Standard Method of Test
For
**Flexural Performance of
Fiber-Reinforced Concrete (Using Beam with Third-Point Loading)**

Modifications apply only when testing material according to Check Sheet #34, Special Provision for Portland Cement Concrete Inlay or Overlay for Pavements, of the Supplemental Specifications and Recurring Special Provisions (January 1, 2019).

ASTM Section[1]	Illinois Modification
1.3	Add as follows: The Department will require this test method utilize 6 x 6 x 20 in. (150 x 150 x 500 mm) specimens, tested on an 18 in. (450 mm) span. The specimen length tolerance shall be as defined in Section 7.1.1.
2.1	Replace as follows: Replace ASTM C 31 with AASHTO T 23 (Illinois Modified) Replace ASTM C 78 with AASHTO T 177 (Illinois Modified) Replace ASTM C 172 with AASHTO T 141 (Illinois Modified) Replace ASTM C 192 with AASHTO R 39 (Illinois Modified) To maintain brevity in the text, the following will apply: **Example:** AASHTO T 23 (Illinois Modified) will be designated as "T 23."
7.1.4	Add the following: Note 6A—The three times the maximum fiber length requirement for width and depth is waived by the Department.
7.2	Add the following: Proportion the concrete mixture for test specimens molded in the laboratory as follows: *Cement Content*—575 lb/yd³ (340 kg/m³). *Water-Cement Ratio (w/c)*—Maintain a w/c of 0.42 by weight (mass). *Aggregates*—Use a Gradation No. FA 1 fine aggregate (sand) meeting the requirements of Articles 1003.01(a)(1), 1003.02(a), and 1003.02(b); and a Gradation No. CA 7 coarse aggregate (crushed limestone or dolomite) meeting the requirements of Articles 1004.01(a)(4), 1004.02(a), and 1004.02(b) of the Department's Standard Specifications for Road and Bridge Construction. A mortar factor of 0.85 shall be used when calculating volumetric proportions according to the Department's "Portland Cement Concrete Level III Technician" — Manual of Instructions for Design of Concrete Mixtures. *Admixtures*—An air-entraining admixture shall be used, and a normal or mid-range water-reducing admixture may be added to the concrete mixture if needed. No other admixtures shall be used in the concrete. Assume 6.5% air content for volumetric proportioning calculations. The proportioned concrete mixture shall have a 2 – 4 in. (50 – 100 mm) slump and 5.0 – 8.0% air content after mixing of the fibers. After the concrete slump and air content tests are performed, the material shall be discarded. Mixing—Mixing shall be according to R 39 except that the initial mixing shall be for all ingredients except the fibers. Once the concrete has been mixed for three minutes followed by three minutes rest, followed by two minutes of final mixing, the fibers shall be added and the concrete mixed for 6 minutes.

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ASTM Section[1]	*Illinois Modification*
7.5	After the first sentence, add the following: The concrete fiber test specimens shall be tested when the concrete compressive strength is in the 27,500 to 34,500 kPa (4,000 to 5,000 psi) range. The number of compressive strength cylinders molded shall be adequate to ensure the concrete fiber test specimens are tested in the specified range. The compressive strength cylinders shall be 150 X 300 mm (6 X 12 in.), and two breaks shall be required for each test.
10.6	Add as follows: Comment: For a 6 x 6 x 20 in. (150 x 150 x 500 mm) beam, the maximum required net deflection value of 1/150 of the span length (18 in. (450 mm)) is 0.12 in. (3 mm).
11.1.17 New Section	Calculate the residual strength ratio, to the nearest 0.1, as follows: $$R_{150}^{150} = \frac{f_{150}^{150}}{f_1} \times 100$$ Where R_{150}^{150} equals the residual strength ratio [percent] at net deflection $L/150$ with span length L. Comment: R_{150}^{150} may also be referred to as $R_{150,3}$, indicating 3-mm net deflection. Refer to Section 10.6 for additional information.