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Walkway Waterproofing

TREMCO

Paint

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Tile Installation over Vulkem membrane systems

1. Tile adhesive should be as specified by Tile Council of America. Adhesive shall be approve and tested by Tile Council of America. Adhesive shall be 1) Modified Epoxy Emulsion Mortar conforming to ANSI A108.9 and 118.8 or 2) Latex Portland Cement Mortar conforming to ANSI A118.4 and A108.5 or approved by the owner/architect/engineer. Ultra-Tex as manufactured by Euclid has been approved by TCA as a thin set tile adhesive and is the recommended and only Tremco warranted single source warranted thin set material. Other tile adhesives should be verified for compatibility and adhesion to the membrane. Best application for installation is obtained over fully seeded (aggregated loaded) Vulkem 350 or 360NF. Contact Tremco for full installation procedures of the membrane.

2. The tile should be installed following Tile Council of America recommendations for installing thin set tile. The Vulkem 350/450 or Vulkem 360NF is be allowed to cure for 72 hours and should be cleaned with detergent and water prior to thin set application. Any residue soap, dirt or other contaminants should be removed before tile adhesive is installed.

3. Per Tile Council of America (TCA) recommendations joints abutting the vertical walls and/or perimeters, railings, shutters or other fixed units should not be grouted. The tile layout should be in a manner to form a minimum 1/4-inch joint at these interfaces. These joints should be sealed using Dymonic FC or Vulkem 921 Sealant after the tile has been installed and grouted. Control joints should be installed a minimum of 12 feet on center or as otherwise recommended by TCA.

4. After the tile has been installed directly into the tile setting mortar and has set for 24 hours (or as recommended by the tile/grout manufacturer) the tile can then be grouted. An exterior grade polymer modified tile grout (standard cement or sanded tile grout is not recommended) tile grout in the color desired conforming to ANSI A108.10 can be used for this purpose.

5. When adjustment to the deck for leveling is necessary the use Euclid Concrete Repair Mortars or an epoxy mortar will need to be used. The adjustments are to be made prior to the membrane application.

Note: 1) Tile can be installed over Vulkern 346, 351, 950 or 951 using epoxy or modified epoxy thin set adhesives. Contact the thin set adhesive manufacture for more information and instructions. **Do not use polymer modified cement mortar or cement thin sets over the Vulkem topcoats.**

Vulkem 350(R, SL)/351 System

Product Description:
Vulkem 350/351 is an attractive composite waterproofing system comprised of tough-curing liquid polyurethane. It cures to form a rubber membrane surface that provides a lasting eye-appealing and easy-to-clean coating. Non-skid surfaces for pedestrian traffic features use of an aggregate-laden top membrane for surest footing. Vulkem 350/351 may be used to apply a seamless, monolithic waterproof membrane to smooth concrete, to well-anchored and primed wood and to primed metal surfaces. Simple, easy-to-follow procedures, use of conventional tools or optional spray permit fast, sure application.

Vulkem 350 is a one part urethane membrane that bonds firmly to clean, dry concrete, wood or metal. It retains its integrity even if substrate movement causes hairline cracks of up to 1/16" (1.6mm). If cut or damaged, Vulkem 350 will prevent water migration between it and its substrate. A Quick Cure Catalyst can be utilized for a fast track application. Vulkem 351 is applied after the Vulkem 350 basecoat has cured and the non-slip aggregate has been broadcast. The finished top layer affords excellent abrasion resistance, and outstanding elongation and recovery to expand and contract with substrates. Interlaminar adhesion to Vulkem 350 is exceedingly strong.

Basic Uses:
Vulkem 350/351 is a cold applied deck coating system designed for waterproofing plaza decks, pedestrian walkways, balconies, plywood decks and under thinset tile.

Data Sheets / Product Information
- Vulkem 350/351 Data Sheet (English)
- Vulkem 350/351 Data Sheet (French)
- Vulkem 350/351 Data Sheet (Spanish)

MSDS - US

MSDS - Canada

Application Instructions

SECTION 07142
ELASTOMERIC WATERPROOFING BENEATH TILE

The accompanying guide specification has been prepared by Tremco Incorporated according to principles established in the *Manual of Practice* published by The Construction Specifications Institute. It is provided to assist design professionals, building owners and others in the preparation of a specification section covering installation of cold fluid-applied elastomeric membrane waterproofing for concealed building components in critical areas scheduled to be covered with a mortar bed and tile or tile directly adhered. It may be used in conjunction with most commercially available master specification sections with minor editing as the basis for developing a project specification or an office master specification.

