

**SECTION 07 18 13
PEDESTRIAN TRAFFIC COATINGS**

PART 1 - GENERAL

1.1 SUMMARY (Specification writer shall add, delete, or amend, as deemed necessary)

- A. Provide all labor, materials, equipment, and supervision as necessary to install an architectural, decorative, multi-layered, functional waterproofing pedestrian deck coating and/or roof covering system over (**new and/or existing**) horizontal, (**interior or exterior**), plywood deck surfaces, as shown on the project drawings and as outlined in this specification.
- B. Following all applicable manufacturer's guidelines and application instructions shall be considered a requirement of this specification.
- C. Related Sections: (**Specification writer shall add, delete, or amend, as deemed necessary**)

1. Division 06 – Wood, Plastics and Composites

(Note to Specifier: Plywood deck must be installed to exhibit no vertical deflection by selecting appropriate plywood thickness and span of supports. Plywood shall be a minimum 5/8", (preferably 3/4"), exterior grade, A/C or better, and installed A side up. The maximum spacing of supports must be 16" on center or less. All plywood edges must be supported on the structures primary framing or blocking. Plywood requires fastening securely with non-corroding screws, screw type or ring shank nails, spaced between 4" to 6" on center.)

(Note to Specifier regarding Slope for Drainage: Provide adequate sloping when designing and erecting wood framing. The minimum allowable slope to drain shall be no less than 1/8 inch per linear foot. (In the event of any water ponding or other ill-effects resulting from improper sloping details shall be the sole responsibility of the general contractor, prime contractor, or the owner's representatives).

2. Division 07 – Thermal and Moisture Protection

(Note to Specifier: Sheet metal flashing shall be minimum 26 gauge, galvanized, and fully bonderized. All joint or seams shall be overlapped approx. 3" and caulked with MiraFlex Hybrid Sealant or approved equal flashing sealant. Flashing that is in contact with MiraFlex Liquid Membrane component of the MiraFlex III System shall be fastened in a method approved by the deck coating manufacturer. All applicable Architectural Metal, ASTM and ACI standards shall govern and be enforced with respect to the installation of all sheet metal flashings.

3. Division 09 – Finishes

(Consult Crossfield Products Corp. for specific recommendation)

4. Division 22 – Plumbing (Section 22 14 00 - Facility Storm Drainage)

(Note to Specifier: Floor drains, clean-outs, etc. should be of the "floor-flange" type as manufactured for use with composition floors by most major drain manufacturers, such as Thunderbird Products or equivalent. Drain flange shall be finished flush with substrate.)

1.2 REFERENCES (Specification writer shall add, delete, or amend, as deemed necessary)

- A. ASTM C109: Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
- B. ASTM C190: Method of Test for Tensile Strength of Hydraulic Cement Mortars...
- C. ASTM C580: Standard Test Method for Flexural and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
- D. ICRI Technical Guideline No.03732: Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.
- E. ICC AC39: Acceptance Criteria for Walking Decks.

1.3 SUBMITTALS (Specification writer shall add, delete, or amend, as deemed necessary)

- A. General: Submit () number of copies of each of the following items in accordance with the requirements of the Conditions of Contract and in Division 1 Specification Sections.
- B. Product Data: Submit manufacturer's technical data sheets, available shop drawings, applicable installation guidelines or recommendations, and material safety data sheets for each product and/or composite system included in this specification.
- C. Material and Mock-up Samples: For **initial selection**, submit manufacturer's standard color charts for review by the specification authority and owner's representative. For **final selection**, submit sample boards or perform mock-ups (**specification writer shall specify sample size**) to exhibit pattern, texture, color, and finish of the pedestrian deck coating and/or roof covering system.
- D. Material certificates signed by the manufacturer certifying that the pedestrian deck coating and/or roof covering system complies with all requirements specified herein.
- E. Warranties: Submit a sample of the manufacturer's standard material warranty and the contractor's labor warranty.
- F. Project Reference List: Contractor shall submit a minimum of 5 recently completed projects of a similar nature and include total contract value.
- G. Provide a copy of ICC test report verifying that the proposed pedestrian walking deck and/or roof covering system is Class A Fire-rated and has met ICC acceptance criteria for walking decks.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: The manufacturer of the products specified in this section shall have a minimum of 5 years' experience in the production of these types of products.
- B. Contractor Qualifications: The contractor installing the products specified in this section shall have a minimum of 3 years experience and have successfully completed no less than 5 projects similar in scope and complexity and is acceptable to and has been trained by the manufacturer.
- C. Substitutions: Requests for the approval of any product other than those specified in this section must be submitted to the specifying authority two weeks prior to the bid and shall include complete application specifications and physical characteristics. Any request after this date will not be accepted. Failure of performance requires immediate removal and replacement of unapproved substituted material with those originally specified at no cost to the owner, Architect, construction manager, or general contractor.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original packages and containers with seals unbroken and bearing manufacturer's labels containing brand name, batch or lot numbers, and directions for storage and mixing with other components.
- B. Store materials to comply with manufacturer's directions to prevent damage and/or deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.

