

SECTION 111

COLORED PORTLAND CEMENT CONCRETE

111.1 GENERAL

The Colored Portland Cement Concrete shall be a portland cement concrete that meets the requirements of Section 101, to which coloring pigments are added that meet the requirement of this Section.

111.2 REFERENCES

111.2.1 ASTM:

C-979

111.2.2 This publication:

Section 101
Section 105

111.3 MATERIALS:

111.3.1 The portland cement concrete shall conform to the requirements of Section 101 or as modified by the Supplemental Specifications and the approved concrete mix design.

111.3.2 Pigments used in the coloring of portland cement concrete shall be either natural or synthetic iron and mineral oxides in powder form. Pigments shall conform with the requirements of ASTM C-979.

111.4 DOSAGE

The maximum dosage rate shall not exceed the recommendations of the manufacturer, or 10% by weight of portland cement in the design mix. When a combination of pigments is required for a specific color, the total dosage rate of all pigments shall not exceed any of the individual maximum dosage rates of the component pigments, or 10% by weight of portland cement in the design mix.

111.5 BATCHING, MIXING, TRANSPORTATION AND PLACEMENT

Colored concrete shall be batched, mixed, transported and placed in/with equipment that is clean of all residual non-colored

concrete prior to the introduction of the colored concrete materials.

111.6 PLACEMENT

111.6.1 Colored portland cement concrete that does not have the color mixed throughout the entire load or has uneven distribution of color in the load shall not be incorporated in the work and shall be rejected.

111.6.2 The finishing of all colored portland cement concrete shall be conducted in such a manner as to not diminish, streak, or in any way lessen the coloring of the concrete.

111.7 CURING

The liquid membrane-forming curing compound used to cure all colored concrete shall be compatible with the colored concrete, having the same color source pigments as those used in the color concrete and shall conform to the requirements of Section 105.

111.8 SUBMITTALS

111.8.1 The CONTRACTOR shall submit a mix design for the Colored Portland cement Concrete to the ENGINEER for review and approval. The mix design shall show the manufacturer of the pigment material, the dosage per cubic yard of the pigment material, and a certification from the pigment manufacturer that pigment(s) complies with the requirements of this Specification. If during the project a change in the pigment material(s) or a change in the pigment manufacturer from the approved mix design is made, a new mix design shall be submitted to the ENGINEER for review and approval before the new material(s) are used on the project. The submittal shall include a curing program for the Colored Portland Cement Concrete.

111.8.2 As part of the ENGINEER'S review of the mix design a sample of the colored concrete may be required. The sample shall be not less than the size of the typical element to the cast with the colored concrete

or a four foot (4') by four foot (4') section, whichever is smaller. The sample shall be placed, finished and cured according to the project requirements to produce a true sample of the finished product. The sample shall be placed on the project site in a location where the sample may or may not, as approved by the ENGINEER, be incorporated into the completed work. The sample shall be maintained as the acceptance referenced, once approved for the duration of the project.

111.9 MEASUREMENT AND PAYMENT

Colored Portland Cement Concrete shall be measured and paid for at the unit price per specific construction item as specified herein or as defined in the Bid Proposal.