Designation: C 615 – 03

Standard Specification for Granite Dimension Stone[1]

This standard is issued under the fixed designation C 615; 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 the material characteristics, physical requirements, and sampling appropriate to the selection of granite for general building and structural purposes.

1.2 Granite dimension stone shall include stone that is sawed, cut, split, or otherwise finished or shaped, and shall specifically exclude molded, cast, or otherwise artificially aggregated units composed of fragments, crushed and broken stone.

2. Referenced Documents

2.1 *ASTM Standards:* [2]

C 97 Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone

C 99 Test Method for Modulus of Rupture of Dimension Stone

C 119 Terminology Relating to Dimension Stone

C 170 Test Method for Compressive Strength of Dimension Stone

C 241 Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic

C 880 Test Method for Flexural Strength of Dimension Stone

C 1353 Test Method Using the Taber Abraser for Abrasion Resistance of Dimension Stone Subjected to Foot Traffic

3. Terminology

3.1 *Definitions*—All definitions are in accordance with Terminology C 119.

4. Classification

4.1 Granite dimension stone under this specification shall be granite used for:

4.1.1 Exterior and interior cladding of buildings and structures;

4.1.2 Curbstone, paving, and landscape features;

4.1.3 Structural components having established dimensions;

4.1.4 Grade separations and retaining walls; and

4.1.5 Monuments.

5. Physical Properties

5.1 Granite supplied under this specification shall conform to the physical requirements prescribed in Table 1. See 5.1.2 for possible variations from this table.

5.1.1 The minimum compressive strength, flexural strength, and modulus of rupture shall be based upon the minimum average strength of specimens tested in four conditions: wet or dry and parallel or perpendicular to rift.

5.1.2 The physical properties given in Table 1 represent properties of granite that have a history of successful use for general building and structural purposes. Granite with strength or abrasion resistance less than the minimum values prescribed in Table 1 may be used provided that competent engineering authority has evaluated relevant characteristics of the granite. This evaluation shall consider both structural effects and material characteristics such as durability, permanent volume change, modulus of elasticity. thermal expansion, and the like.

5.2 Granite shall be sound, durable, and free of spalls, cracks, open seams, pits, or other defects that are likely to impair its structural integrity in its intended use.

5.3 Granite shall be free of minerals that may cause objectionable staining under normal environments of use.

5.4 The desired color and texture, with their permissible natural variations in material characteristics for all material to be produced for the project, shall be established by control samples. Select representative samples by viewing a sufficient number of physical samples prior to production that show the complete range of variations in color and texture of the granite specified.

6. Sampling

6.1 Samples, if required, for testing to determine the characteristics and physical properties shall be representative of the granite to be used.

[1] This specification is under the jurisdiction of ASTM Committee C18 on Dimension Stone and is the direct responsibility of Subcommittee C18.03 on Material Specifications.

Current edition approved Dec. 1, 2003. Published January 2004. Originally approved in 1968. Last previous edition approved in 1999 as C 615 – 99.

[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.

TABLE 1 Physical Requirements

NOTE—The material property values in Table 1 were established using samples prepared according to the individual test methods. Finishes, other than those specified in the individual test methods, may result in a deviation from established values.

Physical Property	Test Requirements	Test Method(s)
Absorption by weight, max, %	0.40	C 97
Density, min, lb/ft^3(kg/m^3)	160 (2560)	C 97
Compressive strength, min, psi (MPa)	19 000 (131)	C 170
Modulus of rupture, min, psi (MPa)	1500 (10.34)	C 99
Abrasion resistance, min, $H_a^{A,B,C}$	25	C 241/C 1353
Flexural strength, min, psi (MPa)	1200 (8.27)	C 880

[A]Pertains only to stone subject to foot traffic.

[B]The supplier of the No. 60 Alundum abrasive, Norton, has indicated that the formula for Norton treatment 138S has beeen changed. The new abrasive is currently more aggressive, resulting in lower abrasive hardness values (H_a) than when the standard was initially established. As such, care should be taken when interpreting H_a values from tests using the new abrasive, particulary with regard to current ASTM stone standard specification requirements for abrasion resistance, which were developed when the original abrasive was still in use. Committee C-18 is actively studying alternatives to address this issue.

[C]Abrasion Resistance Test Method C 1353 will eventually replace Test Method C 241 and it is not necessary to perform both tests. Availability of the proper equipment and materials by the testing laboratory may determine which test is performed.