



Designation: C1088 – 17

Standard Specification for Thin Veneer Brick Units Made From Clay or Shale¹

This standard is issued under the fixed designation C1088; 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.

1. Scope*

1.1 This specification covers thin veneer brick units made from clay, shale, fire clay, sand, or mixtures thereof, and fired to incipient fusion for use in adhered or fastened veneer applications. Three types of thin veneer brick units in each of two grades are covered. In this specification, the term thin veneer brick shall be understood to mean clay masonry unit with a maximum thickness of 1 $\frac{3}{4}$ in. (44.45 mm).

NOTE 1—Brick intended for paving should be specified under Specification C902.

1.2 The property requirements of this specification apply at the time of purchase. The use of results from testing of brick extracted from masonry structures for determining conformance or nonconformance to the property requirements (Section 6) of this specification is beyond the scope of this specification.

1.3 Brick 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 the specification. (See “firing” and “fired bond” in Terminology C1232.)

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

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 Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 *ASTM Standards:*²

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

C902 Specification for Pedestrian and Light Traffic Paving Brick

C1232 Terminology for Masonry

3. Terminology

3.1 *Definitions*—For definitions relating to thin veneer brick, refer to Terminology C1232.

4. Classification

4.1 *Grades*—Grades classify brick according to their resistance to damage by freezing and thawing when saturated at a moisture content not exceeding the 24-h cold water absorption. Two grades of thin veneer brick units are covered and the requirements are given in Section 6.

4.1.1 *Grade Exterior*—Brick intended for use where high resistance to damage caused by cyclic freezing and thawing is desired.

4.1.2 *Grade Interior*—Brick intended for use where moderate resistance to cyclic freezing and thawing damage is permissible.

4.2 Three types of thin veneer brick units are covered as follows:

4.2.1 *Type TBS (Standard)*—Thin veneer brick for general use in masonry.

4.2.2 *Type TBX (Select)*—Thin veneer brick for general use in masonry where a higher degree of precision and lower permissible variation in size than permitted for Type TBS is required.

4.2.3 *Type TBA (Architectural)*—Thin veneer brick for general use in masonry selected to produce characteristic architectural effects resulting from nonuniformity in size and texture of the individual units.

¹ 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.

Current edition approved Oct. 1, 2017. Published October 2017. Originally approved in 1988. Last previous edition approved in 2014 as C1088 – 14. DOI: 10.1520/C1088-17.

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.

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

4.3 When the type is not specified, the requirements for Type TBS will govern.

5. Materials and Manufacture

5.1 Units shall not show surface defects and deficiencies, nor effects of surface treatments including coating in the manufacturing process, that interfere with installation of the brick or significantly impair the performance of the construction.

5.2 Colors and textures produced by application of inorganic coatings to the faces of the thin veneer brick are permitted if approved by the purchaser, provided that evidence is furnished of the durability of the coatings.

6. Physical Properties

6.1 Durability—When the grade is not specified, the requirements for Grade Exterior shall govern.

6.1.1 Physical Property Requirements—The brick shall conform to the physical property requirements as prescribed in Table 1.

6.1.2 Absorption Alternative—The saturation coefficient requirement does not apply, provided the 24-h cold water absorption of each of the five units tested does not exceed 8.0 %.

6.1.3 Freezing and Thawing Alternative—The requirements specified in Table 1 do not apply, provided a sample of five brick passes the freezing and thawing test as described in the Rating Section of the Freezing and Thawing test procedures of Test Methods C67.

6.1.3.1 Grade Exterior: Breakage and Weight Loss Requirement—No individual unit separates or disintegrates resulting in a weight loss greater than 0.5 % of its original dry weight.

6.1.3.2 Grade Exterior: Cracking Requirement—No individual unit develops a crack that exceeds, in length, the unit’s least face dimension.

6.1.4 Low Weathering Index Alternative—If the thin brick are intended for use exposed to weather where the weathering index is less than 50 (see Fig. 1), and unless otherwise specified, the requirements given in Table 1 for Grade Interior shall apply.

NOTE 2—A minimum compressive strength requirement is not included in combination with other physical property requirements as an indicator of freeze/thaw durability. The geometry of the thin brick units may preclude proper testing and can affect the failure mode attained. Thus, compressive strength test results may not be a true indicator of unit freeze-thaw performance or fired bond.

NOTE 3—The effect of weathering on thin brick is related to the weathering index, which for any locality is the product of the average

annual number of freezing cycle days and the average annual winter rainfall in inches (millimetres), defined as follows.

A freezing cycle day is any day during which the air temperature passes either above or below 32°F (0°C). The average number of freezing cycle days in a year may be taken to equal the difference between the mean number of days during which the minimum temperature was 32°F (0°C) or below, and the mean number of days during which the maximum temperature was 32°F (0°C) or below.

Winter rainfall is the sum in inches (millimetres) of the mean monthly corrected precipitation (rainfall) occurring during the period between and including the normal date of the first killing frost in the fall and the normal date of the last killing frost in the spring. The winter rainfall for any period is equal to the total precipitation less one tenth of the total fall of snow, sleet, and hail. Rainfall for a portion of a month is prorated.

7. Efflorescence

7.1 Brick are not required to be tested for efflorescence to comply with this specification unless requested by the specifier or purchaser. When the efflorescence test is requested by the specifier or purchaser, the brick shall be sampled at the place of manufacture, and tested in accordance with Test Methods C67, and a rating for efflorescence shall be “not effloresced.” If the rating for efflorescence is “effloresced,” the brick represented by the testing do not meet the efflorescence requirements of this specification.

8. Dimensions and Permissible Variations

8.1 Size—The face size of thin veneer brick shall be as specified by the purchaser. In a representative sample of ten units selected to include the extreme range of color and dimensions of thin veneer brick to be supplied for each size and color combination in the purchase order, no thin brick shall depart from the specified size by more than the individual tolerance for the type specified as prescribed in Table 2. Tolerances on dimensions for Type TBA shall be as specified by the purchaser.

NOTE 4—Brick names denoting sizes may be regional and therefore may not be included in all reference books. Purchasers should ascertain the size of brick available in their locality and should specify accordingly, stating the desired dimensions (width by height by length).

8.2 Warpage—Tolerances for warpage of face or edges of individual units from a plane surface shall not exceed the maximum for the type specified as prescribed in Table 3. Tolerances on warpage for Type TBA shall be as specified by the purchaser.

9. Finish and Appearance

9.1 Face or Faces:

9.1.1 The face or faces that will be exposed in place shall be free of chips that exceed the limits given in Table 4. The aggregate length of chips shall not exceed 10 % of the perimeter of the face or faces of the thin veneer brick.

9.1.2 The face or faces shall not contain cracks or other imperfections that detract from the appearance of the designated sample when viewed under diffused lighting from a distance of 15 ft (4.6 m) for Type TBX and a distance of 20 ft (6.1 m) for Types TBS and TBA.

9.2 The number of thin veneer brick in a delivery that are broken or otherwise fail to meet the requirements for chippage and tolerances shall not exceed 5 %.

TABLE 1 Physical Requirements

Designation	Maximum Water Absorption by 5-h Boiling, %		Maximum Saturation Coefficient ^A	
	Average of 5 units	Individual	Average of 5 units	Individual
Grade Exterior	17.0	20.0	0.78	0.80
Grade Interior	22.0	25.0	0.88	0.90

^A The saturation coefficient is the ratio of absorption by 24-h submersion in cold water to that after 5-h submersion in boiling water.