



Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete¹

This standard is issued under the fixed designation C42/C42M; 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 (ε) indicates an editorial change since the last revision or reapproval.

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

1. Scope*

1.1 This test method covers obtaining, preparing, and testing cores drilled from concrete for length or compressive strength or splitting tensile strength determinations. This test method is not applicable to cores from shotcrete.

NOTE 1—Test Method C1604/C1604M is applicable for obtaining, preparing, and testing cores from shotcrete.

NOTE 2—Appendix X1 provides recommendations for obtaining and testing sawed beams for flexural performance.

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 The text of this standard references notes and footnotes that provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

1.4 *This standard does not purport to address 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:²

C39/C39M Test Method for Compressive Strength of Cylindrical Concrete Specimens

¹ 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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² 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.

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

C174/C174M Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores

C496/C496M Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens

C617/C617M Practice for Capping Cylindrical Concrete Specimens

C642 Test Method for Density, Absorption, and Voids in Hardened Concrete

C670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials

C823/C823M Practice for Examination and Sampling of Hardened Concrete in Constructions

C1231/C1231M Practice for Use of Unbonded Caps in Determination of Compressive Strength of Hardened Cylindrical Concrete Specimens

C1542/C1542M Test Method for Measuring Length of Concrete Cores

C1604/C1604M Test Method for Obtaining and Testing Drilled Cores of Shotcrete

3. Significance and Use

3.1 This test method provides standardized procedures for obtaining and testing specimens to determine the compressive, splitting tensile, and flexural strength of in-place concrete.

3.2 Generally, test specimens are obtained when doubt exists about the in-place concrete quality due either to low strength test results during construction or signs of distress in the structure. Another use of this method is to provide strength information on older structures.

3.3 Concrete strength is affected by the location of the concrete in a structural element, with the concrete at the bottom tending to be stronger than the concrete at the top. Core strength is also affected by core orientation relative to the horizontal plane of the concrete as placed, with strength tending to be lower when measured parallel to the horizontal

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