

(Specification writer shall choose the most appropriate section that applies to a given scope of work, including but not limited to, the following listed sections)

**Section 071813
Pedestrian Traffic Coatings**

PART 1 – GENERAL

1.1 SUMMARY

- A. Provide all labor, materials, equipment and supervision as necessary to install a fluid-applied, two-component, polymer-modified, cementitious pedestrian traffic coating system over **(new and/or existing)** horizontal or vertical concrete 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. Section 03 30 00 – Cast-in-Place Concrete
 - 2. Section 03 35 00 – Concrete Finishing
 - 3. Section 03 39 00 – Concrete Curing
 - 4. Section 07 92 00 – Joint Sealants

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. ASTM D4263: Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Test Method.
- E. ASTM F1869-04: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub-floor Using Anhydrous Calcium Chloride.
- F. ICRI Technical Guideline No.03732: Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.

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

- A. General: Submit () number of copies 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, any applicable installation guidelines or recommendations, and material safety data sheets for each product included in this specification.
- C. 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 (**specification writer shall specify sample size as deemed necessary**) to exhibit color and texture of the finished pedestrian deck coating system. If a clear (**specification writer shall specify either penetrating sealer or film forming**

sealer) sealer finish is desired, submitted sample boards shall also include the same.

- D. Material certificates signed by the manufacturer certifying that the two-component, polymer-modified, cementitious vehicular traffic coating system complies with all requirements of the material specified herein.
- E. Warranty: Submit a sample of the manufacturer's standard material warranty.
- F. Contractor Project Reference List: Contractor shall submit a minimum of 5 recently completed projects of a similar nature and include total contract value of completed work.

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 received formal training 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 from 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 executing and protecting the 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. 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 two-component, polymer-modified cementitious vehicular traffic coating system.
- C. Protection: Protect newly installed cementitious traffic coating system from rain or other potentially harmful climatic conditions for a minimum of 24 hours, from any potential damages 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; also 140 Valley Road, Roselle Park, NJ 07204, (908) 245-2800, www.miracote.com.

2.2 MATERIALS

- A. MiraFlex II consisting of: Miracote MPC (Multipurpose Protective Coating) is a pre-packaged, two-component, polymer-modified, cementitious resurfacing system applied in a nominal thickness of 3/32” on to properly prepared concrete substrates. One unit of Miracote MPC consists of one (1) five gallon pail of Liquid Catalyst, and two (2) 55# bags of dry powder available in choice of two colors, white and natural cement in regular size filler.
- B. Waterproofing Layer: Waterproofing layer shall be MiraFlex Membrane A, a single component, water-based, fluid-applied, polymer emulsion waterproofing membrane applied at a minimum thickness of 25 mils.
- C. Reinforcing Mesh (Optional): Miracote Poly Fabric reinforcement mesh embedded into waterproofing layer.
- D. Optional Color Pigmentation: Miracote ColorPax LIP for pigmenting Miracote MPC is available in 15 standard colors (includes capability to match special colors) that are mixed with white powder to match published color charts.
- E. Film Forming clear or Pigmented Sealers: Various compatible Miracote clear and pigmented film forming sealers are available depending on job site and exposure conditions. **(MiraGard Colorbond XL is recommended for this application)**

2.3 PROPERTIES

- A. Physical Properties: Miracote MPC Cementitious Vehicular Traffic Coating
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% volume of permeable voids 5.07%
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
Freeze-Thaw Resistance (ASTM C-672)	Thirty-two cycles, “O” Scaling

- B. Physical Properties: Miracote MiraFlex Membrane A
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): 7 days dry / 21 days wet	560 psi
Bacteria & Fungus Resistance (ASTM G 22)	No Growth

