedule

- A. After the permit issuance date, the contractor will mobilize (perform mobilization) for the base bid work within _____ calendar days.
- B. After mobilization has been completed, the contractor will be substantially completed with the base bid work within _____ calendar days.
- C. The contractor's projected start date is _____.

1.05 Time and Material Work

- A. Only when authorized in writing by both Owner and Engineer, Time and Material Work will be performed and based on the following unit rates for work added:
 - 1. Project Manager \$ _____ per hour
 - 2. Project Supervisor \$ _____ per hour
 - 3. Skilled Labor \$ _____ per hour
 - 4. Unskilled Labor \$ _____ per hour
 - 5. Material Cost Markup _____ %

1.06 Subcontractors

- A. The following subcontractors will be utilized by Bidder:
 - 1. Subcontractor 1:
 - 2. Subcontractor 2:
 - 3. Subcontractor 3:
 - a. Note: Please include legal entity name, address, and contact number for each subcontractor.

1.07 References

- A. Provide at least three reference projects with similar scope(s) of work and size of project. Provide all client, property, or contractor contact information, the address of the project, and further information illustrating the work performed.

1.08 Certificate of Insurance

- A. Provide copies and/or sample certificates of general liability and worker's compensation insurances and Owner added as additional insured where applicable/required.

1.09 Pre-Conditions

- A. Contractor shall videotape or photograph and document all site conditions such as roofing conditions, exterior wall conditions, landscaping conditions, electrical connection

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

conditions, interior surfaces, vehicle traffic areas, etc. that might be interpreted as having been damaged by Contractor.

1.10 Warranty

- A. Provide a 5-year warranty against workmanship of the Contractor. Contractor shall furnish Certificates of Warranty stating all work and materials have been applied in accordance with the applicable manufacturer's publications, instructions, and data sheets.
- B. As indicated in each individual specification or as indicated in the base bid tabulation, contractor shall provide manufacturer warranties for the required durations.

1.11 Clarifications and Qualifications

- A. Contractor will provide any and all clarifications and/or qualifications attached to the bid forms.

1.12 Other Requirements or Provisions

- A. The Owner has indicated the requested contractual start date for mobilization to be ASAP.
- B. The Owner has requested a draft contract be submitted with each bid.

1.13 Signatures

Signature of Bidder

Printed Name

Job Title

Legal Name of Contractor

General Contractor License Number

Date of Execution

END OF SECTION

SECTION 007200 – GENERAL CONDITIONS

PART 1 – GENERAL

1.01 General

- A. The contractor is responsible for labor, materials, and equipment on site. Construction may only occur in the areas of work defined in the specifications and drawings. The contractor is responsible for a temporary sanitation facility/portable bathroom.
- B. It is the Contractor's responsibility to verify all field measurements, takeoffs, and existing conditions on site (to the extent reasonably possible).
- C. The contractor will provide certificate of insurance for worker's compensation and general liability for the limits required by the owner.
- D. The contractor shall cooperate with the owner during construction to allow for as much usage of the site as possible to minimize construction debris/dirt/pollution, occupancy usage of the units (if applicable), and protection of the project site.
- E. Unless otherwise agreed upon in the contract between the contractor and owner, the owner will provide and pay for water and electricity at the readily available connections closest to the area of work, available parking for construction personnel, equipment, storage, dumpster, and trailer locations/space.
- F. If HVAC equipment must be shut down during construction, shutdown must be coordinated with property management. If air intakes are in the vicinity of the work area, the contractor will take precautions to prevent objectionable odors or fumes from entering the structure(s).
- G. If burglar alarm or fire detection devices need to be shut down, such interruption of service must be coordinated with the property management.
- H. Drainage systems must be protected from being clogged from construction debris.
- I. Contractor is responsible for making sure area of work is watertight at the conclusion of each work day, even if inclement weather ends a work day early.
- J. Loading of materials and equipment on roof or other surfaces must not exceed their loading limitation(s) of the corresponding structure/roof/surface.

1.02 Safety, Health, and Codes

- A. The contractor shall perform all work in accordance with the most recent Occupational Safety and Health Administrations (OSHA) codes/laws/regulations/standards.
- B. The contractor shall perform all work in accordance with all applicable building codes that are required at the national level, federal level, county level, and local municipality level for the project.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 0 Specifications

1.03 Contract Time

- A. The contractor shall commence the work within the time frame agreed upon either in the contract between the contractor and owner or that stated in the contractor bid form(s).
- B. The contractor will perform work in the areas of work between regular business days of a given week from 8:30 am to 5:30 pm.
- C. Delays will be sent by the contractor to both the owner and engineer within 24 hours of such an event. Delays can include, but are not limited to precipitation, a substrate has an unacceptable moisture content, elevated winds, or acts of God.
- D. For each working day of delay, not including approved delays such as inclement weather delays, the contractor will be charged liquidated damages of \$250 per working day of delay until substantial completion has been reached/completed.

1.04 Payment

- A. The contractor shall submit the most recent AIA G702 and G703 documentation for pay requests/applications.
- B. The contractor shall provide with each pay request/application a schedule of values, asbuilts reflecting the portion of work in relation to the pay request/application, and partial releases of liens.
- C. Engineer will be provided 5 business days to review and provide a response to each pay request/application or change order.
- D. Payment shall be made by the owner to the contractor upon approval of each pay request/application. The terms will be further defined in the contract between the contractor and the owner.
- E. Ten percent of the contract sum shall be retained from each pay request/application, except for general conditions and mobilization line items. Retainage will be released to the contractor once the contractor has completed all punch lists, provided all necessary warranty documentation, and closed all permits.

END OF SECTION

SECTION 011100 – SUMMARY OF WORK

PART 1 – GENERAL

1.01 Summary

A. Project:

Surfside Palms Condominium Association, Inc.
Restoration Project
8888 Collins Avenue
Surfside, Florida 33154

B. Owner:

Surfside Palms Condominium Association, Inc.
c/o Mr. Angel Del Guercio, President
8888 Collins Avenue
Surfside, Florida 33154
Email: angeldelguercio@gmail.com
Telephone: 305-861-0242

C. Engineer:

Infinite Engineering Group, LLC
c/o Myles Harris, PE, SI Limited
818 SE 4th St #204
Fort Lauderdale, Florida 33301
Email: myles@infiniteengineering.net
Telephone: 904-654-8802

D. Scope of Work:

1. Division 0 and 1 – Contracting and General Requirements
 - a. General Conditions - all work not specifically referenced required to complete the scope of work.
 - b. Permitting Fees - paid by owner (no mark-up).
 - c. Mobilization
 - d. Temporary debris protection.
 - e. Sound and mark horizontal, vertical, and overhead concrete or stucco locations in the area(s) of work. Allow engineer to review.
2. Division 2 – Existing Conditions
 - a. Remove and dispose of **balcony** toppings, finishes, waterproofings, and associated materials in the areas of work down to the structural slab. Allow engineer to review.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 1 Specifications

- b. Remove and dispose of existing **planter** toppings, finishes, waterproofings and associated materials in the area of work down to the structural slab and stucco/concrete vertical surfaces. Allow engineer to review.
 - c. Remove and dispose of existing **plaza and pool deck** toppings, finishes, waterproofings and associated materials in the area of work down to the structural slab and stucco/concrete vertical surfaces. Allow engineer to review
3. Division 3 – Concrete
- a. 030130 – Horizontal concrete repair, as directed by a structural engineer and as per ICRI guidelines.
 - b. 030130 – Vertical concrete repair, as directed by a structural engineer and as per ICRI guidelines.
 - c. 030130 – Overhead concrete repair, as directed by a structural engineer and as per ICRI guidelines.
 - d. 030130 – Slab edge concrete repair, as directed by a structural engineer and as per ICRI guidelines.
 - e. 030130 - Post pocket replacement/repair, as directed by a structural engineer and as per ICRI guidelines. The current amount of post pockets is based off the existing railings.
 - f. 030130 - Concrete crack repair with epoxy injection.
 - g. 030130 - Install flash patching, before waterproofing or coating applications begin, to promote positive drainage to drains and free edges. Do not flash patch to a feather edge.
4. Division 7 – Thermal and Moisture Protection
- a. 071416 - Apply a cold fluid-applied waterproofing membrane to **planter horizontal and vertical** surfaces. Include additional detailing at architectural cap finishes and railing locations (if applicable). A 20 year manufacturer's warranty is required.
 - b. 071813 - Apply a pedestrian traffic waterproofing membrane to **balcony** top surfaces. Include additional detailing at sliding glass door, shutter, and railing locations (if applicable). Utilize the any system with a decorative overlay. A 5 year manufacturer's warranty is required. The desired finish is a knockdown finish.
 - c. 071800 - Apply a traffic waterproofing coating membrane to **plaza and pool deck** top surfaces. Include additional detailing at sliding glass door, shutter, and railing locations (if applicable). Utilize the Vulkem EWS traffic waterproofing coating system under tile. A 20 year manufacturer's warranty is required.
 - d. 079200 - Prepare existing hairline crack in existing concrete slabs and then route and seal with a joint sealant.
 - e. 079200 - Remove, replace, and install joint sealants to all of the perimeter joints to the cast stone moldings.
 - f. 079200 – Remove, replace, and install joint sealants to all of the sliding glass doors, windows, storefronts, and balcony railing interfaces: stucco/concrete to metal.
 - g. 079200 – Provide sealant to all unsealed building envelope penetrations, joints, or other locations necessary in the areas of work.

SUMMARY OF WORK

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 1 Specifications

5. Division 9 - Finishes

- a. 092400 – Stucco repair, up to 7/8" in thickness. This includes all necessary accessories **besides metal lath**.
- b. 092400 – Stucco repair, up to 7/8" in thickness. This includes all necessary accessories **including metal lath**.
- c. 092400 - Excessive stucco repair, up to 1.5" in thickness. This includes all necessary accessories.
- d. 099600 - Install a high-performance coating to the interstitial space top surfaces and limited vertical surfaces (turn up). Include additional details at plumbing equipment, drains, mechanical equipment, electrical equipments, and penetration locations (if applicable).
- e. Prime and paint as per Sherwin Williams specifications (new paint job).

6. Additional Work

- a. **Plaza and Pool Deck** - Remove, discard, and replace the existing drains and associated piping up to a coupling point within 12". New drains to be the same diameter as previously existing. Verify existing drain diameters in the field. Provide coupling at existing plumbing system. All work to be in compliance with FBC 2023.
- b. Install a minimum 12" x 12" x 1/4" thick ceramic tile in thinset. Thinset as per NOA 23-0614.04 Table 2. Thinset to be 257 TITANIUM by Laticrete. Grout to be SPECTRALOCK PRO Premium Grout by Laticrete. Grout joints shall be a minimum of 1/16" and must comply with the TCNA Handbook and ANSI 108.02. The tile material shall be slip resistant when wet by having a dynamic coefficient of friction of at least 0.42. Tile material to be supplied by the Owner.
- c. Pour/apply flowable fill in areas of undermining/excavation along and underneath the structure. Include basic forming to control overflow.
- d. Shoring plans/designs. Provide signed and sealed drawings and calculations. Allow engineer to review the drawings and calculations. Shoring designs will be required for repairs to balcony concrete slabs, garage concrete beams, garage concrete slabs, garage concrete joists, and garage concrete columns.
- e. Installation of necessary shoring for repairs to balcony concrete slabs, garage concrete beams, garage concrete slabs, garage concrete joists, and garage concrete columns. This includes all shoring accessories/materials such as plywood, wood, stringers, fasteners, plates, etc.
- f. Demolish and/or remove, dispose, and replace damaged precast balustrade. Provide onsite mock up of balustrade installation. Color and texture to be approved by Owner. Installation shall be in accordance with shop drawings.
- g. Shop drawings and submittals prepared and signed and sealed by a licensed professional engineer in the state of Florida. Shop drawings and submittals to include material data, manufacturer's shop details including profiles, cross-sections, reinforcement, exposed facets, arrangement of joints, anchoring methods, anchors, and engineering calculations that prove compliance with FBC 2023.

7. Options – Balcony Finishes

SUMMARY OF WORK

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 1 Specifications

- a. 071813 - Apply a pedestrian traffic waterproofing membrane to balcony top surfaces. Include additional detailing at sliding glass door, shutter, and railing locations (if applicable). Utilize the any system with a decorative overlay. A 5 year manufacturer's warranty is required. The desired finish is a tile-like finish.
 - b. 071813 - Apply a pedestrian traffic waterproofing membrane to balcony top surfaces. Include additional detailing at sliding glass door, shutter, and railing locations (if applicable). Utilize the any system with a decorative overlay. A 5 year manufacturer's warranty is required. The desired finish is a smooth finish.
8. Options – Pool Refinishing
 - a. Pool - Remove and dispose of **pool** toppings, finishes, waterproofings, and associated materials in the areas of work down to the structural slab. Allow engineer to review.
 - b. Pool - Apply a VULKEM EWS waterproofing as per the optional attachments to the horizontal and vertical pool surfaces. Install a bond coat and Pebbletech.
 - c. Pool - Replace the existing pool coping, tiles, and all other finishes to match the existing configuration. All lights, ladders, and other components to be repaired as needed.
9. Options – Hot Tub Refinishing
 - a. Hot Tub - Remove and dispose of pool toppings, finishes, waterproofings, and associated materials in the areas of work down to the structural slab. Allow engineer to review.
 - b. Hot Tub - Apply a VULKEM EWS waterproofing as per the optional attachments to the horizontal and vertical pool surfaces. Install a bond coat and Pebbletech.
 - c. Hot Tub - Replace the existing pool coping, tiles, and all other finishes to match the existing configuration. All lights, ladders, and other components to be repaired as needed.
10. Options – Other
 - a. Performance and Payment bond
 - b. 079200 – Remove, replace, and install joint sealants to all of the sliding glass doors, windows, storefronts, and balcony railing interfaces: metal to metal.
 - c. Weather wall installation and removal.
- E. The work will be performed under a single contract between Owner and Contractor, as referenced in specification section 002113.

END OF SECTION

SECTION 030130 – STRUCTURAL CONCRETE REPAIRS

PART 1 – GENERAL

1.01 Summary

- A. Furnish all labor, materials, tools, and equipment required to perform the structural concrete repairs. The Work of this specification section shall include:
 - 1. Horizontal Concrete Repair
 - a. Partial depth concrete slab repairs
 - b. Full depth concrete slab repairs
 - c. Partial depth concrete beam/joist/girder repairs
 - d. Full depth concrete beam/joist/girder repairs
 - 2. Vertical Concrete Repair
 - a. Partial depth concrete wall repairs
 - b. Full depth concrete wall repairs
 - c. Partial depth concrete column repairs
 - d. Full depth concrete column repairs
 - 3. Overhead Concrete Repair
 - a. Partial depth overhead slab repairs
 - b. Partial depth overhead beam/joist/girder repairs
 - 4. Slab Edge Concrete Repair
 - a. Full depth slab edge repairs
 - 5. Other Concrete Repairs
 - a. Epoxy crack repair
 - b. Sloping (“flash patch”)
 - c. Post pocket repair
- B. Work covered under this Section shall conform to the following sections of ACI 301, except as modified by these Contract Documents:
 - 1. Section 1 – General Requirements
 - 2. Section 2 – Formwork and Formwork Accessories
 - 3. Section 3 – Reinforcement and Reinforcement Supports
 - 4. Section 4 – Concrete Mixtures
 - 5. Section 5 – Handling, Placing, and Constructing
- C. Related sections include the following:
 - 1. 004100 – Bid Forms
 - 2. 011100 – Summary of Work

1.02 Definitions

- A. Article 1.02 is used to indicate definitions of language included in the specification. Common concrete terms are included by reference to ACI 301. Additional terms can be referenced

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 3 Specifications

through ICRI's online resource, "ICRI Concrete Repair Terminology," at <http://www.icri.org/GENERAL/repairterminology.aspx>.

1.03 Standards and Reports

A. ACI Standards and Reports

301-10	Specifications for Structural Concrete
305.1-14	Specification for Hot Weather Concreting
306R-10	Guide to Cold Weather Concreting

B. AASHTO Standards and Reports

M 182-05 (2012)	Standard Specification for Burlap Cloth Made from Jute and Kenaf and Cotton Mats
-----------------	--

C. ASTM Standards and Reports

A615/A615M-14	Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement
A775/A775M-07b-14	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
A820/A820M-11	Standard Specification for Steel Fibers for Fiber-Reinforced Concrete
A884/A884M-14	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
A1064/A1064M-14	Standard Specification for Carbon Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
C31/C31M-12	Standard Practice for Making and Curing Concrete Test Specimens in the Field
C33/C33M-13	Standard Specification for Concrete Aggregates
C39/C39M-14a	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
C94/C94M-14b	Standard Specification for Ready-Mixed Concrete
C109/C109M-13	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in [50-mm] Cube Specimens)
C138/C138M-14	Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
C143/C143M-05	Standard Test Method for Slump of Hydraulic-Cement Concrete
C144-11	Standard Specification for Aggregate for Masonry Mortar
C150/C150M-12	Standard Specification for Portland Cement
C157/C157M-08	Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete
C171-07	Standard Specification for Sheet Materials for Curing Concrete
C173/C173M-14	Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
C231/C231M-14	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 3 Specifications

C260/C260M-10a	Standard Specification for Air Entraining Admixtures for Concrete
C309-11	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
C387/C387M-11b	Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar
C494/C494M-13	Standard Specification for Chemical Admixtures for Concrete
C457/C457M-11	Standard Test Method for Microscopical Determination of Parameters of the Air-Void System in Hardened Concrete
C595/C595M-14	Standard Specification for Blended Hydraulic Cements
C618-12a	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
C881/C881M-14	Standard Specification Epoxy-Resin-Base Bonding Systems for Concrete
C928/C928M-13	Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
C989/C989M-14	Standard Specification for Slag Cement for Use in Concrete and Mortars
C1064/C1064M-12	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
C1116/C1116M-10a	Standard Specification for Fiber-Reinforced Concrete
C1157/C1157M-11	Standard Performance Specification for Hydraulic-Cement
C1202/C1202M-12	Standard Test Method for Electrical Indication of Concretes Ability to Resist Chloride Ion Penetration
C1240-14	Standard Specification for Silica Fume Used in Cementitious Mixtures
C1315-11	Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete
C1543-10a	Standard Test method for Determining the Penetration of Chloride Ion into Concrete by Ponding
C1582/C1582M-11	Standard Specification for Admixtures to Inhibit Chloride-Induced Corrosion of Reinforcing Steel in Concrete
C1583/C1583M-13	Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)
C1600/C1600M-11	Standard Specification for Rapid Hardening Hydraulic-Cement
C1602/C1602M-12	Standard Specification for Mixing Water Used in the Production of Hydraulic-Cement Concrete
D4580/D4580M-12	Standard Practice for Measuring Delaminations in Concrete Bridge Decks by Sounding

D. AWS Standards and Reports

D 1.4/D 1.4M	Structural Welding Code-Reinforcing Steel
--------------	---

E. CAN/CSA Standards and Reports

STRUCTURAL CONCRETE REPAIRS

© Infinite Engineering Group, LLC

030130-3

Division 3 Specifications

A 3000-13

Cementitious Materials Compendium

F. SSPC Standards and Reports

SP6/NACE No. 3

Commercial Blast Cleaning

G. Cited ICRI Technical Guidelines in this Specification

120.1-2009

Guidelines and Recommendations for Safety in the Concrete Repair Industry

210.3R-2013

Guide for Using In-Situ Tensile Pulloff Tests to Evaluate Bond of Concrete Surface Materials

310.1R-2008

Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion

320.2R-2009

Guide for Selecting and Specifying Materials for Repair of Concrete Surfaces

320.3R-2012

Guideline for Inorganic Repair Material Data Sheet Protocol

H. Standards-Producing Organizations:

American Association of State Highway and Transportation Officials (AASHTO)

American Concrete Institute (ACI)

American Welding Society (AWS)

ASTM International (ASTM)

Canadian Standards Association (CSA)

International Concrete Repair Institute (ICRI)

The Society for Protective Coatings (SSPC)

1.04 Unit Prices

- A. Submit unit prices for horizontal, vertical, overhead, and/or slab edge concrete repair as required in specification section 004100 – Bid Forms. Unit prices shall include costs for all activities related to the execution of the repair as described in 1.04B and 1.04C.
- B. All quantities and costs associated with the cleaning and adjustment of existing reinforcement are incidental and shall be included in the unit price for the Work. Replacement and new reinforcement and accessories shall be provided as part of the unit price for the repair Work unless separate unit prices are requested on the bid form.
- C. Unit Prices apply to authorized Work performed within the quantities defined by this Specification or the related sections.

1.05 Submittals

- A. The contractor shall submit in accordance with this Specification or the related section. Include product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material indicated.
- B. The contractor shall submit warranty information explicitly stating the manufacturer's warranty length.
- C. The contractor shall submit at least a 5 year warranty against workmanship and manufacturer/material failure.
- D. Shop Drawings
 - 1. Shoring and Bracing: Ensure the adequacy of the structure and temporary supports to withstand the anticipated loads during construction, and the effect of demolition on the capacity of the structure. Submit design calculations, sealed by an Engineer licensed to practice in the jurisdiction where the Work is performed, for shoring and bracing at all repair types. Submit shoring and bracing drawings, or documentation from the Shoring Engineer that none is required prior to the start of demolition on the structure.
 - 2. Formwork: Ensure the adequacy of the formwork to withstand the anticipated pressures exerted by the wet concrete. Submit design calculations, sealed by an Engineer licensed to practice in the jurisdiction where the Work is performed, for the formwork when required by the Design Professional. Submit formwork drawings.
 - 3. Reinforcement: Submit data and shop drawings in accordance with the requirements of ACI 301.
 - 4. Form and Pump: Pumps and fittings used for the placement of concrete in sealed forms shall be submitted. The proposed spacing of fittings and the means for assuring proper vibration and complete filling of the repair cavity shall be demonstrated.
- E. Repair Materials

1. Ready Mixed/Site Batch Concrete: Submit all proposed concrete mixture designs for use on the project. Mixture design submittals shall include trial-batch test results or historical test data for the specific mixture proposed. All components of ready mixed and site batched concrete shall be listed
2. Packaged Materials: Packaged material submittals shall include all relevant manufacturers' literature, including technical data. Submit data on materials and limitations where aggregate extension is planned.
3. Include MSDS for all materials submitted.
- F. Equipment and Procedures for Concrete Removal: Submittal a list of concrete removal equipment to be used on the project, and the locations and circumstances under which each piece of equipment will be used. Include special provisions that will be used to avoid post-tensioning tendons and related hardware, embedded conduit, or other embedded items not specified for removal. Include a description of procedures that will be used to dispose of waste water from water jetting, blasting, and hydro demolition.
- G. Equipment and Procedures for Surface Preparation: Submit a description of the equipment and procedures that will be used to achieve the required bond of the repair material.
- H. Submit a Placement Plan that includes hot and cold weather provisions, methods to achieve Saturated Surface Dry (if applicable) or to apply bonding agent if specified, consolidation, finishing, and curing.
- I. Concrete Conveyance and Placement Methods: Submit a summary of conveyance equipment and placement methods for the repair Work such as the using of pumping equipment, Georgia Buggies, etc., and provisions which will be taken related to these activities.
- J. Records Retention: Retain all design, as-built, and pre-condition records for a period of 7 years. These documents shall include, as a minimum, the original contract drawings and specifications, material submittals including MSDS, shop drawings, patch logs, test and inspections reports, progress photographs, warranties, and videos of pre-conditions.

1.06 Conference

- A. Prior to the start of work, the following personnel shall attend a preinstallation conference:
 1. Contractor's Project Manager
 2. Contractor's Superintendent
 3. Project Engineer
 4. Manufacturer's Representatives (Optional)

1.07 Quality Assurance

- A. The repair contractor shall have experience and expertise specific to all work within this Specification and the related sections.

- B. All work and materials are subject to observation and testing as directed by the Engineer. The cost for testing or any work in relation for testing shall not be paid by the Engineer.
- C. Notify the Engineer for scheduling purposes at least 24 hours in advance of when repair locations are ready for material placement and allow adequate time for inspection. Schedule all inspections with the Engineer. Any work covered up without inspection is subject to rejection by the Engineer.
- D. Provide and maintain a facility or location for the safe storage and proper curing of freshly cast test specimens. The temporary storage area and access for the Engineer or testing agency to perform concrete testing during placement shall comply with the requirements of ASTM C31/C31M.

1.08 Delivery, Storage, and Handling

- A. Deliver materials to the project site in the manufacturer's original and unopened containers, label intact with type and name of products and manufacturers.
- B. Comply with the manufacturer's written instructions for conditions for temperature requirements as well as other conditions for storage.
- C. Do not use materials that have exceeded their stated expiration date.
- D. Store all materials off the ground, under cover, and in a dry location. Protect from rain, water, freezing, excessive heat, foreign matter, and other damaging conditions until ready for use. If materials have frozen, obtain manufacturer's written approval prior to use. Do not stir liquids or mix materials until they are completely thawed. Do not force-thaw materials. Do not use damaged containers or broken bags.
- E. Comply with the material manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

1.09 Project Conditions

- A. Existing Electrical, Plumbing, and Mechanical Services:
 - 1. Protect all electrical conduits, boxes, wiring, and fixtures from damage. Safe removal of lighting fixtures and existing surface mounted electrical lines, when required, shall be the responsibility of the Contractor. All electrical lines shall be reattached to the structure after completion of the repairs.
 - 2. Take reasonable precautions to avoid damaging embedded electrical conduits. Reasonable precautions shall include, but are not limited to, reviewing existing documentation and connected services in combination with nondestructive testing to determine the layout of the conduit. Demolition equipment shall be selected to minimize damage to conduit. Damage to embedded conduits as a result of Contractor negligence shall be repaired by the Contractor at no cost to the Owner.
 - 3. Protect mechanical ductwork from the intake of dust particles and odor.

4. Protect plumbing, mechanical equipment, and ductwork from damage. Safe removal of plumbing, mechanical equipment, and ductwork, when required, shall be the responsibility of the Contractor. All plumbing, mechanical equipment, and ductwork shall be reattached to the structure after completion of the repairs.
5. Maintain electrical, plumbing, and mechanical services in continuous operation except as approved by the Owner.

1.10 Safety

- A. All Work shall be performed in accordance with the applicable provincial, local, state, and federal requirements for safety and the recommendations of ICRI 120.1.
- B. Maintain a copy of MSDS at the jobsite for all materials.

PART 2 – PRODUCTS

2.01 Equipment

- A. Select appropriate means and methods of concrete removal, cleaning of reinforcement, and preparation of the concrete substrate as defined in these specifications. Obtain acceptance from the Design Professional as to the type of equipment to be used. The following equipment or approved equivalent are permitted to be used.
 1. Chipping hammers with a total weight not to exceed:
 - a. 30 lb (13.6 kg) and equipped with appropriate chipping bits for initial demolition repair areas. 30 lb (13.6 kg) chipping hammers may be used at full depth repairs. In no case shall they be used to extend removal further than 2 inches from the bond line for a repair.
 - b. 15 lb (6.8 kg) with sharp pointed tools for the removal of concrete from partial depth repairs, beneath reinforcing bars, and around repair edges.
 2. Dry abrasive cleaning equipment capable of removing rust from the exposed steel reinforcement, and cleaning the surface of the exposed concrete substrate. Cleaning shall include the removal of damaged paste and aggregate.
 3. Pressure washing equipment capable of delivering at least 3000 psi (20.7 MPa) nozzle pressure for cleaning loose material from repair areas.
 4. Water blasting equipment capable of delivering pressures of 5000 psi (34.5 MPa) to 10,000 psi (69 MPa) for concrete surface preparation.
 5. Compressed air equipment capable of delivering compressed air free of oil for cleaning loose material from repair areas.
 6. Adjustable depth concrete saw for saw cutting the edges of repair areas.
- B. If hydrodemolition equipment is to be used, submit a Work plan to the Design Professional for acceptance, including temporary water connections, slurry filtration and treatment, pH

monitoring, and calibration procedures. Cost impacts such as the burden of water use, depth of removal ranges, charges for additional depth, and minimum repair size must be clarified in the Work plan.

- C. Select appropriate means and methods of placing concrete.

2.02 Products and Manufacturers

- A. Products and corresponding manufacturers cited in the sections that follow shall be the basis for pricing the Work. The Contractor must bid the specified products. The Contractor may require a substitution subject to review and acceptance by the Engineer.

B. Manufacturers

1. BASF
2. Euclid
3. Sika
4. Sto

C. Products

1. Horizontal Repairs (thicknesses/depths up to 1/2 inch)
 - a. MasterEmaco T 310 CI by BASF
 - b. SikaQuick 100 by Sika
2. Horizontal Repairs (thicknesses/depths greater than 1/2 inch)
 - a. MasterEmaco T 1061 by BASF
 - b. Sikacrete 211 SCC by Sika
3. Vertical Repairs
 - a. MasterEmaco N 400 RS by BASF
 - b. Sika VOH by Sika
4. Overhead Repairs
 - a. MasterEmaco N 425 by BASF
 - b. Sika VOH by Sika
5. Guardrail Post Pockets
 - a. Masterflow 100 Grout by BASF
 - b. SikaGrout 212 by Sika
6. Epoxy Protective Coating for Reinforcing Steel (Also Bonding Agents)
 - a. MasterEmaco P 124 by BASF
 - b. Sika Armatec 110 EpoCem by Sika
7. Crack Repair – Epoxy Gel
 - a. Sika Sikadur 31, Hi-Mod Gel by Sika
8. Crack Repair – Epoxy Resin
 - a. Sika Sikadur 35, Hi-Mod LV by Sika
9. Crack Repair – Injection Ports
 - a. One-way polyethylene valves or ports
10. Sloping (“Flash Patch”)
 - a. SikaQuick 1000 by Sika

b. Macecem Quickpatch by Maipei

11. Ready Mixed Concrete

- a. Portland Cement: Comply with ASTM C150/C150M Type I/II, III
- b. Supplementary Cementitious Materials
- c. Hydraulic Cement: Comply with ASTM C1157/C1157M, Types GU, HE, MS, HS, MH, or LH as specified for the Work, or ASTM C595/C595M.
- d. Rapid Hardening Hydraulic Cement: Comply with ASTM C1600/C1600M, Types either GRH, MRH, VRH, or URH as specified for the Work.
- e. Air-entraining admixture: Comply with ASTM C260/C260M and ACI 301 requirements for very severe freezing-and-thawing exposure Class F3 based on the coarse aggregate size, or evidence of adequate freezing-and-thawing durability of the mixture design shall be submitted to the Design Professional, along with the material data submittal for review and acceptance.
- f. Water-Reducing admixtures: Water-reducing admixtures shall comply with ASTM C494/C494M Type A.
- g. Retarding admixture: Retarding admixture shall conform to ASTM C494/C494M, Type B.
- h. Non-Chloride accelerating admixtures shall conform to ASTM C494/C494M, Type C.
- i. Water-Reducing and Retarding admixtures: Water-Reducing and retarding admixtures shall comply with ASTM C494/C494M Type D.
- j. High-Range Water-Reducing admixtures: High-Range water-reducing admixtures shall comply with ASTM C494/C494M, Type F.
- k. High-Range Water Reducing and Retarding admixtures: High-Range water-reducing and retarding admixture shall comply with ASTM C494/C494M Type G.
- l. Corrosion-Inhibiting admixture: Corrosion-inhibiting admixture shall conform to ASTM C1582/C1582M.
- m. Fiber Reinforcement:
 - a. Steel-Fiber Reinforcement: Steel-fiber reinforcement shall conform to ASTM A820/A820M and C1116/C1116M, Type I
 - b. Microfiber Reinforcement: Microfiber reinforcement shall conform to ASTM C1116/C1116M, Type III.
 - c. Macrofiber Reinforcement: Macrofiber reinforcement shall conform to ASTM C1116/C1116M, Type III.
- n. Water: Conform to ASTM C1602/C1602M. Concrete batch water shall be reduced for the addition of admixtures containing water in accordance with the manufacturer's statements regarding free water in the admixtures.
- o. Coarse Aggregate: Nominal maximum size and gradation appropriate for the dimensions of the repair area. Comply with ASTM C33/C33M.
- p. Fine Aggregate: Comply with ASTM C33/C33M.
- q. Concrete Mixture:

- a. Concrete mixture shall conform to exposure classes F3, C2 [F1] [F2] [P1] [S1] [S2] [S3]
 - b. Minimum Compressive Strength: 5,000 psi (34.5 MPa)
 - c. Maximum Water-Soluble Chloride Content: 0.06% by weight of cement
 - d. Air Content 7.5% +/- 1.5%
 - e. Nominal Maximum Aggregate Size: 0.375 inches (9.5 mm)
 - f. Minimum Cementitious Material Content: 600 lb/cy (356 kg/cubic meter)
- 12. Steel Reinforcement and Accessories
 - a. Steel Reinforcing Bars and Accessories for replacement of corroded reinforcement: Reinforcing bars shall be ASTM A615, Grade 60, deformed.
 - b. Chairs shall have plastic feet or shall be plastic coated.
 - c. Plain-Steel Welded Wire Reinforcement shall conform to ASTM A1064/A1064M.
- 13. Miscellaneous Materials
 - a. Formwork Materials: Form-facing materials shall be plywood or other material conforming to the requirements of ACI 301.
 - b. Doweling Bonding Materials: Material for bonding reinforcing the existing concrete shall be specified on a case by case basis.

PART 3 – EXECUTION

3.01 Examination

- A. Notify the Engineer at least 24 hours in advance of times when areas of deteriorated concrete will be located.
- B. Located areas of delamination using hammer sounding, golf club sounding, and/or chain-drag sounding in accordance with ASTM D4580, mark boundaries, and arrange for the Engineer to inspect and approve the layout geometry. Layout geometry shall be performed in accordance with ICRI 310.1R.

