February 18, 2016

REVISION OF SECTION 601

FIBER-REINFORCED CONCRETE

**NOTICE**

This is a standard special provision that revises or modifies CDOT’s *Standard Specifications for Road and Bridge Construction.* It has gone through a formal review and approval process and has been issued by CDOT’s Project Development Branch with formal instructions for its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions unless such use is first approved by CDOT’s Standards and Specifications Unit. The instructions for use on CDOT construction projects appear below.

Other agencies which use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

**Instructions for use on CDOT construction projects:**

Use in projects having any type of fiber-reinforced concrete.

February 18, 2016

REVISION OF SECTION 601

FIBER-REINFORCED CONCRETE

Section 601of the Standard Specifications is hereby revised for this project as follows:

Subsection 601.03 shall include the following:

Where Fiber-Reinforced Concrete is specified or designated in the plans, the concrete mix shall include approved polyolefin fibers. Unless otherwise specified, a minimum of 3.5 pounds per cubic yard of polyolefin fiber reinforcement shall be evenly distributed into the mix. Mixing shall be as recommended by the manufacturer such that the fibers do not ball up. Polyolefin fibers shall meet the requirements of ASTM C1116 and ASTM D7508.

Where Macro Fiber-Reinforced Concrete is specified or designated in the plans, the concrete mix shall include approved macro polyolefin fibers. A minimum of 4.0 pounds per cubic yard of macro polyolefin fiber reinforcement shall be evenly distributed into the mix. If less than 4.0 pounds per cubic yard of macro polyolefin fiber reinforcement is used in the mix, the Contractor shall provide test results showing the mix design has a residual strength of 170 psi as determined by ASTM C1609. Mixing shall be as recommended by the manufacturer such that the fibers do not ball up. Macro polyolefin fibers shall meet the requirements of ASTM C1116 and ASTM D7508 with the following exceptions:

1. Tensile strength shall be a minimum of 65 ksi
2. Modulus of Elasticity shall be a minimum of 1,000 ksi
3. Cut length shall be 1.5 to 2.2 inches
4. Aspect Ratio shall be 50 to 100

Subsection 601.05 shall include the following:

When Fiber-Reinforced Concrete is specified in the Contract, polyolefin fibers may be added to an approved mix design except when Macro Fiber-Reinforced Concrete is specified. If Macro Fiber-Reinforced Concrete is specified a new trial mix will be required. When polyolefin fibers are added to an approved concrete mix design, the Contractor shall submit a letter stamped by the Concrete Design Engineer approving the changes. The stamped letter shall include the following and will be approved by the Engineer prior to use:

1. The mix design number, both the CDOT mix ID number and the suppliers mix ID number
2. The brand and type of polyolefin fibers.
3. The dosage of polyolefin fibers in pounds per cubic yard.
4. Adjustment to the fine aggregate batch weight

Subsection 601.06 shall include the following:

(18) Weight of polyolefin fiber reinforcement

Subsection 601.19 shall include the following:

Polyolefin fiber reinforcement will not be measured and paid for separately, but shall be included in the work.