This guide specification is provided in two parts as follows:

* Cover Page: Conveys important requirements that should appear in other pertinent Sections of the project Specifications.

* Section 07142: A guide specification that may be used as is or modified as you wish.

Please contact your nearest Tremco Architectural Services Representative or Tremco Incorporated (800) 852-8173 for additional copies, information on available electronic formats or design assistance.

THE PRODUCT: Fluid-applied, high percent solids pure polyurethane waterproofing membrane system designed for use on concealed building components not subject to hydrostatic head under ceramic tile on mortar bed and under thinset ceramic tile, complying with ASTM C836-89a.

1. The membrane:
   a. Is seamless;
   b. Fully bonds to substrates both adhesively and mechanically;
   c. Is suitable for continuous immersion in water;
   d. Can be applied to concrete, masonry, plywood, and metal substrates;
   e. Can be used in a broad variety of demanding buried conditions such as plaza decks, bridge decks, roof terraces, podiums, reflecting pools and fountains;
   f. Is available in viscosities to suit every orientation of surface from vertical to horizontal and overhead.

COORDINATION: Section 07142 defines requirements for the fluid applied polyurethane waterproofing membrane system itself. It is important to define certain substrate requirements and requirements of adjacent trades in pertinent other sections of your specification as follows:

1. Section 03300 - Cast-in-place concrete:
   a. Concrete that is substrate to the waterproofing membrane system should have a finish equal to light steel troweling followed by a fine hair broom.
   b. An appropriate wet curing procedure should be used on the concrete.
   c. Control joints in the concrete, if required, should be in accordance with pertinent ACI and PCA standards.
   d. Drain flanges at membrane level should be integrally cast into, and be flush with, concrete deck surfaces that slope to drain.

2. Section 04200 - Concrete unit masonry:
   a. Mortar joints should be tooled flush at surfaces to receive this waterproofing system.
3. Section 06125 - Plywood decking:
   a. Plywood that is substrate to the waterproofing membrane system must be exterior grade minimum 5/8" thick with A-side up, fastened with ring-shank nails, blocked under every joint unless it is tongue-and-groove minimum 1-1/8" thick.
   b. Deck surfaces should slope to drain.
   c. Deck drains must have flanges at the membrane level that are flush with the deck surface.
   d. OSB and particle boards are not suitable substrates.
4. Section 07600 - Flashing and sheet metal:
   a. Metal flashings that are substrate to the waterproofing membrane system should be a minimum of 24 gage aluminum, galvanized, or stainless steel.
   b. Set metal flashings in continuous bedding bead of urethane sealant such as Vulkem116/921, installing sealant S-bead between metal laps and mechanically fastening to substrate along leading edges at every 4" on center, staggered linearly, to lay flat and without fishmouths.
5. Section 09300 - Tile:
   a. Consult industry organizations relevant to scheduled toppings, such as the Tile Council of America, Inc. (864-646-8453), for design standards, methods and guidelines related to useage with waterproofing membranes.
   b. In direct adhered tile applications, conduct field adhesion testing of the tile bond coat to the membrane prior to general installation. We recommend this testing be specified under quality assurance in the tile section. Coordinate this field adhesion testing to occur on the waterproofing membrane jobsite mock-up specified under 1.2 C in the accompanying guide Section 07142. Waterbased epoxy thinset adhesives usually provide suitable adhesion of tile to the urethane waterproofing membrane. Adhesive should be installed within the same window of time that a subsequent application of membrane can occur. If that window has lapsed, the membrane must be cleaned by wiping with white rags soaked in Xylene solvent and then primed with membrane interlaminary primer according to manufacturer's instructions preparatory to installation of the tile adhesive.

END OF COVER PAGE(s)

SECTION 07142
ELASTOMERIC WATERPROOFING BENEATH TILE

Before using this Guide Section, fully read the associated cover page(s) for information about its use and important requirements that must appear in other Sections of the Project Manual. Carefully review this Guide and delete inapplicable text.

