



Designation: C1691 – 09

Standard Specification for Unreinforced Autoclaved Aerated Concrete (AAC) Masonry Units¹

This standard is issued under the fixed designation C1691; 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 solid, unreinforced masonry units manufactured from autoclaved aerated concrete (AAC), a cementitious product. This specification addresses dimensional tolerances, maximum limits for drying shrinkage, and shipping and handling.

1.2 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.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

C1232 Terminology of Masonry

C1693 Specification for Autoclaved Aerated Concrete (AAC)

3. Terminology

3.1 *Definitions*—Terms defined in Terminology C1232 shall apply in this practice.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *autoclaved aerated concrete (AAC), n*—low-density cementitious product of calcium silicate hydrates in which the low density is obtained by the formation of macroscopic air bubbles, mainly by chemical reactions within the mass during the liquid or plastic phase. The air bubbles are uniformly distributed and are retained in the matrix on setting, hardening,

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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.

and subsequent high-pressure steam curing, to produce a cellular structure. Material specifications for this product are prescribed in Specification C1693.

4. Classification

4.1 AAC masonry units manufactured in accordance with this specification shall be classified according to their strength class.

5. Materials and Manufacture

5.1 AAC masonry units manufactured in accordance with this specification shall be composed entirely of AAC material conforming to Specification C1693.

6. Physical Requirements

6.1 *Compressive Strength*—The compressive strength of the units shall be determined according to Specification C1693 and shall conform to the requirements of Specification C1693 for the strength class in which the units are classified.

6.2 *Dry Bulk Density*—The dry bulk density shall be determined according to Specification C1693 and shall conform to the requirements of Specification C1693 for the strength class in which the units are classified.

6.3 *Drying Shrinkage*—The drying shrinkage shall be determined in accordance with Specification C1693 and shall conform to the requirements of Specification C1693 for the strength class in which the units are specified.

7. Dimensions and Permissible Variations

7.1 The specified dimensions of the units shall be established by the AAC unit manufacturer.

7.2 No overall unit dimension (width, height, or length) shall differ by more than 1/8 in. (3 mm) from the corresponding specified dimension

8. Visual Inspection

8.1 All units shall be sound and free of defects that would interfere with the proper placing of the unit or impair the strength or permanence of the construction. Minor imperfections incidental to the usual methods of manufacture, or resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection.