Pilot project special provision: 601mm
10/12/2017

REVISION OF SECTION 601
MATURITY METERS

Subsection 601.05 shall include

The Contractor shall provide the Engineer a report of maturity relationships in accordance with CP 69 with the mix design submittal.

Subsection 601.17 (c) Shall include:

The Department is in the process of investigating the use of maturity meters for accepting structural concrete. Maturity meter strength determinations made in accordance with this subsection will be used for research and will not be used alone for acceptance or rejection of concrete. These maturity meter strength determinations may be used by the Engineer to supplement concrete cylinder compressive strength determinations.

When strength is specified for bridge elements, concrete box culverts, and specified structures, concrete compressive strength shall be determined by maturity meters in accordance with attached CP 69. A maturity meter shall be placed randomly for every 100 cubic yards of concrete placed in a structure. A minimum of 2 maturity meters shall be placed per mix design per structure per day. Placement shall be as directed by the Engineer. Maturity meters may be removed from the structure once the concrete has achieved the specified strength or after 29 days, whichever occurs first.

The Contractor shall provide maturity meters. The Contractor shall also provide maturity meter readers and/or cloud access to maturity meter data. The Contractor shall use maturity meters that wirelessly transmit maturity meter data to hand held readers or to cloud based internet storage. The meters shall be capable of collecting maturity data for a minimum of 28 days. The Contractor shall supply the Engineer with two identical hand held readers or access to the cloud based data for the duration of the project. Hand held readers will be returned at the end of the project. The Contractor shall provide all needed software and training for accessing the maturity meter data. The Contractor shall submit the make and model of the maturity meters to the Engineer for approval at least two weeks prior to placement of any concrete.

The Engineer will cast a set of 3 cylinders for maturity curve validation. The cylinders will be 6 inches in diameter and 12 inches in height. A maturity meter will be placed at the center of mass of one cylinder. All 3 cylinders shall be stored together in identical conditions. Cylinders may be field or lab cured. At the time that the compressive strength of the cylinders has achieved the specified strength, the compressive strength of the 2 cylinders without the maturity meter will be determined according to ASTM C39. If the average compressive strength of the 2 cylinders is greater than the compressive strength of the maturity meter or within 10 percent below the compressive strength of the maturity meter, the maturity meter curve will be considered acceptable. If the average compressive strength of the 2 cylinders is more than 10 percent below the compressive strength of the maturity meter, the maturity meter curve will be considered unacceptable and the Contractor shall create a new curve. The new curve will be applied to the data and the compressive strength will be recalculated for the structure.

Subsection 601.20 shall include the following:

All costs associated with maturity meters and their use in testing structural concrete will not be measured and paid for separately but shall be included in the work.

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**INSTRUCTION TO DESIGNERS** (delete instruction from final draft):

Use this special provision on projects having structural concrete.