3.02 Protection

- A. Precautions: Protect pedestrians; motor vehicles; mechanical, electrical, and plumbing equipment; surrounding construction; project site; landscaping; and surrounding buildings from damage or injury resulting from concrete rehabilitation Work.
 - 1. Neutralize and collect alkaline and acid wastes for proper disposal off-site in accordance with Local, State, and Federal regulations.
 - 2. Dispose of runoff from wet operations in accordance with all local ordinances and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
 - 3. Comply with local noise ordinances during demolition operations.
 - 4. Protect all new repair Work from vibrations, dust, and any deleterious environmental effects during the Work. Provide adequate cure time for concrete repairs to allow for

compressive and bond strength gain prior to performing demolition adjacent to the repairs.

3.03 Formwork and Shoring

A. General:

1. Construction forms to sizes, shapes, lines, and dimensions to match existing adjacent surfaces and textures.
2. Provide for openings, offsets, moldings, chamfers, anchorages, inserts, and others required features.
3. Construct forms to accommodate installation of products by other trades.
4. Provide for easy removal of form without damage to the concrete and adjacent surfaces.
5. Apply an appropriate form release coating over surfaces of formwork prior to erecting in-place before each concrete placement. Form release agents shall not be applied to or come in contact with the concrete substrate or reinforcement at any time.
6. Provide ports through slabs where required to install repair materials at soffits and beams and to vent air during concrete placement.
7. Provide ports through the sides of forms where required to install repair materials. Remove and patch ports immediately after removal of forms.

B. Shoring: Provide shoring and bracing in accordance with the shoring and bracing drawings prior to performing work.

3.04 Preparation and Bonding

A. Partial-depth Concrete Removal: Removal of deteriorated concrete, surface preparation, and provisions for reinforcement in areas to be repaired shall be conducted in accordance with ICRI 310.2R. The surface of the repair area shall be roughened to a minimum surface profile of CSP 7, as described in ICRI 310.2.R. In addition, the following criteria shall be met within the repair locations:

1. Repair configurations should be kept as simple as possible and shall preferably have square corners.
2. The aspect ratio of the repair area for slabs shall be as square as possible, not exceeding 1.25: to 1.5:1. Odd shapes shall be avoided. If they cannot be avoided, re-entrant corners shall be mitered or reinforced to limit cracking at these locations.
3. Remove concrete using power equipment such as impact breakers or as required for hydrodemolition.
4. Remove all loose and deteriorated concrete from the slabs by breaking up and dislodging concrete. Extend the repair to beyond the corrosion on the reinforcing bars. Where half or more of the perimeter of reinforcing bar is exposed, bond between the reinforcing bar and surrounding concrete is broken, or the reinforcing bar is corroded, remove concrete from the entire perimeter of the bar to provide at least 0.75 inches (19.1 mm) clearance between exposed reinforcing steel and surrounding concrete or 0.25 inches (6.3 mm)

- larger than the coarse aggregate in the repair material, whichever is greater. Reinforcing bars in both directions shall have the required clearance (if applicable).
5. Remove all loose and deteriorated concrete from the walls by breaking up and dislodging concrete. Extend repairs to beyond the corrosion on the reinforcing bars. Where half or more of the perimeter of the reinforcing bar is exposed, bond between the reinforcing bar and surrounding concrete is broken, or the reinforcing bar is corroded, remove concrete from the entire perimeter of the bar to provide at least 0.75 inches (19.1 mm) clearance between exposed reinforcing steel and surrounding concrete or 0.25 inches (6.3 mm) larger than the coarse aggregate in the repair material, whichever is greater. Reinforcing bars in both directions shall have the required clearance (if applicable).
 6. Remove all loose and deteriorated concrete from the columns by breaking up and dislodging concrete. Extend the repairs to beyond the corrosion on the reinforcing bars. Remove additional concrete at the perimeter of the vertical steel as required to provide a minimum clearance of 0.75 inches (19.1 mm) behind the horizontal steel.
 7. Remove all loose and deteriorated concrete from the beams by breaking up and dislodging concrete. Extend the repairs to beyond the corrosion on the reinforcing bars. Remove additional concrete at the perimeter of the horizontal steel as required to provide a minimum clearance of 0.75 inches (19.1 mm) behind the horizontal steel.
 8. Test areas where concrete has been removed by tapping with a mason's hammer or golf club, and remove additional concrete until unsound concrete is completely removed.
- B. Full-depth Concrete Removal: Procedures described previously in the paragraphs for partial- depth removal shall be followed except that the depth of removal shall extend through the entire thickness of the concrete section. Saw cuts and chipped edges shall be provided at the perimeter of the repair. In the case of slabs, the saw cuts and chipped edges shall be provided at both the top and at the underside. Special care must be taken to provide shoring around the perimeter of the full-depth removal area in accordance with the approved shoring plan. Precautions regarding falling debris must be taken to prevent damage to structures or other property below the removal area.
- C. Concrete Cavity Surface Preparation:
1. Saw-cut the perimeter of areas indicated for removal and beyond the corrosion on the reinforcement to a depth of approximately 0.5 inches (12.7 mm). All edges shall be straight. Care must be taken to avoid cutting reinforcing bars, including the adjustment of the 0.5 inches (12.7 mm) saw cut in areas with less than 0.5 inches (12.7 mm) concrete cover. Make cuts perpendicular to concrete surfaces, or slightly undercut, and no deeper than the existing cover over reinforcement. Provide chipped vertical edges for the full depth of the repair. Roughen saw-cut edges.
 2. Remove bruised concrete substrate weakened by microcracking by abrasive blasting or high-pressure water blasting with or without abrasive. When water blasting, provide 5,000 psi (34.5 MPa) water pressure or higher if required to satisfy the tensile

bond requirements. Keep nozzle not less than 6 in. (152.4 mm) and no more than 12 in. (304.8 mm) away from the surface.

D. Reinforcing Bar Preparation: Remove concrete fragments, corrosion product, mill scale, and other contaminants from reinforcing bars by wire wheeling or commercial blast cleaning in accordance with SSPC-SP 6 until a bare metal finish has been achieved on the reinforcing bars.

1. Where section loss of reinforcing bars is more than 20% of the cross-sectional area, splice replacement bars to existing bars as directed by the Engineer. Remove additional concrete as necessary to provide at least a 0.75 in. (19.1 mm) clearance beyond existing and replacement or supplemental bars. Splice replacement bars to existing bars according to ACI 301 by lapping, welding, or using noncorrosive mechanical couplings. Welding, when approved by the Engineer, shall be in accordance with AWS D1.4/D1.4M.
2. At areas around the repair perimeters where the development length cannot be achieved within the repair, drill into sound concrete as shown on the drawings or directed by the Engineer to provide the required bar development and splice length, or remove additional concrete to allow for the splice. Reinforcement shall be bonded to the existing concrete with the dowel bonding material in accordance with the approved manufacturer's recommendations.
3. Replace existing reinforcing bars where shown or directed by the Engineer.
4. Provide support chairs, slab spacers, and holding bars properly spaced and with sufficient strength to carry loads of reinforcement and deposited concrete without collapsing or allowing bars to sag. All accessories used at exposed concrete must have plastic tips capable of resisting concrete stains.
5. Place reinforcing bars accurately and tie firmly in place. Replace or supplement reinforcing bars in accordance with the size and spacing noted on the repair drawings.
6. Provide the minimum concrete cover as specified on the repair drawings. In areas where the minimum concrete cover for outer mat reinforcement cannot be achieved without mounding of the repair concrete, the outer mat reinforcing bars are permitted to be bent, if practical, to achieve the required cover. Alternately, the Contractor is permitted, with the Design Professional's acceptance, to extend the limits of concrete removal to expose the entire bar to allow for lowering of the bars.

E. Protect prepared surfaces from the elements until ready to place repair materials.

F. Cleaning

1. Remove bond-inhibiting materials (dirt, concrete slurry, loosely bonded aggregates, etc.) by abrasive blasting or low-pressure water blasting with or without abrasive. When water blasting, provide 3,000 psi (20.7 MPa) or greater water pressure. Keep nozzle not less than 6 in. (152.4 mm) and no more than 12 in. (304.8 mm) away from the surface to be cleaned.

2. Confine, collect, and dispose of broken concrete, sandblast grit, dust, debris, removed reinforcement, and other waste material resulting from removal operations and surface preparation in a safe and legal manner.
3. Check concrete surfaces after cleaning to ensure they are free of loose aggregate, microcracking, and additional delaminations.
4. Thoroughly clean removal areas of loose concrete, dust, and debris using high-pressure oil-free air.

G. Bonding:

1. Saturated Surface-Dry Substrate: Predampen concrete substrates surfaces to saturated surface-dry condition immediately prior to placement.

3.05 Concrete Mixing, Conveying, and Placement

- A. Mixing, conveying, and placement shall conform to the requirements of ACI 301, except as modified within these specifications.
- B. Use placement methods suitable for each particular field situation.
- C. Place repair materials within open time of any mortar scrub coat or bonding agent.
- D. Mix and place packaged repair materials in accordance with the manufacturer's written instructions.
- E. Ready Mixed concrete shall be batched, mixed, and delivered in accordance with the requirements of ASTM C94/C94M.
- F. Fully consolidate the concrete as required to encapsulate the reinforcement, fill all voids, and avoid honeycombing.

3.06 Finishing and Curing

- A. Finishing: Finish concrete to match adjacent existing concrete surfaces.
- B. Curing: Cure repairs for a minimum of 72 hours unless otherwise specified. Ready mixed concrete shall be cured for a minimum of 7 days. Packaged repair materials shall be cured no less than the time recommend by the manufacturer.
 1. Wet-cure all repair locations following placement and finishing.
 2. Apply curing compound to the repair areas in accordance with the manufacturer's written instructions and at the minimum rates and number of applications specified by ACI 301.
 3. Remove curing compound prior to installation of coatings or finishes in accordance with the manufacturer's specified procedures.
 4. Apply curing/sealing compound to the repair areas in accordance with the manufacturer's written instruction and at the minimum rates and number of applications specified by ACI 301.
- C. Formwork Removal: Removal of formwork and shoring shall not occur until both of the following criteria have been met:
 1. Repair material has cured for a minimum of 72 hours unless otherwise permitted by the Engineer.

2. Repair material has attained a minimum compressive strength of 4,000 psi (27.6 MPa) as determined by testing of field-cured cylinder samples. Loading of the slab with design live loads shall not occur until the concrete has attained a minimum compressive strength of 5,000 psi (34.5 MPa) based on field-cured cylinder samples.
- D. Grind the perimeter of all formed surfaces at the interface with the existing concrete to remove all loose material and provide a smooth transition from new to existing concrete.
 1. Additional finishing shall be performed as required to match the existing concrete surface.

3.07 Field Quality Control

- A. Testing Agency: The Owner or Contractor will engage the Engineer or a Testing Agency under the direction of the Engineer to inspect, sample, and test materials. **Testing to be performed as directed by the Engineer.**
- B. Steel Reinforcement: Provide 24 hour minimum notification to the Engineer to arrange for inspection of forms, reinforcement, reinforcement placement, and embedded items prior to any concrete placement.
- C. Concrete Placement: Provide 24-hour minimum notification to the Engineer to arrange for inspection of concrete placement, finishing, and curing. Inspection, testing, and reports shall be in accordance with the requirements of ACI 301.
- D. Packaged Repair Material Concrete: Sample and test according to the appropriate section of ASTM C387/C387M for standard setting materials and ASTM C928/C928M for rapid hardening materials.
 1. Test slump of each sample used to mold cylinders in accordance with ASTM C143/C143M.
 2. Tests air content of each sample used to mold cylinders in accordance with ASTM C231 or ASTM C173/C173M.
 3. Test temperature of each sample used to mold cylinders in accordance with ASTM C1064/C1064M.
 4. Test density of each sample used to mold cylinders in accordance with ASTM C138/C138M.
 5. Mortar compression tests shall be performed in accordance with ASTM C109/C109M.
 6. Concrete compression tests shall be made and tested in accordance with ASTM C31/C31M and ASTM C39/C39M, respectively.
 7. Mold one set of nine cylinders each day that concrete is placed. When more than 50 yd³ (38 m³) are placed per day, mold an additional set of nine test cylinders for each 50 CY (38 m³) or fraction thereof placed. One set of three cylinders shall be tested at 7 days and one set at 28 days. The third set may be discarded if tests meet acceptance criteria.

8. Mold one set of 12 cylinders each day that concrete is placed to allow for strength verification when a minimum concrete strength is required to remove shoring. When more than 50 yd³ (38 m³) are placed per day, mold an additional set of 12 test cylinders for each 50 yd³ (38 m³) or fraction thereof placed. Cylinders that are to be tested to demonstrate that the concrete has reached the compressive strength required to permit removal of the shoring shall be field-cured under the same conditions as the concrete they represent. Six cylinders shall be laboratory-cured with one set of three tested at 7 days and one set at 28.
9. Test length change of each sample used to mold cylinders in accordance with ASTM C157/C157M modified in accordance with the recommendations of ICRI 320.3R.
10. Make an additional cylinder from each sample used to mold cylinders for compression testing. Test air content of these cylinders in accordance with C457/C457M.

E. Ready Mixed concrete

1. Test slump of each sample used to mold cylinders in accordance with ASTM C143/C143M.
2. Test air content of each sample used to mold cylinders to slump in accordance with ASTM C231/C231M or ASTM C173/C173M.
3. Test temperature of each sample used to mold cylinders in accordance with ASTM C1064/C1064M.
4. Test density of each sample used to mold cylinders in accordance with ASTM C138/C138M.
5. Concrete compression tests shall be made and tested in accordance with ASTM C31/C31M and ASTM C39/C39M, respectively.
6. Mold one set of six cylinders each day that concrete is placed. When more than 50 yd³ (38 m³) yards are placed per day, mold an additional set of six test cylinders for each 50 yd³ (38 m³) or fraction thereof placed. One set of two cylinders shall be tested at 7 days and one set at 28 days. The third set may be discarded if tests meet acceptance criteria.
7. Mold one set of eight cylinders each day that concrete is placed to allow for strength verification when a minimum concrete strength is required to remove shoring. When more than 50 yd³ (38 m³) are placed per day, mold an additional set of eight test cylinders for each 50 yd³ (38 m³) or fraction thereof placed. Cylinders that are to be tested to demonstrate that the concrete has reached the compressive strength required to permit removal of the shoring shall be field-cured under the same conditions as the concrete they represent. Four cylinders shall be laboratory-cured with one set tested at 7 days and one set at 28.
8. Test length change using samples from material used to mold cylinders in accordance with ASTM C157/C157M and as modified in ICRI 320.3R.

F. Substrate Testing:

1. Perform testing and the evaluation of the results in accordance with ASTM C1583 and ICRI 210.3R.
2. Prior to making repairs, conduct one set of a minimum of three pull-off tests to determine the condition of the substrate at the level of the proposed repairs in each repair type and for each surface preparation procedure. One set of a minimum of three pull-off tests shall also be conducted on a similar nearby undamaged existing surface for comparison to the strength at the prepared substrate.
3. Perform one set of three in-situ tensile pull-off tests on prepared substrates for each 1000 ft² (93 m²) of partial-depth repair performed.

G. Bond Testing:

1. Perform testing and the evaluation of the results in accordance with ASTM C1583 and ICRI 210.3R.
2. Prior to making repairs, conduct one set of a minimum of three pull-off tests to verify the bond between the repair material and the existing concrete for each repair material and each surface preparation procedure in order to establish baseline acceptance criteria. Perform one set of three in-situ tensile pull-off tests on completed repairs to evaluate the bond for each 1000 ft² (93 m²) of partial-depth repair.

H. Permeability Testing:

1. Determine the chloride permeability of the repair materials in accordance with ASTM C1543 and ASTM C1202/C1202M.

3.08 Other

A. Epoxy Crack Repair

1. Remove dirt, dust, algae, laitance, efflorescence, deteriorated concrete, and/or any other materials that will prohibit adequate cap seal adhesion from the surface by mechanical means.
2. Remove loose dust, obstructions, and any other materials that will prohibit adequate performance from the areas to be repaired by vacuum, oil-free compressed air, or other approved means.
3. Mixing: follow the manufacturer's recommended procedures for mixing epoxy.
4. Injection ports: place epoxy injection ports as required for proper application as per the manufacturer's recommended procedures. Port spacing shall not be less than the thickness of the concrete substrate that is subject to repair.
5. Cap seal: seal surface of the crack with epoxy gel as necessary to prevent leakage of the injection resin. Cap seal through-cracks on opposite side of substrate as necessary to prevent leakage of the injection resin.
6. Injection: Apply mixed low viscosity epoxy resin using recognized procedures without entrapping air or water. Low viscosity epoxy resin crack fill shall be a minimum 90%.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 3 Specifications

- a. Vertical and Inclined Orientations: Start injection process on port at the lowest elevation. When epoxy shows at port above, cap the lower entry port and continue the injection process on the second port. Continue the process until all ports have been injected and pressure is maintained.
- b. Horizontal Orientation: Injection from one end of the crack to the other using the same port-to-port procedures mentioned above. When possible, inject from bottom side of structure (overhead).
7. Gravity Feed: Surface seal the bottom side of the structure with epoxy gel. Route a v-notch in the crack. Pour neat epoxy resin into the v-notch until the crack is completely full. Low viscosity epoxy resin crack fill shall be a minimum 90%.
8. Clean Up: After sufficient cure of the epoxy resin, remove ports and cap seal by appropriate methods, leaving an accepted finish.

B. Guardrail Post Pocket Repair

1. Remove existing post base (if possible) and related materials in their entirety and fill old post location with epoxy based grout.
2. Core drill post location. Care shall be taken as to not damaging the existing reinforcing steel.
3. Install post.
4. Once post has been aligned, fill core hole with epoxy grout.
5. Drill ¼” diameter hole ¾” of an inch from the substrate from the substrate and fill post with either an epoxy or a two component self leveling polyurethane sealant up to the base of the hole, if directed by the engineer.

C. Sloping (“Flash Patch”)

1. Water test areas to determine the level and locations of areas to be sloped.
2. Allow water to stand a minimum of one hour to allow excess water to drain.
3. Mark perimeter of ponding areas.
4. Saw cut marked perimeter approximately ¼” wide and ½” deep. Care shall be taken as to not damage the existing reinforcing steel.
5. Provide a concrete surface profile for the sloping material in accordance with the manufacturer’s requirements.
6. Install repair materials while ensuring slope correction.
7. Grind areas flush with the existing concrete surface profile.
8. Do not slope or “flash patch” to a feather’s edge.
9. Re-water test to ensure proper drainage.
10. Additional sloping required due to improper sloping procedures by the Contractor shall be the responsibility of the Contractor.

END OF SECTION

SECTION 071416 – COLD FLUID-APPLIED WATERPROOFING

PART 1 – GENERAL

1.01 Summary

- A. Work shall include, but is not limited to, the following:
 - 1. Preparation of existing concrete decks, and all flashing substrates.
 - 2. Cold fluid-applied waterproofing for planter(s) applications.
 - 3. All related materials and labor required to complete specified waterproofing necessary to receive specified manufacturer's warranty.
- B. Related Sections
 - 1. Division 011000 – Summary of Work
 - 2. Division 030130 – Structural Concrete Repairs
 - 3. Division 079200 – Joint Sealants
 - 4. Division 092400 – Stucco Maintenance and Repair

1.02 References

- A. American Society Of Civil Engineers - Reference Document ASCE 7, Minimum Design Loads for Buildings and Other Structures (ASCE 7-22).
- B. American Standard Of Testing Methods (ASTM):
 - 1. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants
 - 2. ASTM C 957 - Standard Specification for High-Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane With Integral Wearing Surface
 - 3. ASTM C 1127 - Standard Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with an Integral Wearing Surface
 - 4. ASTM C 1193 - Standard Guide for Use of Joint Sealants
 - 5. ASTM C 1305 - Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane
 - 6. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics
 - 7. ASTM D 1353 - Standard Test Method for Nonvolatile Matter in Volatile Solvents for Use in Paint, Varnish, Lacquer, and Related Products
 - 8. ASTM D 1640 - Standard Test Methods for Drying, Curing, or Film Formation of Organic Coatings
 - 9. ASTM D 2240 - Standard Test Method for Rubber Property—Durometer Hardness
- C. Florida Building Code (FBC):
 - 1. 2023 Florida Building Code (FBC).
- D. International Concrete Repair Institute (ICRI).
 - 1. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair

1.03 Action Submittals

- A. Product Data Sheets: Submit manufacturer's product data sheets, installation instructions and/or general requirements for each component.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

- B. Safety Data Sheets: Submit manufacturer's Safety Data Sheets (SDS) for each component.
- C. Sample warranty from the manufacturer and contractor.

1.04 Informational Submittals

- A. Submit a letter from the waterproofing manufacturer indicating the contractor is an authorized applicator.
- B. Product Test Reports: Test data for waterproofing products and waterproofing system, by qualified testing agency, indicating proposed traffic coating meets performance requirements, when requested by Architect.
- C. Warranty: sample of unexecuted manufacturer and installer special warranties.
- D. Field quality control reports.

1.05 Closeout Submittals

- A. Warranty: Provide manufacturers and contractor's warranties upon project completion.

1.06 Quality Assurance

- A. Contractor Qualifications:
 - 1. 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 all contractors, engineers, and employees
 - 2. Contractor shall be authorized by the manufacturer to install specified materials prior to the bidding period through satisfactory project completion.
 - 3. Applicators shall have completed projects of similar scope using same or similar materials specified.
 - 4. Contractor shall provide full time, on-site superintendent or foreman experienced with the specified waterproofing coating from beginning through satisfactory project completion.
 - 5. Applicators shall be skilled in the application methods for all materials.
 - 6. Contractor shall maintain a daily record, on-site, documenting material installation and related project conditions.
 - 7. Contractor shall maintain a copy of all submittal documents, on-site, available always for reference.
- B. Mockups:
 - 1. Provide waterproofing mockup application within mockups required in other sections, or if not specified, in an area of not less than 90 sq. ft. of surface where directed by Owner or Engineer 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.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

- a. Include intersections of deck traffic coating/waterproofing to planter waterproofing system and with adjacent vertical coating and moisture control system applications.
- C. Environmental Requirements:
 - 1. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by traffic coating manufacturer.
 - a. Protect substrates from environmental conditions that affect system performance.
 - b. Do not apply waterproofing to a damp or wet substrate or during snow, rain, fog, or mist.

1.07 Delivery, Storage, and Handling

- A. Refer to each product data sheet or other published literature for specific requirements.
- B. Deliver materials and store them in their unopened, original packaging, bearing the manufacturer's name, related standards, and any other specification or reference accepted as standard.
- C. Protect and store materials in a dry, well-vented, and weatherproof location. Only materials to be used the same day shall be removed from this location. During cold weather, store materials in a heated location, removed only as needed for immediate use.
- D. When materials are to be stored outdoors, store away from standing water, stacked on raised pallets or dunnage, at least 4 in or more above ground level. Carefully cover storage with “breathable” tarpaulins to protect materials from precipitation and to prevent exposure to condensation.
- E. Properly dispose of all product wrappers, pallets, cardboard tubes, scrap, waste, and debris. All damaged materials shall be removed from job site and replaced with new, suitable materials.

1.08 Site Conditions

- A. Safety:
 - 1. The contractor shall be responsible for complying with all project-related safety and environmental requirements.
 - 2. The contractor shall review project conditions and determine when and where conditions are appropriate to utilize the specified liquid-applied, or semi-solid materials. When conditions are determined by the contractor to be unsafe or undesirable to proceed, measures shall be taken to prevent or eliminate the unsafe or undesirable exposures and conditions, or equivalent approved materials and methods shall be utilized to accommodate requirements and conditions.
 - 3. The contractor shall refer to product Safety Data Sheets (SDS) for health, safety, and environment related hazards, and take all necessary measures and precautions to comply with exposure requirements.
- B. Environmental Conditions:
 - 1. Monitor substrate temperature and material temperature, as well as all environmental conditions such as ambient temperature, moisture, sun, cloud

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

cover, wind, humidity, and shade. Ensure conditions are satisfactory to begin work and ensure conditions remain satisfactory during the installation of specified materials. Materials and methods shall be adjusted as necessary to accommodate varying project conditions. Materials shall not be installed when conditions are unacceptable to achieve the specified results.

2. Precipitation and dew point: Monitor weather to ensure the project environment is dry before, and will remain dry, during the application of waterproofing coating materials. Ensure all waterproofing coating materials and substrates remain above the dew point temperature as required to prevent condensation and maintain dry conditions.

1.09 Performance Requirements

- A. Wind Uplift Resistance:
 1. System Design Pressures: Calculated in accordance with ASCE 7, or applicable standard, for the specified roof system attachment requirements.
 - a. Design Pressures:
 - i. Corners of Roof (Zone 3): **-139.2 PSF**
- B. Slope:
 1. Finished sloped to pitch towards drains.
- C. 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.
- D. 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.

1.10 Warranty

- A. 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:
 1. Applicator shall submit documentation from the membrane manufacturer to verify contractor's status as a qualified approved applicator for warranted installations.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which waterproofing manufacturer agrees to furnish 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.
 1. Access for Repair: Owner shall provide unimpeded access to the Project and the traffic coating system for purposes of testing, leak investigation, and repair.
 2. Cost Limitation: Manufacturer's obligation for repair or replacement shall be limited to the original installed cost of the work.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

3. Warranty Period: Twenty years (20) from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of traffic coating materials from the following:
 1. Movement of the structure caused by structural settlement or stresses on the traffic coating exceeding manufacturer's written specifications for elongation.
 2. Mechanical damage caused by outside agents.

PART 2 – PRODUCTS

2.01 Manufacturer

- A. Single Source Manufacturer: Provide traffic coating products manufactured by **Tremco, Inc., Commercial Sealants and Waterproofing Division, An RPM Company**, Beachwood OH; (866) 321-6357; email: techresources@tremcoinc.com; www.tremcosealants.com, Source Limitations: Provide traffic coating system materials and accessory products from single source from single manufacturer.
 1. Comply with the Manufacturer's requirements as necessary to provide the specified warranty.

2.02 Waterproofing Membrane

- A. Cold Fluid-Applied Waterproofing: Polyurethane-methacrylate (PUMA)-based membrane. A two-component methacrylate-based (PUMA) liquid membrane. Tremco TREMProof PUMA (horizontal waterproofing system).
 1. Basis of Design Product: Tremco, Inc., Tremco PUMA BC or BC LM.
 2. VOC Content: 0 g/L, all grades.
 3. Elongation ASTM D 638 407%
 4. Low Temperature ability and Crack Bridging, ASTM C 1305: Pass
 5. Tensile Strength D 638 degrees F 1,680 psi

2.03 Accessories

- A. 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.
- B. Substrate Patching Material: Waterproofing manufacturer's standard trowel-grade filler material.
- C. Primer: Tremco PUMA Primer.
- D. Detailing Membrane: Tremco PUMA BC T thixotropic polyurethane methacrylate based membrane for use in detailing and field applied cant beads.
- E. Flashing Membrane for Vertical and penetration applications: Tremco PUMA BC R
- F. Crack filler and Patching material; Tremco PUMA WC and silica
- G. Top Coat: Tremco PUMA TC Initiator: Tremco PUMA Initiator, used to catalyze all EWS resins
- H. Cleaner: Tremco PUMA Cleaner

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

- I. Sealant
 - 1. Dymonic 100

PART 3 – EXECUTION

3.01 Examination

- A. Examination includes visual observations, qualitative analysis, and quantitative testing measures as necessary to ensure conditions remain satisfactory throughout the project.
- B. The contractor shall examine all substrates including, but not limited to concrete decks, concrete walls, CMU walls, curbs, equipment, fixtures, coping, interfaces with planters, and wood blocking.
- C. The applicator shall not begin installation until conditions have been properly examined and determined to be clean, dry and, otherwise satisfactory to receive specified materials.
- D. During the application of specified materials, the applicator shall continue to examine all project conditions to ensure conditions remain satisfactory to complete the specified system.
- E. Before applying waterproofing materials, 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.
 - 1. 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 contaminants.
 - 2. Test surfaces following cleaning and abrasion specified below.
 - a. Verify concrete and masonry surfaces are visibly dry, have cured for time period recommended by waterproofing manufacturer, and are free from release agents, curing agents, laitance, and other contaminants. Test for capillary moisture by plastic sheet method according to ASTM D 4263 moisture level must be less than 6%. Test for waterproofing adhesion per manufacturer's recommended method. Notify Architect of unsatisfactory conditions.
 - b. Verify the concrete has a #3-4 ICRI CSP and a minimum compressive strength of 3000 psi
 - c. Verify masonry joints are filled with mortar and struck flush.
- F. Proceed with installation once unsatisfactory conditions have been remedied.

3.02 Interface With Other Work

- A. Sequencing of Work: Coordinate sequencing of waterproofing work with work of other sections that form portions of building envelope moisture control to ensure that flashings and transition materials can be properly installed and inspected.
- B. Subsequent Work: Coordinate waterproofing work with work of other sections installed subsequent to waterproofing to ensure complete inspection of installed waterproofing and sealing of waterproofing penetrations necessitated by subsequent

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

work.

3.03 Preparation

- A. Surface Preparation:
 - 1. Mask adjacent finished surfaces.
 - 2. Remove contaminants and film-forming coatings from substrates.
 - 3. Remove projections and excess materials and fill voids with substrate patching material.
 - 4. Prepare and treat joints and cracks in substrate per ASTM D 4258 and waterproofing manufacturer's written instructions.
- B. 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 waterproofing manufacturer's written instructions and details, using accessory materials specified.

3.04 Waterproofing Installation

- A. Apply waterproofing material within manufacturer's recommended application temperature ranges.
- B. Primer: Apply primer to substrates at required rate, using a roller or brush. Allow to dry.
- C. Start application with manufacturer's authorized representative present.
- D. Cold Fluid-Applied Waterproofing: Apply waterproofing in total wet film thickness and with methods recommended in writing by waterproofing manufacturer's application instructions.
- E. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates and reapply waterproofing components.

3.05 Protection Installation

- A. Protection Course:
 - 1. Apply Tremco PUMA TC to areas exposed to pedestrian traffic and long term UV exposure greater than 3 weeks. Planter applications require Tremco 20-mil or 40-mil polyethylene sheet root barrier or VR RootBloc 10, 20 or 40.
- B. Drainage Panel: Place and secure drainage panels using methods that do not penetrate waterproofing. Face geotextile away from deck substrate. Lap edges and ends of geotextile (if applicable).
- C. Insulation: Install one or more layers of board insulation as required, staggering joints. Fit within 1/2 inch (12 mm) of projections and penetrations. (if applicable).

3.06 Field Quality Control

- A. Testing Agency: Engage a qualified testing agency to inspect substrate conditions, surface preparation, waterproofing application, protection, and drainage components, and to furnish reports to Engineer, if Engineer is not the Special Inspector.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

- B. 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.
 - 1. Do not cover Work until testing and inspection is completed and accepted.
- C. Reporting: Forward written inspection reports to the Engineer within 3 working days of the inspection and test being performed.
- D. Correction: Correct deficient applications not passing tests and inspections, make necessary repairs, and retest as required to demonstrate compliance with requirements. All corrections to be at the sole expense of the Contractor.

3.07 Cleaning and Protecting

- A. Clean spills, stains, and overspray resulting application utilizing cleaning agents recommended by manufacturers of affected construction. Remove masking materials.
- B. Protect waterproofing from damage from subsequent work. Protect waterproofing materials from exposure to UV light for period in excess of that acceptable to waterproofing manufacturer; replace overexposed materials and retest.
- C. Clean-up and properly dispose of waste and debris resulting from these operations each day as required to prevent damages and disruptions to operations.

END OF SECTION

TREMPROOF® PUMA PLANTER SYSTEMS

Features & Benefits

- No root barrier required
- Extreme durability with exceptional crack-bridging characteristics, eliminating the need for reinforcing fabric
- 30 to 45 minute cure time between coats; ability to proceed to overburden 1 hour after application
- Can be applied at temperatures as low as to 14 °F (-10 °C)
- Zero Volatile Organic Compounds (VOCs)
- Compatible with approved Tremco sealants and coatings
- Premium waterproofing system backed by an all-inclusive warranty

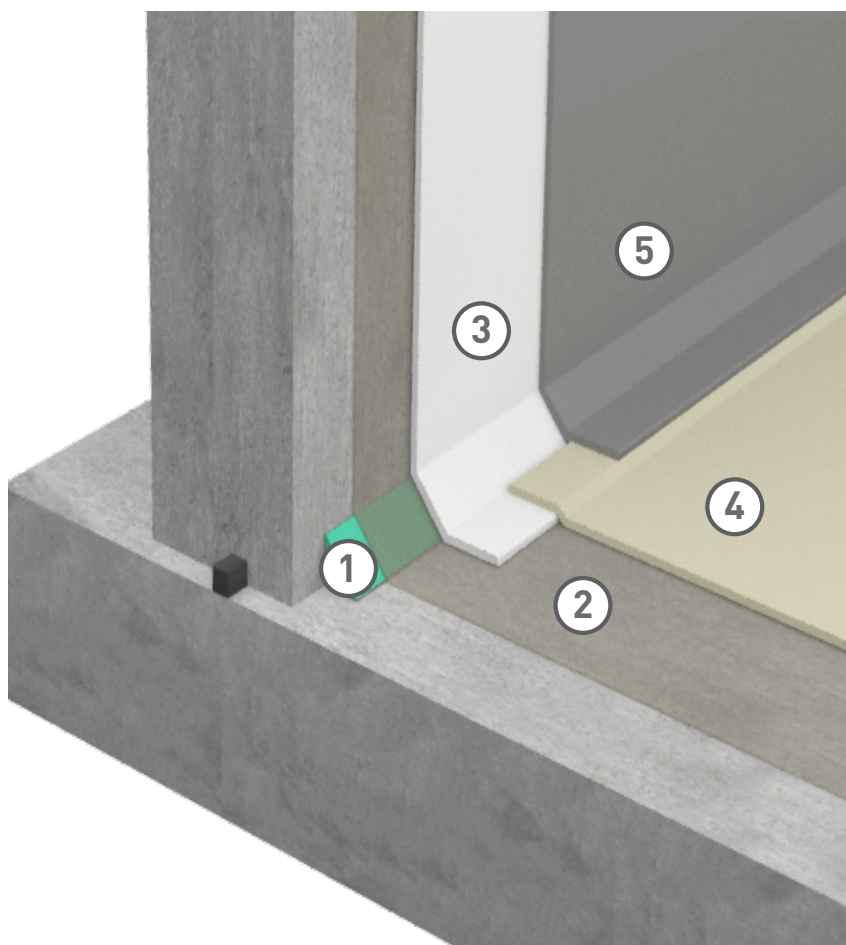


TREMPROOF® PUMA Planter Complete Project



TREMproof PUMA Planter System

PRODUCT	COVERAGE RATE	WET MILS	COMMENTS
1: Dymonic® 100	N/A	N/A	1" cant bead at all horizontal to vertical transitions
2: Tremco PUMA Primer	90 ft²/gal	17	Lightly broadcast silica sand.
3: Tremco PUMA BC R	25 ft²/gal	65	Allow 45 min to cure before proceeding.
4: Tremco PUMA BC/BC LM	20 ft²/gal	80	Allow 45 min to cure before proceeding.
5: Tremco PUMA TC	105 ft²/gal	15	Allow 60 min to cure.



