

**SECTION 09 67 23
RESINOUS FLOORING****PART 1 - GENERAL****1.1 SUMMARY (Specification writer shall add, delete or amend, as deemed necessary)**

- A. Provide a complete urethane floor system consisting of primer, base coat and seal coat for concrete surfaces that meet the requirements for specific use indicated in the contract documents. Include all applicable substrate testing, surface preparation, and detail work.
- 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 10 00 – Dampproofing and Waterproofing
 - 5. Section 07 26 00 – Vapor Retarders
 - 6. Section 09 00 00 - Finishes
 - 7. Section 09 60 00 – Flooring
 - 8. Section 09 90 00 – Painting and Coating

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's, and Polymer Concretes.
- D. ASTM F1869-04: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub-floor Using Anhydrous Calcium Chloride.
- E. ASTM F2170-11: Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in Situ Probes.
- F. ICRI Technical Guideline No. 310.2-1997 (formerly 03732): Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.
- G. ICRI Technical Guideline No. 210.3 – 2004 (formerly 03739): Guide to Using In-Situ Tensile Pull-Off Tests to Evaluate Bond of Concrete Surface Materials.

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 or cured material samples 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 decorative color quartz broadcast flooring system.
- D. Material certificates signed by the manufacturer certifying that the decorative color quartz broadcast flooring and all components of the system comply 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 that entail a similar scope of work and include total contract value.

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. 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. All concrete should be tested for moisture before applying a seamless coating. If moisture emissions exceed 5 lbs./1000 square feet (ASTM F1869) or if the relative humidity (RH) exceeds 75% (ASTM F2170), see MiraPrime MVERS Plus CSI Specification.
- C. Concrete must be at least 2500 psi.
- D. Concrete must be cured for a minimum of 28 days before coating is applied.
- E. Lighting: Permanent lighting will be in place and working before installing the proposed decorative color quartz broadcast flooring system.
- F. Protection: Protect newly installed mechanical equipment flooring system from rain or other potentially harmful climatic conditions for a minimum of 24 hours, from potential damage due to 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; 128 Industrial Drive, Cibolo, TX 78108, (210) 888-0449; and 140 Valley Road, Roselle Park, NJ 07204, (908) 245-2800, www.miracote.com.

2.2 MATERIALS

- A. MiraThane CRU Gloss is a two-component, medium-solids, water-based, low VOC, low odor, highly abrasion resistant and high performance aliphatic polyurethane coating.
- B. System Components:
 - 1. MiraPrime WB – Single-component, acrylic primer.
 - 2. Aggregate – Synthetic Aggregate, #8, #10, #12 Glass Bead, or #220 Aluminum Oxide.
 - 3. MiraThane CRU Gloss – Two-component aliphatic polyurethane base coat.
 - 4. MiraThane CRU Matte – Two-component aliphatic polyurethane topcoat if matte finish is preferred.

2.3 PROPERTIES

- A. MiraThane CRU Gloss Clear Physical Properties:
Provide a clear, two-component, medium solids, low-odor, flexible, thin film water-based resin material that meets or exceeds the listed minimum physical property requirements when tested in accordance with the referenced standard test method.

TYPICAL PHYSICAL PROPERTIES @ 75F (24C)

| | | | |
|--|---------------------------|-----------------------|--------------|
| Solids Content (by weight) | 46% | | |
| Solids Content (by volume) | 44% | | |
| Viscosity | <500 cps | | |
| Pot Life 50% RH..... | > 2 hours | | |
| Recoat Time..... | 4hrs. min. - 24 hrs. max. | | |
| Taber Abrasion ASTM D4060..... | 30 - 35 mg loss | | |
| (CS17 Wheel. 1000g Load. 1,000 Cycles) | | | |
| Gloss, 60 deg. ASTM D2370..... | >80 | | |
| Chemical Resistance (Refer to Chemical Resistance Chart for Entire List) | | | |
| Gasoline | No Effect | Isopropyl Alcohol | No Effect |
| Kerosene | No Effect | Hydrogen Peroxide | Slight Stain |
| Skydrol | No Effect | Hydrochloric Acid 25% | No Effect |
| Hydraulic Fluid | No Effect | Sodium Hydroxide 50% | No Effect |

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine all construction substrates and conditions where the decorative color quartz broadcast flooring 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. Conduct calcium chloride testing according to ASTM F1869, or Relative Humidity testing per ASTM F2170.
- C. 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 involved in the installation.
- B. Perform surface and crack repairs as necessary to re-profile, re-level or to restore the integrity of the concrete substrate or other surfaces 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 flooring system specified herein. Provide letter from the manufacturer of the surface repair materials verifying compatibility with the specified flooring system.
- C. Resinous flooring system must be applied to a clean, sound and mechanically prepared concrete substrate to a minimum (**Specification writer shall choose between CSP-2 or CSP-3**) surface profile, in accordance with the International Concrete Repair Institutes (ICRI) Technical Guideline No. 310.2-1997 (formerly 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 No. 210.3-2004 (formerly 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 resinous flooring system, as specified herein.
- B. Joint Sealants: At the direction of the specifying authority, install backer rod and polyurethane sealant at joints, transitions, and penetrations. Detail all existing concrete slab cracks in accordance with manufacturer's installation guidelines.
- C. Mixing: MiraThane CRU Gloss resin components must be mixed mechanically using a low-speed drill (300-450 rpm) until blended with a "Jiffy-type" or similar Miracote-approved mixing paddle. Empty entire contents of component A and component B into a clean mixing vessel. Mix for approximately 3 minutes keeping the mixing head maintaining full immersion the entire time. At least once when mixing, stop to scrape down the sides and bottom of the pail to ensure thorough blending of both components. If not mixing full units, each component must be pre-mixed individually ensuring uniformity prior to use. Once completely mixed and in observance of pot life, dispense material immediately from the pail to the substrate.
- D. Priming Coat: Once mixed apply MiraPrime WB or other suitable primer to the concrete substrate by spray and backroll or dip and roll at a coverage rate of 275-300 SF per gallon evenly left to right, and back-roll using only a 3/16" or 1/4" maximum nap roller. Allow the primer to dry until it is completely tack free.
- E. Base Coat: Pour out mixed MiraThane CRU Gloss in a large ribbon across the primed concrete substrate as soon as the primer reaches a tack free condition. Spread evenly at a rate of 320 SF per gallon with a flat bladed squeegee, and back-roll with a high quality 3/16" or 1/4"

nap roller to achieve millage consistency of the wet film.

- F. Topcoat: When mixed pour out MiraThane CRU Gloss or Matte in a ribbon across the tack free base coat and spread the material evenly with a flat squeegee at a rate of 320 SF per gallon to ensure consistent wet mil thickness. Finish with a back-roll using a high quality 3/16" or 1/4" nap roller.

3.4 CLEANING

- A. Clean work area and remove/discard all debris resulting from the application of the flooring 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.
- B. Allow completed flooring system to cure for 24 hours before subjecting to foot traffic.
- C. Prohibit traffic on the floor for 48 hours after installation. Avoid heavy abrasion and chemical exposure for 5 days. Allow 72 hours minimum for vehicular traffic.

END OF SECTION

MIRACOTE DIVISION OF
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