

SECTION 03051

CONCRETE COLOR ADDITIVE

SECTION 04051

MASONRY COLOR ADDITIVE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Requirements For Color Additive Used In:
 - 1. Portland cement concrete paving specified in Section 02751.
 - 2. Stamped pattern concrete paving specified in Section _____.
 - 3. Concrete unit pavers specified in Section 02780.
 - 4. Cast-in-place concrete specified in Section 03300.
 - 5. Architectural concrete specified in Section 03330.
 - 6. Exposed aggregate concrete specified in Section 03365.
 - 7. Precast concrete specified in Section 03400.
 - 8. Architectural precast concrete specified in Section 03451.
 - 9. Tilt-up precast concrete specified in Section 03470.
 - 10. Masonry specified in Section 04810.
 - 11. Concrete roofing tiles specified in Section 07321.

1.2 RELATED SECTIONS

- A. Section 07900 - Joint Sealers: Colored sealants for joints.

1.3 REFERENCES

- A. ASTM C 309 - Liquid Membrane-Forming Compounds for Curing Concrete; American Concrete Institute.
- B. ASTM C 979 - Standard Specification for Pigments for Integrally Colored Concrete.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's specifications and instructions for pigments and curing compounds.
- C. Samples for Pigment Color Selection: Pigment manufacturer's color chart or sample chip set; indicate pigment number and required dosage rate.

- D. Samples for Verification of Pigment Color: Sample chips of specified colors indicating pigment numbers and required dosage rates. Submittals are for general verification of color and may vary somewhat from concrete finished in field according to Specifications.
- E. Samples of Aggregate and Sand.
- F. Samples for Verification of Precast Concrete: _____ samples, 2 foot by 2 foot (610 mm by 610 mm) indicating concrete color range, texture, and uniformity.
- G. Samples for Verification of Unit Pavers: _____ samples of each style and color, taken from actual production run, in manufacturer's standard size.
- H. Samples for Selection of Concrete Masonry: Masonry manufacturer's standard colors.
- I. Samples for Verification of Concrete Masonry Units: Samples of each color and style, taken from actual production runs.

1.5 QUALITY ASSURANCE

- A. Mock-Up: Provide full-scale mock-up to demonstrate methods of obtaining consistent visual appearance.
 - 1. Coordinate mock-up requirements with mock-ups specified in other sections; same mock-up may be used for more than one purpose.
 - 2. Construct at least one month before start of actual work, using materials and methods to be used in actual work.
 - 3. Paving: 4 x 4 feet (1.2 x 1.2 m).
 - 4. Precast Concrete: Construct mock-up in plant or on site.
 - 5. Locate mock-up on site.
 - 6. Retain samples of materials used in mock-up for comparison with materials used in remaining work.
 - 7. Accepted mock-up constitutes visual standard for work.
 - 8. Mock-up may remain.
 - 9. Remove mock-up when no longer required for comparison with finished work.
- B. Preconstruction Conference: Conduct a review of procedures required to produce results.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Pigments: Comply with manufacturer's instructions. Deliver pigments to site or batch plant in original, unopened packaging. Store in dry conditions.

1.7 PROJECT CONDITIONS

- A. Plant-Mixed Concrete: Schedule delivery of concrete to provide consistent mix times from batching until discharge.
- B. Concrete Paving: Schedule placement to minimize exposure to wind and hot sun before curing materials are applied. Avoid placing concrete if rain, snow or frost is forecast within 24 hours. Protect fresh concrete from moisture and freezing.
- C. Tilt-Up Concrete: Schedule work to minimize differences in time that panels remain on casting slab in order to minimize differences in curing conditions. When possible, apply curing compound to panels as soon as they are put into place.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Concrete Pigments: Provide products manufactured by Davis Colors, 7101 Muirkirk Road, Beltsville, MD 20705. ASD. Tel: (800) 638-4444, In MD: (301) 210 3400. Fax: (301) 210-4967. or 3700 E. Olympic Boulevard, Los Angeles, CA 90023. ASD. Tel: (800) 356-4848, In CA: (213) 269-7311. Fax: (213) 269-1053.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- C. Substitutions: Not permitted.

2.2 COLORS

- A. Concrete Colors: Provide cement, aggregate, and pigment as required to match _____.
- B. Concrete Colors: Provide cement, aggregate, and pigment as required to produce consistent colors matching approved mock-up.

