

Specification Guidelines: Product Specifications for Segmental Retaining Wall Units
ASTM C 1372-04 Standard Specifications for Segmental Retaining Walls

SECTION 4

The following summarizes the contents of ASTM C1372 and key components relevant when specifying modular concrete block for use in structural retaining wall designs. A copy of the full standard is available upon request. This summary attempts to provide the information which is most commonly used, but Allan Block does not claim that all information contained in the standard is represented.

1. Scope

1.1 This specification covers dry-cast segmental retaining wall units of concrete, machine-made from hydraulic cement, water, and suitable mineral aggregates with or without the inclusion of other materials. The units are intended for use in the construction of mortarless segmental retaining walls.

5. Physical Requirements

5.1 At the time of delivery to the work site, the units shall conform to the physical requirements of Table 2 when tested in accordance with 8.2.

5.2 Freeze-Thaw Durability — In areas where repeated freezing and thawing under saturated conditions occur, freeze-thaw durability shall be demonstrated by test or by proven field performance that the segmental retaining wall units have adequate durability for the intended use. When testing is required by the specifier to demonstrate freeze-thaw durability, the units shall be tested in accordance with 8.3.

5.2.1 Specimens shall comply with either of the following:

(1) The weight loss of each of five test specimens at the conclusion of 100 cycles shall not exceed 1 % of its initial weight; or (2) The weight loss of each of four of the five test specimens at the conclusion of 150 cycles shall not exceed 1.5 % of its initial weight.

Minimum Required Net Average Compressive Strength, psi (MPa)		
Average of 3 units 3000 (20.7)	Individual Unit 2500 (17.2)	
Maximum Water Absorption Requirements, lb/ft³ (kg/m³)		
Weight Classification Oven-Dry Density of Concrete lb/ft ³ (kg/m ³)		
<u>Light Weight</u>	<u>Medium Weight</u>	<u>Normal Weight</u>
Less than 105 (1682)	105 (1682) to less than 125 (2002)	125 (2002) or more
18 (288)	15 (240)	13 (208)

6. Permissible Variations in Dimensions

6.1 Overall dimensions for width, height, and length shall differ by not more than ± 1/8 in. (3.2 mm) from specified standard dimensions.

6.1.1 Dimensional tolerance requirements for width shall be waived for architectural surfaces.

7. Finish and Appearance

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

- 7.2 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.
- 7.2.1 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.
- 7.3 The color and texture of units 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 texture and color permitted.

8. Sampling and Testing

- 8.1 The purchaser or authorized representative shall be accorded proper facilities to inspect and sample units at the place of manufacture from the lots ready for delivery.
- 8.2 Sample and test units for compressive strength, absorption, and dimensional tolerances in accordance with Test Methods ASTM C140.
- 8.3 When required, sample and test five specimens for freeze-thaw durability in water in accordance with Test Method ASTM C1262. Freeze-thaw durability shall be based on tests of units made with the same materials, concrete mix design, manufacturing process, and curing method, conducted not more than 24 months prior to delivery.

9. Compliance

- 9.1 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.