1.6 PROJECT CONDITIONS

- A. Environmental Conditions: Comply with all the manufacturer's directions for maintenance of ambient and substrate temperature, moisture, humidity, ventilation, and other conditions required to execute and protect completed work. In hot and cold weather conditions or when high evaporation rates or adverse conditions may be expected, the contractor will be responsible for the quality of the completed installation. When installing cementitious materials, follow all recommendations and guidelines of the American Concrete Institute, as published in ACI Committee 305 for Hot-Weather Concreting and ACI Committee 306 for Cold-Weather Concreting.
- B. Lighting: Permanent lighting will be in place and working before installing the proposed pedestrian walking deck and/or roof covering system.
- C. Protection: Protect newly installed pedestrian walking deck and roof covering system from rain or other potentially harmful climatic conditions for a minimum of 24 hours, from potential damage due foot or vehicular traffic and/or from the work of other trades.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Approved Manufacturer: Miracote Division of Crossfield Products Corp., 3000 E. Harcourt Street, Rancho Dominguez, CA 90221, (310) 886-9100; 140 Valley Road, Roselle Park, NJ 07204, (908) 245-2800, and 128 Industrial Drive, Cibolo, 78154, (210) 888-0449 - www.miracote.com.

2.2 MATERIALS

- A. MiraFlex III is a multi-component composite pedestrian walking deck and roof covering system consisting of a cold-applied self-adhering polyester fabric coated seam tape, expanded metal lath (for plywood decks only), a two-component polymer-modified cementitious mortar base coat (for metal lath embedment), cold fluid-applied polymeric waterproofing membrane layer, a two-component polymer-modified cementitious protection coat, an acrylic pigmented topcoat (optional depending on specified system requirements), and a required clear sealer coat. The MiraFlex III completed system is designed to provide a functional waterproof deck surfacing over plywood decking with a protective architectural/decorative finish.
(Consult with the Miracote Division of Crossfield Products Corp. for the following MiraFlex III System component recommendations depending on specific owner requirements, service conditions, and primary project objectives.)
- B. System Components:
 - 1. Metal Lath (**supplied by others**): Expanded wire metal lath shall be galvanized steel, a minimum 1.75 lb. per square yard, and in compliance with ASTM C-847.
 - 2. Staples (**supplied by others**): Staples shall be corrosion-resistant, minimum No. 16 gauge with

1” wide minimum crowns and .5” long legs, and in compliance with ASTM F-1667.

3. Seam Tape: Cold-applied, self-adhering membrane composed of polyester fabric coated on one side with a layer of rubberized asphalt shall be **MiraFlex Seam Tape** for application over all plywood butt joints and wood to metal flashing transitions to form a watertight seal.

4. Base Coat: The base coat shall be **MiraPatch LM**, a pre-packaged two-component, polymer-modified, cementitious mortar, and underlayment product to provide a suitable smooth pitched to slope surface, applied at a thickness of 3/16” over plywood/metal lath composite deck.

5. Waterproofing Membrane Layer: Waterproofing layer shall be **MiraFlex Liquid Membrane**, a water-based, fluid-applied, single-component polymeric emulsion membrane applied in two coats at a minimum thickness of 25 mils each coat over the cured based coat. Allow a minimum of 4 hours @ 75°F (24°C) before applying the second coat and within a maximum 24-hour window.

6. Protection Coat: The protection coat shall be **Miracote MPC** a pre-packaged, cementitious, two-component, polymer-modified, coating applied in two coats at a minimum thickness of 31 mils each coat over the cured waterproofing membrane (within a minimum 4 hours @ 75°F (24°C) and within a 24-hour window).