Adhesion in Peel to Concrete	8.3 lbs/in width
Moisture Vapor Transmission (ASTM E 96) 9 Grams/sq. meter/24 hrs	2.04 grams
Permeability (ASTM E 96)	0.013 perms/inch
Crack Bridging (ASTM E 836) 1/8" opening @ 77 F	Pass (no rupture)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine all concrete or other substrates and conditions where the architectural cementitious resurfacing system is 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 cementitious resurfacing installation.
- B. Perform surface and crack repairs as necessary to re-profile, re-level or to restore the integrity of the concrete substrate in general, as directed by the specifying authority. Concrete surface repair products shall be from the same manufacturer, or as approved by the manufacturer of the vehicular traffic coating system specified herein. Provide letter from the manufacturer of the surface repair materials verifying compatibility with all specified components of the system.
- C. Crack Treatment: Rout all cracks >1/16" and seal with polyurethane sealant, tooled flush, as per manufacturer's recommendations and details. Broadcast fine grade sand into wet sealant to promote adhesion of subsequent waterproofing membrane layer reinforced with RP Fabric over sealed crack interface. Detail all cracks <1/16" with waterproofing membrane layer, as per manufacturer's recommendations and details.
- D. Fluid-applied, cementitious pedestrian traffic coating system must be applied to a clean, sound and mechanically prepared concrete substrate to a minimum (**Specification writer shall choose between CSP-3 to CSP-5**) surface profile, in accordance with the International Concrete Repair Institutes (ICRI) Technical Guideline 03732, **Selecting and Specifying Concrete surface Preparation for Sealers, Coatings and Polymer Overlays.**
- E. (**As an optional requirement for this project document the specification writer can include the following when deemed necessary**) Contractor shall perform tensile bond tests, as directed by the Specification Authority, in accordance with International Concrete Repair Institutes (ICRI) Technical Guideline 03739, **Guide to Using In-Situ Tensile Pull-Off Tests to Evaluate Bond of Concrete Surface Materials.**

3.3 APPLICATION

- A. General: Follow all manufacturers' directions, as published in their product technical data sheets and/or available installation guidelines regarding the application of the cementitious vehicular traffic coating system, as specified herein.
- B. Fluid Applied Membrane Primer: Apply prime coat of the fluid applied waterproofing membrane over a dry concrete surface with a roller. Prime coat layer mix ratio per unit is 1 gallon of MiraFlex Membrane-A

mixed with 1 gallon of clean potable water. Prime coat will yield 600 square feet per mixed gallon.

- C. Fluid Applied Membrane Body Coats: Waterproofing layer shall be installed in a three step process consisting of a primer and two neat membrane coats. For the primer step, dilute MiraFlex Membrane A with potable water at a ratio of 1:1 by volume and roller apply over the base coat at a rate of 400 SF per gallon (4 mil wet). Two additional coats of MiraFlex Membrane A shall be applied at a rate of 64 SF per gallon per coat (25 mils wet). Each coat, including primer, shall be allowed to dry to the touch prior to applying the next coat. Allow the final coat to cure a minimum of four (4) hours before proceeding with the application of the protection coat.
- D. Cementitious Body Coats: Apply two body coat layers of the cementitious pedestrian traffic coating over the cured prime coat layer, in strict conformance to the most current version of the manufacturer's published installation guidelines and technical instructions. Mix and spread cementitious traffic base coats with magic trowels, squeegees, rollers or other acceptable placement tools. A wet edge shall be maintained at all times while placing freshly mixed cementitious materials. Base coat layers shall have a mix ratio of 2 bags of powder to 5 gallons of liquid catalyst. Apply each base coat layer at a rate of 500 SF per unit of mixed material. The finished pedestrian traffic coating shall have a uniform thickness of approximately 3/32".
- E. Topcoat (**Optional**) of MiraGard Colorbond XL shall be roller applied over the protection coat in a two coat application. Apply each coat at a rate 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.
- F. Clear Sealer (**Miracote MiraGard HD 100 or Miracote MiraGard HDWB**) 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 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 cementitious vehicular traffic coating 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