

(Specification writer shall choose the most appropriate section that applies to a given scope of work)

SECTION 09 90 00
Painting and Coating

Or

SECTION 09 93 00
Staining and Transparent Finishing

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide all labor, materials, equipment and supervision as necessary to install an architectural, decorative, water-based penetrating stain 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. 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. LEED Submittals:
 - 1. Product Data for Credit MR 4.1 and Credit MR 4.2: For products having recycled content, submit documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
 - a. Include statement indicating costs for each product having recycled content.
 - b. Include LEED Product Information Form for LEED Credits MR 4.1 and 4.2.
 - 2. Product Data for Credit EQ 4.2: For field applied, interior, paints coatings and primers, include printed statement of VOC content indicating compliance with Credit requirements.
 - a. Include LEED Product Information Form for LEED Credit EQ 4.2.
 - 3. Provide additional documentation for products as required to achieve each Credit(s).
- D. 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**) to exhibit pattern, texture, color and finish of the decorative stampable concrete overlay system.
- E. Material certificates signed by the manufacturer certifying that the decorative water-based penetrating stain system complies with all requirements specified herein.
- F. Warranty: Submit a sample of the manufacturer's standard material warranty.
- G. 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 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 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. 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.
- C. Protection: Protect newly installed water-based penetrating stain installation 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. Water-based Penetrating Stains: Miracote Mirastain; Miracote Products, a ready to use, penetrating staining product that bonds with cured concrete or cementitious toppings, which produces a translucent color.
 - 1. Colors: As selected by Architect.
 - 2. Colors: As indicated on the Miracote Color Chart(s).
- B. Sealer: MiraGard HD-100; a premium quality, single component, clear, modified acrylic sealer resistant to staining, abrasion, and UV, designed to protect concrete hardscapes, toppings, floors, and vertical concrete applications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine all concrete or other substrates and conditions where the decorative stamped overlay 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. New Concrete:
 - 1. Newly placed concrete shall be sufficiently cured to allow concrete to become reactive, minimum 28 days.
 - 2. Do not use liquid curing materials. Cure concrete flatwork with new, unwrinkled, non-staining, high quality curing paper. Do not overlap curing paper.
 - 3. Surfaces shall be cured using the same method and different sections (pours) chemically stained when the concrete is the same age.
 - 4. Immediately prior to chemically staining, thoroughly clean the concrete. Sweep surfaces, the pressure wash or scrub using a rotary floor machine. Use suitable, high-quality commercial detergents to facilitate cleaning. Rinse surfaces after cleaning until rinse water is completely clean. Allow floor to dry completely prior to application of floor stain.
 - 5. Concrete surfaces must be uniformly slip-resistant and profiled to meet a Concrete Surface Preparation (CSP) profile of 1-2 per ICRI guidelines.
 - 6. Some concrete may require abrading to open the surface and make it sufficiently penetrable. In these instances the concrete surface must be sanded using a 60-80 mesh sanding screen or a grit brush. After sanding, all residues must be removed by power vacuuming. The surface should then be pressure washed or scrubbed using a rotary floor machine.

7. For preparation, the sandblaster should be capable of producing a light, uniform sandblast and be equipped with a dust collector.
8. For preparation, the pressure washer should be equipped with a fan tip and have a minimum pressure capability of 4000 psi (14 MPa). Hot water capability may facilitate cleaning of existing concrete.
9. Acid washing may be required when the above surface preparation does not yield adequate penetration or if there are excessive alkali deposits or surface discoloration. The reacted residue must be abraded using a low-speed floor machine equipped with a 60 mesh screen or a grit brush and then thoroughly rinsed until the rinse water is clear and free of solids, a minimum of two times. After rinsing, neutralize any remaining acid residue by washing with a solution of baking soda (sodium bicarbonate) and water. (Test pH of floor should be 7 or higher.)

B. Existing Concrete:

1. Clean concrete surfaces so that surfaces are completely penetrable before receiving the initial application of chemical stain. Test surfaces to receive stain by spotting with water. Water should immediately darken the substrate and be readily absorbed. If water beads and does not penetrate or only penetrates in some areas, additional surface preparation and testing shall be performed.
2. Cleaning method used depends on the condition of the concrete surface. To remove dirt and other contaminants, detergents and other commercial grade cleaners should be considered and tested.
3. Rinse concrete substrates until rinse water is completely clean.
4. For preparation of interior floors, the rotary floor machine should be heavy duty and operate at approximately 175 rpm. With a 60-80 mesh sanding screen or a grit brush, remove all contaminants and weak cement paste from the surface. This will also open the surface to allow the stain to penetrate.
5. Acid washing may also be required.

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 water-based penetrating stain system, as specified herein.
1. Concrete surfaces shall be dry and properly prepared as described above. Protect surrounding areas from over-spray, run-off and tracking. Divide surfaces into small work sections using wall, joint lines, or other stationary breaks as natural stopping points.
 2. Apply water-based penetrating stains full strength (undiluted) at the coverage rate recommended by the manufacturer and use application equipment described in the manufacturer's printed product technical data sheets.
 3. Apply water-based penetrating stain to the substrate with a Chapin type sprayer, airless sprayer or HVLP sprayer.
 4. The second coat, if required, should be applied after the first coat has dried sufficiently and can be walked on without damage, normally 1-4 hours after application depending on temperature and humidity. A third coat could be applied 1-4 hours after the second coat.
 5. On vertical surfaces, spray applications of Miracote Mirastain should start at the bottom and proceed upward. The material should be applied in light coats while maintaining a wet edge to ensure penetration into the surface.

3.4 APPLICATION OF SEALER

1. Concrete substrate shall be completely dry.
2. Sealer shall be produced by the water-based penetrating stain manufacturer.
3. After the final Miracote Mirastain application has dried sufficiently, normally 4-24 hours at 75° F (24° C) and 50% relative humidity, remove all contaminates from the surface by dry mopping if required.
4. Apply sealer according to manufacturer's written instructions at a rate of 250 to 300 square feet per gallon per coat. Two coats are required.
5. Maintain a wet edge at all times.
6. Allow sealer to completely dry before applying additional coats.
7. Apply second coat of sealer at 90° to the direction of the first coat using the same application method and rates.
8. Seal horizontal joints in areas subject to pedestrian or vehicular traffic.

3.4 CLEANING

- A. Clean work area and remove/discard all debris resulting from the application of the decorative stampable overlay 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