



Designation: C805/C805M – 08

Standard Test Method for Rebound Number of Hardened Concrete¹

This standard is issued under the fixed designation C805/C805M; 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 Department of Defense.

1. Scope*

1.1 This test method covers the determination of a rebound number of hardened concrete using a spring-driven steel hammer.

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:*²

[C42/C42M Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete](#)

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

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

[E18 Test Methods for Rockwell Hardness of Metallic Materials](#)

3. Terminology

3.1 *Definitions:*

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

¹ This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.64 on Nondestructive and In-Place Testing.

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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.

4. Summary of Test Method

4.1 A steel hammer impacts, with a predetermined amount of energy, a steel plunger in contact with a surface of concrete, and the distance that the hammer rebounds is measured.

5. Significance and Use

5.1 This test method is applicable to assess the in-place uniformity of concrete, to delineate regions in a structure of poorer quality or deteriorated concrete, and to estimate in-place strength.

5.2 Relationships between rebound number and concrete strength that are provided by instrument manufacturers shall be used only to provide indications of relative concrete strength at different locations in a structure. To use this test method to estimate strength, it is necessary to establish a relationship between strength and rebound number for a given concrete mixture and given apparatus. Establish the relationship by correlating rebound numbers measured on the structure with the strengths of cores taken from corresponding locations. At least two replicate cores shall be taken from at least six locations with different rebound numbers. Select test locations so that a wide range of rebound numbers in the structure is obtained. Obtain, moisture condition, and test cores in accordance with Test Method [C42/C42M](#).

NOTE 1—See ACI 228.1R³ for additional information on developing the relationship and on using the relationship to estimate in-place strength.

5.3 For a given concrete mixture, the rebound number is affected by factors such as moisture content of the test surface, the method used to obtain the test surface (type of form material or type of finishing), vertical distance from the bottom of a concrete placement, and the depth of carbonation. These factors need to be considered in interpreting rebound numbers.

5.4 Different hammers of the same nominal design may give rebound numbers differing from 1 to 3 units. Therefore, tests should be made with the same hammer in order to compare results. If more than one hammer is to be used, perform tests on a range of typical concrete surfaces so as to determine the magnitude of the differences to be expected.

³ ACI 228.1R-95, "In-Place Methods to Estimate Concrete Strength," American Concrete Institute (ACI), P.O. Box 9094, Farmington Hills, MI 48333-9094, <http://www.concrete.org>.

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