Designation: C 1194 – 02

Standard Test Method for Compressive Strength of Architectural Cast Stone[1]

This standard is issued under the fixed designation C 1194; 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 test method covers the sampling, preparation of specimens, and determination of the compressive strength of architectural cast stone.

1.2 *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.*

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.

2. Referenced Documents

2.1 *ASTM Standards:*

C 42 Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete[2]

C 109 Test Method for Compressive Strength of Hydraulic Cement Mortars[3]

C 617 Practice for Capping Cylindrical Concrete Specimens[2]

3. Terminology

3.1 *Definitions:*

3.1.1 *cast stone*, *n*—an architectural precast concrete building unit intended to simulate natural cut stone.

4. Significance and Use

4.1 This test method is to be used in determining the compressive strength of cast stone. Compressive strength is one measure of resistance of cast stone to weathering and structural stress.

5. Apparatus

5.1 *Testing Machine*—The testing machine shall conform to the requirements prescribed in Test Method C 109 unless otherwise indicated therein.

6. Sampling

6.1 Select the sample to represent the cast stone under consideration. The sample may be selected by the purchaser or his authorized representative from each 500 ft^3 (14 m^3) of cast stone. Select a sample of adequate size to permit the preparation of three compression test specimens.

7. Test Specimens

7.1 For compression tests, take three specimens from each sample. Cut specimens from the finished surface of the sample to consist of one surface intended to be exposed to view and five saw-cut surfaces, except for faced cast stone, cut specimens through the faced surface to consist of approximately equal parts of the facing material and the backup material.

7.2 Cut test specimens from the sample with saws. The test specimens shall be 2-in. (50.8-mm) or 50-mm cubes. The allowable size tolerance of the cubes shall be ±⅛ in. (3.2 mm).

7.3 Measure the top and bottom of the bearing surfaces of the test specimens to 0.01 in. (0.25 mm) and average the two bearing areas to obtain the compression area.

8. Conditioning

8.1 For this test, oven dry specimens at a temperature of 100 to 110°C (212 to 230°F) until the loss in mass is not more than 0.1 % in 24 h of drying. Remove from the oven and allow to cool in room temperature for 4 to 6 h before testing for compressive strength.

9. Specimen Preparation

9.1 Cap each specimen, after drying, using equipment, materials, and procedures that conform to those specified in Practice C 617. Capping material is required that will exceed the compressive strength of the tested cubes. Form the cap by spreading the capping material upon a capping plate and pressing the specimen firmly on it. Make the cap as thin as possible but not to exceed 3⁄32 in. (2.4 mm).

10. Procedure

10.1 Apply load through a spherical bearing block placed on top of the specimen in a vertical testing machine. The loading of homogenous specimens shall be parallel to the casting direction and of faced specimens shall be normal to the position in which the cast stone is laid in the wall (Fig. 1). The area of the bearing block shall be the same, or slightly larger,

[1] This test method is under the jurisdiction of ASTM Committee C27 on Precast Concrete Products and is the direct responsibility of Subcommittee C27.20 on Architectural and Structural Products.

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

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