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Provide a complete polyurethane waterproofing membrane system including all applicable sealants and elastomeric flashings needed to prevent water penetration at locations indicated.
B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.02 SUBMITTALS

A. Comply with pertinent provisions of Section 01330.
B. Product data:
   1. Materials list of items proposed to be provided under this Section;
   2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
   3. Shop Drawings or catalog illustrations in sufficient detail to show installation and interface of the work of this Section with the work of adjacent trades;
   4. Manufacturer's current recommended installation procedures which, when reviewed by Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work;
   5. Written documentation of applicator's qualifications, including reference projects of similar scope and complexity, with current phone contacts of architects and owners for verification.
C. Mock-up: Prior to installation, prepare a sample panel of the work of this Section at a location on the job site where approved by the Architect.
   1. Make the sample panel in dimensions approved by the Architect and with one panel for each of the various types of installation.
   2. Show all aspects of the work of this Section to the quality specified.
   3. Make necessary adjustments in the sample panel(s) and secure the Architect's approval.
   4. The sample panel(s), when approved by the Architect, will be used as a datum point for comparison with the remainder of the work of this Section for the purpose of acceptance or rejection.
   5. Upon approval of the Architect, the sample panel(s) may become actual part of the installation required for this Work.

1.03 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.
B. Applicator qualifications:
   1. Applicator shall have at least three years experience in installing materials of types specified and shall have successfully completed at least three projects of similar scope and complexity.
   2. Applicator shall designate a single individual as project foreman who shall be on site at all times during installation.
C. Convene a pre-installation job-site conference four weeks prior to commencing work of this Section:
   1. Secure attendance by Architect, Contractor, applicator, and authorized representatives of the membrane system manufacturer and interfacing trades.
   2. Examine Drawings and Specifications affecting work of this Section, verify all conditions, review installation procedures, and coordinate scheduling with interfacing portions of the Work.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to job site in manufacturer's unopened containers with all labels intact and legible at time of use.
B. Maintain the products in accord with manufacturer's recommendations with proper precautions to ensure fitness of material when installed.
C. Comply with pertinent provisions of Section 01660.

1.05 SUBSTRATE CONDITIONS

A. General:
   1. Provide applicator with surfaces that are broom clean, dry, sound and free of voids, bugholes, rockpockets, honeycombs, protrusions, excessive roughness, foreign matter, frost, ice and other contaminants which may inhibit application or performance of the waterproofing membrane system.
   2. Using suitable abrasive methods, remove residue of form release, curing compound, chemical retarders and other surface treatments, laitance, mortar smear, sawcutting residue, mill scale, rust, loose material and other contaminants from concrete, masonry and ferrous metal surfaces to receive the work of this Section.
B. Concrete: Where work of this Section will be applied to concrete, provide surfaces that are smooth with finish equal to one that is light steel troweled followed by a fine hair broom.
C. Plywood: Where work of this Section will be applied to plywood, provide exterior grade plywood, 5/8" thick minimum, with A-side up, fastened with ring-shank nails.
D. Decks:
   1. Slope deck surfaces to drains that have flanges at membrane level which are flush with deck surfaces.
   2. Rigidly install pipe, vents and other surface protrusions, properly flash them, and cover to prevent entry of membrane materials.

E. Metal flashings: Where metal flashings are substrate to waterproofing membrane, set the flashings in continuous bedding bead of urethane sealant; install sealant S-bead between metal laps and mechanically fasten to substrate along leading edges at every 4" on center, staggered linearly, to lay flat without fishmouths.

F. Joints: Configuration shall be consistent with this Section and with all other requirements of the Contract Documents.

1.06 WARRANTY

A. Deliver to the Architect signed copies of the following written warranties against defective materials and workmanship for a period of two years following date of completion. Warrant that installed waterproofing membrane system shall be free of defects including adhesive failure, cohesive failure, and waterproofing failure.
   1. Manufacturer's standard warranty covering materials;
   2. Applicator's standard warranty covering workmanship.

PART 2 PRODUCTS

2.01 GENERAL

A. Provide a complete fluid applied elastomeric waterproofing membrane system having the following minimum attributes:
   1. 79-100 percent solids pure polyurethane designed for waterproofing concealed building components subject to hydrostatic head;
   2. Designed for use under ceramic tile on mortar bed;
   3. Complying with ASTM C836-89a.
   4. Acceptable products:
      a. Vulkem 350-SL or 350-R
      b. Vulkem 360 NF
      c. Vulkem 351

B. Provide Ultra Tex as the approved Thin Set Material and apply as per Euclid's application instructions (800-321-7628) www.euclidchemical.com. This thin-set material has been tested to the standards and requirements of the TCA.

