



Designation: C217/C217M – 09

## Standard Test Method for Weather Resistance of Slate<sup>1</sup>

This standard is issued under the fixed designation C217/C217M; 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.

*This standard has been approved for use by agencies of the Department of Defense.*

### 1. Scope

1.1 This test method covers two procedures for weather resistance of slate in all outdoor installations by determining the depth of softening by an abraser or by hand scraping.

NOTE 1—The test is based on the fact that slates containing pyrite, calcite, and carbon undergo a chemical weathering which results in the conversion of the calcite particles to gypsum. The swelling action that results causes disintegration of the slate. The extent of this action on various slates in the test has been found to correlate with the durability of the materials in actual weathering.

1.2 *Units*—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:*<sup>2</sup>

C119 Terminology Relating to Dimension Stone

### 3. Terminology

3.1 *Definitions*—All definitions are in accordance with Terminology C119.

### 4. Significance and Use

4.1 This test method is useful in indicating the differences in weather resistance between various slates. This test method also provides one element in the comparison of slates.

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee C18 on Dimension Stone and is the direct responsibility of Subcommittee C18.01 on Test Methods.

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<sup>2</sup> 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.

### 5. Apparatus

5.1 Either one of the following shall be used:

5.1.1 *Shear/Scratch Tester*, Taber Model 203 or 502,<sup>3</sup> with the shear hardness tool, Model S-20, or its equivalent.

5.1.2 *Hand Scraping Tool*—The scraping tool shall be made by grinding down the blade of a putty knife to a length of 3 in. [75 mm] and a width of ¾ in. [20 mm]. The end of the blade shall be ground to a plane surface perpendicular to the length of the tool to form a sharp edge with either side of the blade. These sharp edges will be referred to as the “cutting edges.”

### 6. Sampling

6.1 The samples shall be selected by the purchaser or his authorized representative so as to be truly representative of the consignment under consideration. Six shingles of roofing from each carload or fraction thereof or similar quantities from other kinds of slate shall constitute a sample.

NOTE 2—Six shingles 10 in. [250 mm] or more in length and of any standard width are sufficient for this test and also for modulus of rupture and absorption tests.

### 7. Test Specimens

7.1 Prepare at least three specimens, each 2 by 4 in. [50 by 100 mm] measured along the cleavage faces, for determining the depth of softening in a 1 % solution of sulfuric acid. The 2 by 4 in. [50 by 100 mm] faces shall be ground smooth and finished with No. 80 abrasive. Specimens cut from sheared or punched slate shall have no saw cut nearer than 1 in. [25 mm] from the edges or nail holes.

### 8. Procedure with Shear/Scratch Tester

8.1 In this procedure determine the depth of softening in acid with the shear/scratch tester (described in 5.1.1). The test involves measuring the depth of a groove made by the shearing tool in fresh specimens and also in the same specimens after soaking 7 days in 1 % sulfuric acid.

<sup>3</sup> The sole source of supply of the apparatus (as described in the 1962 Bulletin 62203–502) known to the committee at this time is Taber Instrument Co., North Tonawanda, NY. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,<sup>1</sup> which you may attend.