



**Designation: ~~C293-08~~ Designation: C293/C293M – 10**

## Standard Test Method for Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading)<sup>1</sup>

This standard is issued under the fixed designation C293/C293M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

### 1. Scope\*

1.1 This test method covers determination of the flexural strength of concrete specimens by the use of a simple beam with center-point loading. It is not an alternative to Test Method ~~E78~~C78/C78M.

~~1.2 The values stated in inch-pound units are to be regarded as standard. The SI equivalent of inch-pound units has been rounded where necessary for practical application.~~

~~1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.~~

~~1.3 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.~~

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>2</sup>

C31/C31M Practice for Making and Curing Concrete Test Specimens in the Field

~~C78~~C78/C78M Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)

C192/C192M Practice for Making and Curing Concrete Test Specimens in the Laboratory

C617 Practice for Capping Cylindrical Concrete Specimens

C1077 Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation

E4 Practices for Force Verification of Testing Machines

### 3. Significance and Use

3.1 This test method is used to determine the modulus of rupture of specimens prepared and cured in accordance with Practices C31/C31M or C192/C192M. The strength determined will vary where there are differences in specimen size, preparation, moisture condition, or curing.

3.2 The results of this test method may be used to determine compliance with specifications or as a basis for proportioning, mixing and placement operations. This test method produces values of flexural strength significantly higher than Test Method ~~E78~~ (Note 1).

~~Note 1—The testing laboratory performing this test method may be evaluated in accordance with Practice ~~C1077~~C78/C78M.~~

### 4. Apparatus

4.1 The testing machine shall conform to the requirements of the sections on Basis of Verification, Corrections, and Time Interval Between Verifications of Practices E4. Hand operated testing machines having pumps that do not provide a continuous loading to failure in one stroke are not permitted. Motorized pumps or hand operated positive displacement pumps having sufficient volume in one continuous stroke to complete a test without requiring replenishment are permitted and shall be capable of applying loads at a uniform rate without shock or interruption.

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.61 on Testing for Strength.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

\*A Summary of Changes section appears at the end of this standard.