For specific information, please reference the application instructions or contact your local Tremco representative.

Tremco Commercial Sealants & Waterproofing | 3735 Green Road | Beachwood, OH 44122 | US: 800.852.9068 | CAN: 800.363.3213 | tremcosealants.com

Tremco Construction Products Group (CPG) brings together Tremco Incorporated's Commercial Sealants & Waterproofing and Roofing & Building Maintenance operating divisions; Dryvit Systems, Inc.; Nudura Inc.; Willseal; Weatherproofing Technologies, Inc. and Weatherproofing Technologies Canada, Inc.

Tremco®, TREMproof® and Dymonic® are registered trademarks of Tremco Incorporated.
Use of the ® symbol indicates registration with the US Patent & Trademark Office and the Canadian Intellectual Property Office.

1220/TPPPSS

 **TREMCO**
Construction Products Group

tremcocpg.com



TECHNICAL DATA SHEET

TREMproof® PUMA
Waterproofing System –
Planter Application

PRODUCT DESCRIPTION

TREMproof® PUMA Planters System is a cold-applied, waterproofing system that is based on polyurethane-methacrylate (PUMA) technology. PUMA waterproofing systems offer superior elongation over traditional MMA/PMMA technology systems. TREMproof PUMA Planters System is composed of a primer (Tremco PUMA Primer or TREMprime VB Primer) and a base coat (Tremco PUMA BC or BC LM). Tremco PUMA TC can be used if UV protection is required. All system components, except TREMprime VB, are cured using Tremco PUMA Initiator or Initiator+.

Tremco PUMA Primer is a polymethyl-methacrylate (PMMA), two-component primer for porous and non-porous substrates.

TREMprime VB Primer is a two-component, epoxy-based, solvent-free vapor barrier primer for concrete and plywood surfaces.

Tremco PUMA BC is a polyurethane-methacrylate (PUMA) base coat. Tremco PUMA BC bonds firmly to Tremco PUMA Primer. It retains its integrity even if substrate movement causes hair-line cracks of up to 1/16" (1.5 mm). If cut or damaged, Tremco PUMA BC will prevent water migration between itself and the substrate.

Tremco PUMA BC LM is a low-modulus version of Tremco PUMA BC waterproofing membrane that is used when dynamic movement and extreme service temperature ranges are anticipated.

Tremco PUMA TC is a polymethyl-methacrylate (PMMA) top coat. Interlaminary adhesion to Tremco PUMA BC is exceedingly strong. The top coat affords excellent abrasion resistance, UV stability and chemical resistance to complete the TREMproof PUMA planters system.

Tremco PUMA Initiator/Initiator+ is a reactive catalyst in the form of a white powder used to cure all PUMA/PMMA resins.

BASIC USES

TREMproof PUMA Planters System is a cold-applied system designed for waterproofing concrete slabs, protecting occupied areas underneath from water damage and inhibiting root penetration. This waterproofing system is ideal for use in planters.

FEATURES & BENEFITS

- PUMA technology delivers extreme durability while maintaining its crack-bridging characteristics, eliminating the need for reinforcing fabric.
- Inhibits root penetration when installed at or greater than minimum recommended thickness.
- Rapid set-up times allow for quick overall installation, as well as the ability to open up to foot traffic one hour later.
- Can be applied at temperatures as low as 14 °F (-10 °C), which allows for continuation of projects in the colder months.
- Unique chemistry allows for easy repair.
- Zero Volatile Organic Compounds (VOCs).
- Compatible with Tremco sealants, coatings and expansion joints, which is essential for tie-ins, detailing and penetrations.

AVAILABILITY

Immediately available from your local Tremco Sales Representative.

PACKAGING

Tremco PUMA Primer: 2-gal and 6-gal pails

TREMprime VB Primer: Part A: 2.4-gal pails Part B: 1.2-gal pails

Tremco PUMA BC (all grades): 6-gal pails

Tremco PUMA TC: 6-gal pails

Tremco PUMA Initiator: 22-lb in 2-gal pails & 55-lb in 6-gal pails

Tremco PUMA Initiator+: 10-lb in 3-gal pails, 25-lb in 6-gal pails, 25 75-g pouches in a box

Tremco PUMA Cleaner: 6-gal pails

COLORS

Tremco PUMA TC is available in Gray, Slate Gray, Charcoal, White, Beige, Tintable and Decorative.

Universal Color Paks are available for use with Tremco PUMA TC Tintable.

INSTALLATION

Tremco PUMA components are designed for use with the Vulkem EWS and TREMproof PUMA systems. Please refer to the TREMproof PUMA Application Instructions for complete application details. The techniques involved may require modification to adjust to job-site specific conditions. Consult your Tremco Sales Representative or Tremco Technical Services for site conditions and requirements.

LIMITATIONS

- Use with adequate ventilation.
- Not for use over expanded polystyrene, extruded polystyrene, poured in place gypsum, lightweight insulating concrete, cementitious wood fiber decks and coal tar pitch.
- Do not apply in falling precipitation or when precipitation is imminent.
- All surfaces must be sound, clean, free of standing water and free from contamination.
- Any questions regarding drying times, coverage rates and unique application techniques should be directed to Tremco Technical Services or your local Tremco Sales Representative.
- Do not apply over contaminated surfaces.
- Do not thin.
- Substrate must be at least 5 °F (3 °C) above the measured dew point temperatures to avoid dew point conditions.
- Do not store in direct sunlight for prolonged periods.
- Unvented metal pan decks, slab-on-grade and hollow core plank decks require additional qualification prior to application. Please contact Tremco technical services for more information.

WARRANTY

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products.

Tremco's sole obligation shall be, at its option, to replace or refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

TYPICAL PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TREMCO PUMA BC	TREMCO PUMA TC
VOC Content	Method 310	0 g/L	0 g/L
% Solids (by weight)	ASTM D1353	100%	100%
Drying Time @ 75 °F, 50% RH	ASTM D1640	80 mil film, 1 hr	17 mil film, 1 hr
Weathering	ASTM D822 Weatherometer 350 hr	N/A	No effect
Elongation	ASTM D638	407-420%	130%
Elongation	ASTM D5147	Min 30%	Min 30%
Tensile Strength	ASTM D638 @ 75 °F	991 - 1680 psi	986 psi
Tearing Resistance	ASTM D4073	91 lbf	203 lbf
Hardness (Shore D)	ASTM D2240	18 - 35	55
Hardness (Shore A)	ASTM D2240	65-87	100
Abrasion Resistance (1000 cycles)	ASTM D4060	N/A	51 mg
Low-Temperature Crack Bridging	ASTM C1305	Passes	N/A
Taber Abrasion	ASTM C501	Passes	N/A
Peak Load @ 73 °F, avg.	ASTM D5147	>70 lbf/in	238 lb/in
Puncture Resistance	ASTM D5602	> 56 lbs	> 56 lbs
Water Absorption	ASTM D570	< 0.1%	< 0.1%
Water Vapor Transmission	ASTM E96	0.03 perms	0.03 perms
Adhesion-in-Peel	ASTM C794	Concrete failure with primer	N/A
Self-Ignition Temperature	ASTM D1929	800 °F 427 °C	850 °F 454 °C
Smoke Density	ASTM D2843	4.1%	2.1%
Rate of Burn	ASTM D635	1.2 in/min	0.2 in/min

1. PURPOSE

- 1.1 The purpose of this document is to establish uniform procedures for applying TREMproof® PUMA in planter applications. The techniques involved may require modifications to adjust to job-site conditions. If you have any questions regarding your application, contact your local Tremco Field Sales Representative for specific design requirements. This document will provide instructions and troubleshooting for the application of TREMproof PUMA to qualify for the manufacturer's warranty.

2. SUBSTRATE PREPARATION

- 2.1 Investigation of the substrate should be performed to determine the type of surface preparation that will need to take place to achieve the appropriate surface profile required for the coating application. Depending on the condition of the concrete, one or more types of surface preparations may be required. Refer to ICRI's Technical Guideline No. 310.2R-2013 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays and Concrete Repairs for best practices on selecting the appropriate method of concrete preparation. TREMproof PUMA applications require a CSP 3-4.
- 2.2 For preparation of metal substrates, please follow The Society for Protective Coatings recommendations that followed in section 3.12.

3. CONDITIONS FOR SUBSTRATES

Concrete Surfaces:

- 3.1 Concrete shall be water cured and attain a 3000 PSI minimum compressive strength. Moisture content in the concrete must be lower than 6% as measured using a Tramex CME 4 Moisture Meter. Excess moisture in the concrete can prevent the coating materials from performing as intended. Depending on the concrete construction and job site location, additional concrete testing may be required. Please contact your local Tremco Sales or Technical Representative.
- 3.2 Excess moisture in the concrete can prevent the coating materials from performing as intended. To detect the presence of excess moisture, several tests may be employed:
- ASTM D4263 – Plastic Sheet
 - ASTM F1869 – Calcium Chloride
 - ASTM F2659 – Tramex CME 4
 - ASTM F2170 – Insitu
- 3.3 All concrete surfaces must be shotblast prior to any coating application. For proper methods, refer to ICRI's Technical Guideline No. 310.2R-2013. For supplier information contact Tremco's Technical Service.
- 3.4 Concrete surface shall be properly cleaned so that the surface to receive the coating, sealant or liquid applied flashing is free of all laitance, mold, paint, sealers, coatings, curing agents, loose particles and other contamination or foreign matter which may interfere with the adhesion. Consult a Tremco Technical Service Representative for recommendations prior to installing materials.
- 3.5 Shrinkage cracks in the concrete surface which are 1/16" (1.5 mm) wide or greater shall be treated according to the instructions in Sections 5 and 7.
- 3.6 Structural cracks, regardless of width, shall be treated according to the instructions in Sections 5 and 7.
- 3.7 Spalled areas shall be cleaned and free of loose contaminants prior to repair. Due to the fact that jobsite conditions vary, it is recommended that you contact Tremco's Technical Service or your local Tremco Sales Representative for the best method of repair.
- 3.8 In the event of exposed reinforcing steel, it is recommended that the structural engineer of record be contacted for investigation of the condition and for the best method of repair.
- 3.9 Surfaces shall be made free of defects that may telegraph and show through the finished coating. Surfaces which are rough (fins, ridges, exposed aggregate, honeycombs, deep broom finish, etc.) shall be leveled and made smooth by applying a coat of sand-filled Tremco PUMA WC according to the instructions in Section 7.
- 3.10 All drains shall be cleaned and operative. Drains shall be recessed lower than the deck surface. Surface shall be sloped to drain and provide positive drainage. Drains should be detailed as instructed below:

- Cut a 1/4" wide x 1/4" deep (6 mm x 12 mm) keyway into the concrete surface at any point where the coating will have an exposed terminating edge- that is, any point where the coating will end in an open area subject to traffic, for example, at the end of a ramp, around drains and alongside expansion joints.
- 3.11 If the project is a restoration deck, old sealant and backing material shall be removed. The joint interface will require a thorough wire brushing, grinding, sandblasting and primer.
- Metal Surfaces:**
- 3.12 Follow standard SSPC-SP 10/NACE No. 2 Near White Blast Cleaning. A near-white metal blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dust, dirt, mill scale, rust, coating, oxides, corrosion products, and foreign matter.
- Wood Surfaces:**
- 3.13 Wood must be 5/8", exterior-grade plywood, "A"-side up and well fastened with ring shank nails or screws, with proper consideration given to joints and movement.
- 3.14 All drains shall be cleaned and operative. Drains shall be recessed lower than the deck surface. Surface shall be sloped to drain and provide positive drainage.

4. JOBSITE MATERIALS

4.1 Recommended materials and their use are as follows:

Dymonic 100: A one-part, moisture curing, gun grade polyurethane sealant for use in precast, masonry, expansion joints, control joints and for use in forming cants.

Tremco PUMA Primer: A two-part, chemical-curing PMMA primer for porous and non-porous surfaces.

TREMprime VB: A two-component, epoxy-based, solvent-free vapor barrier primer for concrete and plywood surfaces.

Tremco PUMA BC: A two-part, chemical-curing PUMA coating used as an elastomeric, waterproofing membrane for TREMproof PUMA.

Tremco PUMA BC LM: A lower modulus version of Tremco PUMA BC used as the waterproofing membrane for TREMproof PUMA for service temperatures below 32° F (0° C).

Tremco PUMA BC T: A thixotropic version of Tremco PUMA BC used for detailing and field applied cant beads.

Tremco PUMA BC R: A rollable version of Tremco PUMA BC used for ramps and upturns.

Tremco PUMA WC: A two-part, chemical curing PUMA wearing course that can also be used with sand to level out uneven areas in the concrete.

Tremco PUMA TC: A two-part, chemical-curing MMA coating used to lock in aggregate and provide additional chemical and UV resistance to TREMproof PUMA.

Tremco PUMA Cleaner: A one-part MMA cleaner for all tools such as mixing paddles, squeegees, spiked rollers and spatulas. Always use this cleaner for TREMproof PUMA materials. Never use any kind of solvent to clean any of your tools as this will cause contamination and inhibit cure.

Tremco PUMA Initiator: A reactive catalyst in the form of a white powder used to cure all resins of TREMproof PUMA.

Tremco PUMA Initiator+: An enhanced version of Tremco PUMA Initiator.

Tremco PUMA Filler Powder: A non-reactive, white, filler powder used to thicken Tremco PUMA WC.

Aggregate: 0.3 to 0.6 mm (30-50 mesh)-sized silica sand for the primer application. For supplier information, contact Tremco Technical Service.

5. DETAIL WORK – DYMONIC 100

The preferred method of crack detailing is Tremco PUMA BC or BC LM. Tremco PUMA BC or BC LM will fill cracks and non-moving joints when applied at the recommended thickness, noted in section 8. Tremco PUMA BC and BC LM are not for use inside expansion joints. If using the preferred crack detailing method, please proceed to section 6, Priming Concrete Surface.

Note: Do not apply sealant to a frosty, damp or wet surface or when substrate temperature is below 40 °F (4 °C) or the surface temperature is above 110 °F (43 °C). Cure times as stated below are based upon standard ambient conditions of 75 °F (25 °C), 50% RH. A decrease in ambient temperature and humidity will significantly lengthen the cure time.

Dymonic 100 must be fully cured before application of Tremco PUMA Primer.

- 5.1 Lay a 1/4" (6 mm) diameter backer rod into the corner at the juncture of all horizontal and vertical surfaces such as curbs, wall sections, columns or penetrations through the deck. Apply a bead of Dymonic 100 1" (2.5 cm) wide over the backer rod. Tool the sealant bead to form a 45° cant. Use sufficient pressure to force out any trapped air and to assure complete wetting of the surface. Remove excess sealant from the deck or wall joint. NOTE: Backer rod is only required for moving joints.
- 5.2 Install a backer rod, 1/8" to 1/4" (3 mm to 6 mm) diameter larger than the joint width to all prepared control joints. Set depth of backer rod to control the depth of the sealant. (Depth of sealant is measured from the top of the backer rod to the top of the concrete surface.) Proper depth of sealant is as follows:
- 5.2.1 For joints 1/4" (6.4 mm) to 1/2" (12.7 mm) wide, the depth ratio should be equal.

- 5.2.2 Joints 1/2" (12.7 mm) wide or greater should have a sealant depth of 1/2" (12.7 mm). The minimum joint size is 1/4" x 1/4" (6.4 mm x 6.4 mm).
- 5.3 All cracks and joints shall be sealed with Dymonic 100 and tooled flush with the surface. Note: Expansion joints should not be coated over. A full line of expansion joint solutions is available from Tremco Construcitons Products Group companies. For treatment of expansion joints, contact your local Tremco Sales Representative.
- 5.4 Allow sealant to fully cure.

6. PRIMING CONCRETE SURFACE

Note: When detailing cracks with Tremco PUMA BC or BC LM, the surface must be primed but cracks should not be filled with Tremco PUMA Primer.

Note: TREMprime VB can be used in place of Tremco PUMA Primer in order to mitigate vapor drive caused by moisture in concrete.

- 6.1 Mix Tremco PUMA Primer for 1 to 2 min prior to the addition of Tremco PUMA Initiator.
- 6.2 Mix Tremco PUMA Primer thoroughly together with Tremco PUMA Initiator in accordance with Table 3 for 2 to 3 min.
- 6.3 Apply Tremco PUMA Primer at a minimum of 90 ft²/gal to yield 17 wet mils to the entire area to be coated. The recommended method of application is with a roller. Application below 17 wet mils will result in the primer not curing.
- 6.4 Once primer is rolled out evenly, lightly broadcast 0.3 to 0.6 mm (30-50 mesh)-sized silica sand into the primer at a rate of 0.7 lb/10 ft².
- 6.5 Allow Tremco PUMA Primer a minimum of 30 min to fully cure.

7. DETAIL WORK – TREMCO PUMA PRODUCTS

Contact local sales representative for expansion joint detailing.

Defects, Patching and Sloping

- 7.1 Mix Tremco PUMA WC for 1 to 2 min prior to the addition of the silica sand.
- 7.2 Begin with 10 lb of sand for every gallon of Tremco PUMA WC. Additional sand can be added if a thicker consistency is desired.
- 7.3 Once Tremco PUMA WC and the sand are blended together, combine this mixture with the Tremco PUMA Initiator in accordance with Table 3 and mix thoroughly for 2 to 3 min. Amount of Tremco PUMA Initiator is dependent on ambient temperature. Please note the Tremco PUMA Initiator addition is based in the ratio of Initiator to Tremco PUMA WC, not Initiator to Tremco PUMA WC with silica sand. Please see Table 3 for addition amounts.
- 7.4 For uneven spots and other defects in the surface, such as pitting or cratering, a thicker mix of Tremco PUMA WC and sand may be required. Trowel the material to create an even surface with the concrete.
- 7.5 Allow Tremco PUMA WC with sand mixture to cure a minimum of 45 min before proceeding to base coat application.

Horizontal to Vertical Transition

Note: Proceed to 7.9 if horizontal to vertical transitions were treated with Dymonic 100.

- 7.6 Mix the Tremco PUMA BC T for 2 to 3 min prior to the addition of the Tremco PUMA Initiator. Ensure that Tremco PUMA BC T is thoroughly mixed together with the Tremco PUMA Initiator in accordance with Table 3 for 2 to 3 min.
- 7.7 Apply a cant of Tremco PUMA BC T 1" (2.5 cm) wide at the juncture of all horizontal and vertical surfaces (such as curbs, wall sections, columns or penetrations through the deck). Tool Tremco PUMA BC T to form a 45° cant. Use sufficient pressure to force out any trapped air and to assure complete wetting of the surface. Remove excess material from the deck or wall surface. For a cant bead at a 45° angle in a horizontal to vertical transition, 1 gallon of Tremco PUMA BC T for every 38.5 LF (11.7 M) is required.
- 7.8 Apply a strip of tape (masking tape or duct tape) to the vertical sections, 2 to 3" above the Tremco PUMA BC T or Dymonic 100 cant to provide a neat termination of Tremco PUMA BC R.
- 7.9 Apply Tremco PUMA Primer over Dymonic 100 cant before applying coating.
- 7.10 For penetrations, apply Tremco PUMA Primer over the cant, up the penetration to 1" below the top of the projected overburden. Allow primer to cure.
- 7.11 Following the primer application, mix Tremco PUMA BC R. Mix in Tremco PUMA Initiator in accordance with Table 3.
- 7.12 Apply the Tremco PUMA BC R mixture using a medium-nap roller to achieve a minimum thickness of 40 mils over the primed penetration, over the cant and extended minimum of 9 inches onto the horizontal plane. Spiked rollers are not required for change in plane.

8. BASE COAT APPLICATION

Note: In environmental conditions where large temperature swings exist, such as Northern US and Canada, Tremco PUMA BC LM can be used in lieu of Tremco PUMA BC.

Note: When using more than one consecutive coat of Tremco PUMA BC or BC LM, please contact Tremco Technical Service for further details.

8.1 Vertical Surfaces

- 8.1.1 Mix Tremco PUMA BC R for 2 to 3 min prior to the addition of Tremco PUMA Initiator. Note: The application of PUMA BC R to the walls of the planter is the first step in applying base coat.
- 8.1.2 Tremco PUMA BC R is thoroughly mixed together with the Tremco PUMA Initiator in accordance with Table 2 for 2 to 3 min. Amount of Tremco PUMA Initiator is dependent on the ambient temperature. Please see Table 2 for addition amounts.
- 8.1.3 Apply the Tremco PUMA BC R at 25 ft²/gal to yield 65 wet mils (1.7 mm) thick to the vertical surfaces of the structure. The recommended method of application is with a medium nap roller.
- 8.1.4 Allow a minimum of 45 min to cure.

8.2 Horizontal Surfaces

- 8.2.1 Mix Tremco PUMA BC, BC R or BC LM for 1 to 2 min prior to the addition of Tremco PUMA Initiator
- 8.2.2 Tremco PUMA BC, BC R or BC LM is thoroughly mixed together with the Tremco PUMA Initiator in accordance with Table 2 for 2 to 3 min. Amount of Tremco PUMA Initiator is dependent on the ambient temperature. Please see Table 2 for addition amounts.
- 8.2.3 Apply Tremco PUMA BC, BC R, or BC LM at 20 ft²/gal to yield 80 wet mils (2.0 mm) thick to the entire area. The recommended method of application is with a metal notched rake.
- 8.2.4 Spike roll Tremco PUMA BC, BC R, or BC LM immediately to release all air bubbles from the coating.
- 8.2.5 Allow Tremco PUMA BC, BC R or BC LM a minimum of 45 min to cure.

9. TOP COAT APPLICATION

Note: If using Tremco PUMA TC Tintable, add the universal color paks prior to mixing at a ratio of 1 color pak to 2 gallons of tintable top coat.

- 9.1 Mix Tremco PUMA TC for 1 to 2 min prior to the addition of Tremco PUMA Initiator.
- 9.2 Thoroughly mix Tremco PUMA TC together with the Tremco PUMA Initiator in accordance with Table 2. Amount of Tremco PUMA Initiator is dependent on the ambient temperature. Please see Table 2 for addition amounts.
- 9.3 Apply Tremco PUMA TC at 15 mils (105 ft²/gal). The recommended method of application is with a roller.
- 9.4 Allow Tremco PUMA TC a minimum of 1 hr to cure.

10. CLEAN UP

- 10.1 Immediately clean all adjacent areas to remove any stains or spills with Tremco PUMA Cleaner before material cures.
- 10.2 Immediately clean tools or equipment with Tremco PUMA Cleaner to remove curing material. Intermittent cleaning during application is recommended.
- 10.3 Clean hands by soaking in hot, soapy water then brush with a stiff bristle brush.

11. MATERIAL USAGE GUIDELINES

The following is a guide to determine material usage. Recommended coverage rates are approximate. Sand broadcasting methods and concrete surface profiles may increase the amount of material required to obtain uniform coverage.

Tremco PUMA Primer: When applied at 90 ft²/gal (2.2 M²/L) will yield a mil thickness of 17 wet mils.

Dymonic 100: For a 1" (25 mm) cant bead over a 1/4" (6 mm) backer rod, 1 case of sealant for every 48 lf (14.6 M) is required.

Tremco PUMA BC R: When applied at 25 ft²/gal (0.6 M²/L) will yield a mil thickness of 65 wet mils.

Tremco PUMA BC or BC LM: When applied at 20 ft²/gal (0.5 M²/L) will yield a mil thickness of 80 wet mils.

Tremco PUMA BC T: For a cant bead at a 45° angle in a horizontal to vertical transition, 1 gallon of Tremco PUMA BC T for every 38.5 LF (11.7 M) is required.

Tremco PUMA TC: When applied at 105 ft²/gal (2.6 M²/L) will yield a mil thickness of 15 wet mils.

Tremco PUMA Initiator/Initiator+: See Table 2 for exact addition amounts.

Aggregate: Broadcast silica sand at a rate of 0.7 lb/10 ft² immediately after the Tremco PUMA Primer application.

12. TROUBLESHOOTING

This section describes common industry application issues when certain environmental conditions exist. Below are some commonly seen issues and remedies. If any of these should occur, it is always recommended you contact your local Tremco Sales Representative or Tremco's Technical Service.

- 12.1 Tremco requires that any possible recoating job be reviewed and approved by your Sales and/or Technical Representative prior to installation.
- 12.2 When a deck contains too much moisture, the excess moisture may change into a vapor which then condenses at the concrete-membrane interface before the coating has cured, which will cause blisters or bubbles, which, in turn, will interfere with proper adhesion. If this should occur the blisters/bubbles can be cut out, allowing the moisture to escape. After moisture has escaped and the surface is dry, the area can be repaired.

- 12.3 If the coating is applied in very hot ambient temperatures, the air in the small spaces between the concrete particles increases in volume and forms blisters. Contact Tremco's Technical Service should this occur.
- 12.4 Tremco PUMA products should only be applied when the UV index is less than 7 and substrate temperature is below 115 °F (46 °C).

TABLE 1: Quick Reference Application Chart				
LAYER	PRODUCT	WET MILS	CURE TIME	SQUARE FEET PER GALLON
Primer	Tremco PUMA Primer	17	30 min	90
Base Coat (Vertical)	Tremco PUMA BC R	65	45 min	25
Base Coat (Horizontal)	Tremco PUMA BC or BC LM	80	45 min	20
Top Coat	Tremco PUMA TC	15	1 hr	105

TABLE 2: Temperature Chart		Tremco PUMA Initiator	Tremco PUMA Initiator+
TEMPERATURE °F	TEMPERATURE °C	GRAMS OR OUNCES/GALLON	GRAMS OR OUNCES/GALLON
68 to 95	20 to 35	75 g or 2.75 oz of initiator/gal resin	37.5 g or 1.38 oz of initiator/gal resin
50 to 68	10 to 20	150 g or 5.5 oz of initiator/gal resin	75 g or 2.75 oz of initiator/gal resin
32 to 50	0 to 10	300 g or 11 oz of initiator/gal resin	150 g or 5.5 oz of initiator/gal resin
14 to 32	-10 to 0	450 g or 16 oz of initiator/gal resin	225 g or 8 oz of initiator/gal resin

The prescribed amount of initiator in Table 2 is the minimum amount required per gallon for that temperature range.

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1350 Gay-Lussac, Unit: 3
Boucherville QC J4B 7G4
514.521.9555



WARRANTY NUMBER: [Project Number]-[Warranty Number]

PROJECT NAME & ADDRESS:		CONSTRUCTION MANAGER:	
OWNER:		GENERAL CONTRACTOR:	
ARCHITECT/ ENGINEER:		AGGREGATE MATERIAL PURCHASE VALUE:	
ISSUER (THE "COMPANY"):		DATE OF PROJECT SUBSTANTIAL COMPLETION:	

WHAT IS WARRANTED AND WHAT WILL THE COMPANY DO?

Subject to the terms, conditions, and limitations stated in this warranty, the products (the "Products") will be free from manufacturing defect at the time of purchase, will remain in a watertight condition and will perform as warranted in the manner specified for the stated term(s) measured from the Date of Project Substantial Completion, all as outlined on the attached Exhibit. The Exhibit is an integral part of this warranty.

THE COMPANY WILL SUPPLY LABOR AND MATERIALS TO REPAIR OR REPLACE ANY PRODUCTS THAT DO NOT PERFORM AS WARRANTED HEREUNDER.

The Company will determine in its sole discretion the appropriate scope and method of repair or replacement to remedy any condition covered by this warranty.

The total liability of the Company over the life of this warranty shall not in any event exceed the aggregate dollar value of the original cost of the Products specified in the attached Exhibit.

The term of this warranty may be extended for an additional 2 years with involvement on the project of a Company-approved, third-party consultant ("Consultant") engaged by the Owner or its authorized representative, at the Owner's sole expense. Inspection reports generated by the Consultant shall be made available to the Company and the Owner. All deficiencies identified by the Consultant in the inspection reports must be addressed and corrected in accordance with the project specifications, good waterproofing practices generally accepted in the industry, and the Company's published application instructions. Written confirmation that all deficiencies have been addressed and corrected must be provided by the Consultant and Applicator to the Company and the Owner. Actions taken to resolve all deficiencies identified shall be specifically noted in the written confirmation.

HOW DO I GET SERVICE?

The Owner must notify the Company within 30 calendar days from the date that the Owner discovered, or should have discovered, the existence of a claim under this warranty, and before beginning any permanent repair, by submitting a service request form at <https://warranties.tremcocpg.com> or by emailing the Warranty Administrator at **warrantyadmin@tremcoinc.com**. Emailed notice must include the warranty number and a written description of the location, scope, and nature of the alleged failure of the Products to perform as warranted. Photographs or video of the damaged area are often useful and should also be submitted if available.

The Owner must provide the Company with a reasonable opportunity to investigate the claim and the alleged failure of the Products to perform as warranted herein. The Owner shall have the sole responsibility, at the Owner's cost and expense, to provide the Company with free and full access to the installed Products during regular business hours for purposes of the investigation, including obtaining necessary approval and/or releases from building occupants who may be affected by the investigation and/or by any remedy the Company may provide under this warranty. The Company shall not be responsible for removal of any materials which may cover the Products, or any costs associated with removing or replacing any such materials.

GENERAL REQUIREMENTS:

There will not be any coverage under this warranty unless all the following apply:

- The Products were installed in strict compliance with the project specifications, good waterproofing practices generally accepted in the industry, the Company's published application instructions and technical literature, and any additional written requirements provided by the Company.
- The installation was performed by an Applicator who has received appropriate training prior to installing the Products.
- A pre-construction meeting was conducted with representatives of the Company, the Applicator, the Owner, and the Consultant (if applicable) prior to installation of the Products.
- The Products are used with compatible materials and substrates (in compliance with the Company's published application instructions/technical literature or as otherwise approved in writing by the Company).
- The Products are applied within their stated shelf life.
- The Products are used in applications approved by the Company as suitable.
- The Products are applied to a sound, properly prepared substrate in accordance with published application instructions.

LIMITATIONS AND EXCLUSIONS:

The Company shall not be responsible for, and this limited warranty does not cover, any loss resulting from any of the following:

- The use of other manufacturers' products unless such products are specifically recommended or approved by the Company in writing in advance of their installation, in connection with the use of the Products.
- Any repairs, replacements, penetrations, or alterations of the Products by any person or entity other than authorized representatives of the Company without prior written consent of the Company.
- Water passing through any portion of a structure or building component other than directly through the Products due to a failure in the Products and/or connections between the Products (so long as the connections are Company Products), or any interior moisture, vapor, or condensation.
- Construction, design, specification, storage, application, exposure, installation practices, use of the Products, or use of material, that is not in compliance with the Company's published literature.
- Unauthorized changes in the Products' details or specifications for the project that were not reviewed and approved in advance by the Company in writing.
- Failure to maintain the building and the Products with reasonable care.

- Mold, mildew, insects, pests, fungi, algae, bacteria, air quality, and similar conditions.
- Improper design, engineering, application installation or workmanship of any portion or component of the Products or the structure; or failure, distortion or structural movement of the walls, foundation, or any other portion or component of the structure, including, but not limited to, movement, cracking, deflection, settling of the building or movement of the framing members.
- Impact with objects, hurricanes, tropical storms, tornadoes, high winds, hailstorms, earthquakes, sandstorms, floods, natural disasters, fires, vandalism, war, terrorism, animals, other similar acts of God or nature, force majeure events, or significant or unintended immersion or pooling of water.
- Abuse, misuse, neglect, damage, or negligence by the Owner, the Applicator, the general contractor, or other trades performing work on the project, or any third party.
- Change in principal usage or amount of usage of structure without prior written approval of the Company.
- Intermixing of the Products with other chemicals or materials not specifically required by the Company's specifications or application instructions.

If, at the Owner's request, the Company performs any services or supplies any materials as a mitigation or remediation measure in connection with any unwarranted loss described above, the Company shall be entitled to compensation for such services or materials.

The Company makes no warranty with respect to appearance or color. No representative of the Company has the authority to make any representations, warranties, or promises except as stated herein.

No waiver by the Company of any limitation, term or condition of this warranty shall operate as a waiver of any other limitation, term or condition applicable to any claim, whether of like or different nature. No delay or failure on the Company's part to enforce any right or claim, which it may have hereunder, shall constitute a waiver of such right or claim.

If any part of this warranty shall be determined to be invalid, then such portion shall be deemed severed from the warranty and the remaining terms, exclusions and limitations shall apply.

The Company's obligations under this warranty are expressly conditioned upon receipt of full payment for the Products. Any delay in full payment to the Company shall not extend the warranty term.

This warranty is issued to the above-named Owner and is not assignable or transferable, except upon the express written consent of the Company.

