



Designation: C56 – 22

# Standard Specification for Structural Clay Nonloadbearing Tile<sup>1</sup>

This standard is issued under the fixed designation C56; 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 reappraisal. A superscript epsilon (ε) indicates an editorial change since the last revision or reappraisal.

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

## 1. Scope\*

1.1 This specification covers structural clay nonloadbearing tile (partition, fireproofing, and furring). Tile intended for use in fireproofing structural members shall be of such sizes and shapes that they can be erected to completely cover the exposed surfaces of the members. Fireproofing tile intended for use in load-bearing masonry shall conform to Specification C34.

1.2 The property requirements of this specification apply at the time of purchase. The use of results from testing of tile extracted from masonry structures for determining conformance or non-conformance to the property requirements (Section 5) of this standard is beyond the scope of this specification.

1.3 Tile covered by this specification are manufactured from clay, shale, or similar naturally occurring substances and subjected to a heat treatment at elevated temperatures (firing). The heat treatment must develop sufficient fired bond between the particulate constituents to provide the strength and durability requirements of this specification. (See *firing* and *fired bond* in Terminology C1232.)

1.4 The text of this specification references notes and footnotes that provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of this specification.

1.5 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.

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee C15 on Manufactured Masonry Units and is the direct responsibility of Subcommittee C15.02 on Brick and Structural Clay Tile.

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## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

- C34 Specification for Structural Clay Loadbearing Wall Tile
- C67/C67M Test Methods for Sampling and Testing Brick and Structural Clay Tile
- C1232 Terminology for Masonry

## 3. Terminology

3.1 *Definitions*—For definitions relating to structural clay nonload-bearing wall tile, refer to Terminology C1232.

## 4. Classification

4.1 One grade of tile is covered, designated Grade NB.

## 5. Physical Properties

5.1 Structural clay nonloadbearing tile, when tested in accordance with Test Methods C67/C67M, shall conform to the following requirements for absorption:

Grade	Absorption by 1-h Boiling, <sup>4</sup> % Individual Maximum
NB	28

<sup>4</sup>The range in percentage absorption for tile delivered to any one job shall be not more than 12.

## 6. Dimensions and Permissible Variations

6.1 No overall dimension shall vary more than 3 % over or under the specified dimension for any form or size of tile. See Note 1.

NOTE 1—Purchasers and designers should ascertain the type and size of tile, modular or non-modular, available in the locality under consideration and should specify accordingly, stating the size and type represented by the available tile.

Modular sizes are designated by the specified nominal dimensions which are equal to the actual manufactured dimensions plus the thickness of one mortar joint, not to exceed ½ in. (12.7 mm). For example, if the modular, specified, or nominal dimensions of a unit are 4 by 8 by 12 in. (102 by 203 by 305 mm) the actual manufactured dimensions may be 3½ by 7½ by 11½ in. (114.7 by 215.7 by 317.7 mm).

<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.

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

## 7. Finish and Appearance

7.1 All tile shall be reasonably free of laminations and of cracks, blisters, surface roughness, and other defects that would interfere with the proper setting of the tile or impair the strength or permanence of the construction.

7.2 The finish of the outer face or faces of tile shall be plaster-base finish or exposed wall finish as specified in the invitation for bids.

7.3 Surfaces of tile for plaster-base finish shall be smooth, scored, combed, or roughened. When smooth, the tile shall be free of glaze and the absorption shall be not less than 5 % nor more than 25 %. When scored, each groove shall be not less than 1/16 in. (1.6 mm) nor more than 1/16 in. (6.4 mm) in depth, and not more than 1 in. (25.4 mm) in width. The area covered by the grooves shall not exceed 50 % of the area of the scored faces. When combed, the tile shall be scratched or scarified prior to firing by mechanical means which shall make scratches or scarifications on the surface of the tile not less than 1/16 in. nor more than 1/8 in. (3.2 mm) in depth, and not more than 1/4 in. apart. When roughened, the die skin on the face of the tile shall be entirely broken by mechanical means, such as wire cutting or wire brushing. (The die skin may be observed within the cells of the tile.)

7.4 Surfaces of tile with exposed finish shall be smooth, combed, or roughened. Combed or roughened tile surfaces shall conform to the requirements for these finishes given in 7.3.

7.5 If tile having a particular color (Note 2), texture, or finish are desired, these features shall be specified separately by the purchaser.

NOTE 2—Color of tile varies with the type of clay used and degree of firing; hence, it cannot be taken as indicative of classification until after it has been related to absorption by actual tests.

## 8. Number of Cells and Weights of Tile

8.1 Partition and split furring tile shall conform to the requirements prescribed in Table 1 for total number of cells, number of cells in the direction of wall thickness, and weight per unit area.

8.2 The requirements for minimum weight per unit area of structural clay nonloadbearing tile shall be waived if the overall thickness of the shells, measured between the inner and extreme outer surfaces of scored tile, is not less than 5/8 in. (15.9 mm) and the mean shell thickness of unscored tile is not less than 1/2 in. (12.7 mm). Thickness of webs shall be not less than 1/2 in. (12.7 mm).

## 9. Sampling and Testing

9.1 The purchaser or his authorized representative shall be accorded proper facilities for sampling and inspection of units both at the place of manufacture and at the site of the work. At least 10 days from the time of sampling should be allowed for completion of the tests.

9.2 Tile shall be sampled and tested in accordance with Test Methods C67/C67M.

NOTE 3—Unless otherwise specified in the purchase order, the cost of tests is typically borne as follows: If the results of the tests show that the tile do not conform to the requirements of this specification, the cost is typically borne by the seller. If the results of the test show that the tile do conform to the requirements of this specification, the cost is typically borne by the purchaser.

## 10. Rejection

10.1 In case the shipment fails to conform to the requirements, the manufacturer is permitted to sort it, and new specimens shall be selected by the purchaser from the retained lot and tested at the expense of the manufacturer. In case the second set of specimens fails to meet the requirements, the entire lot shall be rejected.

**TABLE 1 Number of Cells and Weight of Tile**

Dimensions, in. (mm)		Minimum Number of Cells		Minimum Weight per Unit Area <sup>A</sup> , lb/ft <sup>2</sup> (kg/m <sup>2</sup> )	
		In Unit	In Direction of Wall Thickness	Average	Individual
Partition Tile					
2 by 12 by 12	51 by 305 by 305)	3	1	14 (68)	13 (63)
3 by 12 by 12	(76 by 305 by 305)	3	1	15 (73)	14 (68)
4 by 12 by 12	(102 by 305 by 305)	3	1	16 (78)	15 (73)
6 by 12 by 12	(152 by 305 by 305)	3	1	22 (107)	21 (102)
6 by 12 by 12	(152 by 305 by 305)	4	2	25 (112)	24 (117)
8 by 12 by 12	(203 by 305 by 305)	4	2	30 (146)	28 (137)
10 by 12 by 12	(254 by 305 by 305)	4	2	35 (161)	33 (161)
12 by 12 by 12	(305 by 305 by 305)	4	2	40 (195)	38 (185)
Split Furring Tile					
1½ by 12 by 12	(38 by 305 by 305)	3	...	7½ (37)	7 (34)
2 by 12 by 12	(51 by 305 by 305)	3	...	8 (39)	7½ (37)

<sup>A</sup> The weights given in the table are for scored tile. If any of the faces are unscored, the weights shall be increased 0.5 lb/ft<sup>2</sup> (2.4 kg/m<sup>2</sup>) of unscored area.