



Designation: C513/C513M – 11 (Reapproved 2019)

Standard Test Method for Obtaining and Testing Specimens of Hardened Lightweight Insulating Concrete for Compressive Strength¹

This standard is issued under the fixed designation C513/C513M; 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 specimens of hardened, lightweight, insulating concrete made with either lightweight aggregate conforming to Specification [C332](#) or using preformed foam made from a foaming agent conforming to Specification [C869/C869M](#) and having an oven-dry density not exceeding 800 kg/m^3 [50 lb/ft^3].

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[C39/C39M](#) Test Method for Compressive Strength of Cylindrical Concrete Specimens

[C88/C88M](#) Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

¹ This test method is under the jurisdiction of ASTM Committee [C09](#) on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee [C09.21](#) on Lightweight Aggregates and Concrete.

Current edition approved Dec. 15, 2019. Published December 2019. Originally approved in 1963. Last previous edition approved in 2011 as C513/C513M–11^{e1}. DOI: 10.1520/C0513_C0513M-11R19.

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.

[C125](#) Terminology Relating to Concrete and Concrete Aggregates

[C332](#) Specification for Lightweight Aggregates for Insulating Concrete

[C617/C617M](#) Practice for Capping Cylindrical Concrete Specimens

[C670](#) Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials

[C869/C869M](#) Specification for Foaming Agents Used in Making Preformed Foam for Cellular Concrete

[C1005](#) Specification for Reference Masses and Devices for Determining Mass and Volume for Use in the Physical Testing of Hydraulic Cements

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this test method, refer to Terminology [C125](#).

4. Significance and Use

4.1 This test method is used to determine the compressive strength of hardened lightweight insulating concrete using samples taken from the field. The test results can be used to determine specification compliance when results of tests on specimens molded at the time of construction are not available or are defective, and to establish the strength properties of existing construction.

5. Apparatus

5.1 *Masonry or Carpenter's Saw*, for removing a sample from hardened concrete and cutting cubes from the sample. A core drill is permitted for concrete thicker than 150 mm [6 in.].

5.2 *Testing Machine*, conforming to the requirements in Test Method [C39/C39M](#).

5.3 *Scales and Weights*, used in weighing specimens shall conform to Specification [C1005](#).

5.4 *Drying Oven*, conforming to the requirements in Test Method [C88/C88M](#).