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Bridge Concrete Patching Concrete Testing

This Bridge Field Services advisory serves to clarify the concrete testing requirements for mixtures used for patching of bridge decks and substructures during bridge rehabilitation projects.

Subsection 703.02 Table 703-1 *Structures Patching Mixtures* of the Standard Specifications for Construction lists the approved mixtures for structures patching. Included in the table are Latex Modified Concrete (LMC) mixtures and non-Latex Modified mixtures, **all of which only require testing of air content and slump**. Table 703-1 details the required air content in the far right column and notes a) and b) of Table 703-1 detail the slump requirements as follows:

- a) *Control water to provide a stiff, workable mixture with 1 in to 2 in slump. During hot and windy weather, the Contractor may increase slump to 3 in to 4 in, as determined by the Engineer.*
- b) *Add water, in addition to water in latex admixture, to control slump to within 3 in to 5 in. Measure slump from 4 min to 5 min after discharge from the mixer.*

Due to the high compressive strength of the mixtures listed in Table 703-1 and the limitations associated with standard compressive strength testing equipment, cylinder testing is not required for these mixtures.

Other mixtures approved for use in bridge deck patching such as the mixture detailed in the Special Provision **PORTLAND CEMENT CONCRETE FOR BRIDGE DECK SURFACE REPAIR (7 SACK)**, require additional testing. Strength requirements will be as specified in Table 701-1A, *Concrete Structure Mixtures by Slump* and 701-1B *Concrete Structures Mixtures by Strength of Concrete*, of the Standard Specifications for Construction for Grade D concrete, and include the following:

The Contractor may use flexural strength to determine form removal. Use compressive strength for acceptance in other situations.

Quality control cylinders are not required for LMC and Silica Fume Modified Concrete (SFMC) used for bridge overlays. The testing requirements for LMC and SFMC overlays are detailed in the Construction Advisory CA 2005-10, dated June 9, 2005.

http://www.michigan.gov/documents/MDOT_CA-2005-10_127415_7.pdf