



Standard Practice for Preparation and Conditioning of Cast, Drilled, or Sawed Specimens of Hydraulic-Cement Mortar and Concrete Used for Length Change Measurements¹

This standard is issued under the fixed designation C341/C341M; 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 practice covers the procedures for the preparation and conditioning of cast, drilled, or sawed specimens of hydraulic-cement mortar and concrete for length change due to causes other than externally applied forces. It can be readily adapted, if desired, to studies of length change involving alternate schedules or environmental treatment other than the standard procedures prescribed by this practice.

1.2 The values stated in either inch-pound units or SI units shall be regarded separately as standard. The units stated in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining in any way. The inch-pound units are shown in brackets.

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

- A276 Specification for Stainless Steel Bars and Shapes
- C31/C31M Practice for Making and Curing Concrete Test Specimens in the Field
- C42/C42M Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
- C157/C157M Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete
- C192/C192M Practice for Making and Curing Concrete Test Specimens in the Laboratory

¹ This practice is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.68 on Volume Change.

Current edition approved Dec. 15, 2013. Published January 2014. Originally approved in 1954. Last previous edition approved in 2006 as C341/C341M – 06S. DOI: 10.1520/C0341_C0341M-13.

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.

C490 Practice for Use of Apparatus for the Determination of Length Change of Hardened Cement Paste, Mortar, and Concrete

C666/C666M Test Method for Resistance of Concrete to Rapid Freezing and Thawing

3. Terminology

3.1 Definition

3.1.1 *length change, n* —an increase or decrease in a linear dimension of a test specimen, which has been caused to change by any factor other than externally applied forces and temperature changes.

4. Significance and Use

4.1 Measurements of length change permit assessment of the potential for volumetric expansion or contraction of cast, drilled, or sawed specimens of hydraulic-cement mortar, and concrete due to various causes other than externally applied forces and temperature changes. This practice is particularly useful for comparative evaluation of this potential in different mortar or concrete specimens.

5. Apparatus

5.1 *Length Comparator*—The length comparator shall generally conform to the requirements of Specification C490, except that it shall be constructed to accommodate the specimens to be tested under this practice, which shall have gauge lengths of 75 mm [3 in.] or more.

5.1.1 *Gauge Studs in Ends of Specimens*—When the comparator is to be used to measure between gauge studs in the ends of specimens, the gauge length for computing percentage length change shall be considered to be the distance between the innermost ends of the gauge studs, and the contact terminals of the comparator shall be plane, polished, heat-treated surfaces as described in Specification C490. Fig. 3 of Specification C490 shows one type of comparator that has been found suitable for such specimens. A horizontal comparator is desirable for specimens that are considered too large to be handled by the type of comparator illustrated in Fig. 3 of Specification C490.

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