THE COMPANY UNDERTAKES NO RESPONSIBILITY FOR THE QUALITY OF THE PRODUCTS EXCEPT AS PROVIDED IN THIS LIMITED WARRANTY. **IN OTHER WORDS, THE COMPANY EXPRESSLY DISCLAIMS ALL EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY.**

THE COMPANY ASSUMES NO RESPONSIBILITY THAT THE PRODUCTS WILL BE FIT FOR ANY PARTICULAR PURPOSE FOR WHICH THE PRODUCTS MAY BE PURCHASED, EXCEPT AS PROVIDED IN THIS LIMITED WARRANTY. **IN OTHER WORDS, THE COMPANY EXPRESSLY DISCLAIMS ALL EXPRESS OR IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE.**

THE COMPANY MAKES NO OTHER OR FURTHER WARRANTIES IN CONNECTION WITH THE PRODUCTS EXCEPT AS EXPRESSLY STATED IN THIS WARRANTY DOCUMENT.

THE COMPANY WILL NOT BE RESPONSIBLE UNDER THIS LIMITED WARRANTY FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING IN CONTRACT OR TORT (INCLUDING INTENTIONAL, NEGLIGENCE OR OTHERWISE), FOR BREACH OF WARRANTY OR UNDER ANY OTHER THEORY OF LIABILITY, WHETHER OR NOT ARISING FROM OR RELATING TO, DIRECTLY OR INDIRECTLY, THIS WARRANTY, OR THE PERFORMANCE OF, DEFECTS IN, OR IN ANY WAY CONNECTED WITH, THE PRODUCTS COVERED BY THIS WARRANTY. THE COMPANY WILL HAVE NO LIABILITY FOR, AND EXPRESSLY DISCLAIMS LIABILITY FOR, ANY OTHER DAMAGE TO THE BUILDING OR THE CONTENTS OF THE BUILDING AND FOR ANY OTHER CLAIMED DAMAGES, LOSSES, COSTS AND EXPENSES OTHER THAN AS EXPRESSLY SET FORTH IN THIS WARRANTY.

THIS REMEDY EXPRESSLY SET OUT IN THIS WARRANTY WILL BE THE EXCLUSIVE REMEDY FOR ALL PERSONS ENTITLED TO WARRANTY COVERAGE AS DESCRIBED ABOVE. NO OTHER REMEDY SHALL BE APPLICABLE.

SOME JURISDICTIONS LIMIT OR DO NOT ALLOW THE DISCLAIMER OF CERTAIN REMEDIES OR THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES. THE EXCLUSIONS AND LIMITATIONS OF REMEDIES AND DAMAGES IN THIS SECTION FULLY APPLY TO THE EXTENT NOT PROHIBITED BY APPLICABLE LAW.

The terms of this warranty may not be altered, modified, or supplemented except in a writing signed by an officer of the Company that expressly refers to this warranty document and number.

In the event the Owner: (i) fails to provide the Company with timely notice as described above, (ii) fails to provide required access to the installed Products, (iii) undertakes or permits any actions that cause or contribute to failures, such as unauthorized repairs or perforations of the Products, or (iv) otherwise fails to fulfill its responsibilities as described herein, the Company reserves the right to void this warranty upon written notice to the Owner.

To expedite processing, this document may be completed and delivered in electronic form only. This limited warranty applies only to Products installed in the United States and Canada. Under the Quebec Consumer Protection Act, the Company must provide a warranty to consumers, as defined in the Act, that the Company's products shall be fit for the purpose for which such products of that kind are ordinarily used and that the Products must be durable in normal use for a reasonable length of time, having regard to their price and other factors. For more information about your rights if you are a consumer as defined in the Act, you should consult the Quebec Consumer Protection Act at <https://www.educaloi.qc.ca/en/capsules/legal-warranty-automatic-protection-consumers>.

Since the Products are building materials and are not intended to be sold to a "consumer" except as part of real estate or as a major addition thereto, this warranty shall not apply to any party constituting a "consumer" as such term is defined by the Magnuson-Moss Warranty Act.

REQUEST FOR WARRANTY ISSUANCE MUST BE MADE PROMPTLY FOLLOWING THE DATE OF PROJECT SUBSTANTIAL COMPLETION. THE COMPANY RESERVES THE RIGHT, IN ITS SOLE DISCRETION, TO REFUSE A REQUEST FOR ISSUANCE IF SUCH REQUEST IS NOT MADE WITHIN A REASONABLE TIME FOLLOWING THE DATE OF PROJECT SUBSTANTIAL COMPLETION.

EXHIBIT

Subject to the terms, conditions, and limitations stated in this warranty, the Company warrants to the Owner:

Warranty No.: [Project Number]-[Warranty Number]

Planter Cold Fluid Applied Waterproofing Applications (Common Applications: Planters, greenscapes, vegetative roofs without warranted growing medium)

That the Product(s) 1) will not crack due to normal exposure or normal expansion or contraction, and 2) will not fail cohesively or adhesively under conditions of normal wear and tear where movement and/or cracking of the underlying substrate does not exceed 1/16 of an inch, for the period stated in the table below from the Date of Project Substantial Completion.

*TREMproof® PUMA Planter System (PUMA technology) includes warranty coverage for damage from root penetration through the waterproofing membrane.

The Company's obligations and Owner's rights shall be void if the system is ruptured, cracked or otherwise damaged by any misuse or abnormal use or conditions, including but not limited to, building alterations or structural defects, surface scaling or spalling of underlying concrete or substrates or any cause other than defects in the system as manufactured and supplied.

Additional Requirements for Warranty Coverage

Tremco's Dymonic® 100 required as detail sealant for warranty term greater than 5 years. Tremco HDPE-20 requires Permanent Seam Tape at overlapped seams. Depending on geographic region, CMU block may require parge coat of Tamoseal™. Tremco Epoxy Primer with broadcast aggregate required for all tie-ins.

Warranty Issued

Applicator:		Installation Completion Date:	
Consultant (if applicable):		Warranty Term:	
Product:		Linear/Square Footage:	
Product:		Linear/Square Footage:	

SECTION 071800 – TRAFFIC COATINGS, UNDER TILE

PART 1 – GENERAL

1.01 Summary

- A. Work shall include, but is not limited to, the following:
 - 1. Preparation of existing concrete decks, and all flashing substrates.
 - 2. Polyurethane methacrylate traffic coatings for under tile applications
 - 3. All related materials and labor required to complete specified waterproofing coating necessary to receive specified manufacturer's warranty.
- B. Related Sections
 - 1. Division 011000 – Summary of Work
 - 2. Division 030130 – Structural Concrete Repairs
 - 3. Division 079200 – Joint Sealants
 - 4. Division 092400 – Stucco Maintenance and Repair

1.02 References

- A. American Society Of Civil Engineers - Reference Document ASCE 7, Minimum Design Loads for Buildings and Other Structures (ASCE 7-22).
- B. American Standard Of Testing Methods (ASTM):
 - 1. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants
 - 2. ASTM C 1127 - Standard Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with an Integral Wearing Surface
 - 3. ASTM C 1193 - Standard Guide for Use of Joint Sealants
 - 4. ASTM C 957 - Standard Specification for High-Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane With Integral Wearing Surface
 - 5. ASTM D 4258 - Standard Practice for Surface Cleaning Concrete for Coating
 - 6. ASTM 4259 - Standard Practice for Abrading Concrete
- C. Florida Building Code (FBC):
 - 1. 2023 Florida Building Code (FBC).
- D. International Concrete Repair Institute (ICRI).
 - 1. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair

1.03 Action Submittals

- A. Product Data Sheets: Submit manufacturer's product data sheets, installation instructions and/or general requirements for each component.
- B. Safety Data Sheets: Submit manufacturer's Safety Data Sheets (SDS) for each component.
- C. Sample warranty from the manufacturer and contractor.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

1.04 Informational Submittals

- A. Submit a letter from the waterproofing manufacturer indicating the contractor is an authorized applicator.
- B. 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.
- C. Warranty: sample of unexecuted manufacturer and installer special warranties.
- D. Field quality control reports.

1.05 Closeout Submittals

- A. Warranty: Provide manufacturers and contractor's warranties upon project completion.

1.06 Quality Assurance

- A. Contractor Qualifications:
 - 1. 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 all contractors, engineers, and employees
 - 2. Contractor shall be authorized by the manufacturer to install specified materials prior to the bidding period through satisfactory project completion.
 - 3. Applicators shall have completed projects of similar scope using same or similar materials specified.
 - 4. Contractor shall provide full time, on-site superintendent or foreman experienced with the specified waterproofing coating from beginning through satisfactory project completion.
 - 5. Applicators shall be skilled in the application methods for all materials.
 - 6. Contractor shall maintain a daily record, on-site, documenting material installation and related project conditions.
 - 7. Contractor shall maintain a copy of all submittal documents, on-site, available always for reference.
- B. Mockups:
 - 1. 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 Owner or Engineer 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.
 - a. Include intersections of deck traffic coating with adjacent vertical coating and moisture control system applications.
- C. Environmental Requirements:
 - 1. Environmental Limitations: Apply traffic coating within the range of ambient and substrate temperatures recommended by traffic coating manufacturer.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

- a. Protect substrates from environmental conditions that affect system performance.
- b. Do not apply traffic coating to a damp or wet substrate or during snow, rain, fog, or mist.

1.07 Delivery, Storage, and Handling

- A. Refer to each product data sheet or other published literature for specific requirements.
- B. Deliver materials and store them in their unopened, original packaging, bearing the manufacturer's name, related standards, and any other specification or reference accepted as standard.
- C. Protect and store materials in a dry, well-vented, and weatherproof location. Only materials to be used the same day shall be removed from this location. During cold weather, store materials in a heated location, removed only as needed for immediate use.
- D. When materials are to be stored outdoors, store away from standing water, stacked on raised pallets or dunnage, at least 4 in or more above ground level. Carefully cover storage with “breathable” tarpaulins to protect materials from precipitation and to prevent exposure to condensation.
- E. Properly dispose of all product wrappers, pallets, cardboard tubes, scrap, waste, and debris. All damaged materials shall be removed from job site and replaced with new, suitable materials.

1.08 Site Conditions

- A. Safety:
 - 1. The contractor shall be responsible for complying with all project-related safety and environmental requirements.
 - 2. The contractor shall review project conditions and determine when and where conditions are appropriate to utilize the specified liquid-applied, or semi-solid materials. When conditions are determined by the contractor to be unsafe or undesirable to proceed, measures shall be taken to prevent or eliminate the unsafe or undesirable exposures and conditions, or equivalent approved materials and methods shall be utilized to accommodate requirements and conditions.
 - 3. The contractor shall refer to product Safety Data Sheets (SDS) for health, safety, and environment related hazards, and take all necessary measures and precautions to comply with exposure requirements.
- B. Environmental Conditions:
 - 1. Monitor substrate temperature and material temperature, as well as all environmental conditions such as ambient temperature, moisture, sun, cloud cover, wind, humidity, and shade. Ensure conditions are satisfactory to begin work and ensure conditions remain satisfactory during the installation of specified materials. Materials and methods shall be adjusted as necessary to accommodate varying project conditions. Materials shall not be installed when conditions are unacceptable to achieve the specified results.
 - 2. Precipitation and dew point: Monitor weather to ensure the project environment

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

is dry before, and will remain dry, during the application of waterproofing coating materials. Ensure all waterproofing coating materials and substrates remain above the dew point temperature as required to prevent condensation and maintain dry conditions.

1.09 Performance Requirements

- A. Wind Uplift Resistance:
 - 1. System Design Pressures: Calculated in accordance with ASCE 7, or applicable standard, for the specified roof system attachment requirements.
 - a. Design Pressures:
 - i. Corners of Roof (Zone 3): **-139.2 PSF**
 - b. Approval Rating:
 - i. Miami-Dade NOA Maximum Design Pressure **-502.5 psf.**, NOA No.: 23-0614.04, Pages 6-7 of 14, System Types F(2), See General Limitation #9.
- B. Slope:
 - 1. Finished sloped to pitch towards drains.
- C. 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.
- D. 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.

1.10 Warranty

- A. 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:
 - 1. Applicator shall submit documentation from the membrane manufacturer to verify contractor's status as a qualified approved applicator for warranted installations.
- B. 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.
 - 1. Access for Repair: Owner shall provide unimpeded access to the Project and the traffic coating system for purposes of testing, leak investigation, and repair.
 - 2. Cost Limitation: Manufacturer's obligation for repair or replacement shall be limited to the original installed cost of the work.
 - 3. Warranty Period: Twenty years (20) from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of traffic coating materials from the following:

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

1. Movement of the structure caused by structural settlement or stresses on the traffic coating exceeding manufacturer's written specifications for elongation.
2. Mechanical damage caused by outside agents.

PART 2 – PRODUCTS

2.01 Manufacturer

- A. Single Source Manufacturer: Provide traffic coating products manufactured by **Tremco, Inc., Commercial Sealants and Waterproofing Division, An RPM Company**, Beachwood OH; (866) 321-6357; email: techresources@tremcoinc.com; www.tremcosealants.com, Source Limitations: Provide traffic coating system materials and accessory products from single source from single manufacturer.
 1. Comply with the Manufacturer's requirements as necessary to provide the specified warranty.

2.02 Waterproofing System

- A. System Basis Of Design: Tremco, Inc., Vulkem EWS System
 1. Miami-Dade NOA Maximum Design Pressure -**502.5 psf.**, NOA No.: 23-0614.04, Pages 6-7 of 14, System Types F(2), See General Limitation #9.

2.03 Traffic Coating For Under Tile, Extreme Wear System (EWS)

- A. 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 under tile.
- B. Primer: Two-component, chemically curing methyl methacrylate
 1. Tremco PUMA Primer
- C. Base Coats: Modified polyurethane methacrylate
 1. Tremco PUMA BC
- D. Top Coat: Methyl Methacrylate
 1. Tremco PUMA TC
 2. Color As selected by Owner from manufacturer's full range.
- E. Aggregate: Manufacturer's standard aggregate for each use indicated of particle sizes, shape, and minimum hardness recommended in writing by traffic-coating manufacturer.
 1. 20-30 Mesh silica sand for the wear coat
 2. 20-50 Mesh silica sand for the primer

2.04 Accessories

- A. 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.
- B. Initiator: Benzoyl Peroxide

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

- 1. Tremco PUMA Initiator
- C. Cleaner: One component polyurethane methyl methacrylate
 - 1. Tremco PUMA Cleaner
- D. Cold Weather Catalyst
 - 1. Tremco PUMA Cold Weather Catalyst
- E. Crack and Joint Detailing Coating
 - 1. Tremco PUMA BC LM and/or Tremco PUMA WC with silica
- F. Vertical and Ramp Application Coating
 - 1. Tremco PUMA BC R
- G. Cant Beads and Detailing of Penetrations
 - 1. Tremco PUMA BC T

PART 3 – EXECUTION

3.01 Examination

- A. Examination includes visual observations, qualitative analysis, and quantitative testing measures as necessary to ensure conditions remain satisfactory throughout the project.
- B. The contractor shall examine all substrates including, but not limited to concrete decks, concrete walls, CMU walls, curbs, equipment, fixtures, coping, interfaces with planters, and wood blocking.
- C. The applicator shall not begin installation until conditions have been properly examined and determined to be clean, dry and, otherwise satisfactory to receive specified materials.
- D. During the application of specified materials, the applicator shall continue to examine all project conditions to ensure conditions remain satisfactory to complete the specified system.
- E. Before applying traffic coating materials, 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.
 - 1. 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 contaminants.
 - 2. Test surfaces following cleaning and abrasion specified below.
 - a. Test for capillary moisture by method recommended in writing by traffic-coating manufacturer.
 - b. Test or traffic coating adhesion per manufacturer's recommended method.
 - c. Notify Engineer in writing of unsatisfactory conditions.
- F. Proceed with installation once unsatisfactory conditions have been remedied.

3.02 Preparation

- A. Surface Preparation:
 - 1. Remove contaminants, curing compounds, and film-forming coatings from substrates.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

2. Remove projections and excess materials and fill voids with manufacturer's recommended substrate patching material.
3. Mechanically abrade concrete surfaces by method of shot blasting to a uniform profile in accordance with ASTM D 4259 and meeting ICRI Surface Profile CSP 3. Do not acid etch.
4. Clean prepared surfaces in accordance with ASTM D 4258.
- B. Protect adjacent finished surfaces by masking. Mask termination point on vertical surfaces. Protect weep holes and drains.
- C. Surfaces to receive Vulkem® EWS with PUMA Technology shall be prepared by shot blasting, water blasting, sandblasting or grinding as may be most suitable and to achieve a CSP in line with manufacturer's application instructions. A final check of the substrate must be made to determine that the substrate has been properly cleaned. Any defects which may impair performance of the membrane shall be appropriately repaired.

3.03 Terminations and Penetrations

- A. Prepare vertical and horizontal surfaces at horizontal to vertical transitions, terminations, joints, and penetrations through traffic coatings in accordance with ASTM C 1127 and manufacturer's written instructions, using accessory materials specified.
- B. At terminations of traffic coating exposed to traffic, rout 1/4 by 1/4 inch keyway in concrete.
- C. 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, .
 1. Prepare joints and cracks in substrate in accordance with ASTM C 1127 and ASTM D 4258 and manufacturer's written instructions.
- D. Joint Coating Installation: Comply manufacturer's written instructions. Allow joint coatings to cure adequately before coating with traffic coating.
 1. 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.
 2. Rout and fill cracks with coating and tool flush with surface.
 3. Feather edges of joint coating applications.
 4. Allow coating to cure.
 5. Fill expansion joints with backer rod and joint sealant contact Tremco for sealant recommendation. Do not apply traffic coating over expansion joints.

3.04 Under Tile-Coating Application

- A. Primer: Prime surfaces to receive traffic coating system. Allow to cure before proceeding.
 1. Mix Tremco PUMA Primer. Add and mix Tremco PUMA Initiator per manufacturer's application instructions into the PUMA Primer. Apply by roller at a rate of approximately 94 ft²/gal to yield 17 wet mils to the entire area to be

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

- coated. Lightly broadcast 20-30 mesh silica quartz sand aggregate at a rate of 7 lbs. per 100 ft² into the wet primer and allow to cure a minimum of 45 minutes. For detail work, refer to manufacturer's application instructions.
- B. Start traffic-coating application in presence of the manufacturer's technical representative.
 - C. Apply traffic coating according to manufacturer's written instructions.
 - 1. Verify that wet film thickness of each coat complies with requirements every 100 sq. ft. (9 sq. m).
 - D. Apply number of coats of specified compositions for vehicular traffic coating at locations indicated on Drawings, per manufacturer's written installation instructions
 - 1. Base Coat: Mix Tremco PUMA BC. Add and mix Tremco PUMA Initiator per manufacturer's application instructions into the PUMA BC. Apply PUMA BC and distribute using a metal notched rake at a rate of 20 ft²/gal to yield 80 wet mils on the entire area to be coated. Immediately spike roll Tremco PUMA BC. Allow PUMA BC to cure a minimum of 45 minutes.
 - 2. Top Coat: Mix Tremco PUMA TC. Add and mix Tremco PUMA Initiator per manufacturer's application instructions into the PUMA TC. Apply Tremco PUMA TC and distribute by roller at a rate of 80 ft²/gal to yield 20 wet mils on the entire area to be coated. Immediately broadcast to refusal (flood coat) the Tremco PUMA TC material with 20-30 mesh silica quartz aggregate. Allow PUMA TC to cure a minimum of 45 minutes. Sweep, blow or vacuum off excess aggregate before proceeding.
 - E. Apply traffic coatings to prepared wall terminations and vertical surfaces to height indicated; omit aggregate on vertical surfaces.
 - F. Cure traffic coatings. Prevent contamination and damage during application and curing stages.
 - G. Integrity Test: Required, and shall be performed in accordance with ASTM D 5957 by an approved lab. Water may be maintained for a period longer than 24 hours if required.

3.05 Field Quality Control

- A. 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 Engineer, if Engineer is not the Special Inspector.
- B. 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.
 - 1. Do not cover Work until testing and inspection is completed and accepted.
- C. Reporting: Forward written inspection reports to the Engineer within 3 working days of the inspection and test being performed.
- D. Correction: Correct deficient applications not passing tests and inspections, make necessary repairs, and retest as required to demonstrate compliance with requirements. All corrections to be at the sole expense of the Contractor.

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 7 Specifications

3.06 Surfacing

- A. Minimum 12" x 12" x ¼" thick ceramic tile, as listed in Table 2 of NOA No.: 23-0614.04, shall be installed in thin-set. Thin-set, as listed in Table 2 of NOA No.: 23-0614.04, shall be prepared as specified by thin-set manufacturer. Tile should then be carefully embedded in thin-set.

3.07 Cleaning and Protecting

- A. Clean spills, stains, and overspray resulting application utilizing cleaning agents recommended by manufacturers of affected construction. Remove masking materials.
- B. 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.
- C. Clean-up and properly dispose of waste and debris resulting from these operations each day as required to prevent damages and disruptions to operations.

END OF SECTION



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

NOTICE OF ACCEPTANCE (NOA)

**MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION**

11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786)315-2590 F (786) 31525-99

www.miamidade.gov/economy

Tremco CPG Inc.
23150 Commerce Park Dr.
Beachwood, OH 44122

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Vulkem® Extreme Wearing System (EWS)

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA renews NOA #22-0228.04 and consists of pages 1 through 14.
The submitted documentation was reviewed by Alex Tigera.

12/14/23



NOA No.: 23-0614.04
Expiration Date: 12/29/24
Approval Date: 12/14/23
Page 1 of 14

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:**TABLE 1**

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
TREMDrain® 2000 Series	4' x 50' rolls	Proprietary	Drain mat
TREMDrain® 6600 Series	6' x 50' rolls	Proprietary	Polypropylene core with polypropylene filter fabric.
Dymonic 100	10.1 oz. cartridges, 20 oz. sausages	Proprietary	High performance, medium-modulus, UV stable, non-sag polyurethane sealant

TRADE NAMES OF PRODUCTS MANUFACTURED BY OTHERS:**TABLE 2**

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>	<u>Manufacturer</u>
Ceramic Tile	Min. 12" x 12" x 1/4"	ANSI A137.1	Ceramic Floor Tile	Generic
Thin-Set Mortar	N/A	ANSI A118.10	Polymer modified thin-set grout for ceramic tile or pavers	Generic
Plaza Pavers	Min. 12" x 12" x 1"	ASTM C936 ASTM C1319	Any approved paver	Generic
Mortar Mix	6:1 mix	ASTM C270	Type N mortar mix or better; 6 parts mason sand, 1 part Portland cement, 1 part hydrated lime.	Generic
Aggregate	N/A	N/A	2040 (20/30 mesh size) Silicone Dioxide (silica) aggregate which imparts non-slip texture and wear resistance	Generic



Deck Type 3	Concrete Decks, Terraces, Balconies, Walkways, Roof Plaza Decks
Deck Description:	Min. 2500 psi, structural concrete
System Types F(2):	Vulkem® EWS with PUMA Technology – Under Tile
Substrate:	Structural concrete shall be water cured prior to application of membrane. Venting the deck from the underside is recommended to facilitate drying of the deck. The curing method must be a water cure, wet coverings, paper sheets, plastic sheets or approved liquid curing compound such as sodium silicate
Substrate Preparation:	All surfaces must be dry and clean, free of depressions, spalled areas, honeycombs, or voids, release agents, curing compounds and other surface contaminants. Surfaces to receive Vulkem® EWS with PUMA Technology shall be prepared by shot blasting, water blasting, sandblasting or grinding as may be most suitable and to achieve a CSP in line with manufacturer's application instructions. A final check of the substrate must be made to determine that the substrate has been properly cleaned. Any defects which may impair performance of the membrane shall be appropriately repaired.
Primer:	Mix Tremco PUMA Primer. Add and mix Tremco PUMA Initiator per manufacturer's application instructions into the PUMA Primer. Apply by roller at a rate of approximately 94 ft ² /gal to yield 17 wet mils to the entire area to be coated. Lightly broadcast 20-30 mesh silica quartz sand aggregate at a rate of 7 lbs. per 100 ft ² into the wet primer and allow to cure a minimum of 45 minutes. For detail work, refer to manufacturer's application instructions.
Base Coat:	Mix Tremco PUMA BC. Add and mix Tremco PUMA Initiator per manufacturer's application instructions into the PUMA BC. Apply PUMA BC and distribute using a metal notched rake at a rate of 20 ft ² /gal to yield 80 wet mils on the entire area to be coated. Immediately spike roll Tremco PUMA BC. Allow PUMA BC to cure a minimum of 45 minutes.
Top Coat:	Mix Tremco PUMA TC. Add and mix Tremco PUMA Initiator per manufacturer's application instructions into the PUMA TC. Apply Tremco PUMA TC and distribute by roller at a rate of 80 ft ² /gal to yield 20 wet mils on the entire area to be coated. Immediately broadcast to refusal (flood coat) the Tremco PUMA TC material with 20-30 mesh silica quartz aggregate. Allow PUMA TC to cure a minimum of 45 minutes. Sweep, blow or vacuum off excess aggregate before proceeding.
Integrity Test:	Required, and shall be performed in accordance with ASTM D 5957 by an approved lab. Water maybe maintained for a period longer than 24 hours if required.
Inspection:	A representative of the membrane manufacturer, or Tremco approved inspection consultant or Approved Tremco Distributor Technical Representative may review the waterproofing assembly and notify the contractor of any defects. All defects shall be corrected.

Surfacing:

Minimum 12" x 12" x ¼" thick ceramic tile, as listed in Table 2, shall be installed in thin-set. Thin-set, as listed in Table 2, shall be prepared as specified by thin-set manufacturer. Tile should then be carefully embedded in the thin-set.

**Maximum Design
Pressure:**

-502.5 psf (See General Limitation #9)

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance; refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Required integrity flood testing report shall be provided to the Building Official for review at time of final inspection.
3. A non-skid surface is required for all vehicular, pedestrian areas; plaza decks or balconies.
4. Vulkem® Systems described herein shall be installed solely by approved applicators familiar with the details and approved by Tremco CPG, Inc., and only with approved equipment.
5. Flashings shall be installed according to the manufacturer's published standard details, specific details, approved by Tremco CPG, Inc., and shall be submitted to the Building Official for review.
6. Tremco CPG, Inc., Vulkem® Systems shall not be installed without consultation with Tremco CPG, Inc., if ambient or surface temperature is below 40°F. Do not apply to wet or frozen concrete surface.
7. Tremco CPG, Inc., Vulkem® Systems shall not be installed over lightweight insulating concrete or plywood decking.
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform to Roofing Application Standard RAS 111 and the wind load requirements of applicable Building Code.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners).
10. A non-skid surfacing is required for all pedestrian areas, plaza decks or balconies.
11. Contractor shall submit to the Building Official for review the system specifications and details. Submission of these documents, as well as the proper application and installation of all materials shall be the sole responsibility of the contractor.
12. All approved products listed herein shall be labeled and shall bear the imprint or identifiable marking of the manufacturer's name or logo and following statement: "Miami-Dade County Product Control Approved" or the Miami-Dade County Product Control Seal as shown below.

A black oval seal with the text "MIAMI-DADE COUNTY" in white, bold, uppercase letters on the top line and "APPROVED" in white, bold, uppercase letters on the bottom line.
13. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 61G20-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE



VULKEM® EWS UNDER TILE SYSTEM

Designed for use under tile, pavers and bonded overburden

Features & Benefits

- Minimal downtime (45 minutes) between application coats
- Fast turn-around time. Apply overburden in 1 hour
- Polyurethane-methacrylate (PUMA) technology delivers extreme durability and crack bridging capabilities
- Chemically resistant
- Can be applied in temperatures as low as 14° F (-10° C)



Basic Uses

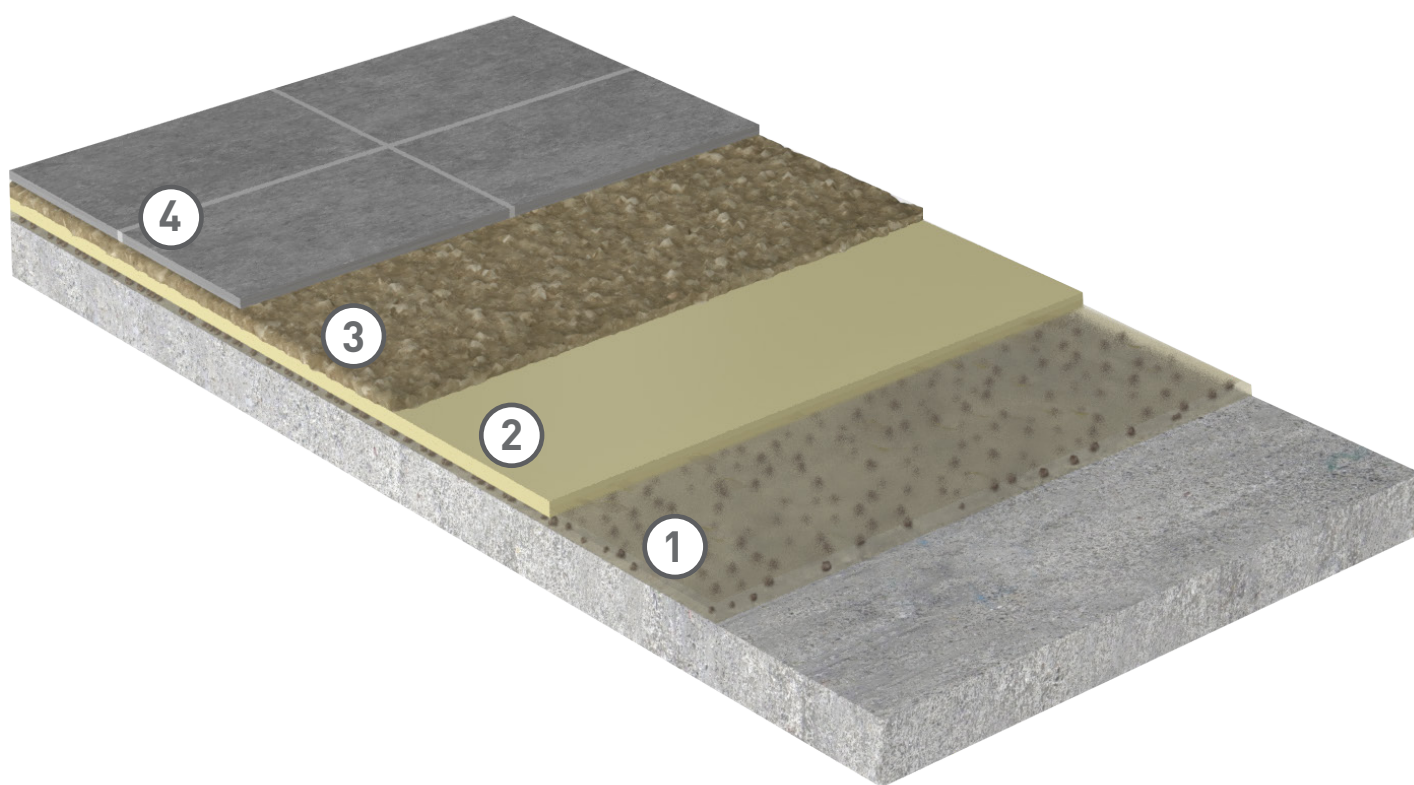
- Tile
- Pavers
- Bonded Overburden

*Vulkem® EWS Under Tile
System Application*



Vulkem EWS Under Tile System

PRODUCT	COVERAGE RATE	WET MILS	COMMENTS
1: Tremco PUMA Primer	90 ft ² /gal	17	Lightly broadcast silica sand.
2: Tremco PUMA BC	20 ft ² /gal	80	Allow 45 min to cure before proceeding.
3: Tremco PUMA TC	53 to 90 ft ² /gal	17 to 30	Lightly broadcast silica sand.
4: Overburden	N/A	N/A	Tile or pavers



Information may vary by region. For specific information, please reference the application instructions or contact your local Tremco representative.

Tremco Commercial Sealants & Waterproofing | 3735 Green Road | Beachwood, OH 44122 | US: 800.852.9068 | CAN: 800.363.3213 | tremcosealants.com

Tremco Construction Products Group (CPG) brings together Tremco Incorporated's Commercial Sealants & Waterproofing and Roofing & Building Maintenance operating divisions; Dryvit Systems, Inc.; Nudura Inc.; Willseal; Weatherproofing Technologies, Inc. and Weatherproofing Technologies Canada, Inc.

 **TREMCO**
Construction Products Group

Tremco® and Vulkem® are registered trademarks of Tremco Incorporated.
Use of the ® symbol indicates registration with the US Patent & Trademark Office and the Canadian Intellectual Property Office.

1220/EWSUnderTileSS

tremcocpg.com



TECHNICAL DATA SHEET

Vulkem® EWS with PUMA Technology

Waterproof Coating System
Under Tile System

PRODUCT DESCRIPTION

Vulkem® EWS with PUMA Technology is a cold-applied, waterproofing system that utilizes polyurethane-methacrylate (PUMA) technology. PUMA waterproofing systems offer superior elongation over traditional MMA/PMMA technology systems. The Vulkem EWS under tile system is composed of a primer (Tremco PUMA Primer or TREMprime VB Primer), a base coat (Tremco PUMA BC or BC LM), and a top coat (Tremco PUMA TC). All system components, except TREMprime VB, are cured using Tremco PUMA Initiator or Initiator+.

Tremco PUMA Primer is a polymethyl-methacrylate (PMMA), two-component primer for porous and non-porous substrates.

TREMprime VB Primer is a two-component, epoxy-based, solvent-free vapor barrier primer for concrete and plywood surfaces.

Tremco PUMA BC is a polyurethane-methacrylate (PUMA) base coat. Tremco PUMA BC bonds firmly to Tremco PUMA Primer. It retains its integrity even if substrate movement causes hair-line cracks of up to 1/16" (1.5 mm). If cut or damaged, Tremco PUMA BC will prevent water migration between itself and the substrate.

