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American Association State
Highway and Transportation Officials Standard
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Standard Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores¹

This standard is issued under the fixed designation C 174/C 174M; 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 covers the determination of the thickness of a concrete pavement, slab, or structural element by measuring the length of a core drilled from a concrete structure.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. Within the text, the inch-pound units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system shall be used independently of the other.

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. Significance and Use

2.1 This test method is used to determine the compliance of concrete construction with design specifications. It is especially important in determining the thickness of pavements and other slab construction.

3. Apparatus

3.1 The apparatus shall consist of a 3-point caliper device that will measure the length of axial elements of the core. While the details of the mechanical design are not prescribed, the apparatus shall conform to the requirements of 3.2 to 3.6.² An example of the apparatus is illustrated in Fig. 1.³



FIG. 1 Core Measuring Apparatus

3.2 The apparatus shall be so designed that the specimen will be held with its axis in a vertical position by three symmetrically placed supports bearing against the lower end. These supports shall be short posts or studs of hardened steel, and the ends that bear against the surface of the specimen shall be rounded to a radius of not less than 6 mm [$\frac{1}{4}$ in.] and not more than 13 mm [$\frac{1}{2}$ in.].

3.3 The apparatus shall provide for the accommodation of specimens of different nominal lengths over a range of at least 100 to 250 mm [4 to 10 in.].

3.4 The caliper device shall be so designed that it will be possible to make a length measurement at the center of the upper end of the specimen, and at eight additional points spaced at equal intervals along the circumference of a circle

¹ This test method is under the jurisdiction of ASTM Committee C-9 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.69 on Miscellaneous Tests.

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² For further information relating to the development of this test method and apparatus, reference should be made to the "Project Report on a Study of Methods of Measurement of the Length of Cores Drilled from Concrete Structures," prepared by L. W. Teller for Subcommittee VII on Methods and Apparatus for Testing Concrete, of Committee C-9, see *Proceedings*, Am. Soc. Testing Mats., ASTM, Vol 42, 1942.

³ The sole source of supply of the apparatus known to the committee at this time is Humboldt Mfg. Co., 7300 West Agatite, Norridge, IL 80656-4704, Catalog No. H-2939. If you are aware of alternative suppliers, please provide this information to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.