



# Standard Test Method for Wind Resistance of Concrete and Clay Roof Tiles (Wind Tunnel Method)<sup>1</sup>

This standard is issued under the fixed designation C1569; 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 test method covers a procedure to determine the resistance of concrete and clay roof tiles to simulated wind effects in a wind-tunnel apparatus. Simulated wind velocities of 70 mph (31 m/s) to 130 mph (58 m/s) are employed.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered 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>

C43 Terminology of Structural Clay Products (Withdrawn 2009)<sup>3</sup>

C67 Test Methods for Sampling and Testing Brick and Structural Clay Tile

C140 Test Methods for Sampling and Testing Concrete Masonry Units and Related Units

C1167 Specification for Clay Roof Tiles

C1492 Specification for Concrete Roof Tile

C1568 Test Method for Wind Resistance of Concrete and Clay Roof Tiles (Mechanical Uplift Resistance Method)

C1570 Test Method for Wind Resistance of Concrete and Clay Roof Tiles (Air Permeability Method)

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee C15 on Manufactured Masonry Units and is the direct responsibility of Subcommittee C15.06 on Roofing Tile.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

### 2.2 SBCCI Standards:

SBCCI SSTD 11 SBCCI Test Standard for Determining Wind Resistance of Concrete or Clay Roof Tiles

NOTE 1—This standard is based on the International Code Council's ICC/SBCCI SSTD 11 Test Standard for Determining Wind Resistance of Concrete or Clay Roof Tiles, and work derived from the tile industry's testing programs completed in the Redland Wind Tunnel in the UK.

### 2.3 ASCE Standards:

ASCE 7 Minimum Design Loads for Buildings and Other Structures

## 3. Terminology

3.1 *Definitions*—For definitions of terms used in this test method refer to Terminology C43, and Specifications C1167 and C1492.

## 4. Significance and Use

4.1 It is known that the observed effects of wind simulated in a wind-tunnel apparatus are related to the effects observed from natural wind. The resistance of tiles to simulated wind in this test relates to the resistance of the tiles to the effects of natural wind when they are applied to a roof. One factor in the resistance of the tiles to the effects of both natural and simulated wind is the method of attachment specified in the manufacturer's instructions. This test method determines the uplift forces acting as a result of the simulated wind when tile are attached to a section of roof deck in accordance with the manufacturer's instructions. Natural wind conditions differ with respect to intensity, duration, and turbulence; these conditions are beyond the means of this test method to simulate.

## 5. Apparatus

5.1 The test assembly of tiles attached to a section of roof deck is identical to that used in Test Method C1568 (Mechanical Uplift Method) except that tile are not fitted with a load-transfer device.

5.2 The test assembly of tiles attached to the roof deck section is positioned on the floor of the wind tunnel apparatus as shown in Fig. 1.