08/26/2024

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| Use on projects when structural concrete is required. Generally structural concrete is required for bridges, culverts, walls, and foundations (items that require load analysis or “that you can drive on”). A low water crossing may be paid under Section 552 or 501 as determined by the CFT (including roadway designer, bridge engineer, and pavements engineer). |

## Section 552. — STRUCTURAL CONCRETE

**Material**

**552.02** Add the following:

Concrete coloring agent 711.05

Precast concrete units and accessories 725.09

**Construction Requirements**

**552.03 Composition (Concrete Mix Design).** Delete the first two paragraphs and substitute the following:

Design and produce concrete mixtures that conform to Tables 552-1, 552-2, and 552-3 as required for the class specified.

Submit concrete mix designs on FHWA Form 1608, *552 Structural Concrete Mix Design Submittal* and determine the required average concrete compressive strength (fcr) with $\overbar{X}$ ≥ fcr.

Delete the first sentence of the third paragraph and substitute the following:

Verify mixture design with trial mixes from proposed sources or with previous concrete production data for the mixture design submitted from proposed sources.

**(w)** Delete the paragraph and substitute the following:

Specified design strength (f’c) and required average concrete compressive strength (f’cr) for the concrete mixture at 28 days as determined by the process and associated calculations outlined on FHWA Form 1608, pages 4 and 5. Pending 28-day strength results, a mix design may be approved on the basis that 7-day compressive strength results meet or exceed 85 percent of the required average strength (f’cr) at 28 days;

**552.09 Quality Control of Mix.** Add the following:

**Prosecution of work**: At least 2 weeks prior to the start of concrete placement operations, arrange a pre-concrete placing conference. Coordinate attendance with the CO and any applicable subcontractors. Be prepared to discuss and/or submit the following:

**(1)** Proposed concrete placement schedule.

**(2)** Review approved concrete mix design and determination of batch weights.

**(3)** Discuss Section 153, Contractor Quality Control and the minimum frequency schedule for process control sampling and testing (to be performed by the Contractor).

**(4)** Discuss batching, mixing, placing, and curing requirements.

**(5)** Discuss Subsections 106.03, Certification, and 106.05, Statistical Evaluation of Material for Acceptance.

**552.11 Handling and Placing Concrete.**

**(e) Underwater placement.** Delete line (1) and substitute the following:

**(1) Tremies.** Use watertight tremies, with a diameter sufficient to ensure that aggregate-induced blockages will not occur. Use multiple tremies as required. Make tremies capable of being rapidly lowered to retard or stop the flow of concrete.

Seal the discharge end and fill the tremie tube with concrete at the start of concrete placement. Keep the tremie tube full of concrete to the bottom during placement. If water enters the tube, withdraw the tremie and reseal the discharge end. Maintain continuous concrete flow until the placement is completed.

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| Include Subsection 552.16 when integral concrete coloring is specified. Insert the description of the concrete to be colored and the color number in the spaces provided below. |

**552.16 Finishing Formed Concrete Surfaces.** Add the following:

**(g) Class 8 - Integral color finish.** All concrete in the describe will be integrally colored by adding a concrete coloring agent. After curing the colored concrete will match as closely as possible to AMS-STD-fill in number in AMS Standard 595A.

Prepare five square textured test panels with each panel 1 foot (300 mm) square. Use coarse and fine aggregates and cement as delivered on the project at the job mix rates with variable quantities of coloring agent as directed by the CO. Complete a Class 1 finish according to (a) above. The CO will select a test panel to serve as a guide for the colored concrete. Use the same rate of coloring agent used in the selected panel on all relative subsequent work.

Prepare and transport the test panels to the project staging area. Cure the test panels similar to the structure. Allow test panels a minimum of four weeks to cure prior to placing concrete requiring coloring agent.

**Measurement**

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| Include the following when concrete for footing is to be poured against disturbed rock. |

**552.21** Add the following:

Do not measure for payment the volume of concrete required outside the neat lines of the footing to pour against undisturbed rock as shown on the plans. When the CO directs the removal of material below the established elevation of the bottom of the footing, the volume of concrete required to fill the void will be measured for payment.

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| Include the following when integral concrete coloring is used in the concrete. |

Add the following:

When measuring concrete coloring agent, measure by the pound (kilogram).