Tremco PUMA BC LM is a low-modulus version of Tremco PUMA BC waterproofing membrane that is used when dynamic movement and extreme service temperature ranges are anticipated.

Tremco PUMA TC is a polymethyl-methacrylate (PMMA) top coat. Interlaminary adhesion to Tremco PUMA TC is exceedingly strong. The top coat affords excellent abrasion resistance, UV stability and chemical resistance to complete the Vulkem EWS under tile system.

Tremco PUMA Initiator/Initiator+ is a reactive catalyst in the form of a white powder used to cure all PUMA/PMMA resins.

BASIC USES

Vulkem EWS is a cold-applied traffic deck coating system designed for waterproofing concrete slabs and protecting occupied areas underneath from water damage. Additionally, the system will protect the concrete from the damaging effects of chloride, deicing salts, chemicals, gasoline, oils and anti-freeze. The under tile system is ideal for use under tile, pavers and bonded overburden.

FEATURES & BENEFITS

- PUMA technology delivers extreme durability while maintaining its crack-bridging characteristics, eliminating the need for reinforcing fabric.
- Rapid set-up times allow for quick overall installation, as well as the ability to open up to traffic one hour later.
- Can be applied at temperatures as low as 14 °F (-10 °C), which allows for continuation of projects in the colder months.
- Initiator adjustments allow for 30 to 45 min cure time between applications, even at temperatures below freezing.
- Extremely forgiving application allows users to apply additional coats long after the previous coat has cured.
- Unique chemistry allows for easy repair.
- Compatible with Tremco sealants, coatings and expansion joints, which is essential for tie-ins, detailing and penetrations.

AVAILABILITY

Immediately available from your local Tremco Sales Representative

PACKAGING

Tremco PUMA Primer: 2-gal and 6-gal pails

TREMprime VB Primer: Part A: 2.4-gal pails Part B: 1.2-gal pails

Tremco PUMA BC (all grades): 6-gal pails

Tremco PUMA TC: 6-gal pails

Tremco PUMA Initiator: 22-lb in 2-gal pails & 55-lb in 6-gal pails

Tremco PUMA Initiator+: 10-lb in 3-gal pails, 25-lb in 6-gal pails, 25 75-g pouches in a box

Tremco PUMA Cleaner: 6-gal pails

COLORS

Tremco PUMA TC is available in Gray, Slate Gray, Charcoal, White, Beige, Tintable and Decorative.

Universal Color Paks are available for use with Tremco PUMA TC Tintable.

APPLICABLE STANDARDS

ASTM C957

CSA S413

INSTALLATION

Concrete shall be water-cured and attain a 3000 PSI minimum compressive strength. Concrete finish shall be a light steel trowel followed by an equivalent ICRI #3-#4 finish. Moisture content in the concrete must be lower than 6% as measured using a Tramex CME 4 Moisture Meter. Depending on concrete construction and job site location, additional concrete testing may be required. Please contact your local Tremco Sales or Technical representative.

Please refer to the Vulkem EWS Application Instructions for complete application details. The techniques involved may require modification to adjust to job-site specific conditions. Consult your Tremco Sales Representative or Tremco Technical Services for site conditions and requirements.

LIMITATIONS

- Use with adequate ventilation.
- Not for use over expanded polystyrene, extruded polystyrene, poured in place gypsum, lightweight insulating concrete, cementitious wood fiber decks and coal tar pitch.
- Do not apply in falling precipitation or when precipitation is imminent.
- All surfaces must be sound, clean, free of standing water and free from contamination.
- Any questions regarding drying times, coverage rates and unique application techniques should be directed to Tremco Technical Services or your local Tremco Sales Representative.
- Do not apply over contaminated surfaces.
- Do not thin.
- Substrate must be at least 5 °F (3 °C) above the measured dew point temperatures to avoid dew point conditions.
- Do not store in direct sunlight for prolonged periods.
- Unvented metal pan decks, slab-on-grade and hollow core plank decks require additional qualification prior to application. Please contact Tremco technical services for more information.

WARRANTY

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

TYPICAL PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TREMCO PUMA BC	TREMCO PUMA TC
VOC Content	Method 310	0 g/L	0 g/L
% Solids (by weight)	ASTM D1353	100%	100%
Drying Time @ 75 °F, 50% RH	ASTM D1640	80 mil film, 1 hr	17 mil film, 1 hr
Weathering	ASTM D822 Weatherometer 350 hr	N/A	No effect
Elongation	ASTM D638	407-420%	130%
Elongation	ASTM D5147	Min 30%	Min 30%
Tensile Strength	ASTM D638 @ 75 °F	991 - 1680 psi	986 psi
Tearing Resistance	ASTM D4073	91 lbf	203 lbf
Hardness (Shore D)	ASTM D2240	18 - 35	55
Hardness (Shore A)	ASTM D2240	65-87	100
Abrasion Resistance (1000 cycles)	ASTM D4060	N/A	51 mg
Low-Temperature Crack Bridging	ASTM C1305	Passes	N/A
Taber Abrasion	ASTM C501	Passes	N/A
Peak Load @ 73 °F, avg.	ASTM D5147	>70 lbf/in	238 lb/in
Puncture Resistance	ASTM D5602	> 56 lbs	> 56 lbs
Water Absorption	ASTM D570	< 0.1%	< 0.1%
Water Vapor Transmission	ASTM E96	0.03 perms	0.03 perms
Adhesion-in-Peel	ASTM C794	Concrete failure with primer	N/A
Self-Ignition Temperature	ASTM D1929	800 °F 427 °C	850 °F 454 °C
Smoke Density	ASTM D2843	4.1%	2.1%
Rate of Burn	ASTM D635	1.2 in/min	0.2 in/min

1. PURPOSE

- 1.1 The purpose of this document is to establish uniform procedures for applying the Vulkem® Extreme Wearing System (EWS) in under tile applications. The techniques involved may require modifications to adjust to job-site conditions. If you have any questions regarding your application, contact your local Tremco Field Sales Representative for specific design requirements. This document will provide instructions and troubleshooting for the application of the Vulkem EWS to qualify for the manufacturer's warranty.

2. SUBSTRATE PREPARATION

- 2.1 Investigation of the substrate should be performed to determine the type of surface preparation that will need to take place to achieve the appropriate surface profile required for the coating application. Shotblast is required prior to any Vulkem EWS installation. Refer to ICRI's Technical Guideline No. 310.2R-2013 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays and Concrete Repair for best practices on selecting the appropriate method of concrete preparation. Vulkem EWS application requires a CSP 3-4.
- 2.2 For preparation of metal substrates, please follow The Society for Protective Coatings recommendations that followed in section 3.12.

3. CONDITIONS FOR SUBSTRATES

Concrete Surfaces:

- 3.1 Concrete shall be water cured and attain a 3000 PSI minimum compressive strength. Moisture content in the concrete must be lower than 6% as measured using a Tramex CME 4 Moisture Meter. Excess moisture in the concrete can prevent the coating materials from performing as intended. Depending on the concrete construction and job site location, additional concrete testing may be required. Please contact your local Tremco Sales or Technical Representative.
- 3.2 Excess moisture in the concrete can prevent the coating materials from performing as intended. To detect the presence of excess moisture, several tests may be employed:
- ASTM D4263 – Plastic Sheet
 - ASTM F1869 – Calcium Chloride
 - ASTM F2659 – Tramex CME 4
 - ASTM F2170 – Insitu
- 3.3 All concrete surfaces must be shotblast prior to any coating application. For proper methods, refer to ICRI's Technical Guideline No. 310.2R-2013. For supplier information contact Tremco's Technical Service.
- 3.4 Concrete surface shall be properly cleaned so that the surface to receive the coating, sealant or liquid applied flashing is free of all laitance, mold, paint, sealers, coatings, curing agents, loose particles and other contamination or foreign matter which may interfere with the adhesion. Consult a Tremco Technical Service Representative for recommendations prior to installing materials.
- 3.5 Shrinkage cracks in the concrete surface which are 1/16" (1.5 mm) wide or greater shall be treated according to the instructions in Sections 5 and 7.
- 3.6 Structural cracks, regardless of width, shall be treated according to the instructions in Sections 5 and 7.
- 3.7 Spalled areas shall be cleaned and free of loose contaminants prior to repair. Due to the fact that jobsite conditions vary, it is recommended that you contact Tremco's Technical Service or your local Tremco Sales Representative for the best method of repair.
- 3.8 In the event of exposed reinforcing steel, it is recommended that the structural engineer of record be contacted for investigation of the condition and for the best method of repair.
- 3.9 Surfaces shall be made free of defects that may telegraph and show through the finished coating. Surfaces which are rough (fins, ridges, exposed aggregate, honeycombs, deep broom finish, etc.) shall be leveled and made smooth by applying a coat of sand-filled Tremco PUMA WC according to the instructions in Section 7.
- 3.10 All drains shall be cleaned and operative. Drains shall be recessed lower than the deck surface. Surface shall be sloped to drain and provide positive drainage. Drains should be detailed as instructed below:

- Cut a 1/4" wide x 1/4" deep (6 mm x 12 mm) keyway into the concrete surface at any point where the coating will have an exposed terminating edge- that is, any point where the coating will end in an open area subject to traffic, for example, at the end of a ramp, around drains and alongside expansion joints.

3.11 If the project is a restoration deck, old sealant and backing material shall be removed. The joint interface will require a thorough wire brushing, grinding, sandblasting and primer.

Metal Surfaces:

3.12 Follow standard SSPC-SP 10/NACE No. 2 Near White Blast Cleaning. A near-white metal blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dust, dirt, mill scale, rust, coating, oxides, corrosion products, and foreign matter.

Wood Surfaces:

3.13 Wood must be 5/8", exterior-grade plywood, "A"-side up and well fastened with ring shank nails or screws, with proper consideration given to joints and movement.

3.14 All drains shall be cleaned and operative. Drains shall be recessed lower than the deck surface. Surface shall be sloped to drain and provide positive drainage.

4. JOBSITE MATERIALS

4.1 Recommended materials and their use are as follows:

Dymonic 100: A one-part, moisture curing, gun grade polyurethane sealant for use in precast, masonry, expansion joints, control joints and for use in forming cants.

Tremco PUMA Primer: A two-part, chemical-curing PMMA primer for porous and non-porous surfaces.

TREMprime VB: A two-component, epoxy-based, solvent-free vapor barrier primer for concrete and plywood surfaces.

Tremco PUMA BC: A two-part, chemical-curing PUMA coating used as an elastomeric, waterproofing membrane for Vulkem EWS.

Tremco PUMA BC LM: A lower modulus version of Tremco PUMA BC used as the waterproofing membrane for Vulkem EWS for service temperatures below 32° F (0° C).

Tremco PUMA BC T: A thixotropic version of Tremco PUMA BC used for detailing and field applied cant beads.

Tremco PUMA BC R: A rollable version of Tremco PUMA BC used for ramps and upturns.

Tremco PUMA WC: A two-part, chemical curing PUMA wearing course that can also be used with sand to level out uneven areas in the concrete.

Tremco PUMA TC: A two-part, chemical-curing PMMA coating used to lock in aggregate and provide additional chemical and UV resistance to Vulkem EWS.

Tremco PUMA Cleaner: A one-part MMA cleaner for all tools such as mixing paddles, squeegees, spiked rollers and spatulas. Always use this cleaner for Vulkem EWS materials. Never use any kind of solvent to clean any of your tools as this will cause contamination and inhibit cure.

Tremco PUMA Initiator: A reactive catalyst in the form of a white powder used to cure all resins of Vulkem EWS.

Tremco PUMA Initiator+: An enhanced version of Tremco PUMA Initiator.

Tremco PUMA Filler Powder: A non-reactive, white, filler powder used to thicken Tremco PUMA WC.

Aggregate: 0.3 to 0.6 mm (30-50 mesh)-sized silica sand for the primer application. 0.4 to 0.8 mm (20-40 mesh)-sized silica sand for the top coat application. For supplier information, contact Tremco Technical Service.

5. DETAIL WORK – DYMONIC 100

The preferred method of crack detailing is Tremco PUMA BC or BC LM. Tremco PUMA BC or BC LM will fill cracks and non-moving joints when applied at the recommended thickness, noted in section 8. Tremco PUMA BC and BC LM are not for use inside expansion joints. If using the preferred crack detailing method, please proceed to section 6, Priming Concrete Surface.

Note: Do not apply sealant to a frosty, damp or wet surface or when substrate temperature is below 40 °F (4 °C) or the surface temperature is above 110 °F (43 °C). Cure times as stated below are based upon standard ambient conditions of 75 °F (25 °C), 50% RH. A decrease in ambient temperature and humidity will significantly lengthen the cure time.

Dymonic 100 must be fully cured before application of Tremco PUMA Primer.

5.1 Lay a 1/4" (6 mm) diameter backer rod into the corner at the juncture of all horizontal and vertical surfaces such as curbs, wall sections, columns or penetrations through the deck. Apply a bead of Dymonic 100 1" (2.5 cm) wide over the backer rod. Tool the sealant bead to form a 45° cant. Use sufficient pressure to force out any trapped air and to assure complete wetting of the surface. Remove excess sealant from the deck or wall joint. NOTE: Backer rod is only required for moving joints.

5.2 Install a backer rod, 1/8" to 1/4" (3 mm to 6 mm) diameter larger than the joint width to all prepared control joints. Set depth of backer rod to control the depth of the sealant. (Depth of sealant is measured from the top of the backer rod to the top of the concrete surface.) Proper depth of sealant is as follows:

5.2.1 For joints 1/4" (6.4 mm) to 1/2" (12.7 mm) wide, the depth ratio should be equal.

5.2.2 Joints 1/2" (12.7 mm) wide or greater should have a sealant depth of 1/2" (12.7 mm). The minimum joint size is 1/4" x 1/4" (6.4 mm x 6.4 mm).

5.3 All cracks and joints shall be sealed with Dymonic 100 and tooled flush with the surface. Note: Expansion joints should not be coated over. A full line of expansion joint solutions is available from Tremco Construcitons Products Group companies. For treatment of expansion joints, contact your local Tremco Sales Representative.

5.4 Allow sealant to fully cure.

6. PRIMING CONCRETE SURFACE

Note: When detailing cracks with Tremco PUMA BC or BC LM, the surface must be primed but cracks should not be filled with Tremco PUMA Primer.

Note: TREMprime VB can be used in place of Tremco PUMA Primer in order to mitigate vapor drive caused by moisture in concrete.

6.1 Mix Tremco PUMA Primer for 1 to 2 min prior to the addition of Tremco PUMA Initiator.

6.2 Mix Tremco PUMA Primer thoroughly together with Tremco PUMA Initiator in accordance with Table 3 for 2 to 3 min.

6.3 Apply Tremco PUMA Primer at a minimum of 90 ft²/gal to yield 17 wet mils to the entire area to be coated. The recommended method of application is with a roller. Application below 17 wet mils will result in the primer not curing.

6.4 Once primer is rolled out evenly, lightly broadcast 0.3 to 0.6 mm (30-50 mesh)-sized silica sand into the primer at a rate of 0.7 lb/10 ft².

6.5 Allow Tremco PUMA Primer a minimum of 30 min to fully cure.

7. DETAIL WORK – TREMCO PUMA PRODUCTS

Contact local sales representative for expansion joint detailing.

Defects, Patching and Sloping

7.1 Mix Tremco PUMA WC for 1 to 2 min prior to the addition of the silica sand.

7.2 Begin with 10 lb of sand for every gallon of Tremco PUMA WC. Additional sand can be added if a thicker consistency is desired.

7.3 Once Tremco PUMA WC and the sand are blended together, combine this mixture with the Tremco PUMA Initiator in accordance with Table 3 and mix thoroughly for 2 to 3 min. Amount of Tremco PUMA Initiator is dependent on ambient temperature. Please note the Tremco PUMA Initiator addition is based in the ratio of Initiator to Tremco PUMA WC, not Initiator to Tremco PUMA WC with silica sand. Please see Table 3 for addition amounts.

7.4 For uneven spots and other defects in the surface, such as pitting or cratering, a thicker mix of Tremco PUMA WC and sand may be required. Trowel the material to create an even surface with the concrete.

7.5 Allow Tremco PUMA WC with sand mixture to cure a minimum of 45 min before proceeding to base coat application.

Horizontal to Vertical Transition

Note: Proceed to 7.9 if horizontal to vertical transitions were treated with Dymonic 100.

7.6 Mix the Tremco PUMA BC T for 2 to 3 min prior to the addition of the Tremco PUMA Initiator. Ensure that Tremco PUMA BC T is thoroughly mixed together with the Tremco PUMA Initiator in accordance with Table 3 for 2 to 3 min.

7.7 Apply a cant of Tremco PUMA BC T 1" (2.5 cm) wide at the juncture of all horizontal and vertical surfaces (such as curbs, wall sections, columns or penetrations through the deck). Tool Tremco PUMA BC T to form a 45° cant. Use sufficient pressure to force out any trapped air and to assure complete wetting of the surface. Remove excess material from the deck or wall surface. For a cant bead at a 45° angle in a horizontal to vertical transition, 1 gallon of Tremco PUMA BC T for every 38.5 LF (11.7 M) is required.

7.8 Apply a strip of tape (masking tape or duct tape) to the vertical sections, 2 to 3" above the Tremco PUMA BC T or Dymonic 100 cant to provide a neat termination of Tremco PUMA BC R.

7.9 Apply Tremco PUMA Primer over Dymonic 100 cant before applying coating.

7.10 For penetrations, apply Tremco PUMA Primer over the cant, up the penetration to 1" below the top of the projected overburden. Allow primer to cure.

7.11 Following the primer application, mix Tremco PUMA BC R. Mix in Tremco PUMA Initiator in accordance with Table 3.

7.12 Apply the Tremco PUMA BC R mixture using a medium-nap roller to achieve a minimum thickness of 40 mils over the primed penetration, over the cant and extended minimum of 9 inches onto the horizontal plane. Spiked rollers are not required for change in plane.

8. BASE COAT APPLICATION

Note: In environmental conditions where large temperature swings exist, such as Northern US and Canada, Tremco PUMA BC LM can be used in lieu of Tremco PUMA BC.

Note: When using more than one consecutive coat of Tremco PUMA BC or BC LM, please contact Tremco Technical Service for further details.

- 8.1 Mix Tremco PUMA BC or BC LM for 1 to 2 min prior to the addition of Tremco PUMA Initiator. Note: for ramps up to a 40% slope, mix Tremco PUMA BC R for 2 to 3 min before adding Tremco PUMA Initiator.
- 8.2 Tremco PUMA BC, Tremco PUMA BC LM or Tremco PUMA BC R is thoroughly mixed together with the Tremco PUMA Initiator in accordance with Table 3 for 2 to 3 min. Amount of Tremco PUMA Initiator is dependent on the ambient temperature. Please see Table 3 for addition amounts.
- 8.3 Apply Tremco PUMA BC, Tremco PUMA BC LM or Tremco PUMA BC R at 20 ft²/gal to yield 80 wet mils (2.0 mm) thick to the entire area. The recommended method of application is with a metal notched rake for Tremco PUMA BC or BC LM and a nap roller for BC R.
- 8.4 Spike roll Tremco PUMA BC or Tremco PUMA BC LM immediately to release all air bubbles from the coating. Tremco PUMA BC R does not need to be spike rolled.
- 8.5 Allow Tremco PUMA BC, Tremco PUMA BC LM or Tremco PUMA BC R a minimum of 45 min to cure.

9. TOP COAT APPLICATION

- 9.1 Mix Tremco PUMA TC for 1 to 2 min prior to the addition of Tremco PUMA Initiator.
- 9.2 Tremco PUMA TC is thoroughly mixed together with the Tremco PUMA Initiator in accordance with Table 3 for 2 to 3 min. Amount of Tremco PUMA Initiator is dependent on the ambient temperature. Please see Table 3 for addition amounts.
- 9.3 Apply Tremco PUMA TC at 80 ft²/gal to yield 20 wet mils (0.5 mm) thick to the entire area. The recommended method of application is with a roller.
- 9.4 Immediately following the application of Tremco PUMA TC, lightly broadcast 20-40 mesh-sized silica sand into the top coat at a rate of 3 lb/10 ft².
- 9.5 Allow Tremco PUMA TC a minimum of 1 hr to cure. Sweep off any loose excess silica sand prior to placing tile on the system.

10. CLEAN UP

- 10.1 Immediately clean all adjacent areas to remove any stains or spills with Tremco PUMA Cleaner before material cures.
- 10.2 Immediately clean tools or equipment with Tremco PUMA Cleaner to remove curing material. Intermittent cleaning during application is recommended.
- 10.3 Clean hands by soaking in hot, soapy water then brush with a stiff bristle brush.

11. MATERIAL USAGE GUIDELINES

The following is a guide to determine material usage. Recommended coverage rates are approximate. Sand broadcasting methods and concrete surface profiles may increase the amount of material required to obtain uniform coverage.

Tremco PUMA Primer: When applied at 90 ft²/gal (2.2 M²/L) will yield a mil thickness of 17 wet mils.

Dymonic 100: For a 1" (25 mm) cant bead over a 1/4" (6 mm) backer rod, 1 case of sealant for every 48 lf (14.6 M) is required.

Tremco PUMA BC, BC LM or BC R: When applied at 20 ft²/gal (0.5 M²/L) will yield a mil thickness of 80 wet mils.

Tremco PUMA BC T: For a cant bead at a 45° angle in a horizontal to vertical transition, 1 gallon of Tremco PUMA BC T for every 38.5 LF (11.7 M) is required.

Tremco PUMA TC: When applied at 80 ft²/gal (1.9 M²/L) depending on silica method will yield a mil thickness of 20 wet mils.

Tremco PUMA Initiator/Initiator+: See Table 3 for exact addition amounts.

Aggregate: Broadcast silica sand at a rate of 0.7 lb/10 ft² immediately after the Tremco PUMA Primer application.

Aggregate: Broadcast silica sand at a rate of 3 lb/10 ft² immediately after the Tremco PUMA TC application.

12. TROUBLESHOOTING

This section describes common industry application issues when certain environmental conditions exist. Below are some commonly seen issues and remedies. If any of these should occur, it is always recommended you contact your local Tremco Sales Representative or Tremco's Technical Service.

- 12.1 Tremco requires that any possible recoating job be reviewed and approved by your Sales and/or Technical Representative prior to installation.
- 12.2 When a deck contains too much moisture, the excess moisture may change into a vapor which then condenses at the concrete-membrane interface before the coating has cured, which will cause blisters or bubbles, which, in turn, will interfere with proper adhesion. If this should occur the blisters/bubbles can be cut out, allowing the moisture to escape. After moisture has escaped and the surface is dry, the area can be repaired.
- 12.3 If the coating is applied in very hot ambient temperatures, the air in the small spaces between the concrete particles increases in volume and forms blisters. Contact Tremco's Technical Service should this occur.
- 12.4 Tremco PUMA products should only be applied when the UV index is less than 7 and substrate temperature is below 115 °F (46 °C).

TABLE 1: Quick Reference Application Chart

LAYER	PRODUCT	WET MILS	CURE TIME	SQUARE FEET PER GALLON
Primer	Tremco PUMA Primer	17	30 min	90
Base Coat	Tremco PUMA BC or BC LM	80	45 min	20
Top Coat	Tremco PUMA TC	20	1 hr	80

TABLE 2: Quick Reference Application Chart (Ramps)

LAYER	PRODUCT	WET MILS	CURE TIME	SQUARE FEET PER GALLON
Primer	Tremco PUMA Primer	17	30 min	90
Base Coat	Tremco PUMA BC R	80	45 min	20
Top Coat	Tremco PUMA TC	20	1 hr	80

Recommended coverage rates are approximate. Sand loading methods and concrete surface profiles may increase the amount of material required to obtain uniform coverage.

TABLE 3: Temperature Chart

		Tremco PUMA Initiator	Tremco PUMA Initiator+
TEMPERATURE °F	TEMPERATURE °C	GRAMS OR OUNCES/GALLON	GRAMS OR OUNCES/GALLON
68 to 95	20 to 35	75 g or 2.75 oz of initiator/gal resin	37.5 g or 1.38 oz of initiator/gal resin
50 to 68	10 to 20	150 g or 5.5 oz of initiator/gal resin	75 g or 2.75 oz of initiator/gal resin
32 to 50	0 to 10	300 g or 11 oz of initiator/gal resin	150 g or 5.5 oz of initiator/gal resin
14 to 32	-10 to 0	450 g or 16 oz of initiator/gal resin	225 g or 8 oz of initiator/gal resin

The prescribed amount of initiator in Table 3 is the minimum amount required per gallon for that temperature range.

WARRANTY NUMBER: [Project Number]-[Warranty Number]

PROJECT NAME & ADDRESS:		CONSTRUCTION MANAGER:	
OWNER:		GENERAL CONTRACTOR:	
ARCHITECT/ ENGINEER:		AGGREGATE MATERIAL PURCHASE VALUE:	
ISSUER (THE "COMPANY"):		DATE OF PROJECT SUBSTANTIAL COMPLETION:	

WHAT IS WARRANTED AND WHAT WILL THE COMPANY DO?

Subject to the terms, conditions, and limitations stated in this warranty, the products (the "Products") will be free from manufacturing defect at the time of purchase, will remain in a watertight condition and will perform as warranted in the manner specified for the stated term(s) measured from the Date of Project Substantial Completion, all as outlined on the attached Exhibit. The Exhibit is an integral part of this warranty.

THE COMPANY WILL SUPPLY LABOR AND MATERIALS TO REPAIR OR REPLACE ANY PRODUCTS THAT DO NOT PERFORM AS WARRANTED HEREUNDER.

The Company will determine in its sole discretion the appropriate scope and method of repair or replacement to remedy any condition covered by this warranty.

The total liability of the Company over the life of this warranty shall not in any event exceed the aggregate dollar value of the original cost of the Products specified in the attached Exhibit.

The term of this warranty may be extended for an additional 2 years with involvement on the project of a Company-approved, third-party consultant ("Consultant") engaged by the Owner or its authorized representative, at the Owner's sole expense. Inspection reports generated by the Consultant shall be made available to the Company and the Owner. All deficiencies identified by the Consultant in the inspection reports must be addressed and corrected in accordance with the project specifications, good waterproofing practices generally accepted in the industry, and the Company's published application instructions. Written confirmation that all deficiencies have been addressed and corrected must be provided by the Consultant and Applicator to the Company and the Owner. Actions taken to resolve all deficiencies identified shall be specifically noted in the written confirmation.

HOW DO I GET SERVICE?

The Owner must notify the Company within 30 calendar days from the date that the Owner discovered, or should have discovered, the existence of a claim under this warranty, and before beginning any permanent repair, by submitting a service request form at <https://warranties.tremcocpg.com> or by emailing the Warranty Administrator at **warrantyadmin@tremcoinc.com**. Emailed notice must include the warranty number and a written description of the location, scope, and nature of the alleged failure of the Products to perform as warranted. Photographs or video of the damaged area are often useful and should also be submitted if available.

The Owner must provide the Company with a reasonable opportunity to investigate the claim and the alleged failure of the Products to perform as warranted herein. The Owner shall have the sole responsibility, at the Owner's cost and expense, to provide the Company with free and full access to the installed Products during regular business hours for purposes of the investigation, including obtaining necessary approval and/or releases from building occupants who may be affected by the investigation and/or by any remedy the Company may provide under this warranty. The Company shall not be responsible for removal of any materials which may cover the Products, or any costs associated with removing or replacing any such materials.

GENERAL REQUIREMENTS:

There will not be any coverage under this warranty unless all the following apply:

- The Products were installed in strict compliance with the project specifications, good waterproofing practices generally accepted in the industry, the Company's published application instructions and technical literature, and any additional written requirements provided by the Company.
- The installation was performed by an Applicator who has received appropriate training prior to installing the Products.
- A pre-construction meeting was conducted with representatives of the Company, the Applicator, the Owner, and the Consultant (if applicable) prior to installation of the Products.
- The Products are used with compatible materials and substrates (in compliance with the Company's published application instructions/technical literature or as otherwise approved in writing by the Company).
- The Products are applied within their stated shelf life.
- The Products are used in applications approved by the Company as suitable.
- The Products are applied to a sound, properly prepared substrate in accordance with published application instructions.

LIMITATIONS AND EXCLUSIONS:

The Company shall not be responsible for, and this limited warranty does not cover, any loss resulting from any of the following:

- The use of other manufacturers' products unless such products are specifically recommended or approved by the Company in writing in advance of their installation, in connection with the use of the Products.
- Any repairs, replacements, penetrations, or alterations of the Products by any person or entity other than authorized representatives of the Company without prior written consent of the Company.
- Water passing through any portion of a structure or building component other than directly through the Products due to a failure in the Products and/or connections between the Products (so long as the connections are Company Products), or any interior moisture, vapor, or condensation.
- Construction, design, specification, storage, application, exposure, installation practices, use of the Products, or use of material, that is not in compliance with the Company's published literature.
- Unauthorized changes in the Products' details or specifications for the project that were not reviewed and approved in advance by the Company in writing.
- Failure to maintain the building and the Products with reasonable care.

- Mold, mildew, insects, pests, fungi, algae, bacteria, air quality, and similar conditions.
- Improper design, engineering, application installation or workmanship of any portion or component of the Products or the structure; or failure, distortion or structural movement of the walls, foundation, or any other portion or component of the structure, including, but not limited to, movement, cracking, deflection, settling of the building or movement of the framing members.
- Impact with objects, hurricanes, tropical storms, tornadoes, high winds, hailstorms, earthquakes, sandstorms, floods, natural disasters, fires, vandalism, war, terrorism, animals, other similar acts of God or nature, force majeure events, or significant or unintended immersion or pooling of water.
- Abuse, misuse, neglect, damage, or negligence by the Owner, the Applicator, the general contractor, or other trades performing work on the project, or any third party.
- Change in principal usage or amount of usage of structure without prior written approval of the Company.
- Intermixing of the Products with other chemicals or materials not specifically required by the Company's specifications or application instructions.

If, at the Owner's request, the Company performs any services or supplies any materials as a mitigation or remediation measure in connection with any unwarranted loss described above, the Company shall be entitled to compensation for such services or materials.

The Company makes no warranty with respect to appearance or color. No representative of the Company has the authority to make any representations, warranties, or promises except as stated herein.

No waiver by the Company of any limitation, term or condition of this warranty shall operate as a waiver of any other limitation, term or condition applicable to any claim, whether of like or different nature. No delay or failure on the Company's part to enforce any right or claim, which it may have hereunder, shall constitute a waiver of such right or claim.

If any part of this warranty shall be determined to be invalid, then such portion shall be deemed severed from the warranty and the remaining terms, exclusions and limitations shall apply.

The Company's obligations under this warranty are expressly conditioned upon receipt of full payment for the Products. Any delay in full payment to the Company shall not extend the warranty term.

This warranty is issued to the above-named Owner and is not assignable or transferable, except upon the express written consent of the Company.

THE COMPANY UNDERTAKES NO RESPONSIBILITY FOR THE QUALITY OF THE PRODUCTS EXCEPT AS PROVIDED IN THIS LIMITED WARRANTY. **IN OTHER WORDS, THE COMPANY EXPRESSLY DISCLAIMS ALL EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY.**

THE COMPANY ASSUMES NO RESPONSIBILITY THAT THE PRODUCTS WILL BE FIT FOR ANY PARTICULAR PURPOSE FOR WHICH THE PRODUCTS MAY BE PURCHASED, EXCEPT AS PROVIDED IN THIS LIMITED WARRANTY. **IN OTHER WORDS, THE COMPANY EXPRESSLY DISCLAIMS ALL EXPRESS OR IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE.**

THE COMPANY MAKES NO OTHER OR FURTHER WARRANTIES IN CONNECTION WITH THE PRODUCTS EXCEPT AS EXPRESSLY STATED IN THIS WARRANTY DOCUMENT.

THE COMPANY WILL NOT BE RESPONSIBLE UNDER THIS LIMITED WARRANTY FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING IN CONTRACT OR TORT (INCLUDING INTENTIONAL, NEGLIGENCE OR OTHERWISE), FOR BREACH OF WARRANTY OR UNDER ANY OTHER THEORY OF LIABILITY, WHETHER OR NOT ARISING FROM OR RELATING TO, DIRECTLY OR INDIRECTLY, THIS WARRANTY, OR THE PERFORMANCE OF, DEFECTS IN, OR IN ANY WAY CONNECTED WITH, THE PRODUCTS COVERED BY THIS WARRANTY. THE COMPANY WILL HAVE NO LIABILITY FOR, AND EXPRESSLY DISCLAIMS LIABILITY FOR, ANY OTHER DAMAGE TO THE BUILDING OR THE CONTENTS OF THE BUILDING AND FOR ANY OTHER CLAIMED DAMAGES, LOSSES, COSTS AND EXPENSES OTHER THAN AS EXPRESSLY SET FORTH IN THIS WARRANTY.

THIS REMEDY EXPRESSLY SET OUT IN THIS WARRANTY WILL BE THE EXCLUSIVE REMEDY FOR ALL PERSONS ENTITLED TO WARRANTY COVERAGE AS DESCRIBED ABOVE. NO OTHER REMEDY SHALL BE APPLICABLE.

SOME JURISDICTIONS LIMIT OR DO NOT ALLOW THE DISCLAIMER OF CERTAIN REMEDIES OR THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES. THE EXCLUSIONS AND LIMITATIONS OF REMEDIES AND DAMAGES IN THIS SECTION FULLY APPLY TO THE EXTENT NOT PROHIBITED BY APPLICABLE LAW.

The terms of this warranty may not be altered, modified, or supplemented except in a writing signed by an officer of the Company that expressly refers to this warranty document and number.

In the event the Owner: (i) fails to provide the Company with timely notice as described above, (ii) fails to provide required access to the installed Products, (iii) undertakes or permits any actions that cause or contribute to failures, such as unauthorized repairs or perforations of the Products, or (iv) otherwise fails to fulfill its responsibilities as described herein, the Company reserves the right to void this warranty upon written notice to the Owner.

