

SECTION 033519
COLORED CONCRETE TOPPING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes sand-cushion integrally colored concrete topping.
- B. Related Sections include the following:
 - 1. Division 03 Section "Cast-in-Place Concrete" for concrete strength and mix requirements.

1.2 SUBMITTALS

- A. Product Data: For each type of color, component material, and accessory specified.
- B. Shop Drawings: Show topping fabrication and installation requirements including plans, sections, component details, and attachments to other work.
 - 1. Show layout of divider and control- and expansion-joint strips.
 - 2. Show layout of base and border strips.
 - 3. Show layout of abrasive strips.
 - 4. Show large-scale details of patterns.
- C. Samples for Verification: Minimum of three 6-inch square samples of each topping color and type required, showing the full range of color, and texture variations expected. Prepare samples of the same thickness and from the same material to be used for the Work. Provide minimum 6-inch long samples of each exposed strip item required.
- D. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Material Certificates: Certificates signed by suppliers or manufacturers certifying that each material complies with requirements.
- F. Maintenance Data: For topping to include in the maintenance manuals specified in Division 01.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed topping installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

- B. Source Limitations for Color: Obtain colors for entire installation from one source with resources to provide materials of consistent quality in appearance and physical properties without delaying the Work.
- C. Mockups: Before installing color topping, construct mockups for each type and color required to verify selections made under Sample submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for completed Work.
 - 1. Locate mockups in the location and of the size indicated or, if not indicated, as directed by Architect.
 - 2. Notify Architect 7 days in advance of dates and times when mockups will be constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship. Include divider strips and show quality of troweled finish.
 - 4. Obtain Architect's approval of mockups before proceeding with topping installation.
 - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - a. When directed, demolish and remove mockups from Project site.
- D. Pre-installation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings." Review methods and procedures related to installation including, but not limited to, the following:
 - 1. Inspect and discuss condition of substrate and other preparatory work performed by other trades.
 - 2. Review structural loading limitations.
 - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in suppliers' original wrappings and containers, labeled with source's or manufacturer's name, material or product brand name, and lot number, if any.
- B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Maintain temperature above 50 deg F (10 deg C) for 48 hours before and during installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering integral color system that may be incorporated into the Work include, but are not limited to, the following:
1. L. M. Scofield Company, Chromix.
 2. Or approved equal.

2.2 MATERIALS

- A. Portland Cement: ASTM C 150, Type 1.
1. Color: As required by mix indicated.
- B. Water: Potable.
- C. Sand: ASTM C 33.
- D. Pigments: Pure mineral or synthetic pigments, alkali resistant, color stable, and compatible with matrix binder.
- E. Surface Hardener: Siliconate polymer type, Euclid Euco Diamond Hard or approved equal.
- F. Reinforcement: As specified in Section 321313 Concrete Paving. Retain one divider-strip type below.
- G. Divider Strips: Straight or angle type as required by topping pattern indicated, with anchoring device, in depth required for topping thickness indicated, and as follows:
1. Bottom-Section Material: Matching top section material.
 2. Top-Section Material: White zinc alloy.
 3. Top-Section Width: 1/8 inch.
- H. Control-Joint Strips: Separate, double L-type angle or straight strips positioned back-to-back matching material, thickness, and color of divider strips in depth required for topping thickness indicated.
- I. Abrasive Strips: Silicon carbide or aluminum oxide in epoxy-resin binder.
- J. Abrasive-Strip Channel: 1/2-inch- wide-by-1/2-inch- deep, white zinc alloy or half-hard brass to match divider-strip material.
- K. Accessory Strips: Match divider-strip width, material, and color, unless otherwise indicated. Use the following types of accessory strips as required to provide a complete installation:
1. Base bead and base dividers.
 2. Edge beads for exposed edges of topping.

- L. Isolation and Expansion Material: Closed cell polyethylene foam or silicone based sealant.
- M. Expansion Joint Strips: Back to back divider strips with sealant. Sealant is specified in Division 07 Section Joint Sealants.
- N. Sand-Cushion-Topping Isolation Membrane: Polyethylene sheeting, ASTM D 4397, 4 mils thick; or No. 15 un-perforated roofing felt complying with ASTM D 226, Type 1 requirements.
- O. Divider-Strip Adhesive: Adhesive recommended by manufacturer for this use.
- P. Curing Materials: As specified in Section 03300 and as recommended by coloring manufacturer.

2.3 MIXES

- A. Concrete Topping: As specified in Division 03 Section "Cast-in-Place Concrete."
 - 1. Colors: Match Architect's samples.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of topping. Do not proceed with installation until unsatisfactory conditions, including levelness tolerances, have been corrected.

3.2 INSTALLATION

- A. Spread sand on surfaces to receive sand-cushion topping to comply with NTMA's "Guide Specification for Sand Cushion Terrazzo."
- B. Install isolation membrane according to NTMA Guide Specification.
- C. Install reinforcement, centering in topping.
- D. Install divider and accessory strips according to NTMA's written recommendations.
 - 1. Install divider strips at centers of joists or beams supporting metal deck.
- E. Install control-joint strips back-to-back directly above substrate control joints.
- F. Install angle- or T-type strips and similar accessories in adhesive setting bed without voids below strips. Provide mechanical anchorage of strips as required for adequate attachment of strips to substrate.
- G. Install abrasive-strip channels according to NTMA's written recommendations.

- H. Integrally Colored Concrete Topping: Place, cure, and finish to achieve approved mock-up installation.
- I. Install abrasive strips as indicated with abrasive-strip surface projecting slightly above topping surface without causing a hazard.
- J. Construction Tolerances: Limit topping surfaces' variation from level to 1/4 inch in 10 feet.

3.3 FINISHING

- A. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Re-straighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until surface is left with a uniform, smooth, granular texture.
- B. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and re-straighten until surface is free of trowel marks and uniform in texture and appearance.
- C. Apply hardener following manufacturer's instructions.

3.4 CLEANING AND PROTECTING

- A. Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure the topping is without damage or deterioration at the time of Substantial Completion.

END OF SECTION 033519