



Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes¹

This standard is issued under the fixed designation C 139; 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.

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1. Scope*

1.1 This specification covers solid precast segmental concrete masonry units made from a mixture of portland cement, water, and suitable mineral aggregates, with or without the inclusion of other materials. The units are intended for use in the construction of catch basins and manholes.

2. Referenced Documents

2.1 ASTM Standards:

- C 33 Specification for Concrete Aggregates²
- C 140 Test Methods of Sampling and Testing Concrete Masonry Units³
- C 150 Specification for Portland Cement⁴
- C 207 Specification for Hydrated Lime for Masonry Purposes⁴
- C 595M Specification for Blended Hydraulic Cements⁴
- C 618 Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete²
- C 989 Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars²
- C 1157M Performance Specification for Blended Hydraulic Cement⁴

3. Materials

3.1 Cementitious materials shall conform to the following ASTM specifications:

- 3.1.1 *Portland Cement*—Specification C 150.
- 3.1.2 *Blended Hydraulic Cements*—Specification C 595M or Performance Specification C 1157M.
- 3.1.3 *Ground Blast-Furnace Slag*—Specification C 989.
- 3.1.4 *Hydrated Lime*—Type S of Specification C 207.
- 3.1.5 *Fly Ash*—Specification C 618.
- 3.1.6 *Siliceous and Pozzolan Materials*—Siliceous and pozzolan materials shall conform to applicable ASTM standards, or shall be shown by test or experience to be not

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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.

TABLE 1 Strength and Absorption Requirements

Compressive Strength, min, psi (MPa) (Average Gross Area)		Water Absorption, max, lb/ft ³ (kg/m ³) (Average of 3 Units)
Average of 3 Units	Individual Unit	
2500 (17)	2000 (13)	10 (16)

detrimental to the durability of the concrete.

3.2 *Aggregates*—Aggregates shall conform to Specification C 33, except grading requirements shall not apply.

3.3 *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 units and shall conform to applicable ASTM standards or shall be shown by test or experience not to be detrimental to the durability of the concrete masonry units or any material customarily used in masonry construction.

4. Physical Requirements

4.1 At the time of delivery to the site of the work, the units shall conform to the requirements prescribed in Table 1.

5. Dimensions and Permissible Variations

5.1 The thickness of any unit shall be not less than 5 in. (127 mm).

5.2 Overall dimensions shall not vary by more than $\pm 3\%$ from the specified dimensions.

6. Sampling and Testing

6.1 The purchaser or his 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 ten days should be allowed for completion of the tests.

6.2 Units shall be sampled and tested in accordance with Test Methods C 140.

6.3 Except as specified in Section 8, and unless otherwise agreed, the expense of inspection and testing shall be borne by the purchaser.

7. Visual Inspection

7.1 All units shall be sound and free of cracks or other defects that would interfere with the proper placing of the unit.

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

8. Rejection

8.1 If the sample tested from a shipment fails to conform to the specified requirements, the manufacturer shall be permitted to remove units from the shipment, and a new sample shall be selected by the purchaser from the retained lot and tested at the expense of the manufacturer. If the second sample fails to conform to the specified requirements, the entire lot shall be rejected.

NOTE—Unless otherwise specified in the purchase order, the cost 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 catch basins; concrete masonry units; manholes; masonry units

SUMMARY OF CHANGES

Committee C-15 has identified the location of selected changes to this standard since the C 139-96a edition that may impact the use of this standard.

(1) Paragraph 8.1 was edited to reflect the correct usage of the terms “specimens” and “sample.”

(2) Performance Specification C 1157M was added to paragraph 3.1.2.

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