To expedite processing, this document may be completed and delivered in electronic form only. This limited warranty applies only to Products installed in the United States and Canada. Under the Quebec Consumer Protection Act, the Company must provide a warranty to consumers, as defined in the Act, that the Company's products shall be fit for the purpose for which such products of that kind are ordinarily used and that the Products must be durable in normal use for a reasonable length of time, having regard to their price and other factors. For more information about your rights if you are a consumer as defined in the Act, you should consult the Quebec Consumer Protection Act at <https://www.educaloi.qc.ca/en/capsules/legal-warranty-automatic-protection-consumers>.

Since the Products are building materials and are not intended to be sold to a "consumer" except as part of real estate or as a major addition thereto, this warranty shall not apply to any party constituting a "consumer" as such term is defined by the Magnuson-Moss Warranty Act.

REQUEST FOR WARRANTY ISSUANCE MUST BE MADE PROMPTLY FOLLOWING THE DATE OF PROJECT SUBSTANTIAL COMPLETION. THE COMPANY RESERVES THE RIGHT, IN ITS SOLE DISCRETION, TO REFUSE A REQUEST FOR ISSUANCE IF SUCH REQUEST IS NOT MADE WITHIN A REASONABLE TIME FOLLOWING THE DATE OF PROJECT SUBSTANTIAL COMPLETION.

EXHIBIT

Subject to the terms, conditions, and limitations stated in this warranty, the Company warrants to the Owner:

Warranty No.: [Project Number]-[Warranty Number]

Under-Tile Coating System (Common Applications: Balconies, Walkways, Swimming Pools with wearing/protective surface)

That the Product(s) 1) will not crack due to normal exposure or normal expansion or contraction, and 2) will not fail cohesively or adhesively under conditions of normal wear and tear where movement and/or cracking of the underlying substrate does not exceed 1/16 of an inch, for the period stated in the table below from the Date of Project Substantial Completion.

The Company's obligations and Owner's rights shall be void if the system is ruptured, cracked or otherwise damaged by any misuse or abnormal use or conditions, including but not limited to, industrial truck or heavy equipment traffic, snow plowing, building alterations or structural defects, surface scaling or spalling of underlying concrete or substrates or any cause other than defects in the system as manufactured and supplied.

Additional Requirements for Warranty Coverage

Tremco's Dymonic® 100 required as detail sealant.

Warranty Issued

Applicator:		Installation Completion Date:	
Consultant (if applicable):		Warranty Term:	
Product:		Linear/Square Footage:	
Product:		Linear/Square Footage:	

SECTION 071813 – PEDESTRIAN TRAFFIC WATERPROOFING

PART 1 – GENERAL

1.01 Summary

- A. This section covers the equipment, materials, accessories, and labor necessary to provide a liquid pedestrian traffic waterproofing system, suitable for exterior and interior pedestrian traffic surfaces such as walkways, patios, balconies, sun decks, breezeways, and stairways.
- B. The procedures covered in this section shall be understood as minimum requirements. In the event where there are more stringent manufacturer's required procedures, the manufacturer's procedures shall govern over this section.
- C. Related sections include the following:
 - 1. 004100 – Bid Forms
 - 2. 011100 – Summary of Work
 - 3. 030130 – Structural Concrete Repairs
 - 4. 079200 – Joint Sealant
 - 5. 079500 – Expansion Joints

1.02 Unit Prices

- A. Submit unit prices for pedestrian traffic waterproofing installation as required in specification section 004100 – Bid Forms. Unit prices shall include costs for all activities related to the execution of the repair as described in 1.03B and 1.03C.
- B. All quantities and costs associated with the cleaning and adjustment of existing substrates are incidental and shall be included in the unit price for the Work. Waterproofing accessories shall be provided as part of the unit price for the Work unless separate unit prices are requested on the bid form.
- C. Unit Prices apply to authorized Work performed within the quantities defined by this Specification or the related sections.

1.03 Submittals

- A. The contractor shall submit in accordance with this Specification or the related section. Include product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material indicated.
- B. The contractor shall submit warranty information explicitly stating the manufacturer's warranty length.

- C. The contractor shall submit at least a 5 year warranty against workmanship and manufacturer/material failure.
- D. For warranty eligibility from manufacturer, applicator must apply for warranty prior to the application of any pedestrian traffic waterproofings.
- E. Submittals by Contractor shall be submitted to Engineering in a timely manner so no delay in the Work is caused.

1.04 Conference

- A. Prior to the start of work, the following personnel shall attend a preinstallation conference:
 - 1. Contractor's Project Manager
 - 2. Contractor's Superintendent
 - 3. Project Engineer (Optional)
 - 4. Manufacturer's Representatives (Optional)

1.05 Quality Assurance

- A. Applicator qualifications: all applicators must be trained, possess at least three years of experience in the applications of pedestrian traffic waterproofings, and have successfully completed at least five projects of similar size, scope, and complexity.
- B. Provide a mock-up (field sample) of no less than 100 square feet.
 - 1. Apply all materials to field sample area in the correct sequence. Include the sand broadcast. Follow all manufacturer's written instructions for material applications.
 - 2. Maintain field sample during construction for workmanship comparison. Use field sample as standard for judging color and texture on remainder of project. Do not alter, move, or destroy field sample until work is completed and approved by Owner/Client.
- C. All work and materials are subject to observation and testing as directed by the Engineer. The cost for testing or any work in relation for testing shall not be paid by the Engineer.

1.06 Delivery, Storage, and Handling

- A. Deliver materials to the project site in the manufacturer's original and unopened containers, label intact with type and name of products and manufacturers.
- B. Comply with the manufacturer's written instructions for conditions for temperature requirements as well as other conditions for storage.
- C. Do not use materials that have exceeded their stated expiration date.
- D. Comply with the material manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

1.07 Project Conditions

- A. Comply with required substrate temperature range, ambient temperature range, and humidity range for the length of time stated on the manufacturer's written instructions for each product in the pedestrian traffic waterproofing system.
- B. Do not install if precipitation is expected. Protect from precipitation until cured.
- C. Carefully monitor weather forecasts and pay close attention to changing weather conditions. Plan, schedule, and if necessary, reschedule the pedestrian traffic waterproofing application accordingly.
- D. Existing Electrical, Plumbing, and Mechanical Services:
 - 1. Protect all electrical conduits, boxes, wiring, and fixtures from damage. Safe removal of lighting fixtures and existing surface mounted electrical lines, when required, shall be the responsibility of the Contractor. All electrical lines shall be reattached to the structure after completion of the repairs.
 - 2. Take reasonable precautions to avoid damaging embedded electrical conduits. Reasonable precautions shall include, but are not limited to, reviewing existing documentation and connected services in combination with nondestructive testing to determine the layout of the conduit. Demolition equipment shall be selected to minimize damage to conduit. Damage to embedded conduits as a result of Contractor negligence shall be repaired by the Contractor at no cost to the Owner.
 - 3. Protect mechanical ductwork from the intake of dust particles and odor.
 - 4. Protect plumbing, mechanical equipment, and ductwork from damage. Safe removal of plumbing, mechanical equipment, and ductwork, when required, shall be the responsibility of the Contractor. All plumbing, mechanical equipment, and ductwork shall be reattached to the structure after completion of the repairs.
 - 5. Maintain electrical, plumbing, and mechanical services in continuous operation except as approved by the Owner.

1.08 Safety

- A. All Work shall be performed in accordance with the applicable provincial, local, state, and federal requirements for safety and the recommendations of ICRI 120.1.
- B. Maintain a copy of MSDS at the jobsite for all materials.

PART 2 – PRODUCTS

2.01 Equipment

- A. Select appropriate means and methods of topping and waterproofing removal, cleaning of substrate, and preparation of the concrete substrate as defined in these specifications.

Obtain acceptance from the Design Professional as to the type of equipment to be used. The following equipment or approved equivalent are permitted to be used.

1. Pressure washing equipment capable of delivering at least 3000 psi (20.7 MPa) nozzle pressure for cleaning loose material from repair areas.
2. Water blasting equipment capable of delivering pressures of 5000 psi (34.5 MPa) to 10,000 psi (69 MPa) for concrete surface preparation.
3. Compressed air equipment capable of delivering compressed air free of oil for cleaning loose material from repair areas.

2.02 Products and Manufacturers

- A. Products and corresponding manufacturers cited in the sections that follow shall be the basis for pricing the Work. The Contractor must bid the specified products. The Contractor may require a substitution subject to review and acceptance by the Engineer.
- B. Manufacturers
 1. Aquafin
 2. Sika
 3. Tremco
- C. Products
 1. Aquafin Pro-Tekt Traffic Coating by Aquafin
 2. Sikalastic 710/715/735 Traffic System by Sika
 3. Vulkem 350/351 or 350/351 NF by Tremco
- D. Accessories
 1. Primer: As recommended by the system's manufacturer.
 2. Aggregate: as approved by the system's manufacturer.
 3. Sealant: as per specification section 079200.
 4. Toppings: tile, acrylic overlay, or other overburdens to be submitted and must be approved by the system's manufacturer.
 5. Other materials: provide other materials, not specifically described but required for a complete and proper installation, as selected by the contractor and approved by the system's manufacturer as compatible, and is subject to engineering review.

PART 3 – EXECUTION

3.01 Examination

- A. Verify that jobsite conditions are appropriate for the pedestrian traffic waterproofing application.
- B. Inspect substrate in application area and verify that it is suitable to receive the pedestrian traffic waterproofing application.
- C. If discrepancies are found, provide written report with photos documenting and describing the conditions of the jobsite. Include the areas of concern.

- D. Do not proceed with the pedestrian traffic waterproofing application until all areas of concern have been addressed and corrected and jobsite and substrate conditions have been made ready for the application.

3.02 Protection

- A. Precautions: Protect pedestrians; motor vehicles; mechanical, electrical, and plumbing equipment; surrounding construction; project site; landscaping; and surrounding buildings from damage or injury resulting from Work.
 - 1. Neutralize and collect alkaline and acid wastes for proper disposal off-site in accordance with Local, State, and Federal regulations.
 - 2. Dispose of runoff from wet operations in accordance with all local ordinances and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
 - 3. Comply with local noise ordinances during demolition operations.
 - 4. Protect all new repair Work from vibrations, dust, and any deleterious environmental effects during the Work. Provide adequate cure time for pedestrian traffic waterproofings.

3.03 Preparation

- A. Follow manufacturer's written instructions for surface preparation.
- B. Repair all spalled and honey combed areas of concrete as per specification section 030130.
- C. Perform mechanical surface preparation to meet the manufacturer's CSP (concrete surface profile) requirements. References ICRI (International Concrete Repair Institute) Guideline No. 301-2R-2013.
- D. Concrete repair mortars must have a full 7 day cure prior to coating.
- E. After mechanical preparation, clean the substrate. All surfaces must be clean, dry, and free of loose sand, dirt, dust, and other foreign substances that could interfere with adhesion.
- F. For oil-contaminated slabs, contact the pedestrian traffic waterproofing manufacturer for additional surface preparation requirements and instructions.
- G. Provide a suitable area for mixing materials.

3.04 Crack and Joint Treatment

- A. Prepare cracks, control joints, and expansion joints according to project specifications and drawings.
- B. Install detail coats, joint and crack treatments, and liquid flashings in accordance with the manufacturer's written instructions.
- C. Ensure a water-tight seal.

3.05 Application

- A. Install waterproofing coating system in accordance with the manufacturer's recommendations and instructions as applicable to the work except where more stringent requirements are indicated.
- B. Grid the deck surfaces to assure proper coverage rates and verify coating wet-film mil thickness with gauges as work progresses.
- C. Retain empty product containers during the course of the work to aid in determining whether the completed coating system complies with the manufacturer's average thickness requirements
- D. Verify proper dry condition of the substrate using a method recommended by the system's manufacturer. Perform adhesion checks prior to application of the system using field adhesion test methods recommended by the manufacturer.
- E. Mask off adjoining surfaces not to receive the waterproofing system.
- F. Mix materials as per the manufacturer's instructions.
- G. Wipe clean all detail coats with white rags wetted with Xylene solvent. Do not saturate detail coat.
- H. Apply system base coat uniformly and allow to cure in accordance with the manufacturer's written instructions.
- I. Feather edge when the entire area cannot be completed in one day. Clean an area 6" wide along edge of the coating with Xylene solvent on clean white rags prior to startup on next working day. Use an interlaminar primer per the manufacturer's instructions as needed. Overlap existing work by 6" with new work.
- J. Expansion joints shall not be waterproofed/coated over.
- K. Apply system finish coat in accordance with the manufacturer's written instructions. Immediately broadcast aggregate into wet material at rates recommended by manufacturer and back roll to evenly distribute and totally encapsulate the aggregate. Avoid void spaces in between the individual pieces of aggregate. Allow to cure per the manufacturer's written instructions.

3.06 Field Quality Control

- A. Ensure all areas have been made water-tight.
- B. Conduct flood-testing/integrity testing for at least 48 hours.

END OF SECTION

SECTION 079200 – JOINT SEALANTS

PART 1 – GENERAL

1.01 Summary

- A. This section covers the equipment, materials, accessories, and labor necessary to provide joint sealants for construction joints and non-structural cracks in concrete components.
- B. The procedures covered in this section shall be understood as minimum requirements. In the event where there are more stringent manufacturer's required procedures, the manufacturer's procedures shall govern over this section.
- C. Related sections include the following:
 - 1. 004100 – Bid Forms
 - 2. 011100 – Summary of Work
 - 3. 030130 – Structural Concrete Repairs

1.02 Unit Prices

- A. Submit unit prices for joint sealant installation as required in specification section 004100 – Bid Forms, typically requested on a price per linear foot basis. Unit prices shall include costs for all activities related to the execution of the repair as described in 1.02B and 1.02C.
- B. All quantities and costs associated with the cleaning and adjustment of construction joints or substrates are incidental and shall be included in the unit price for the Work.
- C. Unit Prices apply to authorized Work performed within the quantities defined by this Specification or the related sections.

1.03 Submittals

- A. The contractor shall submit in accordance with this Specification or the related section. Include product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material indicated.
- B. The contractor shall submit warranty information explicitly stating the manufacturer's warranty length.
- C. The contractor shall submit at least a 5 year warranty against workmanship and manufacturer/material failure.
- D. Submittals by Contractor shall be submitted to Engineering in a timely manner so no delay in the Work is caused.

1.04 Conference

- A. Prior to the start of work, the following personnel shall attend a preinstallation conference:
 - 1. Contractor's Project Manager
 - 2. Contractor's Superintendent
 - 3. Project Engineer
 - 4. Manufacturer's Representatives (Optional)

1.05 Quality Assurance

- A. The contractor shall have experience and expertise specific to all work within this Specification and the related sections.
- B. Provide color options for joint sealants to the client/owner and receive approval from the client/owner before proceeding with any scope of work.
- C. All work and materials are subject to observation and testing as directed by the Engineer. The cost for testing or any work in relation for testing shall not be paid by the Engineer.

1.06 Delivery, Storage, and Handling

- A. Deliver materials to the project site in the manufacturer's original and unopened containers, label intact with type and name of products and manufacturers.
- B. Comply with the manufacturer's written instructions for conditions for temperature requirements as well as other conditions for storage.
- C. Do not use materials that have exceeded their stated expiration date.
- D. Comply with the material manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

1.07 Project Conditions

- A. Comply with required substrate temperature range, ambient temperature range, and humidity range for the length of time stated on the manufacturer's written instructions for each product for a joint sealant.
- B. Do not install if precipitation is expected. Protect from precipitation until cured.
- C. Carefully monitor weather forecasts and pay close attention to changing weather conditions. Plan, schedule, and if necessary, reschedule the joint sealant application accordingly.
- D. Existing Electrical, Plumbing, and Mechanical Services:
 - 1. Protect all electrical conduits, boxes, wiring, and fixtures from damage. Safe removal of lighting fixtures and existing surface mounted electrical lines, when required, shall be the responsibility of the Contractor. All electrical lines shall be reattached to the structure after completion of the repairs.

2. Take reasonable precautions to avoid damaging embedded electrical conduits. Reasonable precautions shall include, but are not limited to, reviewing existing documentation and connected services in combination with nondestructive testing to determine the layout of the conduit. Demolition equipment shall be selected to minimize damage to conduit. Damage to embedded conduits as a result of Contractor negligence shall be repaired by the Contractor at no cost to the Owner.
3. Protect mechanical ductwork from the intake of dust particles and odor.
4. Protect plumbing, mechanical equipment, and ductwork from damage. Safe removal of plumbing, mechanical equipment, and ductwork, when required, shall be the responsibility of the Contractor. All plumbing, mechanical equipment, and ductwork shall be reattached to the structure after completion of the repairs.
5. Maintain electrical, plumbing, and mechanical services in continuous operation except as approved by the Owner.

1.08 Safety

- A. All Work shall be performed in accordance with the applicable provincial, local, state, and federal requirements for safety and the recommendations of ICRI 120.1.
- B. Maintain a copy of MSDS at the jobsite for all materials.

PART 2 – PRODUCTS

2.01 Products and Manufacturers

- A. Products and corresponding manufacturers cited in the sections that follow shall be the basis for pricing the Work. The Contractor must bid the specified products. The Contractor may request a substitution subject to review and acceptance by the Engineer. Provide color options for joint sealants to the client/owner and receive approval from the client/owner before proceeding with any scope of work.
- B. Manufacturers
 1. Dow Corning
 2. Sika
- C. Products
 1. Door/Window Perimeters – Stucco/Concrete/CMU to Metal
 - a. Sika Hyflex 150 by Sika
 2. Door/Window Frames – Metal to Metal
 - a. Sikasil WS 295 by Sika
 - b. Dow Corning 795 Silicone Building Sealant by Dow Corning
 3. Door/Window Frames – Metal to Glass
 - a. Dow Corning 795 Silicone Building Sealant by Dow Corning – Black color
 - b. Sikasil WS 295 by Sika – Black color

4. Non-Structural Cracks in Concrete Members (Horizontal)
 - a. Sikaflex 2c by Sika
 5. Non-Structural Cracks in Concrete Members (Vertical)
 - a. Sika Hyflex 150 by Sika
 6. Concrete Interfaces to Other Materials
 - a. Sikasil WS 295 by Sika
 7. Fasteners
 - a. Sikaflex-11 FC by Sika
- D. Accessories
1. Primer: as recommended by the sealant manufacturer with the substrates and exterior/interior conditions taken into consideration.
 2. Closed Cell Backer Rod: as recommended by the sealant manufacturer with the substrates and exterior/interior conditions taken into consideration.
 3. Open Cell Back Rod: as recommended by the sealant manufacturer with the substrates and exterior/interior conditions taken into consideration.
 4. Joint Cleaner: as recommended by the sealant manufacturer with the substrates and exterior/interior conditions taken into consideration.
 5. Bond Breaker: as recommended by the sealant manufacturer with the substrates and exterior/interior conditions taken into consideration.

PART 3 – EXECUTION

3.01 Examination

- A. Verify that jobsite conditions are appropriate for the joint sealant application.
- B. Inspect substrate in application area and verify that it is suitable to receive the joint sealant application.
- C. Provide written report with photos documenting and describing the conditions of the jobsite if there are areas of concern.
- D. Do not proceed with the joint sealant application until all areas of concern have been addressed and corrected and jobsite and substrate conditions have been made ready for the application.

3.02 Protection

- A. Precautions: Protect pedestrians; motor vehicles; mechanical, electrical, and plumbing equipment; surrounding construction; project site; landscaping; and surrounding buildings from damage or injury resulting from Work.
 1. Neutralize and collect alkaline and acid wastes for proper disposal off-site in accordance with Local, State, and Federal regulations.

2. Dispose of runoff from wet operations in accordance with all local ordinances and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
3. Comply with local noise ordinances during demolition operations.
4. Protect all new repair Work from vibrations, dust, and any deleterious environmental effects during the Work. Provide adequate cure time for joint sealant.

3.03 Preparation

- A. Follow manufacturer's written instructions for surface preparation.
- B. Repair all spalled and honey combed areas of concrete as per specification section 030130.
- C. Perform mechanical surface preparation to meet the manufacturer's CSP (concrete surface profile) requirements. References ICRI (International Concrete Repair Institute) Guideline No. 301-2R-2013.
- D. Concrete repair mortars must have a full 7 day cure prior to coating.
- E. Verify surfaces and joint openings are consistent with manufacturer's written instructions.
- F. All joints shall be uniform in width and shall be ¼ inch minimum thickness unless approved or noted elsewhere.
- G. Joint sealant width to depth ratio shall be approximately 2:1 unless approved or noted elsewhere.
- H. Smooth-edged joints shall be made to limit joint movement (up to +/- 25%).
- I. Remove all accessories of previous sealant including joint backing. Do not damage surrounding surfaces.
- J. Remove loose debris, laitance, dirt and any other materials that will prevent adequate joint sealant adhesion.
- K. Provide joint sealant accessories as per manufacturer's written instructions such as primer, open cell backer rod, closed cell backer rod, joint cleaner, and/or bond breaker.
- L. Provide masking tape where necessary to prevent joint sealant materials or their accessories from being applied incorrectly and to prevent over application.

3.04 Application

- A. Remove and replace the existing sealants as directed/shown by the engineer in the drawings and specifications.
- B. For routing and sealing of existing crack, "v" notch the surface of the crack with a mechanical router, hand chipping tool, or other, of the combination thereof, to a maximum width of ¼". Remove loose debris and dust by air blasting the repair area. If the crack propagates through the structural element, contact the Engineer before proceeding.
- C. Install joint sealant materials where specified immediately after joint preparation as per manufacturer's recommendations and written instructions.
- D. Sealant transitions will have bond breaker tape or backer rod installed to prevent three sided adhesion.
- E. Utilize masking tape to create neat sealant lines.

- F. Ensure protection of joint sealants until the joint sealants have cured.
- G. Tooling of the joint sealant with fingers is not acceptable.
- H. Ensure all areas have been made water-tight. Adjust sealants as necessary to repair or replace damaged or deteriorated sealants.

3.05 Cleaning

- A. Remove joint sealant or joint sealant accessories from adjacent surfaces.

END OF SECTION

SECTION 092400 – STUCCO MAINTENANCE AND REPAIR

PART 1 – GENERAL

1.01 Summary

- A. This section covers the equipment, materials, accessories, and labor necessary to repair, maintain, construct, or rehabilitate stucco and stucco-finishes. When repairing stucco and stucco-finishes, repairs shall be furnished to replicate the original stucco finish. All stucco and stucco-finishes shall be furnished as indicated in the contract documents and in accordance with this section.
- B. The procedures covered in this section shall be understood as minimum requirements. In the event where there are more stringent manufacturer's required procedures, the manufacturer's procedures shall govern over this section.
- C. Related sections include the following:
 - 1. 004100 – Bid Forms
 - 2. 011100 – Summary of Work
 - 3. 030130 – Structural Concrete Repairs

1.02 Standards and Reports

- A. ASTM Standards and Reports

A525	Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) By the Hot-Dip Process, General Requirements
C109	Standard test Method for Compressive Strength of Hydraulic Cement Mortars
C348	Standard Test Method for Flexural Strength of Hydraulic Cement Mortars (Using 2 in [50-mm] Cube Specimens)
C413	Standard Test Method for Absorption of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
C596	Standard Test Method for Drying Shrinkage of Mortar Containing Hydraulic Cement
C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
C806	Standard Test Method for Restrained Expansion of Expansive Cement Mortar
C847	Standard Specification for Metal Lath
C878/878M-22	Standard Test Method for Restrained Expansion of Shrinkage-Compensating Concrete

Surfside Palms Condominium Association, Inc. – Restoration Project

Division 9 Specifications

C897	Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters
C926	Standard Specification for Application of Portland Cement-Based Plaster
C932	Standard Specification for Surface-Applied bonding Agents for Exterior Plastering
C1032	Standard Specification for Woven Wire Plaster Base
C1063	Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
C1328	Standard Specification for Plastic (Stucco) Cement
D1784	Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

B. Standards-Producing Organizations:

ASTM International (ASTM)

1.03 Unit Prices

- A. Submit unit prices for stucco applications or stucco repair as required in specification section 004100 – Bid Forms. Unit prices shall include costs for all activities related to the execution of the repair as described in 1.04B and 1.04C.
- B. All quantities and costs associated with the replacement of stucco accessories are incidental and shall be included in the unit price for the Work. Also, all quantities and costs associated with the cleaning and adjustment of existing substrates are incidental and shall be included in the unit price for the Work. Replacement of accessories and stucco thicker than 7/8” shall be provided as part of the unit price for the repair Work unless separate unit prices are requested on the bid form.
- C. Unit Prices apply to authorized Work performed within the quantities defined by this Specification or the related sections.

1.04 Submittals

- A. The contractor shall submit in accordance with this Specification or the related section. Include product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material indicated.
- B. The contractor shall submit warranty information explicitly stating the manufacturer’s warranty length.

- C. The contractor shall submit at least a 5 year warranty against workmanship and manufacturer/material failure.
- D. Submittals by Contractor shall be submitted to Engineer in a timely manner so no delay in the Work is caused.

1.05 Conference

- A. Prior to the start of work, the following personnel shall attend a preinstallation conference:
 - 1. Contractor's Project Manager
 - 2. Contractor's Superintendent
 - 3. Project Engineer
 - 4. Manufacturer's Representatives (Optional)

1.06 Quality Assurance

- A. The contractor shall have experience and expertise specific to all work within this Specification and the related sections.
- B. All work and materials are subject to observation and testing as directed by the Engineer. The cost for testing or any work in relation for testing shall not be paid by the Engineer.
- C. The contractor will provide a mockup:
 - 1. Provide mockup of stucco repair adjacent to pre-existing stucco finish texture.
 - 2. Size: Minimum 4 x 4 feet.
 - 3. Locate where directed (first building/drop/location where work begins).
 - 4. Work may not proceed until the mockup is approved by Client/Owner.
- D. The manufacturer shall be a company regularly engaged in the manufacturing and marketing of the products specified in this section. The manufacturer shall provide job services as require to assure proper handling and installation of materials. The field representative shall instruct as needed to assure that handling, placing, and finishing of materials are in accordance with specifications and manufacturer's requirements.

1.07 Delivery, Storage, and Handling

- A. Deliver materials to the project site in the manufacturer's original and unopened containers, label intact with type and name of products and manufacturers.
- B. Comply with the manufacturer's written instructions for conditions for temperature requirements as well as other conditions for storage.
- C. Do not use materials that have exceeded their stated expiration date.
- D. Store all materials off the ground, under cover, and in a dry location. Protect from rain, water, freezing, excessive heat, foreign matter, and other damaging conditions until ready for use. If materials have frozen, obtain manufacturer's written approval prior to use. Do not stir liquids or mix materials until they are completely thawed.

Do not force-thaw materials. Do not use damaged containers or broken bags.

- E. Comply with the material manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

1.08 Project Conditions

- A. Existing Electrical, Plumbing, and Mechanical Services:
 - 1. Protect all electrical conduits, boxes, wiring, and fixtures from damage. Safe removal of lighting fixtures and existing surface mounted electrical lines, when required, shall be the responsibility of the Contractor. All electrical lines shall be reattached to the structure after completion of the repairs.
 - 2. Take reasonable precautions to avoid damaging embedded electrical conduits. Reasonable precautions shall include, but are not limited to, reviewing existing documentation and connected services in combination with nondestructive testing to determine the layout of the conduit. Demolition equipment shall be selected to minimize damage to conduit. Damage to embedded conduits as a result of Contractor negligence shall be repaired by the Contractor at no cost to the Owner.
 - 3. Protect mechanical ductwork from the intake of dust particles and odor.
 - 4. Protect plumbing, mechanical equipment, and ductwork from damage. Safe removal of plumbing, mechanical equipment, and ductwork, when required, shall be the responsibility of the Contractor. All plumbing, mechanical equipment, and ductwork shall be reattached to the structure after completion of the repairs.
 - 5. Maintain electrical, plumbing, and mechanical services in continuous operation except as approved by the Owner.
- B. Do not apply stucco during, closely before, or closely after inclement weather.
- C. Follow bonding and stucco mix manufacturer's recommendations regarding weather conditions and installation guidelines.
- D. When repairs are to be made and cannot be completed in one day, temporary sealants/barriers will be installed at the end of each work day to prevent water intrusion into the existing structure. Sealants, foam, and formwork are preferred.

1.09 Safety

- A. All Work shall be performed in accordance with the applicable provincial, local, state, and federal requirements for safety and the recommendations of ICRI 120.1.
- B. Maintain a copy of MSDS at the jobsite for all materials.

PART 2 – PRODUCTS

2.01 Equipment

- A. Select appropriate means and methods of stucco removal and preparation of the substrate as defined in these specifications. Obtain acceptance from the Design Professional as to the type of equipment to be used. The following equipment or approved equivalent are permitted to be used.
 - 1. Chipping hammers with a total weight not to exceed:
 - a. 30 lb (13.6 kg) and equipped with appropriate chipping bits for initial demolition repair areas. 30 lb (13.6 kg) chipping hammers may be used at full depth repairs. In no case shall they be used to extend removal further than 2 inches from the bond line for a repair.
 - b. 15 lb (6.8 kg) with sharp pointed tools for the removal of concrete from partial depth repairs, beneath reinforcing bars, and around repair edges.
 - 2. Pressure washing equipment capable of delivering at least 3000 psi (20.7 MPa) nozzle pressure for cleaning loose material from repair areas.
 - 3. Water blasting equipment capable of delivering pressures of 5000 psi (34.5 MPa) to 10,000 psi (69 MPa) for concrete surface preparation.
 - 4. Compressed air equipment capable of delivering compressed air free of oil for cleaning loose material from repair areas.
 - 5. Adjustable depth concrete saw for saw cutting the edges of repair areas.

2.02 Products and Manufacturers

- A. Products and corresponding manufacturers cited in the sections that follow shall be the basis for pricing the Work. The Contractor must bid the specified products. The Contractor may submit a substitution subject to review and acceptance by the Engineer.
- B. Manufacturers
 - 1. Amerimix
 - 2. CEMEX
 - 3. Sika
 - 4. Sto
- C. Products
 - 1. Pre-Blended Stucco Mix
 - a. AMX 700 SBF by Amerimix
 - 2. Bonding Agent
 - a. Submit for approval and must meet be in compliance with ASTM C932.
 - 3. Accessories
 - a. Moisture Barrier
 - i. No. 15 asphalt saturated felt in compliance with local building codes and ASTM D226.
 - b. Lath

- i. In compliance with local building codes and ASTM C847, C1032, and C1063; diamond mesh paper backed (vertical applications: 2.5 lb/sq yd; horizontal applications: 3.4 lb/sq yd).
- c. Mesh
 - i. Sto Mesh: for use between cast-in-place concrete and CMU.
- d. Water
 - i. Clean, potable, and free from excess materials/debris.
- e. Sand
 - i. Clean, washed, free from deleterious materials, and uniformly graded from coarse passing through a #4 mesh screen, but not more than 5% passing through a #100 mesh screen.
- f. Fasteners/Tie Wire
 - i. Corrosion and electrolysis resistant (shall apply to wood framing, steel framing, or fastening into concrete or masonry).
- g. PVC plastic components such as casing and corner bead, control joints, etc.
 - i. In compliance with local building codes and ASTM A653, C1063, and D1784.

PART 3 – EXECUTION

3.01 Examination

- A. Attend a Pre-Construction meeting prior to the start of the Work. The contractor shall have reviewed the detailed requirements in this section and shall discuss with the Engineer any questions, comments, or concerns before the commencement of the Work.
- B. Examine the substrates upon which materials will be applied in accordance with this section.
- C. Notify the Engineer if the substrate is not acceptable for Work.
- D. Commencement of Work by contractor is acceptance of substrate.
- E. All Work to comply with the current Florida Building Code, 8th Edition (2023) and its supplements.
- F. Notify the Engineer when areas of deteriorated concrete are located/found.
- G. Located areas of delamination using hammer sounding, golf club sounding, and/or chain-drag sounding in accordance with ASTM D4580, mark boundaries, and arrange for the Engineer to inspect and approve the layout geometry. Layout geometry shall be performed in accordance with ICRI 310.1R.

3.02 Protection

- A. Precautions: Protect pedestrians; motor vehicles; mechanical, electrical, and plumbing equipment; surrounding construction; project site; landscaping; and surrounding buildings from damage or injury resulting from the Work.
 - 1. Neutralize and collect alkaline and acid wastes for proper disposal off-site in accordance with Local, State, and Federal regulations.

2. Dispose of runoff from wet operations in accordance with all local ordinances and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
3. Comply with local noise ordinances during demolition operations.
4. Protect all new repair Work from vibrations, dust, and any deleterious environmental effects during the Work. Provide adequate cure time for concrete repairs to allow for compressive and bond strength gain prior to performing demolition adjacent to the repairs.

3.03 Surface Preparation

- A. Cast-In-Place Concrete and Concrete Masonry Units (CMU)
 1. Cast-in-place concrete substrates are to be scarified as needed, straight/plumb, structurally sound, and water absorbent. Remove any projecting material such as joint mortar or poorly formed concrete to create straightness/plumbness. All laitance shall be removed from the substrate prior to installation of any new materials. Follow all surface preparation procedures from the manufacturer's published documentation.
- B. Sheathing
 1. The contractor shall remove all laitance from the substrate prior to installation of any new materials. The substrate shall be prepared as to remove all rust and corrosion from the existing metal accessories such as metal lath.

3.04 Joints

- A. Existing joints shall be replaced/maintained in kind by forming at all joint locations appropriately, using accessories, or saw cutting over the joint locations, unless specified to completely remove the existing joints.

3.05 Application

- A. Three coat system over sheathing, building paper, and metal lath shall comply with manufacturer's instructions for each product, but a general application shall be as follows:
 1. Base Coat: Thickness from face of building paper: 3/8".
 2. Second Coat: 3/8".
 3. Finish Coat: 1/8".
 4. Total thickness: 7/8".
- B. Two coat system over cast-in-place concrete and CMU shall comply with manufacturer's instructions for each product, but a general application shall be as follows:
 1. Bond Coat.
 2. Base Coat: 3/8".
 3. Finish Coat: 1/8".
 4. Total thickness: 1/2".
- C. Products should be placed as required by the manufacturer. Trowel into place and allow to stiffen or cure before next coat is installed.

