



Standard Specification for Aggregate for Masonry Mortar¹

This standard is issued under the fixed designation C144; 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 aggregate for use in masonry mortar.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 The following precautionary caveat pertains only to the test methods portion, Section 7, of this standard. *This standard does not purport to address all of the safety problems, 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

[C40 Test Method for Organic Impurities in Fine Aggregates for Concrete](#)

[C87 Test Method for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar](#)

[C88 Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate](#)

[C117 Test Method for Materials Finer than 75- \$\mu\$ m \(No. 200\) Sieve in Mineral Aggregates by Washing](#)

[C123 Test Method for Lightweight Particles in Aggregate](#)

[C128 Test Method for Density, Relative Density \(Specific Gravity\), and Absorption of Fine Aggregate](#)

[C136 Test Method for Sieve Analysis of Fine and Coarse Aggregates](#)

[C142 Test Method for Clay Lumps and Friable Particles in Aggregates](#)

[C270 Specification for Mortar for Unit Masonry](#)

[C404 Specification for Aggregates for Masonry Grout](#)
[D75 Practice for Sampling Aggregates](#)

3. Materials and Manufacture

3.1 Aggregate for use in masonry mortar shall consist of natural sand or manufactured sand. Manufactured sand is the product obtained by crushing stone, gravel, or air-cooled iron blast-furnace slag specially processed to ensure suitable gradation.

NOTE 1—Care should be taken to ensure a suitable particle shape, since excessive quantities of flat and elongated particles have historically caused problems with workability.

4. Grading

4.1 Aggregate for use in masonry mortar shall be graded within the following limits, depending upon whether natural sand or manufactured sand is to be used:

Sieve Designation	Percent Passing	
	Natural Sand	Manufactured Sand
4.75-mm (No. 4)	100	100
2.36-mm (No. 8)	95 to 100	95 to 100
1.18-mm (No. 16)	70 to 100	70 to 100
600- μ m (No. 30)	40 to 75	40 to 75
300- μ m (No. 50)	10 to 35	20 to 40
150- μ m (No. 100)	2 to 15	10 to 25
75- μ m (No. 200)	0 to 5	0 to 10

4.2 The aggregate shall not have more than 50 % retained between any two consecutive sieves of those listed in 4.1 nor more than 25 % between 300- μ m (No. 50) and the 150- μ m (No. 100) sieve.

4.3 If the fineness modulus varies by more than 0.20 from the value assumed in selecting proportions for the mortar, the aggregate shall be rejected unless suitable adjustments are made in proportions to compensate for the change in grading.

NOTE 2—For heavy construction employing joints thicker than 12.5 mm ($\frac{1}{2}$ in.), a coarser aggregate may be desirable; for such work a fine aggregate conforming to Specification C404 is satisfactory.

4.4 When an aggregate fails the gradation limits specified in 4.1 and 4.2, its use is permitted provided the mortar can be prepared to comply with the aggregate ratio, water retention,

¹ This specification is under the jurisdiction of ASTM Committee C12 on Mortars and Grouts for Unit Masonry and is the direct responsibility of Subcommittee C12.04 on Specifications for Aggregates for Mortars.

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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.