



Designation: C73 – 23

Standard Specification for Calcium Silicate Brick (Sand-Lime Brick)¹

This standard is issued under the fixed designation C73; 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 brick made principally from sand and lime and intended for use in brick masonry. Two grades of brick are covered:

1.1.1 *Grade SW*—Brick intended for use where exposed to temperature below freezing in the presence of moisture.

NOTE 1—As a typical example, brick used for foundation courses and parapets in the northeastern quarter of the United States should conform to Grade SW.

1.1.2 *Grade MW*—Brick intended for use where exposed to temperature below freezing but unlikely to be saturated with water.

NOTE 2—As a typical example, brick exposed in the face of the wall other than parapet or foundations, or brick intended for structures located in regions of the United States characterized by less severe frost action or by drier climate than is found in the northeastern quarter of the United States should conform to Grade MW.

1.1.3 When the term brick is used in this specification, it is understood to mean brick or solid masonry units.

1.2 If brick having a particular color, texture, finish, or uniformity is desired, these features shall be specified separately by the purchaser.

1.3 The text of this standard 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.

1.4 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.

1.5 *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

C140/C140M Test Methods for Sampling and Testing Concrete Masonry Units and Related Units

C1232 Terminology for Masonry

3. Terminology

3.1 Terminology defined in Terminology C1232 shall apply for this specification.

4. Physical Requirements

4.1 At the time of delivery to the purchaser, the brick shall conform to the physical requirements for the grade specified, as prescribed in Table 1. Units shall be free of defects that significantly impair the strength or permanence of the construction.

4.2 Unless otherwise specified by the purchaser, brick of Grades SW and MW shall be accepted. Grade SW shall be accepted in lieu of Grade MW.

5. Dimensions and Permissible Variations

5.1 The size of brick shall be as specified by the purchaser and the average size of brick furnished shall approximate the size specified in the invitation for bids.

5.2 No overall dimension (width, height, and length) shall differ by more than $\pm 1/8$ in. (3.2 mm) from the specified standard dimension. The width requirement does not apply to textured finishes such as split or rocked faces. Standard dimensions of units are the manufacturer's designated dimensions.

6. Finish and Appearance

6.1 Where units are to be used in exposed wall construction, the face or faces that are to be exposed shall not show chips or

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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 Physical Requirements

Designation	Compressive Strength min, psi (MPa), (brick tested flatwise) average gross area		Water Absorption, max lb/ft ³ (kg/m ³)
	Average of 3 Brick	Individual Brick	
Grade SW	5500 (37.9)	4500 (31.0)	15 (240)
Grade MW	3500 (24.1)	3000 (20.7)	18 (288)

cracks not otherwise permitted in 8.2.2 and 8.2.3, or other imperfections, when viewed from a distance of not less than 20 ft (6.1 m) under diffused light.

6.2 The color and texture shall be specified by the purchaser. The finished surface that will be exposed in place shall conform to an approved sample consisting of not less than four units, representing the range of color and texture specified.

7. Methods of Sampling and Testing

7.1 The purchaser or the purchaser's authorized representative shall be accorded proper facilities to inspect and sample the units at the place of manufacture from the lots ready for delivery.

7.2 Compressive strength, absorption, density, and dimensional tolerances shall be based on tests of calcium silicate brick of any configuration or dimensions made with the same materials, mix design, manufacturing process, and curing method, conducted in accordance with Test Methods C140/C140M, Annex A2, and not more than 12 months prior to delivery.

8. Compliance

8.1 Minor cracks, incidental to the usual method of manufacture or minor chipping resulting from customary methods of handling in shipment and delivery, are not grounds for rejection.

8.2 *Non-conforming Units*—No more than 5 % of the units in the shipment shall exhibit any of the characteristics described in 8.2.1 through 8.2.4.

8.2.1 Units that do not comply with the requirements of Section 5 or 6.1.

8.2.2 Units with finished face(s) containing chips larger than ½ in. (12.7 mm) in any direction, except for units specified to have particular features or finished such as split-face or tumbled units.

8.2.3 Units with finished face(s) containing cracks wider than 0.02 in. (0.5 mm) and longer than 25 % of the nominal height of the unit.

8.2.4 Units with cracks or other defects that interfere with the proper placement of the unit.

8.3 After units are placed in usage, the manufacturer or manufacturer's agent are not responsible for non-conforming units defined in 8.2.

8.4 If a sample fails to conform to the specified requirements, the manufacturer shall be permitted to remove units from the shipment. A new sample shall be selected by the purchaser from remaining units from the shipment with a similar configuration and dimension and tested at the expense of the manufacturer. If the second sample meets the specified requirements, the remaining portion of the shipment represented by the sample meets the specified requirements. If the second sample fails to meet the specified requirements, the remaining portion of the shipment represented by the sample fails to meet the specified requirements.

NOTE 3—Unless otherwise specified in the purchase order, the costs of tests is typically borne as follows: (1) if the results of the tests show that the units do not conform to the requirements of this specification, the cost is typically borne by the seller; (2) if the results of the tests show that the units conform to the specification requirements, the cost is typically borne by the purchaser.

9. Keywords

9.1 absorption; brick; calcium silicate face brick; compressive strength; masonry units; sand-lime brick

SUMMARY OF CHANGES

Committee C15 has identified the location of selected changes to this standard since the last issue (C73 – 22) that may impact the use of this standard. (June 15, 2023)

(1) Changes were made throughout to consolidate requirements for compliance into Section 8.