

ITEM 09555.0193 M - COLORED CONCRETE FOR STRUCTURES

DESCRIPTION:

This work shall consist of furnishing and placing colored portland cement concrete for structures where indicated on the contract plans.

As part of the work the Contractor shall perform a laboratory test of the proposed mix design(s).

The laboratory testing shall verify that the concrete mix with color additive will meet the air and slump requirements for the class of concrete to be employed. It shall also determine the color conformity with the given color code.

MATERIALS:

Materials shall meet the requirements of Subsection 555-2, Materials, of the Standard Specifications and the following:

Concrete mix design shall be Class A, with color additive.

Cement and aggregate from the same source will be utilized for all work under this item, and shall be consistent as to color, gradation, and composition with materials utilized in the laboratory test.

The concrete color shall match Munsell Color N 4/0 as designated in the Munsell Book of Color.

The color admixture shall be certified by the manufacturer to meet the requirements of ASTM C979 Standard Specification for Pigments for Integrally Colored Concrete. If the color admixture has air-entraining, water reducing or set retarding properties it shall also meet the requirements of Subsection 711-08, Admixtures. The Contractor shall verify by laboratory tests that the color admixture meets the requirements of Section 3.7 of ASTM C979 when used with aggregates and cement proposed for this work. Copies of the laboratory results shall be submitted to the Engineer. Separate tests shall be made for each class of concrete that is provided under this specification. The color conditioned admixture shall be packaged so that one dose is the proper dosage for one cubic meter of concrete.

The percentage of color additive permitted by ASTM C979, Section 1.4 shall not be exceeded. The use of Type 6 cement (white) will be permitted to reduce the quantity of color additive necessary to achieve the designated color. No additional payment will be made for Type 6 cement.

Caulking and plaster mix for sealing and patching shall match the color of the finished wall.

CONSTRUCTION DETAILS:

The requirements of Subsection 555-3, Construction Details, of the Standard Specifications shall apply together with the following:

1. **Forming.** If used, all form lumber will be coated with a polyurethane or similar coating, sufficiently heavy to prevent grain transfer. As an alternative, resin paper overlay plywood may be utilized, provided all plywood plugs (boats) are filled and coated.

All form joints, holes, and openings will be sealed with 50 mm wide vinyl or polyester film tape to prevent leakage. Plastic snap tie cones are to be of the non-leaking type. Metal form ties are not to be placed closer than 40 mm to the exterior surface.

2. **Batching.** The color admixture shall be introduced into the mixer drum in the manner recommended by the admixture manufacturer. The quantity of concrete being mixed shall be no

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less than 40 percent of the capacity of the mixing drum, and shall be in full cubic meter increments.

3. Placement. If concrete is to be pumped, the pump and hoses shall be primed with a slurry that is colored to match the desired concrete color.

4. Finishing. The vertical surfaces will be cleaned sufficiently to remove minor form marks and colored residue resulting from migration of water, cement and coloring agents toward the surface.

5. Patching. Prior to proceeding with any patch work, the Contractor will establish trial patch areas to develop the approved patching color, the method of application, and the surface texturing of the patch material. Prior to patching, the exterior surface will be blast cleaned. Light blast cleaning of patches is permitted to create a uniform surface following patching.

The substrate will be thoroughly moistened before patching, and a concrete bonder applied. No bonder is to be added to the patching mix.

METHOD OF MEASUREMENT:

Measurement shall be made for the number of cubic meters of colored concrete placed within the lines indicated on the plans or as revised by authority of the Engineer. In computing the volume of concrete for payment, no deduction shall be made for the volume of joint material, embedded metal reinforcement, stud shear connectors, anchor bolts or chamfers.

BASIS OF PAYMENT:

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to complete the work except reinforcement shall be paid for separately under its appropriate item. The provisions of Subsection 555-5, Basis of Payment, of the Standard Specifications shall apply.