



Designation: C 511 – 98

## Standard Specification for Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes<sup>1</sup>

This standard is issued under the fixed designation C 511; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification covers requirements for moist cabinets, moist rooms, and water storage tanks used for storage of paste, mortar, and concrete test specimens.

1.2 Values in SI units shall be obtained by measurement in SI units or by appropriate conversion, using the Rules for Conversion and rounding given in Standard IEEE/ASTM SI 10, of measurements made in other units.

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 911 Specification for Quicklime, Hydrated Lime, and Limestone for Chemical Uses<sup>2</sup>

E 77 Test Methods for the Inspection and Verification of Thermometers<sup>3</sup>

IEEE/ASTM SI 10 Standard for Use of the International System of Units (SI): The Modern Metric System<sup>4</sup>

### 3. Terminology

#### 3.1 Definitions:

3.1.1 *moist cabinet, n*—a compartmented storage facility of moderate dimensions with controlled temperature and relative humidity.

3.1.2 *moist room, n*—a “walk-in” storage facility with controlled temperature and relative humidity, commonly called a fog room when the prescribed relative humidity is achieved by the atomization of water.

### 4. Requirements

4.1 *General*—The atmosphere in a moist cabinet or room

shall have a temperature of  $23.0 \pm 2.0^\circ\text{C}$  and a relative humidity of not less than 95 %. The moisture in the atmosphere shall be saturated to the degree needed to ensure that the exposed surfaces of all specimens in storage will both look moist and feel moist at all times. All storage units shall be equipped with recording thermometers. The recording thermometer shall be calibrated at least every six months or whenever there is a question of accuracy. Perform the verification of the recording thermometer by comparing the temperature reading of the recording thermometer with the temperature reading of a reference thermometer during the normal operation of the moist cabinet or room. The thermometer used as the reference thermometer must be accurate and readable to  $0.5^\circ\text{C}$ . A copy of the certificate or report which verifies the accuracy shall be available in the laboratory (Note 1). Position the reference thermometer in a readable position in air as near as is practical to the recording temperature probe. Keep the door to the moist cabinet or room closed for at least 5 min prior to taking readings. Record the temperatures of both the recording thermometer and the reference thermometer. When taking these readings, the reference thermometer shall remain in the moist cabinet or room and be read immediately upon opening the door. If the difference between the two temperatures is greater than  $1^\circ\text{C}$ , the recording thermometer shall be adjusted to within  $0.5^\circ\text{C}$  of the reference thermometer. The use of humidity recording devices is optional. Shelves on which fresh specimens are placed shall be level.

NOTE 1—The ice-point method describe in Test Method E 77 may be used to ensure that no damage to the reference thermometer has occurred during shipping.

4.1.1 The air in a moist storage unit must be nearly saturated with moisture in order to provide specified storage conditions. In many cases, saturation is below optimum during periods when specimens are being placed in or removed from storage. Measurements of relative humidity should not be made at such obviously inopportune times.

4.1.2 The recordings from the recording thermometers shall be audited in order to ascertain the adequacy of the mechanisms used to control the moist room air temperature.

4.1.3 The air temperature inside the storage facility (moist cabinet or moist room) shall be controlled with provisions made for heating or cooling, or both, as may be necessary. This shall be accomplished in one of two ways:

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee C-1 on Cement and is the direct responsibility of Subcommittee C01.95 on Coordination of Standards.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 14.03.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 14.02.