



Designation: **C55—22 C55 – 23**

## Standard Specification for Concrete Building Brick<sup>1</sup>

This standard is issued under the fixed designation C55; 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 ( $\epsilon$ ) 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 solid, dry-cast, concrete building brick intended for interior and exterior use in constructing structural masonry, and are made from portland cement, water, and suitable mineral aggregates with or without the inclusion of other materials.

NOTE 1—Specification C1634 addresses concrete facing brick used in facing applications and other exposures (previously referred to in earlier editions of this standard as Grade N—for use as architectural veneer and facing units in exterior walls and for use where high-strength and resistance to moisture penetration and severe frost action are desired). This specification differs from C1634 in that it addresses properties for concrete building brick used in non-facing, utilitarian applications (previously referred to in earlier editions of this specification as Grade S—for general use where moderate strength and resistance to frost action and moisture penetration are required).

1.2 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.

NOTE 2—Concrete building brick covered by this specification are made from lightweight or normal weight aggregates, or both.

NOTE 3—When particular features are desired, such as density classification, high compressive strength, surface textures for appearance or bond, finish, color, fire resistance, insulation, acoustical properties, or other special features, such properties should be specified separately by the purchaser. Suppliers should be consulted as to the availability of concrete building brick having the desired features.

1.3 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.

1.4 *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:<sup>2</sup>

C33/C33M Specification for Concrete Aggregates

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

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee C15 on Manufactured Masonry Units and is the direct responsibility of Subcommittee C15.03 on Concrete Masonry Units and Related Units.

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<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

[C150/C150M](#) Specification for Portland Cement  
[C331/C331M](#) Specification for Lightweight Aggregates for Concrete Masonry Units  
[C426](#) Test Method for Linear Drying Shrinkage of Concrete Masonry Units  
[C595/C595M](#) Specification for Blended Hydraulic Cements  
[C618](#) Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete  
[C979/C979M](#) Specification for Pigments for Integrally Colored Concrete  
[C989/C989M](#) Specification for Slag Cement for Use in Concrete and Mortars  
[C1157/C1157M](#) Performance Specification for Hydraulic Cement  
[C1232](#) Terminology for Masonry  
[C1240](#) Specification for Silica Fume Used in Cementitious Mixtures  
[C1634](#) Specification for Concrete Facing Brick and Other Concrete Masonry Facing Units

### 3. Terminology

3.1 Terminology defined in Terminology [C1232](#) shall apply for this specification.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *concrete building brick, n*—a concrete masonry unit, with a maximum width of four (4) inches and of a weight that will typically permit it to be lifted and placed with one hand, that is manufactured for general use in non-facing, utilitarian applications.

3.2.2 *concrete facing brick, n*—a concrete masonry unit, with a maximum width of four (4) inches and of a weight that will typically permit it to be lifted and placed with one hand, that is manufactured to be typically used in an application where one or more faces of the unit is intended to be exposed.

### 4. Materials and Manufacture

4.1 *Cementitious Materials*—~~Materials~~ Cementitious materials shall conform to the following applicable specifications:

4.1.1 *Portland Cement*—Specification [C150/C150M](#).

4.1.2 *Modified Portland Cement*—Portland cement conforming to Specification [C150/C150M](#), modified as follows:

(1) *Limestone*—If calcium carbonate is added to the cement, the  $\text{CaCO}_3$  content shall not be less than 85 %.

(2) *Limitation on Insoluble Residue*—1.5 %.

(3) *Limitation on Air Content of Mortar*—Volume percent, 22 % max.

(4) *Limitation on Loss on Ignition*—7 %.

4.1.3 *Blended Hydraulic Cements*—Specification [C595/C595M](#).

4.1.4 *Hydraulic Cement*—Specification [C1157/C1157M](#).

4.1.5 *Pozzolans*—Specification [C618](#).

4.1.6 *Blast-Furnace-Slag Cement*—Specification [C989/C989M](#).

4.1.7 *Silica Fume*—Specification [C1240](#).

4.2 *Aggregates*—Aggregates shall conform to the following specifications, except for grading requirements:

4.2.1 *Normal Weight Aggregates*—Specification [C33/C33M](#).

4.2.2 *Lightweight Aggregates*—Specification [C331/C331M](#).

NOTE 4—The grading requirements of Specifications [C33/C33M](#) and [C331/C331M](#) may not be suitable for concrete masonry production. Because of this, producers are allowed to modify grading to meet their needs and the requirements of this specification.

4.3 *Pigments for Integrally Colored Concrete*—Specification [C979/C979M](#).