3.06 Finishing, Curing, and Clean Up

- A. Finishing: Finish stucco to match adjacent existing stucco surfaces. Do not add additional water during finishing.
- B. Curing: Packaged repair materials shall be cured no less than the time recommend by the manufacturer.
- C. Clean Up: clean material from adjacent surfaces as recommended by manufacturer. Remove tools, equipment, machinery, and debris from the site. Thoroughly clean and repair Work of other trades.

END OF SECTION

SECTION 099600 – HIGH-PERFORMANCE COATINGS

PART 1 – GENERAL

1.01 Summary

- A. This section covers the equipment, materials, accessories, and labor necessary to provide a high-performance coatings, suitable for exterior and interior surfaces that are subject to chemicals such as pool equipment rooms, maintenance workshops, containment areas, and garages.
- B. The procedures covered in this section shall be understood as minimum requirements. In the event where there are more stringent manufacturer's required procedures, the manufacturer's procedures shall govern over this section.
- C. Related sections include the following:
 - 1. 004100 – Bid Forms
 - 2. 011100 – Summary of Work
 - 3. 030130 – Structural Concrete Repairs
 - 4. 079200 – Joint Sealant

1.02 Unit Prices

- A. Submit unit prices for high-performance coatings installation as required in specification section 004100 – Bid Forms. Unit prices shall include costs for all activities related to the execution of the repair as described in 1.03B and 1.03C.
- B. All quantities and costs associated with the cleaning and adjustment of existing substrates are incidental and shall be included in the unit price for the Work. Waterproofing accessories shall be provided as part of the unit price for the Work unless separate unit prices are requested on the bid form.
- C. Unit Prices apply to authorized Work performed within the quantities defined by this Specification or the related sections.

1.03 Submittals

- A. The contractor shall submit in accordance with this Specification or the related section. Include product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material indicated.
- B. The contractor shall submit warranty information explicitly stating the manufacturer's warranty length.

- C. The contractor shall submit at least a 5 year warranty against workmanship and manufacturer/material failure.
- D. For warranty eligibility from manufacturer, applicator must apply for warranty prior to the application of any high-performance coatings.
- E. Submittals by Contractor shall be submitted to Engineering in a timely manner so no delay in the Work is caused.

1.04 Conference

- A. Prior to the start of work, the following personnel shall attend a preinstallation conference:
 - 1. Contractor's Project Manager
 - 2. Contractor's Superintendent
 - 3. Project Engineer (Optional)
 - 4. Manufacturer's Representatives (Optional)

1.05 Quality Assurance

- A. Applicator qualifications: all applicators must be trained, possess at least three years of experience in the applications of high-performance coatings, and have successfully completed at least five projects of similar size, scope, and complexity.
- B. Provide a mock-up (field sample) of no less than 100 square feet.
 - 1. Apply all materials to field sample area in the correct sequence. Include the sand broadcast. Follow all manufacturer's written instructions for material applications.
 - 2. Maintain field sample during construction for workmanship comparison. Use field sample as standard for judging color and texture on remainder of project. Do not alter, move, or destroy field sample until work is completed and approved by Owner/Client.
- C. All work and materials are subject to observation and testing as directed by the Engineer. The cost for testing or any work in relation for testing shall not be paid by the Engineer.

1.06 Delivery, Storage, and Handling

- A. Deliver materials to the project site in the manufacturer's original and unopened containers, label intact with type and name of products and manufacturers.
- B. Comply with the manufacturer's written instructions for conditions for temperature requirements as well as other conditions for storage.
- C. Do not use materials that have exceeded their stated expiration date.
- D. Comply with the material manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

1.07 Project Conditions

- A. Comply with required substrate temperature range, ambient temperature range, and humidity range for the length of time stated on the manufacturer's written instructions for each product in the pedestrian traffic waterproofing system.
- B. Do not install if precipitation is expected. Protect from precipitation until cured.
- C. Carefully monitor weather forecasts and pay close attention to changing weather conditions. Plan, schedule, and if necessary, reschedule the pedestrian traffic waterproofing application accordingly.
- D. Existing Electrical, Plumbing, and Mechanical Services:
 - 1. Protect all electrical conduits, boxes, wiring, and fixtures from damage. Safe removal of lighting fixtures and existing surface mounted electrical lines, when required, shall be the responsibility of the Contractor. All electrical lines shall be reattached to the structure after completion of the repairs.
 - 2. Take reasonable precautions to avoid damaging embedded electrical conduits. Reasonable precautions shall include, but are not limited to, reviewing existing documentation and connected services in combination with nondestructive testing to determine the layout of the conduit. Demolition equipment shall be selected to minimize damage to conduit. Damage to embedded conduits as a result of Contractor negligence shall be repaired by the Contractor at no cost to the Owner.
 - 3. Protect mechanical ductwork from the intake of dust particles and odor.
 - 4. Protect plumbing, mechanical equipment, and ductwork from damage. Safe removal of plumbing, mechanical equipment, and ductwork, when required, shall be the responsibility of the Contractor. All plumbing, mechanical equipment, and ductwork shall be reattached to the structure after completion of the repairs.
 - 5. Maintain electrical, plumbing, and mechanical services in continuous operation except as approved by the Owner.

1.08 Safety

- A. All Work shall be performed in accordance with the applicable provincial, local, state, and federal requirements for safety and the recommendations of ICRI 120.1.
- B. Maintain a copy of MSDS at the jobsite for all materials.

PART 2 – PRODUCTS

2.01 Equipment

- A. Select appropriate means and methods of topping and waterproofing removal, cleaning of substrate, and preparation of the concrete substrate as defined in these specifications. Obtain acceptance from the Engineer as to the type of equipment to be used. The following equipment or approved equivalent are permitted to be used.
 - 1. Pressure washing equipment capable of delivering at least 3000 psi (20.7 MPa) nozzle pressure for cleaning loose material from repair areas.
 - 2. Water blasting equipment capable of delivering pressures of 5000 psi (34.5 MPa) to 10,000 psi (69 MPa) for concrete surface preparation.
 - 3. Compressed air equipment capable of delivering compressed air free of oil for cleaning loose material from repair areas.

2.02 Products and Manufacturers

- A. Products and corresponding manufacturers cited in the sections that follow shall be the basis for pricing the Work. The Contractor must bid the specified products. The Contractor may require a substitution subject to review and acceptance by the Engineer.
- B. Manufacturers
 - 1. Aquafin
 - 2. Sika
 - 3. Tremco
- C. Products
 - 1. Vaportight Coat SG2 by Aquafin
 - 2. Sikagard 664 by Sika
- D. Accessories
 - 1. Primer: As recommended by the system's manufacturer.
 - 2. Aggregate: as approved by the system's manufacturer.
 - 3. Sealant: as per specification section 079200.
 - 4. Toppings: tile, acrylic overlay, or other overburdens to be submitted and must be approved by the system's manufacturer.
 - 5. Other materials: provide other materials, not specifically described but required for a complete and proper installation, as selected by the contractor and approved by the system's manufacturer as compatible, and is subject to engineering review.

PART 3 – EXECUTION

3.01 Examination

- A. Verify that jobsite conditions are appropriate for the high-performance coatings application.

- B. Inspect substrate in application area and verify that it is suitable to receive the high-performance coating application.
- C. If discrepancies are found, provide written report with photos documenting and describing the conditions of the jobsite. Include the areas of concern.
- D. Do not proceed with the high-performance coating application until all areas of concern have been addressed and corrected and jobsite and substrate conditions have been made ready for the application.

3.02 Protection

- A. Precautions: Protect pedestrians; motor vehicles; mechanical, electrical, and plumbing equipment; surrounding construction; project site; landscaping; and surrounding buildings from damage or injury resulting from Work.
 - 1. Neutralize and collect alkaline and acid wastes for proper disposal off-site in accordance with Local, State, and Federal regulations.
 - 2. Dispose of runoff from wet operations in accordance with all local ordinances and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
 - 3. Comply with local noise ordinances during demolition operations.
 - 4. Protect all new repair Work from vibrations, dust, and any deleterious environmental effects during the Work. Provide adequate cure time for high-performance coatings.

3.03 Preparation

- A. Follow manufacturer's written instructions for surface preparation.
- B. Substrates shall be clean, dry, sound, and free of surface contaminants, with an open texture. Remove all traces of dust, laitance, grease, oils curing compounds, form release agents, and foreign particles by mechanical means, such as milling, scarifying, or shot blasting, as acceptable to the Engineer. Blow surface free of dust using compressed air line-equipped with an oil trap. All projections, depressions and rough spots should be dressed off to achieve a level surface prior to the applications
- C. Concrete shall be cleaned and prepared to achieve a laitance and contaminant free, open texture surfaces by blast cleaning or equivalent mechanical means (CSP3-4 per ICRI guidelines).
- D. For oil-contaminated slabs, contact the vehicular traffic waterproofing manufacturer for additional surface preparation requirements and instructions.
- E. Metal shall be thoroughly cleaned by grinding or blast cleaning.
- F. Chemical surface preparation (acid etching) is unacceptable and will void manufacturer's warranty.

3.04 Crack and Joint Treatment

- A. Prepare cracks, control joints, and expansion joints according to project specifications and drawings.

- B. Install detail coats, joint and crack treatments, and liquid flashings in accordance with the manufacturer's written instructions.
- C. Ensure a water-tight seal.

3.05 Application

- A. Install coating system in accordance with the manufacturer's recommendations and instructions as applicable to the work except where more stringent requirements are indicated.
- B. Grid the deck surfaces to assure proper coverage rates and verify coating wet-film mil thickness with gauges as work progresses.
- C. Retain empty product containers during the course of the work to aid in determining whether the completed coating system complies with the manufacturer's average thickness requirements.
- D. Verify proper dry condition of the substrate using a method recommended by the system's manufacturer. Perform adhesion checks prior to application of the system using field adhesion test methods recommended by the manufacturer.
- E. Mask off adjoining surfaces not to receive the coating system.
- F. Mix materials as per the manufacturer's instructions.
- G. Wipe clean all detail coats with white rags wetted with Xylene solvent. Do not saturate detail coat.
- H. Apply system base coat uniformly and allow to cure in accordance with the manufacturer's written instructions.
- I. Feather edge when the entire area cannot be completed in one day. Clean an area 6" wide along edge of the coating with Xylene solvent on clean white rags prior to startup on next working day. Use an interlaminar primer per the manufacturer's instructions as needed. Overlap existing work by 6" with new work.
- J. Expansion joints shall not be waterproofed/coated over.
- K. Apply system finish coat in accordance with the manufacturer's written instructions. Immediately broadcast aggregate into wet material at rates recommended by manufacturer and back roll to evenly distribute and totally encapsulate the aggregate. Avoid void spaces in between the individual pieces of aggregate. Allow to cure per the manufacturer's written instructions.

3.06 Field Quality Control

- A. Ensure all areas have been made water-tight.
- B. Conduct flood-testing/integrity testing for at least 48 hours.

3.07 Cleaning

- A. Remove all debris generated from high-performance coating application and leave finishes areas in a clean condition.

- B. The uncured material can be cleaned from tools with solvent. Cured epoxy can only be removed mechanically.

END OF SECTION



SHERWIN-WILLIAMS®

Surfside Palms Condominium

8888 Collins Avenue
Surfside, Florida 33154



Prepared by:

Isaac Martinez
Senior Sales Representative
The Sherwin-Williams Company
954.444.3742
Isaac.Martinez@sherwin.com

SCAN TO SAVE
MY CONTACT





November 4, 2024

Myles J. Harris
PE, SI Limited
President
Infinite Engineering

Ivete Pasini
Board of Directors
Surfside Palms Condominium Association, Inc.
c/o Miami Powerhouse Management

Thank you for considering Sherwin-Williams for your project.

On Tuesday, July 30, I had the opportunity to walk the Surfside Palms Condominium property. The 24-year-old/5-story/55-unit property, which is to be repainted (the specific areas are detailed within), has been examined, and a specification that best suits this project's requirements has been created.

Upon completing the entire project and adhering to the provided specifications, you will be eligible to receive a 10-year warranty from Sherwin-Williams for all properly prepared exterior vertical masonry surfaces (masonry finish coatings specified within have been tested and have passed ASTM D6904-03 wind driven rain test). When requested, Sherwin-Williams will provide a document of the facility's colors, products used, and the location of original purchases for maintenance and re-orders.

Thank you for the business opportunities you have afforded the Sherwin-Williams Paint Company. We appreciate your confidence in our products and their performance in the field. I would appreciate your request if I could assist in this or any other matter.

It is the responsibility of the Owner/Owners Rep to notify Isaac Martinez (Sherwin-Williams Representative) that the contract has been awarded, to whom it has been awarded, along with the approximate start date for the project. Failure to do so may void the warranty offering for the project.

Respectfully,

A handwritten signature in blue ink that reads 'Isaac Martinez'.

Isaac Martinez
Sr. Sales Representative
Sherwin-Williams Paint Company
Mobile - 954.444.3742
Isaac.Martinez@sherwin.com

Part 1 – Project Scope

1.1 Inclusions

- A. The contractor is to pressure clean the exterior surfaces to be painted ([see Pressure Washing and Surface Preparation](#))
 - 1. Use [Chlor*Rid Liquid Soluble Salt Remover](#) when needed
- B. Seal/prime all exterior surfaces to be painted ([see Coatings Schedule](#))
- C. Non-Structural stucco and related repair(s)
- D. EIFS and related repairs
- E. Non-Structural repair cracks ([see Crack Repair](#))
- F. Apply sealant as needed ([see Caulks and Sealants](#))
 - 1. Complete removal and replacement at metal, wood, and stucco transitions, penetrations, perimeters, attachments, wall-to-wall joints/changes of planes, dissimilar materials/surfaces, expansion joints, and other required areas
- G. Areas to be coated:
 - 1. Stucco/cementitious surfaces
 - 2. Columns
 - 3. Trim
 - 4. Fascia
 - 5. Parapet walls (interior and exterior) and caps
 - 6. Concrete balustrade systems
 - 7. Patio/balcony walls and ceilings
 - 8. Walkway/hallway walls and ceilings
 - 9. Previously coated stairway walls, ceilings, and structures
 - 10. Decorative corner accents, corbels, and misc. doodads
 - 11. Carport/garage walls, ceilings, columns, service pipes
 - 12. Corner guards
 - 13. Rail, metal rail, and gate/fence systems
 - 14. Previously coated pedestrian traffic floor systems (not over urethane deck systems)
 - 15. Previously coated vehicular traffic floor systems
 - 16. Entry doors and frames, exterior side only
 - 17. Utility doors and frames, exterior side only
 - 18. Previously painted scuppers, drip caps, vents, louvers, electrical boxes, piping, and conduit, along with other previously coated substrates
- H. Color and sheen are the responsibility of The Owner(s)/Owner(s) Representative
 - 1. [Choice of color](#), product, and sheen will determine if additional coats will be required
 - 2. **The property will use the existing two-tone color scheme**

1.2 Options – provide separate line-item pricing:

- A. Provide a per unit price to strip door/frame(s) as needed
- B. Uncoated entry step systems

1.3 Exclusions

- A. Areas that are not indicated within this specification, contract, or scope of work documents
 - 1. Light fixtures
 - 2. Window frames
 - 3. Sliding glass door frames
 - 4. Glazing (glass-to-metal)

5. Tile surfaces
6. Hurricane shutters and mounting systems
7. Roof systems

1.4 Notes

- A. A coating system will not resolve all moisture intrusion conditions

Work to be performed consists of all preparation, painting, and related items necessary to complete the work described in the specification and listed in the remaining pages included within this specification.

This document is a recommendation created in collaboration with The Owner(s)/Owner(s) Representative based on the property's condition. It is intended to serve as a resource and standard for contractors to bid on the project. However, please note that this document is not the contract itself and cannot be used as such.

The Contractor is responsible for satisfying the final contract with The Owner(s)/Owner(s) Representative. Changes to the coating schedule/materials to be used after creating this document may change the warranty offerings. The Contractor will refer to the [Product Data Sheets](#)¹ for application information.

The contractor shall strictly adhere to all applicable federal, state, and local regulations associated with proper lead-safe work renovation, repair, and painting practices and procedures. State and local regulations may be more strict than those set under the federal regulations. The federal parties and procedures are detailed in EPA's Lead Renovation, Repair and Painting Program Regulations Rule (RRP) 40 CFR Part 745, Subpart E, and as amended. Specifics associated with the RRP Rule about "Firm Certification," individual "Certified Renovator" Certification, pre-work activities (notification & testing), occupant protection/work site preparation measures, safe work/prohibited work practices, clean-up/clean-up verification/waste disposal/clearance testing (if applicable), recordkeeping and worker training criteria can be obtained on EPA's website: www.epa.gov/lead.

WARNING! Removal of old paint by sanding, scraping, or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires proper protective equipment, such as a properly fitted respirator (NIOSH approved), and proper containment and cleanup. For more information, call the National Lead Information Center at 1.800.424.LEAD (in the US) or Contact your local health authority removal and all related state and local regulations. Care should be taken to follow all state and local regulations, which may be more strict than those set under the federal RRP Rule.

Part 2 – Coating Schedule - ([Surface Preparation Standards](#)) ([Safety Color Guide](#))

2.1 Stucco/Masonry Surfaces

- A. Bare/New Stucco: Sherwin-Williams [Loxon Concrete & Masonry Primer/Sealer](#), LX02W0050, applied @ 5.3-8.0 mils wet; 2.1-3.2 mils dry
- B. Seal (Previously Painted): Sherwin-Williams [Loxon Acrylic Conditioner](#), LX03-0100 Series, applied @ 200-300 sq. ft. per gallon
- C. Repairs/New Stucco: Sherwin-Williams [Loxon Acrylic Block Surfer](#), LX01W0200, applied as needed, not to exceed 16.0 mils wet; 8.8 mils dry
- D. Finish: Sherwin-Williams [Latitude Exterior Latex Flat](#), K60 Series, applied @ 4.0 mils wet; 1.4 mils dry

2.2 Parapet Walls and Caps

- A. Bare/New Stucco: Sherwin-Williams [Loxon Concrete & Masonry Primer/Sealer](#), LX02W0050, applied @ 5.3-8.0 mils wet; 2.1-3.2 mils dry
- B. Seal (Previously Painted): Sherwin-Williams [Loxon Acrylic Conditioner](#), LX03-0100 Series, applied @ 200-300 sq. ft. per gallon

¹ Product Data Sheets provide information for various systems/substrates, it does not provide all combinations of systems/substrates that are applicable.

- C. Intermediate: Apply two (2) coats of Sherwin-Williams [ConFlex Flexible Concrete Waterproofer – Smooth](#), CF14-0050 Series, applied @ 10.0-12.0 mils wet with 10 or less pinholes per sq. foot
Continue down the outside (front) 6 inches
- D. Finish: Sherwin-Williams [Latitude Exterior Latex Flat](#), K60 Series, applied @ 4.0 mils wet; 1.4 mils dry

2.3 Wood

- A. Bare/New Wood: Sherwin-Williams [Exterior Oil-Based Wood Primer](#), Y24W8020, applied @ 4.0 mils wet; 2.3 mils dry
- B. Seal (Previously Painted): Sherwin-Williams [Loxon Acrylic Conditioner](#), LX03-0100 Series, applied @ 200-300 sq. ft. per gallon
- C. Finish: Sherwin-Williams [Latitude Exterior Latex Flat](#), K60 Series, applied @ 4.0 mils wet; 1.4 mils dry

2.4 Ferrous Metal

Stripe coat inside/outside corners/edges, welds, crevices, sharp angles, and areas of concern

- A. Spot Prime: Sherwin-Williams [MacroPoxy 920 Pre-Prime](#), B58T101/V10, applied @ 1.5-2.0 mils wet; 1.5-2.0 mils dry
- B. Prime (Previously Painted): Sherwin-Williams [Pro-Cryl Universal Primer](#), B66-1310 Series, applied @ 5.0-10.0 mils wet; 1.9-3.8 mils dry
- C. Finish: Sherwin-Williams [Pro Industrial Pre-Catalyzed Waterbased Urethane](#), B65-1100 Series, applied @ 6.0-12.0 mils wet; 2.2-4.4 mils dry

2.5 Rail, Gate/Fence Systems

Stripe coat inside/outside corners/edges, welds, crevices, sharp angles, and areas of concern

- A. Spot Prime (Bare): Sherwin-Williams [MacroPoxy 920 Pre-Prime](#), B58T101/V10, applied @ 1.5-2.0 mils wet; 1.5-2.0 mils dry
- B. Prime (Previously Painted): Sherwin-Williams [Pro-Cryl Universal Primer](#), B66-1310 Series, applied @ 5.0-10.0 mils wet; 1.9-3.8 mils dry
- C. Finish: Sherwin-Williams [Pro Industrial Pre-Catalyzed Waterbased Urethane](#), B65-1100 Series, applied @ 6.0-12.0 mils wet; 2.2-4.4 mils dry

2.6 Pedestrian Traffic Floor Systems

All floor coatings become slippery when wet. A non-skid additive is recommended

Previously Coated

- A. Finish: Apply two coats, [Tuf-Top Coatings DuraPlate 289](#), 289-XX Series, applied @ 150-300 sq. feet per gallon

Uncoated Surfaces

- A. Finish: Apply two coats, **over bare concrete**, of [Tuf-Top Coatings Silicone Acrylic Concrete Sealer](#), 12-XX Series, applied @ 100-200 sq. feet per gallon

Add [H&C SharkGrip](#) (or similar) to each coat applied unless otherwise instructed by The Owner(s)/Owner(s) Representative

Part 3 – Crack Repair

3.1 Cementitious Substrates:

- A. Hairline cracks: Clean and prepare, apply a detailed coat of elastomeric patching compound.
- B. Cracks $\frac{1}{16}$ "- $\frac{1}{8}$ ": Rake out and clean, seal with conditioner, allow drying ²
- C. Cracks $\frac{1}{8}$ "- $\frac{1}{4}$ ": V-cut following the crack configuration, rake out and clean, seal with conditioner, allow drying. Install appropriately sized baker material as needed, then install the sealant, allow drying ²
- D. Cracks $\frac{1}{4}$ "- $\frac{1}{2}$ ": Saw-cut crack to create a joint for backer rod and sealant. Rake out and clean, seal with conditioner, allow drying. Install appropriately sized baker material as needed, then install the sealant, allow drying ²

3.2 Elastomeric Patching Compound

Install after proper repair, preparation, and application of specified primer/sealer/conditioner, ensure that application is free of pinholes. A structural engineer should be utilized if the cracks are due to structural deficiencies.

- A. [Sherwin-Williams Concrete & Masonry Smooth and Textured Elastomeric Patches](#)

Part 4 – Caulks and Sealants

4.1 Procedure:

- A. Remove and replace sealant according to [SWRI](#) and [ASTM C 1521-02a](#)
- B. Transitions/penetrations/joints without sealant on the exterior surfaces must have sealant applied to protect from air and moisture infiltration.
- C. Install specified sealant at all transitions, including where they may have been previously omitted unless specifically excluded by The Owner or The Owner's Representative in writing. **Note:** Sealant installed over existing sealant is not recommended.
- D. Prior to sealant application:
 - 1. Remove existing sealant and residuals.
 - 2. Treat porous and nonporous surfaces by mechanical means and/or a compatible solvent wiping. **Note:** For porous surfaces, the use of detergent or soap & water is NOT recommended.
 - 3. Fit with backer rod or bond breaker (where necessary to control the maximum depth and to prevent three (3) sided adhesion).
- E. Use two-part urethane sealants for expansion joints.
- F. Install specified sealant according to the manufacturer's directions.

4.2 Masonry, Wood, and Metal Substrates

- A. Sherwin-Williams [Loxon H1](#) – One Component Low Modulus Hybrid Sealant
- B. Sherwin-Williams [Loxon NS2](#) – Two Component Non-Sag Smooth Polyurethane Sealant

² apply elastomeric patching compound 2" on both sides of the crack and the center crowned directly over the crack approximately 1/16" and "feathered" down to zero over the 2" area with the intent to blend with adjacent surfaces.

Part 5 – Contractor Responsibilities

5.1 Pre-Bid

A pre-bid meeting should be conducted with all bidders, including the specification writer. It is the responsibility of the bidder to fully understand the scope of work and the conditions under which the work is to be performed. Failure to attend does not relieve The Contractor from performance of any contract awarded to the satisfaction of the solicitor.

5.2 Scope of Work

Surface preparation, repair, patching, installation of caulk/sealants, and application of the paint coating to the substrates outlined in this specification and approved by The Owner(s)/Owner(s) Representative.

5.3 Application of Materials

The Contractor is responsible for paint coverage due to surface conditions, colors, color changes, and/or job conditions. Mock-ups are recommended prior to startup to ensure satisfactory coverage, color, and sheen. Color changes should be discussed prior to the signing of the contract.

Color differences due to different batches are rare yet sometimes inherent in the paint industry. The Contractor is to “box” paint (intermixing of individual buckets) to ensure uniform color in any area.

5.4 Change of Specified Materials

- A. The specification writer may substitute products based on product changes, discontinued products, material availability, VOC laws, and other related industry regulation changes
- B. Of The Sherwin-Williams warranty, The Contractor is to use the specified paint, patching, and sealants. Any substitutions **must** have prior approval for use by the specification writer. Substitution of any product without pre-authorization may void the warranty.

5.5 Materials

- A. All materials specified are to be purchased from The Sherwin-Williams Paint Company.
- B. All coatings used must be in the original container.
- C. The paint shall be used/applied per [Product Data Sheet](#) instructions.
- D. The material shall not be modified unless approved by the specification writer.
- E. The manufacturer’s recommendation for proper surface preparation must be followed.
- F. All [Product Data Sheets](#) are accessible by visiting [Paintdocs](#) or [Sherwin-Williams](#) online.
- G. This specification dictates the warranty requirements.
- H. All paint and sundries located at the job site shall be available for inspection at any time upon commencement of the job by The Owner(s)/Owner(s) Representative and/or any Sherwin-Williams representative.

5.6 Substrates Not Being Coated

The Contractor is responsible for protecting all adjacent work and materials during work progress. The Contractor must protect all adjacent areas not being coated. Upon completion of work, The Contractor must remove all paint (drips and/or over-spray) from surfaces not specified to be coated.

5.7 Minimum Specifications

If instructions contained within this specification, bid document, and/or paint schedule are at variance with the paint manufacturer's instructions, applicable standard, and/or code, the surfaces shall be prepared and coated to suit the higher standard, as determined, and agreed upon by Sherwin-Williams, The Contractor, and/or The Owner(s)/Owner(s) Representative.

5.8 Resolution of Conflicts

The Contractor shall be responsible for stopping work and requesting prompt clarification when instructions are lacking; conflicts occur with the specifications, contract, the paint manufacturer's literature, and/or the procedures specified are not clearly understood. Questions concerning the specification should be clarified prior to commencing the job. Any changes to the specification would require written approval by the specification writer.

5.9 Safety

Safety regulations and safety noted on the manufacturer's [Product Data Sheets](#) and labels shall be observed. [GHS-SDS, EDS, and Product Data Sheets](#) are available from your local Sherwin-Williams Representative or by visiting [Paintdocs](#) or [Sherwin-Williams](#) online.

Verify the existence of lead-based paints on the project. Buildings constructed after 1978 are less likely to contain lead-based paints. If lead-based paints are suspected on the project, all removal must be done in accordance with the EPA Renovation, Repair and Painting Rule or similar state regulations.

5.10 Jobsite Visitation

- A. The Contractor is responsible for visiting the job site and familiarizing themselves
- B. All is subject to inspection by The Owner(s)/Owner(s) Representative
- C. The Contractor is responsible for owning and using a wet film thickness gauge to check application thickness throughout the project
- D. The Contractor and The Owner(s)/Owner(s) Representative have complete responsibility for ensuring that the project specifications are followed
- E. Questions concerning the specifications must be clarified prior to commencing
- F. Changes to the specifications require written approval from The Owner(s)/Owner(s) Representative or the specification writer.

5.11 Surface Preparation

The Contractor is responsible for the preparation of each surface and the finish of their work. Should any surface be found unsuitable to produce a proper coating or finish, The Owner(s)/Owner(s) Representative shall be notified, and no materials shall be applied until the unsuitable surfaces have been made satisfactory or The Owner(s)/Owner(s) Representative decide otherwise.

- A. Perform preparation and cleaning procedures as Sherwin-Williams recommends and as specified herein for each substrate condition. For additional detailed information, see manuals and publications of standard industry procedures provided by organizations such as the following:
 - 1. [American Institute of Architects \(AIA\)](#)
 - 2. [Construction Specifications Institute \(CSI\)](#)

3. [American Society for Testing and Materials \(ASTM\)](#)
 4. [Painting Contractors Association \(PCA\)](#)
 5. [The Society for Protective Coatings AMPP \(SSPC\)](#)
 6. [Sealant Waterproofing Restoration Institute \(SWRI\)](#)
 7. [Occupational Safety and Health \(OSHA\)](#)
 8. [American National Standards Institute \(ANSI\)](#)
- B. All deteriorated/delaminated substrates³ (i.e., wood, hardboard siding, T-111, and masonry substrates) are to be replaced with new materials unless otherwise stated by The Owner(s)/Owner(s) Representative. New materials should be primed on all sides before installation in accordance with specifications.

5.12 Moisture

All items that can cause paint failure due to moisture should be addressed and eliminated. This would include but is not limited to:

- A. Water moving system(s) not in place or working properly
- B. Previous coat(s) of paint not adhering properly
- C. Deteriorated caulking/sealant
- D. Gaps/voids between substrates
- E. Wood checking (cracks and/or splits in wood)
- F. Rotten wood
- G. Areas affected by water splashing
- H. Painting in inclement weather
- I. Painting an un-dry substrate

5.13 Pressure Washing and Surface Preparation

- A. All vertical and horizontal surfaces designated in the scope of work will be pressure washed for the complete removal of mildew, chlorides (salts), laitance, loose/peeling/blistering coatings, and all surface contaminants, [TSP](#) or similar can be used.
- B. The most effective method to accomplish the necessary results should be performed
 1. Cementitious Substrates: well-adhered coatings use 3000 p.s.i./greater with a properly sized fan tip; marginally adhered/peeling coatings use an oscillating tip/similar.
 2. Metal Surfaces: Use 4000 p.s.i. /greater with a fan or oscillating tip/similar.
 3. Wood Substrates: Use 1500 p.s.i. with a flat fan tip.
- C. The delivery flow at the nozzle must be between 3.5-7.0 gallons a minute.

5.14 Sealing Chalk and Efflorescence

- A. Verify powder residue on the surface is either chalking due to weathering, alkalinity, or efflorescence. Localized powdery spots on cementitious surfaces usually indicate efflorescence or high alkalinity. A few drops of muriatic acid applied to the powdery surface will react to efflorescence by bubbling, but there will be no reaction to chalk.
- B. After pressure washing and mildew treatment (when needed), allow the surface to dry, then check each surface for chalk and/or efflorescence, the expectation is a chalk free surface.
- C. Apply surface conditioner solution with a brush, roller, airless, or pressure sprayer.
- D. Allow to dry according to label directions before proceeding.

³ Delaminating substrates are defined as a surface that paint is being applied to that is lifting/peeling away from the previous coating(s) and/or the original substrate(s)

- E. Recheck for chalk after the surface conditioner is dry, the expectation is a chalk free surface.
- F. Surface conditioner should be applied to obtain a slight angular sheen on the entire surface.
- G. Topcoat surface conditioner within 7 days or less, pending environmental conditions.

5.15 Application and Workmanship

- A. The Contractor is to:
 - 1. notify The Owner(s)/Owner(s) Representative if conditions exceed Scope of Work.
 - 2. leave work area(s) in a clean, orderly, and acceptable condition.
 - 3. remove/protect items not being coated, upon completion, replace/uncover items.
 - 4. apply products in accordance with the manufacturers' recommendations.
 - 5. verify conditions are within the manufacturer's requirements.
 - 6. keep surface(s) contaminant free before and during application of coating(s).
 - 7. apply each coat to the required film thickness as specified by the manufacturer.
 - 8. allow each coat to dry prior to application of the following coat.
- B. The final coating film should be consistent in color/sheen and provide a uniform appearance free of visual defects (certain situations may not allow a smooth/even appearance).
- C. Any masonry surface with an elevated pH level or "hot spots" shall be primed with a suitable primer prior to application of the following coat(s).
- D. The Owner(s)/Owner(s) Representative shall provide water and electricity from existing facilities unless discussed, if it will not be provided, it must state so in the contract.
- E. All work shall be accomplished by the person(s) with the necessary skill/expertise and qualifications to do the work in a competent and professional manner.
- F. Normal safety and "wet paint" signs, necessary lighting, and temporary roping-off around work areas shall be installed and maintained in accordance with OSHA and other necessary requirements while the work is in progress.
- G. The Contractor shall advise The Owner(s)/Owner(s) Representative of areas in which work is to be performed in advance of the work schedule to permit all to prepare for the work, advise residents, move vehicles, etc.

5.16 Weather

- A. Materials are to be used in accordance with the [Product Data Sheets](#) regarding weather conditions.
- B. Stop exterior work early enough in the day to permit paint film to set up before condensation caused by night temperature.
- C. Do not begin painting until surfaces meet the specified requirements.

5.17 Color Schedule

- A. To be approved by The Owner(s)/Owner(s) Representative.
- B. The Owner(s)/Owner(s) Representative and/or project coordinator should be aware that certain colors fade more rapidly than others, regardless of the product manufacturer, product type, or substrate to which the product is applied. It is advisable for The Owner(s)/Owner(s) Representative, project coordinator, and/or person responsible for color selection to consult with Sherwin-Williams early in the planning stage to ensure the most durable combination of tinting formulation is used to achieve the desired color. Additionally, color selection affects the hiding ability of the finish coat; if additional coat(s) are required, The Contractor will charge accordingly.

