

(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 03 01 30
RESURFACING OF CAST-IN-PLACE CONCRETE
or
SECTION 03 01 40
RESURFACING OF PRECAST CONCRETE
or
SECTION 03 01 50
RESURFACING OF CAST DECKS AND UNDERLAYMENT
or
SECTION 09 97 26
CEMENTITIOUS COATINGS

PART 1 – GENERAL

1.1 SUMMARY

- A. Provide all labor, materials, equipment and supervision as necessary to install an architectural, decorative, two-component, polymer-modified, cementitious microtopping system over **(new and/or existing)** horizontal, interior or exterior concrete slab 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 pattern, texture, color and finish of the architectural, decorative, cementitious microtopping system. If a clear coat sealer finish is desired, submitted sample boards shall also include same.
- D. Material certificates signed by the manufacturer certifying that the architectural, decorative, two-component, polymer-modified, cementitious microtopping 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 and systems.
- 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.
- D. Single Source System: All components of the completed microtopping flooring system shall be, without exception, from a single manufacturer for the assurance of a seamless material warranty.

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 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 two-component, polymer-

modified cementitious architectural microtopping system.

- C. Protection: Protect newly installed microtopping 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. Cementitious Microtopping Material: Miracote MPC (Multipurpose Protective Coating) is a pre-packaged, two-component, polymer-modified, cementitious resurfacing system that is applied in a nominal thickness from 1/16” to 3/32” on to properly prepared, new or existing, concrete substrates. **(Specification writer shall add, delete or amend, as deemed necessary to include other acceptable substrates such as, masonry, metal, wood and tile).** 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, and two grades, smooth and regular.
- B. Color Pigmentation: Miracote ColorPax LIP for pigmenting Miracote MPC is available in 15 standard colors (includes capability to match any PMS colors) that are mixed with white powder to match published color charts.
- C. Architectural Stains: If desired, the optional application of Mirastain I (acid-base reactive stain) or Mirastain II (water and co-polymer base stain) can be applied to the surface of the cured Miracote MPC resurfacing lieu of integral pigment packs or, if pigmented, to further architecturally accent the finished system surface with additional color.
- D. Sealers and Finish Coats: Numerous compatible Miracote clear sealers and finish coats are available depending on job site and exposure conditions. **(Specification writer should consult with Miracote representative or technical service for appropriate recommendations and product selection)**

2.3 PROPERTIES

- A. Physical Properties of Cementitious Microtopping Material:
Provide a two-component only, polymer-modified, cementitious microtopping 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	No cracking or detachment

(2# steel ball dropped from 8' height onto coated steel plate)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine all concrete or other substrates and conditions where the architectural cementitious microtopping 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 microtopping 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 concrete microtopping system specified herein. Provide letter from the manufacturer of the surface repair materials verifying compatibility with all the specified architectural resurfacing components.
- C. Architectural cementitious microtopping 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.**
- D. (**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 decorative cementitious microtopping system, as specified herein.
- B. Substrate Conditioning: Dampen substrate with potable water only. Maintain substrate at saturated surface dry (SSD) condition with no standing water or puddles during the placement of the base coat.
- C. Priming: Not required for the installation. Base coat of the cementitious resurfacing material must be applied over a saturated surface dry (SSD) concrete substrate.
- D. Cementitious Microtopping: Install architectural two-component, polymer-modified, cementitious microtopping system in strict conformance to the most current version of the manufacturer's published installation guidelines and technical instructions. Mix and spread microtopping material onto substrate with magic trowels, hand trowels, squeegees, rollers or other acceptable placement tools in two or more coats depending on traffic, exposure conditions or as specified herein. A wet edge shall be maintained at all times while placing freshly mixed cementitious resurfacing materials. The finished resurfacing installation shall have a uniform thickness of 1/16" to 3/32" for a three coat microtopping system foundation.
- E. Apply Mirastain I or Mirastain II after the final microtopping has cured sufficiently when visibly dry and

when surface can be walked on without damage. The color(s), dosage rates, method of application, and number of application steps of staining process shall be determined as per the approved submittal boards and job site mock-up.

- F. For ease of maintenance, protection of the surface and color retention, the finished Miracote MPC Microtopping system shall be sealed with a clear acrylic or urethane or epoxy or similar finish coat, as manufactured by Miracote (**specification writer shall specify suitable sealer or coating, as determined in Section 2.2-D**).

3.4 CLEANING

- A. Clean work area and remove/discard all debris resulting from the application of the cementitious microtopping 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