2.02 ACCESSORIES

A. Primer: As recommended by waterproofing membrane system manufacturer;
B. Joint backing: Closed-cell, polyethylene rod as recommended by membrane manufacturer;
C. Elastomeric sheet flashing: 1/16 inch thick by 12 inch wide uncured neoprene sheeting;
D. Sealant:
   1. Dymeric 240/240 FC - two-part
   2. Vulkem 227 – two-part

2.03 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor and approved by the membrane system manufacturer as compatible, subject to review of the Architect.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
B. Applicator shall examine the areas and conditions under which work of this Section will be performed.
   1. Verify conformance with manufacturer's requirements;
   2. Report unsatisfactory conditions in writing to the Architect;
   3. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Surface preparation and detailing procedures to be in accord with waterproofing membrane system manufacturer's instructions and recommendations except where more stringent requirements are indicated.
B. Clean all surfaces to receive membrane system in accord with manufacturer's instructions; vacuum clean or blow clean with oil-free compressed air all surfaces to receive sealants, detailing materials or membrane immediately prior to installation.
C. Rout, clean, prepare and detail surface cracks in accord with manufacturer's instructions; install backer rod where required.
D. Clean metal surfaces to bright metal by wire brushing or mechanical etching; scuff-sand lead flashing and plastic surfaces.
E. Prime surfaces in accord with manufacturer's instructions.
F. Install 1/4" diameter backer rod into corner of all horizontal-to-vertical junctures subject to movement and cover with 1" detail cant of approved sealant; install 1" detail cants at projections, curbs and other horizontal-to-vertical junctures.
G. Install detail coats, joint and crack treatments, and liquid flashings in accord with manufacturer's instructions.
H. Allow detail applications to cure in accord with manufacturer's instructions prior to general application of membrane.
I. Slope flat decks to prevent ponding water with Vulkem 360NFmixed with 20-30 grit sand as per recommended by Tremco. Decks shall maintain a minimum 1/8 inch slope. After deck(s) have been sloped apply a thin coat of Vulkem 360 and seed to rejection with 30-60 grit aggregate if no Vulkem 351 top coat is to be applied.

3.03 APPLICATION

A. General: Install waterproofing system in accord with manufacturer's recommendations and instructions as applies to the Work except where more stringent requirements are indicated.
   1. Waterproofing membrane have a minimum 60 mil dry-film thickness on concrete and block masonry substrates,
   2. Waterproofing membrane shall have a minumum 60 mil dry-film thickness on plywood substrates.
   3. Grid deck surfaces to assure proper coverage rates and verify membrane wet-film mil thickness with gauges as work progresses.
   4. Retain empty product containers during course of work to aid in determining whether completed membrane complies with required average dry-film thickness.

B. Verify proper dry condition of substrate using method recommended by membrane system manufacturer; perform adhesion checks prior to general application of membrane system using field adhesion test method recommended by manufacturer.
C. Mask off adjoining surfaces not to receive membrane system.
D. Wipe clean all detail coats with white rags wetted with Xylene solvent; do not saturate detail coat.
E. Apply membrane uniformly and allow to cure in accord with manufacturer's instructions.
F. Feather edge when entire area cannot be completed in one day; clean area 6" wide along edge of membrane with Xylene solvent on clean white rags prior to startup on next working day; use interlaminary primer per manufacturer's instructions as needed; overlap existing work by 6" with new work.
G. Flood test: Plug drains on deck surfaces and use sand bags or other means to restrict runoff. Flood deck with water to depth of 2" (50 mm) and allow to stand at least 48 hours; repair leaks if occurs and retest.
H. 24 Hours after application of base coat membrane, apply a second coat of membrane at 10 mils wet, approximately 160 s.f. per gallon coverage, and broadcast silica sand to rejection.
I. 72 Hours following second coat of membrane with sand, blow off extra sand, and apply approved thin-set material as per manufacturers instructions and set approved ceramic tile into thin-set.
J. Any distance greater than 10' in either direction shall receive an approved urethane sealant joint, instead of a hard grout joint, to allow movement of ceramic tile floor.
K. If decks are not tiled within 60 days after base coat application install Vulkem 351 topcoat immediately after the Vulkem 450/360 has cured.

3.04 FIELD QUALITY CONTROL

A. Applicator shall inspect completed work one day prior to final covering and effect repairs.

3.05 PROTECTION AND CLEAN-UP

A. Promptly remove primer or membrane system material from adjacent surfaces with MEK, Toluene or Xylene; leave work area in broom clean condition.

B. Prohibit traffic over completed work and protect membrane from damage until protected beneath overlaying work.

END OF SECTION