

Memorandum

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To: DEPUTY DISTRICT DIRECTORS, Construction
DEPUTY DIVISION CHIEF, Structure Construction
CONSTRUCTION MANAGERS
SENIOR CONSTRUCTION ENGINEERS
RESIDENT ENGINEERS

Date: January 23, 2020

File: Division of Construction
CPD 20-2



From: RACHEL FALSETTI, Chief
Division of Construction

Subject: **CHANGES TO CTM 523 IN ACCORDANCE WITH ASTM INTERNATIONAL STANDARDS**

This directive provides information to California Department of Transportation (Caltrans) resident engineers about the revised procedure in California Test Method (CTM) 523, "Method of Test for Flexural Strength of Concrete." Contractors have the option of requesting use of the revised test method as a no-cost change order. The goal is to make Caltrans' test methods consistent and compatible to American Society for Testing and Materials International (ASTM) standards.

The revised CTM 523 adopts the fabrication and initial curing of specimen changes in accordance with ASTM C31/C31M-19, Standard Practice for Making and Curing Concrete Test Specimens in the Field, Section 9, "Molding Specimens," and Section 10, "Curing."

Changes to CTM 523 during specimen fabrication address specimen consolidation methods. The required method of consolidation depends on the concrete mix slump. For slumps greater or equal to 1 inch, either the rodding or vibration consolidation method is permitted. For slumps less than 1 inch, vibration consolidation method is required. Consolidation requirements and procedures are stated in ASTM C31/C31M-19 Table 4, "Molding Requirements by Rodding," and Table 5, "Molding Requirements by Vibration." With this change district laboratories will need to acquire battery operated vibrators for use when concrete mix slumps are less than 1 inch.

The change to CTM 523 during specimen initial curing addresses requirements for temperature control and moisture loss prevention. Temperature fluctuations during the curing period contribute to beams failing before achieving the required minimum flexural strength. During both stages of curing, storage temperature range as indicated in ASTM C31/C31M-19, Section 10, "Curing," must be controlled by using heating and cooling devices as necessary. For final curing of beams, use the standard curing method as stated in ASTM C31/C31M-19, Section 10.1.3.2, for acceptance and use the field curing

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method as stated in Section 10.2.2 for traffic opening. To accomplish this curing method the contractor, at no additional cost, will be required to provide the resident engineer with the equipment necessary to maintain the initial curing environment within the specified temperature range.

These changes will be implemented statewide once the Section 40-1.01D, "Quality Assurance," of the Revised *Standard Specifications* is published in April 2020. In the interim, the contractor may implement the revised version of CTM 523 on ongoing projects by submitting a no-cost change order to the resident engineer.

If you have questions or comments regarding this directive, contact Samir Ead, Division of Construction, at Samir.Ead@dot.ca.gov or (916) 227-5709.

Attachments:

1. Sample Form CEM-4903, "Change Order Memorandum"
2. Sample Form CEM-4900, "Change Order"
3. C31/C31M – 19, Standard Practice for Making and Curing Concrete Test Specimens in the Field
4. Revised CTM 523, Method of Test for Flexural Strength of Concrete (Modulus of Rupture)
5. FHWA Form CA-358(c), "Record of Blanket Prior Approval for Major Contract Change Order"