



Standard Test Method for Determining Bond Strength Between Hardened Roller Compacted Concrete and Other Hardened Cementitious Mixtures (Point Load Test)¹

This standard is issued under the fixed designation C 1245/C 1245M; 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.

1. Scope*

1.1 This test method is intended for testing roller-compacted concrete specimens and covers determination of the relative bond between layers of roller-compacted concrete or other hardened concrete in multiple-lift forms of construction. It is applicable to all types of layered concrete where the total depth is sufficient to meet the minimum specimen length and diameter requirements of this test method. This test method is not intended to provide tensile strength results of the material tested.

1.2 The values stated in SI units, shown in brackets, 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, without combining values in any way. 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:

C 39/C 39M Test Method for Compressive Strength of Cylindrical Concrete Specimens²

C 42/C 42M Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete²

C 125 Terminology Relating to Concrete and Concrete Aggregates²

C 192/C 192M Practice for Making and Curing Concrete Test Specimens in the Laboratory²

C 670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials²

C 1176 Practice for Making Roller-Compacted Concrete in Cylinder Molds Using a Vibrating Table²

C 1435 Practice for Making Roller-Compacted Concrete in Cylinder Molds Using a Vibrating Hammer²

D 1557 Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56 000 ft-lbf/ft³(2700 kN-m/m³))³

3. Terminology

3.1 Refer to Terminology C 125 for definitions of terms used in this test method.

4. Significance and Use

4.1 This test method is used to measure the effectiveness of bonding roller-compacted concrete to other roller-compacted concrete or other hardened cementitious mixtures by using a point load test at the joint. Bond strength is determined using drilled cores or cast cylindrical specimens in which the bond surface is essentially normal to the longitudinal axis at approximately the mid-length of the specimen. A splitting tensile stress normal to the bond surface is produced by applying a point load at the joint.

4.2 This test method may be used either for laboratory investigation by casting individual composite cylinders or by coring prototype structures or assemblies (Test Method C 42/C 42M).

5. Apparatus

5.1 *Testing Machine*—The testing machine shall conform to the requirements of Test Method C 39/C 39M.

5.2 *Testing Apparatus*—The testing apparatus shall be constructed of steel and allow the testing of both 4 and 6-in. [100 and 150-mm] diameter specimens. The test schematic is given in Fig. 1. The testing apparatus shall permit the positioning of a specimen such that the joint of the bonded surfaces is oriented as closely as possible parallel to the direction of loading. A photograph of the test configuration is given in Fig. 2. Figs. 3-10 provide the information necessary to construct the apparatus for 4 and 6-in. [100 and 150-mm] diameter specimens. Anvil rods (Fig. 4 and Fig. 6) shall have a hardness of

¹ This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.45 on Roller Compacted Concrete.

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² *Annual Book of ASTM Standards*, Vol 04.02.

³ *Annual Book of ASTM Standards*, Vol 04.08.

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