- C. Concrete Colors: Provide cement, aggregate, and pigment as required to produce consistent colors using the materials specified.
- D. Exterior Walls:
1. Cement: Gray.
 2. Color Additive: Colors as indicated on drawings.
 3. Color Additive: Davis Colors pigment No. ___ at dosage rate of ___ percent.
 4. Color Additive: Color to be selected by Architect from Davis Colors subtle, standard, and premium color lines.
 - a. Allow for ___ different pigment colors.
 - b. Allow for up to ___ percent dosage for each color.
 5. Sand: Manufactured white sand.
 6. Aggregate: _____.
 7. Precast Concrete: At Contractor's option, uncolored concrete may be used for concealed portion, provided colored face layer is fully bonded to backing.
- E. Concrete Floors:
1. Cement: Gray.
 2. Color Additive: Colors as indicated on drawings.
 3. Color Additive: Davis Colors pigment No. ___ at dosage rate of ___ percent.
 4. Color Additive: Color to be selected by Architect from Davis Colors subtle, standard, and premium color lines.
 - a. Allow for ___ different pigment colors.
 - b. Allow for up to ___ percent dosage for each color.
 5. Sand: Locally available natural sand.
 6. Aggregate: _____.
 7. Non-Slip Aggregate: Black silicon carbide.
 8. Non-Slip Aggregate: Gray aluminum oxide grains.
- F. Colored Mortar: Match _____.
- G. Colored Mortar: Match approved mock-up.
- H. Colored Mortar:
1. Cement: White.
 2. Color Additive: Colors as indicated on drawings.
 3. Color Additive: Davis Colors True Tone color No. ___ at rate of ___ dose-sized 1-1/2 lb boxes per sack of cement or lime.
 4. Color Additive: Color to be selected by Architect from Davis Colors True Tone Sweet 16 color lines.

- a. Allow for ____ different pigment colors.
 - b. Allow for up to ____ dose-sized boxes for each color.
- 5. Sand: Locally available natural sand.
- I. Colored Concrete Masonry Units: Color to be selected by Architect from Davis Color subtle, standard, and premium color lines. Allow for ____ different colors.
- J. Colored Concrete Masonry Units: Match _____.
- K. Colored Concrete Masonry Units:
 - 1. Color Additive: As indicated on drawings.
 - 2. Color Additive: Davis Colors pigment No. ____ at dosage rate of ____ percent.
 - 3. Color Additive: Color to be selected by Architect from Davis Colors subtle, standard, and premium color lines.
 - a. Allow for ____ different pigment colors.
 - b. Allow for up to ____ percent dosage for each color.
 - 4. Cement: Gray.
 - 5. Sand: Locally available natural sand.
 - 6. Aggregate: _____.

2.3 MATERIALS

- A. Colored Concrete Additive: Pure, concentrated mineral pigments especially processed for mixing into concrete and complying with ASTM C 979.
 - 1. Base dosage rates on weight of portland cement, fly ash, silica fume, lime and other cementitious materials but not aggregate or sand.
 - 2. Packaging: If pigments are to be added to mix at site, furnish pigments in premeasured Mix-Ready disintegrating bags to minimize job site waste.
- B. Admixtures: Do not use calcium chloride admixtures.
- C. Curing Compound for Colored Concrete: Davis Colors W-1000 Clear Cure & Seal; complying with ASTM C 309.
- D. Curing Compound for Colored Concrete: Davis Colors Color Seal II tinted to match colored concrete; ASTM C 309.
- E. Form Facing Material: Smooth, non-porous surface; steel, plastic, or high-density overlaid plywood, as permitted by applicable specification; with watertight joints, sealed to prevent leakage.
- F. Form Ties: Fiberglass rods tinted to match concrete.

- G. Supports for Reinforcing Bars: Use corrosion-resistant types at locations in contact with exposed surfaces.

2.4 MIXES

- A. Concrete Mix: Mix pigments in accordance with manufacturer's instructions, until pigments are uniformly dispersed throughout mixture and disintegrating bags, if used, have disintegrated.

PART 3 EXECUTION

3.1 FORMED SURFACES

- A. See applicable sections.
- B. Stripping: Leave forms in place as long as practical. Remove forms when concrete has reached a consistent age to maintain uniformity of curing conditions throughout Project.
- C. Sandblasted Finish: Allow concrete to cure to sufficient strength that it will not be damaged by blasting but not less than seven days.

3.2 FLOORS AND PAVING

- A. See applicable sections for additional requirements.
- B. Broomed Finish: Do not dampen brooms.
- C. Trowel Finish: Do not over-trowel or start troweling late.
- D. Non-Slip Aggregate Finish: Uniformly spread aggregate over surface at 1/4 lb/sq ft (1 kg/sq m) and lightly trowel to embed in surface.

3.3 PATCHING CONCRETE

- A. Fill holes and defects in concrete surface within 48 hours of form removal.
- B. Use the same patching materials and techniques that were approved on mock-up.
- C. Make patches with a stiff mortar made with materials from the same sources as the concrete. Adjust mortar mix proportions so dry patch matches dry adjacent concrete. Add white cement to mortar mix if necessary to lighten it.

- D. Exposed Aggregate Finish: Add aggregate to mortar mix so patches will have the same texture and appearance as adjacent concrete.

3.4 CURING CONCRETE

- A. Maintain concrete between 65 and 85 F (18 to 29 C) degrees during curing.
- B. Cure concrete using curing compound; apply curing compound in accordance with manufacturer's instructions.
 - 1. Precast Concrete: If use of curing compound is not practical, use curing techniques which have been shown to adequately cure concrete and which produce acceptable color and appearance.

3.5 CLEANING MASONRY

- A. Use the least aggressive cleaning techniques possible. Comply with recommendations of masonry and pigment manufacturers.
- B. Do not use hydrochloric acid on colored masonry or mortar.

3.6 TOLERANCES

- A. Minor variations in appearance of colored concrete/mortar, which are similar to natural variations in color and appearance of unpigmented concrete/mortar, are acceptable.

END OF SECTION