



Designation: **C1088—14 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 Recommendations 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 for exposure conditions to weather and are defined and the requirements are given in **Table 1** Section 6 as Interior and Exterior.

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.

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.

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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

4.2 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.

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.

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.