Designation: C1261 – 13

Standard Specification for Firebox Brick for Residential Fireplaces[1]

This standard is issued under the fixed designation C1261; 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 (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This specification covers brick intended for use as the lining in the fireboxes of residential fireplaces.

1.2 Firebox brick are manufactured from clay, fire clay, shale, or similar naturally occurring earthy substances and subjected to a heat treatment at elevated temperatures (firing). The heat treatment must develop a fired bond between the particulate constituents to provide the strength and durability requirements of this specification (see Terminology C1232).

NOTE 1—Firebox brick are typically installed using ground fire clay mortar or refractory mortar. Mortar joints are typically 1/8 in. (3.2 mm) thick, just thick enough to accommodate dimensional variations in the firebox brick.

1.3 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.

1.4 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.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C24 Test Method for Pyrometric Cone Equivalent (PCE) of Fireclay and High Alumina Refractory Materials

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

C1232 Terminology of Masonry

3. Terminology

3.1 *Definitions*—For definitions of terms relating to this specification, see Terminology C1232.

4. Materials and Manufacture

4.1 Clay, as it occurs in nature, differs in composition and physical properties. These differences are compensated for by varying the manufacture processes of forming and firing. In order to be satisfactory for firebox brick production, clays must have plasticity that permits them to be shaped or molded when mixed with water. Clays must also have sufficient tensile strength to maintain shape.

4.2 Firebox brick are shaped during manufacture by molding, pressing, or extruding and cutting. Firebox brick shall be 100 % solid with no cores or frogs.

4.3 Firebox brick shall be free of defects, deficiencies, and surface treatments, including coatings, that would interfere with the proper setting of the brick or significantly impair the strength or performance of the construction.

5. Physical Properties

5.1 *Modulus of Rupture*—Residential firebox brick shall have a minimum modulus of rupture of 500 psi (3.45 MPa).

5.2 *Pyrometric Cone Equivalent (PCE)*—Firebox brick shall have a minimum pyrometric cone equivalent (PCE) of 13.

6. Dimensions and Permissible Variations

6.1 *Size*—The size of the firebox brick shall be as specified by the purchaser. In the sample of units, no firebox brick shall depart from the specified size by more than the maximum permissible variation given in Table 1.

6.2 *Warpage*—Tolerances for warpage of face or edges of individual brick from a plane surface and from a straight line, respectively, shall not exceed the maximum permissible warpage given in Table 1.

7. Finish and Appearance

7.1 *Visual Inspection*—The brick, as delivered to the site, shall conform by visual inspection to the samples approved as the standard of comparison. Minor indentations or surface cracks incidental to the usual method of manufacturing or the chippage resulting from the customary methods of handling in shipments and delivery shall not be deemed grounds for rejection.

7.2 *Variation of Appearance Requirements*—When units are required for decorative installations that have appearance

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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**

TABLE 1 Tolerances on Dimensions

Specified Dimension, in. (mm)	Maximum Permissible Variation, ± in. (mm)	Maximum Permissible Warpage, in. (mm)
3 (76) and under	1/16 (1.6)	1/32 (0.8)
over 3 to 4 (76 to 102), incl	1/16 (1.6)	3/64 (1.2)
over 4 to 6 (102 to 152), incl	3/32 (2.4)	1/16 (1.6)
over 6 to 8 (152 to 203), incl	1/8 (3.2)	5/64 (2.0)
over 8 to 12 (203 to 305), incl	5/32 (4.0)	1/8 (3.2)

requirements, that is, size variation, warpage, or chippage, other than those prescribed by this specification, the purchaser shall specify the required maximum permissible variation in size or warpage and the allowable extent of chippage.

7.3 *Waste*—The number of firebox brick in a delivery that are broken or otherwise fail to meet the requirements of Table 1 shall not exceed 5 %.

8. Sampling and Testing

8.1 The brick shall be sampled in accordance with Test Methods C67. Test firebox brick in accordance with Test Methods C67 for modulus of rupture, size, and warpage; and Test Method C24 for pyrometric cone equivalence.

NOTE 2—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 brick do not conform to the requirements of this specification, the cost is typically borne by the seller. If the results of the tests show that the brick do conform to the requirements of this specification, the cost is typically borne by the purchaser.

8.2 The manufacturer or the seller shall furnish specimens for tests. The place or places of selection shall be designated when the purchase order is placed.

9. Keywords

9.1 brick; firebox; fireplace

SUMMARY OF CHANGES

Committee C15 has identified the location of selected changes to this standard since the last issue (C1261 – 10) that may impact the use of this standard. (December 1, 2013)

(1) Select sections within the standard were reorganize using the "Form and Style for ASTM Standards" manual as a guideline.