7. Acrylic Topcoat: The acrylic topcoat shall be **MiraGard Colorbond XL**, a waterborne, pigmented, self-crosslinking acrylic finish coat applied in two coats at a minimum thickness of 5.4 mils each coat over the protection coat (minimum 8 hours @ 75°F (24°C)).

8. Sealer coat: The sealer coat shall be one of the following clear, water-based surface sealers applied over either the Protection Coat (acrylic topcoat not installed) or the Acrylic Topcoat (if installed): **MiraGard HDWB (Gloss, Satin, or Matte)** or **MiraThane CRU (Gloss or Matte)**.

2.3 PROPERTIES

A. Physical Properties: MiraFlex Liquid Membrane

Provide a single-component SBR, flexible, fluid-applied waterproofing material that meets or exceeds the listed minimum physical property requirements when tested in accordance with the referenced standard test method.

Elongation (ASTM D 638):	562%
Tensile Strength (ASTM D 638):	560 psi
7 days dry / 21 days wet	
Bacteria & Fungus Resistance (ASTM G 22)	No Growth
Adhesion in Peel to Concrete	8.3 lbs/in width
Moisture Vapor Transmission (ASTM E 96)	2.04 grams
9 Grams/sq. meter/24 hrs.	
Permeability (ASTM E 96)	0.013 perms/inch
Crack Bridging (ASTM E 836) 1/8” @ 75°F	Pass (no rupture)

B. Physical Properties: MiraFlex Seam Tape

Provide cold-applied, self-adhering membrane tape for butt joints and wood to metal transition zones.

Color:	Gray Polyester Fabric
Thickness:	30 mils
Tensile Strength/Fabric (ASTM D412)	1400 psi

Elongation/Adhesive Only (ASTM D412)	500%
Permeance (ASTM E96)	.1 perm max
Nail Sealability (ASTM D1970)	Pass
Operating Temperature	45°F to 240°F (7°C to 116°C)
C. Physical Properties: Miracote MPC Protection Coat	
Provide a two-component only, polymer-modified, cementitious resurfacing system that meets or exceeds the listed minimum physical property requirements when tested in accordance with the referenced standard test method.	
Two Component System	Liquid Polymer and Bagged Powder
Compressive Strength (ASTM C 109):	2,440 psi
Tensile Strength (ASTM C 190):	450 psi
Flexural Strength (ASTM C 580)	2,415 psi
Adhesion (MIL-D-3134, Para.4.7.14):	515 psi
Water Absorption (ASTM C 642)	1.61%
Water Vapor Permeability (ASTM E 96)	1.96 perms/inch
Impact Resistance: (MIL-3134) Para. 4.7.3 (2# steel ball dropped from 8' height onto coated steel plate)	No cracking or detachment
D. Physical Properties: MiraGard Colorbond XL Acrylic Topcoat	
Provide a pigmented, single component, water-based, self-crosslinking acrylic protective coating.	
Vehicle Type:	Self-crosslinking acrylic copolymer
Gloss Meter 60:	>75+
Cleaning Solvent:	Water
Curing Time (77 F):	
Dry to Touch:	1 hour
Recoat	2 - 4 hours
Traffic Exposure	24 hours
Accelerated UV Light Exposure:	
Desert Sunshine Exposure Test "Procedure EMMA"	No effect @ 10X Magnification
E. Physical Properties: MiraGard HDWB Sealer	
Provide a clear, single component, water-based, self-crosslinking acrylic sealer for resistance to staining, abrasion, and UV degradation.	
Vehicle Type:	Self-crosslinking acrylic copolymer
Cleaning Solvent:	Water
Curing Time (77 F):	
Dry to Touch:	30 minutes

Recoat	1 hour
Traffic Exposure	24 hours
Hot Tire Resistance	7 days

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine all plywood or other substrates and conditions where the pedestrian deck coating and/or waterproofing system are to be installed. Notify the Specifying Authority of any unsatisfactory conditions that may be detrimental to the proper and timely completion of the work.
- B. Do not proceed with the work until all such deficiencies have been corrected by the Contractor in an acceptable manner, and as approved by the Specifying Authority.

