Method of Test for Flexural Strength of Concrete

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1. Scope:

This test is for determining flexural strength of concrete with third point loading.

2. Apparatus:

2.1 Beam breaker. (AASHTO T 97)

2.2 Rule with 1/16” divisions at least 8” in length.

2.3 Recording charts.

3. Procedure:

3.1 Turn the test specimen on its side, with respect to its position as molded, and center on the bearing blocks.

3.2 Bring the load-applying blocks in contact with the surface of the specimen.

If full contact is not obtained at no load between the specimen and the load-applying blocks, grind the contact surfaces of the specimen or shim with leather strips.

3.3 Load at a rate of 125 to 175 psi/min.

3.4 Measure the beam at the breaking point to obtain the width and depth to nearest 1/16" with respect to its position when tested.

3.5 Record the load in lbs.

NOTE: If the break occurs outside the middle third of the span, contact the Central Laboratory for instructions.

4. Report:

4.1 Calculations.

$$R = Pl / bd^2$$

Where:

R = Modulus of rupture, psi,
P = Maximum applied load indicated by the testing machine, lbf,
l = Span length, in.,
b = Average width of specimen, in., and
d = Average depth of specimen, in.

4.2 Report the flexural strength to the nearest 5 psi.

5. References:

AASHTO T 97