5.18 Paint Maintenance Guide

Upon conclusion of the project, when requested The Contractor or your Sherwin-Williams Representative can furnish a coating maintenance manual, such as Sherwin-Williams “Paint Maintenance Guide” or equal.

This specification has been written to assist in identifying the products and procedures to be followed based on the scope of work herein defined. A preliminary visual assessment was performed prior to writing the specification. However, the assessment and the specification does not necessarily encompass certain preexisting conditions and/or inherent problems in the structure(s). These conditions may include faulty roof, window structures, stucco and/or masonry degradation, and/or any other existing conditions that may directly or indirectly affect the adhesion and performance of any newly applied coating system. Therefore, it may be necessary to solicit the expertise of a third party (engineer/similar) to determine any additional remedies to implement in conjunction with the specification.

Specifications/product directions should be thoroughly understood and followed to comply with all warranty requirements. Any deviation from this specification or the [Product Data Pages](#) without consent from the appropriate Sherwin-Williams Representative may void all warranties. The contractor will be solely responsible for all warranty claims made on any warranty that has been found void.

This specification has been prepared for your project by [Isaac Martinez](#), Senior Sales Representative of The Sherwin-Williams Company.



Proud to be America's Paint Company, Your Paint Company

Whether painting a wall or a tank, Sherwin-Williams has the best value solutions in paint, equipment, and supplies. We are the most recognized paint brand in North America with over 150 years of service.

We offer:

- The broadest range of innovative coatings
- Paints that meet the most stringent environmental requirements
- One source for all painting supplies, applicators and equipment
- Expert advice and quick turn
- Worldwide distribution plus local service from over 4,200 locations in North America
- Consistency in quality, color, and pricing



Tremco offers a broad selection of coatings for vehicular, pedestrian and specialty applications.

**Pool Decks and
Water Features**



Tremco PUMA Technology Coatings & Waterproofing Membranes

Basic uses

Tremproof® PUMA:
Horizontal

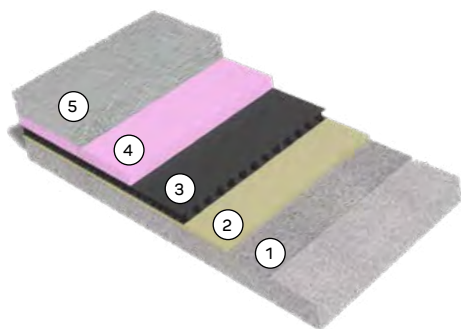
Vulkem® EWS:
Water Features
Pool Decks

Benefits

- Superior chlorine resistance
- Minimal downtime (approximately 30–45 minutes) between application coats, even in cold temperatures
- Open to foot traffic within 1 hour after application
- Polyurethane-methacrylate (PUMA) technology delivers extreme durability, decorative functionality and crack bridging capabilities
- Compatible with approved Tremco sealants and coatings
- Premium waterproofing system backed by an all-inclusive warranty

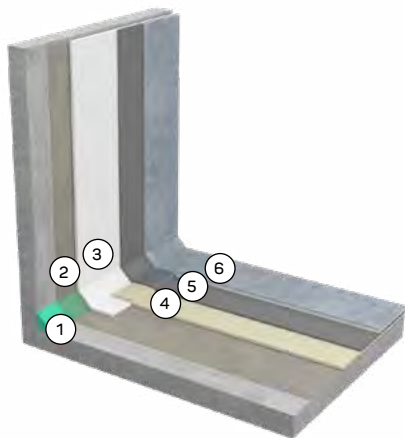
POOL DECK SYSTEMS

TREMproof® PUMA HORIZONTAL SYSTEM



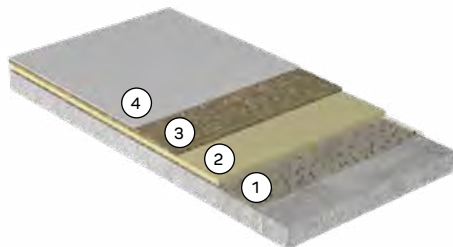
Product	Coverage Rate	Wet Mils	Comments
1 Tremco PUMA Primer	90 ft²/gal	17	Broadcast 30 to 50 mesh silica sand at a rate of 7 lb per 100 ft² into wet primer.
2 Tremco PUMA BC	20 ft²/gal	80	Allow 45 min to cure before proceeding.
3 TREMDrain (optional)	N/A	N/A	TREMDrain 1000, TREMDrain 2000 or TREMDrain 6600 bonded to membrane with Dymonic 100.
4 Compatible Insulation (optional)	N/A	N/A	By others.
5 Overburden	N/A	N/A	Topping slab, pavers, or growing media.

VULKEM® EWS WATER FEATURES SYSTEM



Product	Coverage Rate	Wet Mils	Comments
1 Dymonic 100 or Tremco PUMA BC T*	N/A	N/A	N/A
2 Tremco PUMA Primer	90 ft²/gal	17	Broadcast 30 to 50 mesh silica sand at a rate of 7 lb per 100 ft² into wet primer.
3 Tremco PUMA BC R	20 ft²/gal	80	Allow 45 min to cure before proceeding.
4 Tremco PUMA BC/BC LM	20 ft²/gal	80	Allow 45 min to cure before proceeding.
5 Tremco PUMA TC	80 ft²/gal	20	Allow 60 min to cure before proceeding. Optional: Broadcast 20 to 50 mesh silica sand into the wet TC to refusal if overburden will be applied.
6 Overburden (Optional)	N/A	N/A	Installed over Tremco PUMA TC sanded to refusal. See option in step 5.

VULKEM® EWS POOL DECK SYSTEM



Product	Coverage Rate	Wet Mils	Comments
1 Tremco PUMA Primer	90 ft²/gal	17	Broadcast 30 to 50 mesh silica sand at a rate of 7 lb per 100 ft² into wet primer.
2 Tremco PUMA BC	26 ft²/gal	60	Allow 45 min to cure before proceeding.
3 Tremco PUMA TC	80-90 ft²/gal	17-20	Broadcast silica sand or color quartz to refusal into wet TC. Allow 45 min to cure before proceeding.
4 Tremco PUMA TC	53-64 ft²/gal	25-30	Allow 60 min to cure before opening to traffic.

Information may vary by region. For specific information, please contact your local Tremco CSW representative.

*Refer to application instructions for use of Tremco PUMA BC T as a detailing sealant.

Product Description

Vulkem® EWS with PUMA Technology is designed to have tenacious adhesion and extreme abrasion resistance. It can be walked on in one hour, which will minimize operation disruption. Vulkem Extreme Wearing System (EWS) is a waterproof traffic deck coating system that utilizes polyurethane-methacrylate (PUMA) technology. Vulkem EWS is composed of a primer (Tremco PUMA Primer), a base coat (Tremco PUMA BC), and a top coat (Tremco PUMA TC). All system components are cured using Tremco PUMA Initiator.

Tremco PUMA Primer is a methyl-methacrylate (MMA), two-component primer for porous and non-porous substrates. Tremco PUMA BC is a modified polyurethane-methacrylate (PUMA) base coat. Tremco PUMA BC bonds firmly to Tremco PUMA Primer. It retains its integrity even if substrate movement causes hair-line cracks of up to 1/16" (1.5 mm). If cut or damaged, Tremco PUMA BC will prevent water migration between itself and the substrate.

Tremco PUMA TC is a methyl-methacrylate (MMA) top coat. Interlaminary adhesion to Tremco PUMA TC is exceedingly strong. The top coat affords excellent abrasion resistance, UV stability and chemical resistance to complete the Vulkem EWS.

Basic Uses

Vulkem EWS is an optimal solution for pool decks and water features. Vulkem EWS is a cold-applied, traffic deck coating system designed for waterproofing concrete slabs and protecting occupied areas underneath from water damage. Additionally, the system will protect the concrete from the damaging effects of chloride, deicing salts, chemicals, gasoline, oils and antifreeze.

Features and Benefits

- Polyurethane-methacrylate (PUMA) technology delivers extreme durability while maintaining its crack-bridging characteristics.
- Rapid set-up times allow for quick overall installation, as well as the ability to open up to foot traffic one hour later.
- Can be applied at temperatures below 20 °F, which allows for continuation of projects in the colder months.
- Initiator adjustments allow for 30 to 45 min cure time between applications, even at temperatures below freezing.
- Compatible with Tremco sealants and coatings, which is essential for tie-ins, detailing and penetrations.
- Extremely forgiving application allows users to apply additional coats long after the previous coat has cured.
- Unique chemistry allows for easy repair.

Availability

Immediately available from your local Tremco Sales Representative.

Packaging

Tremco PUMA Primer: 6-gal pails

Tremco PUMA BC: 6-gal pails

Tremco PUMA TC: 6-gal pails

Tremco PUMA Initiator: 55-lb bags

Tremco PUMA Cleaner: 6-gal pails

Installation

Tremco PUMA components are designed for use with the Vulkem EWS and TREMPROOF PUMA systems. Please refer to the Vulkem EWS Application Instructions for complete application details. The techniques involved may require modification to adjust to job-site specific conditions. Consult your Tremco Sales Representative or Tremco Technical Services for site conditions and requirements.

Limitations

- Do not apply to damp or contaminated surfaces.
- Use with adequate ventilation.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or to refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

TYPICAL PHYSICAL PROPERTIES			
PROPERTY	TEST METHOD	TREMCO PUMA BC (All Grades)	TREMCO PUMA TC
VOC Content	Method 310	0 g/L	0 g/L
% Solids (by Weight)	ASTM D1353	100%	100%
Drying Time @ 75°F, 50% RH	ASTM D1640	80 mil film, 1 hr	17 mil film, 1 hr
Weathering	ASTM D822 Weatherometer 350 hr	N/A	No effect
Elongation	ASTM D638	407% - 420%	130%
Elongation	ASTM D5147	Min 30%	Min 30%
Tensile Strength	ASTM D638 @ 75°F	991 - 1680 psi	986 psi
Tearing Resistance	ASTM D4073	91 lbf	203 lbf
Hardness (Shore D)	ASTM D2240	18 - 35	55
Hardness (Shore A)	ASTM D2240	65 - 87	100
Abrasion Resistance (1000 cycles)	ASTM D4060	N/A	51 mgm
Low-Temperature Crack Bridging	ASTM C1305	Passes	N/A
Taber Abrasion	ASTM C501	Passes	N/A
Peak Load @ 73°F, avg.	ASTM D5147	>70 lbf/in	238 lb/in
Puncture Resistance	ASTM D5602	> 56 lbs	>56 lbs
Water Absorption	ASTM D570	< 0.1%	< 0.1%
Water Vapor Transmission	ASTM E96	0.03 perms	0.03 perms
Adhesion-in-Peel	ASTM C794	Concrete failure with primer	N/A
Self-Ignition Temperature (°F)	ASTM D1929	800°	850°
Smoke Density (%)	ASTM D2843	4.1%	2.1%
Rate of Burn (in/min)	ASTM D635	1.2 in/min	0.2 in/min

0118/EWSWFDS

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.



Tremco Commercial Sealants & Waterproofing

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555

www.tremcosealants.com

APPLICATION INSTRUCTIONS

1. Purpose

- 1.1 The purpose of this document is to establish uniform procedures for applying Vulkem® EWS in water feature applications. The techniques involved may require modifications to adjust to job-site conditions. If you have any questions regarding your application, contact your local Tremco Field Sales Representative for specific design requirements. This document will provide instructions and troubleshooting for the application of Vulkem EWS to qualify for the manufacturer's warranty.

2. Substrate Preparation

- 2.1 Investigation of the substrate should be performed to determine the type of surface preparation that will need to take place to achieve the appropriate surface profile required for the coating application. Depending on the condition of the concrete, one or more types of surface preparations may be required. Refer to ICRI's Technical Guideline No. 310.2R-2013 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays and Concrete Repair for best practices on selecting the appropriate method of concrete preparation. Vulkem EWS application requires a CSP 3-4.
- 2.2 For preparation of metal substrates, please follow The Society for Protective Coatings recommendations that are referenced in section 3.12.

3. Conditions for Substrates

Concrete Surfaces:

- 3.1 Concrete shall be water-cured and attain a 3000 PSI minimum compressive strength. The concrete must be below 6% moisture as measured using a Tramex CME 4 Moisture Meter prior to the coating application. Depending on concrete construction and job site location, additional concrete testing may be required. Please contact your local Tremco Sales or Technical Representative.
- 3.2 Excess moisture in the concrete can prevent the coating materials from performing as intended. To detect the presence of excess moisture, several tests may be employed:
- ASTM D4263- Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
 - ASTM F2170-02 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs
 - Calcium Chloride Test
- 3.3 All concrete surfaces must be shotblast prior to any coating application. For proper methods, refer to ICRI's Technical Guideline No. 310.2R-2013. For supplier information contact Tremco's Technical Service.
- 3.4 Concrete surface shall be properly cleaned so that the surface to receive the coating, sealant, or liquid applied flashing is free of all laitance, mold, paint, sealers, coatings, curing agents, loose particles, and other contamination or foreign matter which may interfere with the adhesion. Consult a Tremco Technical Service Representative for recommendations prior to installing materials.
- 3.5 Shrinkage cracks in the concrete surface which are 1/16" (1.5 mm) wide or greater shall be treated according to the instructions in Sections 5 and 7.

- 3.6 Structural cracks, regardless of width, shall be treated according to the instructions in Sections 5 and 7.
- 3.7 Spalled areas shall be cleaned and free of loose contaminants prior to repair. Due to the fact that jobsite conditions vary, it is recommended that you contact Tremco's Technical Service or your local Tremco Sales Representative for the best method of repair.
- 3.8 In the event of exposed reinforcing steel, it is recommended that the structural engineer of record be contacted for investigation of the condition and for the best method of repair.
- 3.9 Surfaces shall be made free of defects that may telegraph and show through the finished coating. Surfaces which are rough (fins, ridges, exposed aggregate, honeycombs, deep broom finish, etc.) shall be leveled and made smooth by applying a coat of sand-filled Tremco PUMA WC according to the instructions in Section 7.
- 3.10 All drains shall be cleaned and operative. Drains shall be recessed lower than the deck surface. Surface shall be sloped to drain and provide positive drainage. Drains should be detailed as instructed below:
- Cut a 1/4" wide x 1/4" deep (6 mm x 12 mm) keyway into the concrete surface at any point where the coating will have an exposed terminating edge- that is, any point where the coating will end in an open area subject to traffic, for example, at the end of a ramp, around drains and alongside expansion joints.
- 3.11 If the project is a restoration deck, old sealant and backing material shall be removed. The joint interface will require a thorough wire brushing, grinding, sandblasting and primer.

Metal Surfaces:

- 3.12 Follow standard SSPC-SP 10/NACE No. 2 Near White Blast Cleaning. A near-white metal blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dust, dirt, mill scale, rust, coating, oxides, corrosion products, and foreign matter.

4. Jobsite Materials

Recommended materials and their use are as follows:

Dymonic 100: A one-part, moisture curing, gun grade polyurethane sealant for use in precast, masonry, expansion joints, control joints and for use in forming cants.

Tremco PUMA Primer: A two-part, chemical-curing MMA primer for porous and non-porous surfaces.

Tremco PUMA BC: A two-part, chemical-curing PUMA modified coating used as an elastomeric, waterproofing membrane for Vulkem EWS.

Tremco PUMA BC LM: A lower modulus version of Tremco PUMA BC, used as the waterproofing membrane for Vulkem EWS for service temperatures below 32° F (0° C).

Tremco PUMA BC T: A thixotropic version of Tremco PUMA BC, used for ramps, vertical rises, detailing and field applied cant beads.

Tremco PUMA BC R: A two-part, chemical-curing PUMA modified coating used as an elastomeric, waterproofing membrane for Vulkem EWS.

Tremco PUMA TC: A two-part, chemical-curing MMA coating used to lock in aggregate and provide additional chemical and UV resistance to Vulkem EWS.

Tremco PUMA TC Tintable: A tintable, two-part, chemical-curing MMA coating used to lock in aggregate and provide additional chemical and UV resistance to Vulkem EWS.

Tremco PUMA Cleaner: A one-part PUMA cleaner for all tools such as mixing paddles, squeegees, spiked rollers and spatulas. Always use this cleaner for Vulkem EWS materials. Never use any kind of solvent to clean any of your tools as this will cause contamination and inhibit cure.

Tremco PUMA Initiator: A benzoyl peroxide-based filler used to react to all components of Vulkem EWS.

Tremco PUMA Cold Weather Catalyst: Used at temperatures of 20 °F (-6 °C) and below. Please contact Tremco Technical Service for further details.

Aggregate: 0.3 to 0.6 mm (30-50 mesh)-sized silica sand for the primer application. For supplier information, contact Tremco Technical Service.

NOTE: Tremco PUMA BC will fill cracks and moving joints when applied at the recommended thickness noted in section 7; this will eliminate the need for detailing. This is the preferred method of detailing. Please note, Tremco PUMA BC is not for use in the application of expansion joints. If using the preferred method, skip section 5 and proceed to section 6.

If the project is using Dymonic 100 for cracks and moving joints, continue to section 5.

5. Detail Work – Dymonic 100

If Dymonic 100 is not being used for detail work, proceed immediately to section 6.

Note: Do not apply sealant to a frosty, damp or wet surface or when substrate temperature is below 40 °F (4 °C) or the surface temperature is above 110 °F (43 °C). Cure times as stated below are based upon standard ambient conditions of 75 °F (25 °C), 50% RH. A decrease in ambient temperature and humidity will significantly lengthen the cure time.

- 5.1 Lay a 1/4" (6 mm) diameter backer rod into the corner at the juncture of all horizontal and vertical surfaces such as curbs, wall sections, columns, or penetrations through the deck. Apply a bead of Dymonic 100 1" (2.5 cm) wide over the backer rod. Tool the sealant bead to form a 45° cant. Use sufficient pressure to force out any trapped air and to assure complete wetting of the surface. Remove excess sealant from the deck or wall joint. NOTE: Backer rod is only required for moving joints.
- 5.2 Install a backer rod, 1/8" to 1/4" (3 mm to 6 mm) diameter larger than the joint width to all prepared control joints. Set depth of backer rod to control the depth of the sealant. (Depth of sealant is measured from the top of the backer rod to the top of the concrete surface.) Proper depth of sealant is as follows:
 - 5.2a. For joints 1/4" (6.4 mm) to 1/2" (12.7 mm) wide, the depth ratio should be equal.
 - 5.2b. Joints 1/2" (12.7 mm) wide or greater should have a sealant depth of 1/2" (12.7 mm). The minimum joint size is 1/4" x 1/4" (6.4 mm x 6.4 mm).
- 5.3 All cracks and joints shall be sealed with Dymonic 100, and tooled flush with the surface. Note: Expansion joints should not be coated over. For treatment of expansion joints, contact your local Tremco Sales Representative.

- 5.4 Allow sealant to fully cure.

6. Priming Concrete Surface

- 6.1 Mix Tremco PUMA Primer for 1 to 2 min prior to the addition of Tremco PUMA Initiator.
- 6.2 Mix Tremco PUMA Primer thoroughly together with Tremco PUMA Initiator in accordance with Table 2 for 2 to 3 min.
- 6.3 Apply Tremco PUMA Primer at a minimum of 90 ft²/gal to yield 17 wet mils to the entire area to be coated. The recommended method of application is with a roller. Application below 17 wet mils will result in the primer not curing.
- 6.4 Once primer is rolled out evenly, lightly broadcast 0.3 to 0.6 mm (30-50 mesh)-size d silica sand into the primer at a rate of 0.7 lb/10 ft².
- 6.5 Allow Tremco PUMA Primer a minimum of 30 min to fully cure.

7. Detail Work – PUMA Products

Contact local sales representative for expansion joint detailing.

Defects, Patching and Sloping

- 7.1 Mix Tremco PUMA WC for 1 to 2 min prior to the addition of the silica sand.
- 7.2 Begin with 10 lb of sand for every gallon of Tremco PUMA WC. Additional sand can be added if a thicker consistency is desired.
- 7.3 Once Tremco PUMA WC and the sand are blended together, combine this mixture with the Tremco PUMA Initiator in accordance with Table 2 and mix thoroughly for 2 to 3 min. Amount of Tremco PUMA Initiator is dependent on ambient temperature. Please note the Vulkem Initiator addition is based in the ratio of Initiator to Tremco PUMA WC, not Initiator to Tremco PUMA WC with silica sand. Please see Table 2 for addition amounts.
- 7.4 For uneven spots and other defects in the surface, such as pitting or cratering, a thicker mix of Tremco PUMA WC and sand may be required. Trowel the material to create an even surface with the concrete.
- 7.5 Allow Tremco PUMA WC with sand mixture to cure a minimum of 45 min before proceeding to base coat application.

Horizontal to Vertical Transition

Note: Proceed to 7.9 if horizontal to vertical transitions were treated with Dymonic 100.

- 7.6 Mix the Tremco PUMA BC T for 2 to 3 min prior to the addition of the Tremco PUMA Initiator. Ensure that Tremco PUMA BC T is thoroughly mixed together with the Tremco PUMA Initiator in accordance with Table 2 for 2 to 3 min.
- 7.7 Apply a cant of Tremco PUMA BC T 1" (2.5 cm) wide at the juncture of all horizontal and vertical surfaces (such as curbs, wall sections, columns or penetrations through the deck). Tool Tremco PUMA BC T to form a 45° cant. Use sufficient pressure to force out any trapped air and to assure complete wetting of the surface. Remove excess material from the deck or wall surface.
- 7.8 Apply a strip of tape (masking tape or duct tape) to the vertical sections, 2 to 3" above the Tremco PUMA BC T or Dymonic 100 cant to provide a neat termination of Tremco PUMA BC R.
- 7.9 Apply Tremco PUMA Primer over the Tremco PUMA BC T or Dymonic 100 cant before applying coating.

- 7.10 For penetrations, apply Tremco PUMA Primer over the cant, up the penetration to 1" below the top of the projected overburden. Allow primer to cure.
- 7.11 Following the primer application, mix Tremco PUMA BC R. Mix in Tremco PUMA Initiator in accordance with Table 2.
- 7.12 Apply the Tremco PUMA BC R mixture using a medium-nap roller to achieve a minimum thickness of 40 mils over the primed penetration, over the cant, and extended minimum of 12 inches onto the horizontal plane. Spiked rollers are not required for change in plane.
- 7.13 Apply Tremco PUMA Primer over the Tremco PUMA BC R before coating over.

8. Base Coat Application

Note: In environmental conditions where large temperature swings exist, such as Northern US and Canada, Tremco PUMA BC LM can be used in lieu of Tremco PUMA BC.

Vertical Surfaces:

- 8.1 Mix Tremco PUMA BC R for 2 to 3 min prior to the addition of Tremco PUMA Initiator. Note: The application of PUMA BC R to the vertical surfaces of the structure is the first step in applying base coat.
- 8.2 Tremco PUMA BC R is thoroughly mixed together with the Tremco PUMA Initiator in accordance with Table 2 for 2 to 3 min. Amount of Tremco PUMA Initiator is dependent on the ambient temperature. Please see Table 2 for addition amounts.
- 8.3 Apply the Tremco PUMA BC R at 40 ft²/gal to yield 40 wet mils (1.0 mm) thick to the vertical surfaces of the structure. The recommended method is a medium nap roller.
- 8.4 Allow a minimum of 45 min to cure.
- 8.5 Apply a second coat of Tremco PUMA BC R at 40 ft²/gal to yield a thickness of 40 wet mils (1.0 mm) on the vertical surfaces of the structure as per 8.1 - 8.2.
- 8.6 Allow a minimum of 45 min to cure.

Horizontal Surfaces:

- 8.7 Mix Tremco PUMA BC or BC LM for 1 to 2 min prior to the addition of Tremco PUMA Initiator. Note: The application of PUMA BC or BC LM to the horizontal surfaces of the structure is the second step in applying base coat.
- 8.8 Tremco PUMA BC or Tremco PUMA BC LM is thoroughly mixed together with the Tremco PUMA Initiator in accordance with Table 2 for 2 to 3 min. Amount of Tremco PUMA Initiator is dependent on the ambient temperature. Please see Table 2 for addition amounts.
- 8.9 Apply Tremco PUMA BC or Tremco PUMA BC LM at 20 ft²/gal to yield 80 wet mils (2.0 mm) thick to the entire area. The recommended method is a metal notched rake.
- 8.10 Spike roll Tremco PUMA BC or Tremco PUMA BC LM immediately to release all air bubbles from the coating.
- 8.11 Allow Tremco PUMA BC, Tremco PUMA BC LM, or Tremco PUMA BC R a minimum of 45 min to cure.

9. Top Coat Application

- 9.1 Mix Tremco PUMA TC for 1 to 2 min prior to the addition of Tremco PUMA Initiator.

- 9.2 Thoroughly mix Tremco PUMA TC together with the Tremco PUMA Initiator in accordance with Table 2. Amount of Tremco PUMA Initiator is dependent on the ambient temperature. Please see Table 2 for addition amounts.
- 9.3 Apply Tremco PUMA TC at 20 mils (80 ft²/gal). The recommended method of application is with a roller.
- 9.4 Allow Tremco PUMA TC a minimum of 1 hr to cure.

If using a field tintable clear top coat, please follow the below directions.

- 9.5 Add up to 3 Universal Color Pak to one 6 gallon pail of Tremco PUMA TC Tintable and mix for 1 to 2 minutes prior to the addition of the Tremco PUMA Initiator. Mix the Tremco PUMA TC and initiator in accordance with Table 2 for 2 to 3 min.
- 9.6 Apply the Tremco PUMA TC Tintable at 80 ft²/gal to yield 20 wet mils (0.51 mm) thick to the entire area. The recommended method of application is with a medium nap roller.
- 9.7 Allow the Tremco PUMA TC Tintable a minimum of 1 hr to cure.

10. Clean Up

- 10.1 Clean all adjacent areas to remove any stains or spills with Tremco PUMA Cleaner.
- 10.2 Clean tools or equipment with Tremco PUMA Cleaner.
- 10.3 Clean hands by soaking in hot, soapy water then brush with a stiff bristle brush.

11. Material Usage Guidelines

The Following is a guide to determine material usage:

Dymonic 100: For a 1" (25 mm) cant bead over a 1/4" (6 mm) backer rod, 1 case of sealant for every 48 lf (14.6 M) is required.

Tremco PUMA Primer: When applied at 90 ft²/gal (2.21 M²/L) will yield a mil thickness of 17 wet mils.

Tremco PUMA BC, BC LM, or BC R: When applied at 20 ft²/gal (0.49 M²/L) will yield a mil thickness of 80 wet mils.

Tremco PUMA TC: When applied at 80 ft²/gal (1.96 M²/L) will yield a mil thickness of 20 wet mils.

Aggregate: Apply silica sand at a rate of 0.7 lb/10 ft² immediately after the Tremco PUMA Primer application.

12. Troubleshooting

- 12.1 This section describes common industry application issues when certain environmental conditions exist. Below are some commonly seen issues and remedies. If any of these should occur, it is always recommended you contact your local Tremco Sales Representative or Tremco's Technical Service.
- 12.2 Tremco requires that any possible recoating job be reviewed and approved by your Sales and/or Technical Representative prior to installation.
- 12.3 When a deck contains too much moisture, the excess moisture may change into a vapor which then condenses at the concrete-membrane

interface before the coating has cured, which will cause blisters or bubbles, which, in turn, will interfere with proper adhesion. If this should occur the blisters/bubbles can be cut out, allowing the moisture to escape. After moisture has escaped and the surface is dry, the area can be repaired.

- 12.4 If the coating is applied in very hot ambient temperatures, the air in the small spaces between the concrete particles increases in volume and forms blisters. Contact Tremco's Technical Service should this occur.
- 12.5 Tremco PUMA products should only be applied when the UV index is less than 7 and substrate temperatures below 115°F.

Table 1: Quick Reference Application Chart

Layer	Product	Wet Mils	Cure Time	Square Feet Per Gallon
Primer	Tremco PUMA Primer	17	30 min	90
Base Coat (Horizontal)	Tremco PUMA BC R	80	45 min	20
Base Coat (Vertical)	Tremco PUMA BC or BC LM	80	45 min	20
Top Coat	Tremco PUMA TC	20	1 hr	80

Table 2: Temperature Chart

Temperature °F	Temperature °C	Grams or ounces/gallon
68 to 95	20 to 35	75 g or 2.75 oz of initiator/gal resin
50 to 68	10 to 20	150 g or 5.5 oz of initiator/gal resin
32 to 50	0 to 10	300 g or 11 oz of initiator/gal resin
14 to 32*	-10 to 0*	450 g or 16.5 oz of initiator/gal resin

*Below 14°F (-10°C), please contact Tremco Technical Service for further details.
Minimum 75g of initiator per gallon required.

1218/EWSWFAI

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

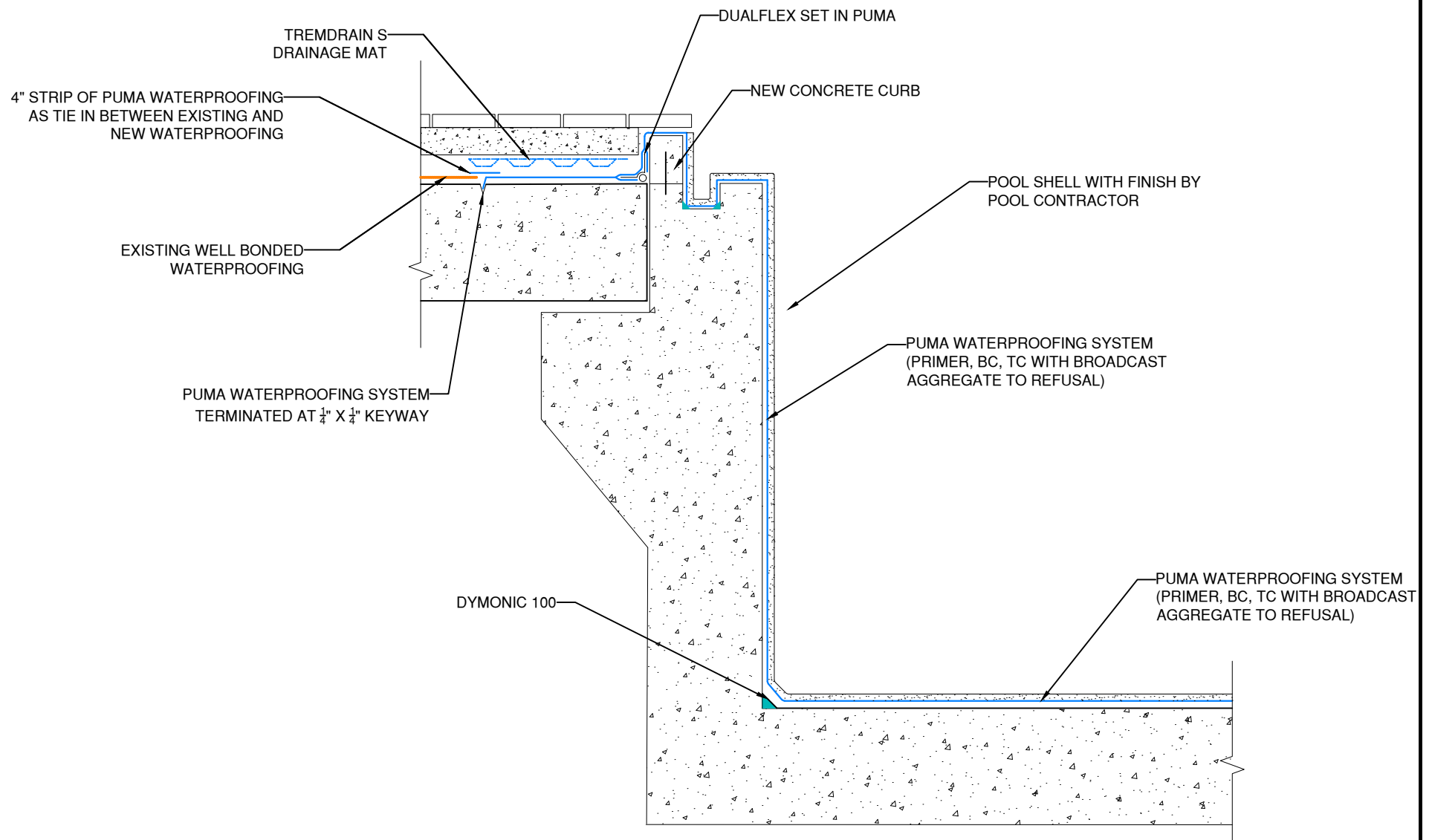
Tremco Commercial Sealants & Waterproofing

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555



NOTES:

1. THIS DETAIL IS FOR CONCEPTUAL PURPOSES ONLY.
2. PROPER APPLICATION IS THE RESPONSIBILITY OF THE INSTALLATION PROFESSIONAL. SURFACE PREPARATION, SUBSTRATE ADHESION, PROPER INSTALLATION AND OTHER VARIABLES OUTSIDE OF THE MANUFACTURER'S CONTROL ARE THE SOLE RESPONSIBILITY OF THE USER. FIELD VISITS BY TREMCO PERSONNEL ARE FOR THE PURPOSE OF MAKING TECHNICAL RECOMMENDATIONS, NOT FOR SUPERVISING OR PROVIDING QUALITY CONTROL.
3. TREMCO CANNOT BE RESPONSIBLE FOR MATERIAL DIFFERENCES, SUBSTITUTIONS, OR DAY-TO-DAY VARIATIONS IN THE FINISHING PROCESS THAT MAY ALTER THESE RECOMMENDATIONS/RESULTS.



ONE ISLAND PLACE

POOL WATERPROOFING SYSTEM

This detail is intended for conceptual purposes only.

Drawn by: JB

Checked by: JW

Scale: NTS

Date: 02/10/2020

File Name:

PUMA POOL