Designation: C 129 – 03

Standard Specification for Nonloadbearing Concrete Masonry Units[1]

This standard is issued under the fixed designation C 129; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This specification covers hollow and solid nonloadbearing concrete masonry units made from portland cement, water, and mineral aggregates with or without the inclusion of other materials. These units are intended for use in nonloadbearing partitions, but under certain conditions they may be suitable for use in nonloadbearing exterior walls above grade where effectively protected from the weather.

1.2 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.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

NOTE 1—Concrete masonry units covered by this specification are made from lightweight or normal weight aggregates, or both.

NOTE 2—When particular features are desired, such as weight classification, surface texture for appearance or bond, finish, color, fire resistance, insulation, acoustical properties, or other special features, such properties should be specified separately by the purchaser. However, local sellers should be consulted as to the availability of units having the desired features.

2. Referenced Documents

2.1 *ASTM Standards:*

C 33 Specification for Concrete Aggregates[2]

C 140 Test Methods for Sampling and Testing Concrete Masonry Units and Related Units[3]

C 150 Specification for Portland Cement[4]

C 207 Specification for Hydrated Lime for Masonry Purposes[4]

C 331 Specification for Lightweight Aggregates for Concrete Masonry Units[2]

C 426 Test Method for Drying Shrinkage of Concrete Masonry Units[3]

C 595 Specification for Blended Hydraulic Cements[4]

C 618 Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete[2]

C 989 Specification for Ground Granulated Blast Furnace Slag for Use in Concrete and Mortars[2]

C 1157 Performance Specification for Hydraulic Cement[4]

C 1209 Terminology of Concrete Masonry Units and Related Units[3]

C 1232 Terminology of Masonry[3]

3. Terminology

3.1 Terminology defined in Terminology C 1209 and Terminology C 1232 shall apply for this specification.

4. Classification

4.1 Nonloadbearing concrete masonry units manufactured in accordance with this specification shall conform to one of three weight classifications prescribed in Table 1.

5. Materials and Manufacture

5.1 *Cementitious Materials*—Materials shall conform to the following applicable specifications:

5.1.1 *Portland Cement*— Specification C 150.

5.1.2 *Blended Hydraulic Cements*— Specification C 595.

5.1.3 *Hydraulic Cement*—Specification C 1157.

5.1.4 *Hydrated Lime, Type S*—Specification C 207.

5.1.5 *Ground Granulated Blast Furnace Slag*—Specification C 989.

5.1.6 *Pozzolans*—Specification C 618.

5.2 *Aggregates*—Aggregates shall conform to the following ASTM specifications, except that grading requirements shall not necessarily apply:

5.2.1 *Normal Weight Aggregates*—Specification C 33.

5.2.2 *Lightweight Aggregates*—Specification C 331.

5.3 *Other Constituents*—Air-entraining agents, coloring pigments, integral water repellents, finely ground silica, and other constituents, shall be previously established as suitable for use in concrete masonry and shall conform to applicable ASTM standards or shall be shown by test or experience not to

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[2] *Annual Book of ASTM Standards*, Vol 04.02.

[3] *Annual Book of ASTM Standards*, Vol 04.05.

[4] *Annual Book of ASTM Standards*, Vol 04.01.

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

TABLE 1 Weight Classification

Weight Classification	Oven-Dry Weight of Concrete, lb/ft^3 (kg/m^3)
Lightweight	Less than 105 (1680)
Medium Weight	105 to less than 125 (1680 to 2000)
Normal Weight	125 (2000) or more

be detrimental to the durability of the concrete masonry units or any material customarily used in masonry construction.

6. Physical Requirements

6.1 At the time of delivery to the purchaser, units shall conform to the strength requirements prescribed in Table 2.

NOTE 3—The purchaser is the public body or authority, association, corporation, partnership, or individual entering into a contract or agreement to purchase or install, or both, concrete masonry units. The time of delivery to the purchaser is FOB plant when the purchaser or purchaser's agent transports the concrete masonry units, or at the time unloaded at the worksite if the manufacturer or manufacturer's agent transports the concrete masonry units.

6.2 At the time of delivery to the purchaser, the total linear drying shrinkage of units shall not exceed 0.065%.

6.3 *Solid Units*—The net cross-sectional area of solid units, in every plane parallel to the bearing surface, shall be not less than 75 % of the gross cross-sectional area measured in the same plane.

7. Dimensions and Permissible Variations

7.1 Minimum face shell thickness shall be not less than ½ in. (13 mm).

7.2 No overall dimension (width, height, and length) shall differ by more than ±⅛ in. (3.2 mm) from the specified standard dimensions.

NOTE 4—Standard dimensions of units are the manufacturer's designated dimensions. Nominal dimensions of modular size units are equal to the standard dimensions plus the thickness of one mortar joint. Nominal dimensions of nonmodular size units usually exceed the standard dimensions by ⅛ to ¼ in. (3.2 to 6.4 mm).

8. Finish and Appearance

8.1 All units shall be sound and free of cracks or other defects that interfere with the proper placement of the units or significantly impair the strength or permanence of the construction. 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.

TABLE 2 Strength Requirements

	Compressive Strength (average net area) min, psi (MPa)
Average of 3 units	600 (4.14)
Individual unit	500 (3.45)

8.2 Where units are to be used in exposed wall construction, the face or faces that are to be exposed shall not show chips or cracks, not otherwise permitted, or other imperfections when viewed from a distance of not less than 20 ft (6.1 m) under diffused lighting.

8.2.1 Five percent of a shipment containing chips, not larger than 1 in. (25.4 mm) in any dimension, or cracks not wider than 0.02 in. (0.5 mm) and not longer than 25 % of the nominal height of the unit is permitted.

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

8.4 Nonloadbearing concrete masonry units shall be clearly marked in a manner to preclude their use as load bearing units.

9. Methods of Sampling and Testing

9.1 The purchaser or authorized representative shall be accorded proper facilities to inspect and sample the units at the place of manufacture from the lots ready for delivery. At least 10 days shall be allowed for the completion of the tests.

9.2 Sample and test units in accordance with Test Methods C 140 and Test Method C 426 when applicable.

9.3 Total linear drying shrinkage shall be based on tests of concrete masonry units made with the same materials, concrete mix design, manufacturing process, and curing method, conducted in accordance with Test Method C 426 not more than 24 months prior to delivery.

10. Compliance

10.1 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 5—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 units 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 units conform to the specification requirements, the cost is typically borne by the purchaser.

11. Keywords

11.1 concrete masonry units; face shell; flange; linear shrinkage; nonloadbearing

SUMMARY OF CHANGES

Committee C15 has identified the location of selected changes to this standard since the last issue, C 129-01 that may impact the use of this standard.

(1) Portland cement was changed to hydraulic cement in 1.1 2 and 5 to identify it as a permissible cementitious material to use in the production of concrete brick.
(2) C 989 for blast furnace slag cement was added to Sections

Committee C15 has identified the location of selected changes to this standard since C 129-00a was published in the *2001 Annual Book of ASTM Standards*, Vol 04.05.

(1) In Section 5 on Materials and Manufacture, Specification C 1157 was moved from Paragraph 5.1.2 to its own paragraph and identified as hydraulic cement rather than blended cement.