3.2 PREPARATION

- A. Protect all surrounding areas, walls, window glass, landscaping, and other adjacent surfaces from the execution of each item of work including, but not limited to, surface preparation and all application steps of the pedestrian deck coating and/or roof waterproofing system.
- B. Plywood shall be applied to framing in accordance with the requirements of the applicable building code. All edges shall be blocked with no deflection. Through penetrations and terminations shall be protected with metal flashing in accordance with applicable code, and the manufacturer's published installation instructions. Install MiraFlex Seam Tape over all metal to wood seams with a 1" overlap at leading edges, and over all wood-to-wood butt joints. Working with a length of tape that can be easily handled, center and firmly press tape onto the surface. Use a hand roller to minimize air bubbles, creases, and wrinkles. **All exposed flashing and deck drains must be primed with MiraFlex Liquid Membrane.**
- C. Application of the pedestrian deck coating and/or waterproofing system shall be over clean and dry plywood surfaces free from grease, oil, dirt, or any other foreign matter that may inhibit proper adhesion of the base coat.

3.3 APPLICATION

- A. Installation of the MiraFlex III system shall be in accordance with the manufacturers' most current installation instructions, as published in their product technical data sheets and/or available installation guidelines regarding the application of the pedestrian deck coating and/or waterproofing system, as specified herein. All stated cure times are predicated on normal temperature and relative humidity conditions, and it is the contractor's responsibility to adjust accordingly as weather conditions dictate.
- B. The above manufacturer's installation instructions **must always be available** on the jobsite during application of all components involved with the MiraFlex III system.
- C. Installation shall only be performed when weather conditions permit, as directed by the specifying authority and in accordance with the manufacturer's requirements. Materials shall not be applied if precipitation is occurring or anticipated.
- D. Metal lath shall be fastened to the plywood deck with 22 to 28 staples per square foot, **uniformly**

distributed. Where the lath is butt-jointed, the staple spacing shall be no greater than 2 inches on center. Butt joints of metal lath shall not occur over plywood joints. Where plywood joints occur, lath shall be stapled across all plywood joints at 4 inches on center.

- E. Miracote (**MiraPatch LM**) base coat shall be trowel-applied at a consistency to completely fill and cover the metal lath to a minimum total thickness of 3/16 inch. The base coat shall be allowed to cure a minimum of 8 hours before application of the waterproofing layer.
- F. The waterproofing layer shall be two coats of MiraFlex Liquid Membrane each applied at a minimum application rate of 64 SF per gallon (25 wet mils). During the application process a mil gauge will be required to verify correct WFT. Each coat shall be allowed to dry to the touch prior to applying the next coat, and not to exceed a period of 24 hours. Allow the final coat to cure a minimum of four (4) hours before proceeding with the application of the protection coat.
- G. Miracote MPC protection coat shall be applied over the waterproofing layer within a 24-hour window and at a minimum of two coats using methods and equipment in a manner that is necessary to replicate approved submittal boards and job site mockup. A wet edge shall always be maintained while placing freshly mixed cementitious protection coat materials. The finished protection coat installation shall have a uniform thickness of 1/16" to 3/32". Allow the completed protection coat to cure a minimum of eight (8) hours before proceeding with the application of the Topcoat.
- H. Topcoat (**Optional if using a Clear Sealer**) of MiraGard Colorbond XL shall be roller applied over the protection coat in a two-coat application. Apply each coat at a rate of 300 SF per gallon. The first coat shall be allowed to dry for 4 to 6 hours before the application of the second coat. Allow completed topcoat to cure a minimum of eight (8) hours before proceeding with the application of the Sealer coat.
- I. Clear Sealer (**MiraGard HDWB Gloss/Satin/Matte or MiraThane CRU Gloss/Matte**) shall be roller or spray applied over the topcoat or protection coat in a minimum of one coat, two coats is recommended. Apply as per manufacturer's published instructions and allow to dry a minimum of 12 to 24 hours before exposure to traffic.

3.4 CLEANING

- A. Clean work area and remove/discard all debris resulting from the application of the pedestrian deck coating and/or roof covering system to the acceptance of the specifying authority or the owner.

3.5 PROTECTION

- A. Protect all completed work of the application during the specified cure time of the material from vehicular or pedestrian traffic, or any exposure to solid or liquid spillage or any other form of contamination.

END OF SECTION

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