



Designation: **C1319–23** **C1319 – 23a**

Standard Specification for Concrete Grid Paving Units¹

This standard is issued under the fixed designation C1319; 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 reappraisal. A superscript epsilon (ε) indicates an editorial change since the last revision or reappraisal.

1. Scope*

1.1 This specification covers the requirements for concrete grid paving units for vehicular trafficways, parking areas, soil stabilization, and revetments.

NOTE 1—When particular features are desired, such as weight classification, higher compressive strength, surface texture, finish, color, or other special features, such properties should be specified separately by the purchaser. However, local sellers should be consulted as to availability of units having the desired features.

1.2 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

1.3 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.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

- C33/C33M Specification for Concrete Aggregates
- C140/C140M Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
- C150/C150M Specification for Portland Cement
- C331/C331M Specification for Lightweight Aggregates for Concrete Masonry Units
- C595/C595M Specification for Blended Hydraulic Cements
- C618 Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
- C979/C979M Specification for Pigments for Integrally Colored Concrete
- C989/C989M Specification for Slag Cement for Use in Concrete and Mortars
- C1157/C1157M Performance Specification for Hydraulic Cement
- C1232 Terminology for Masonry
- C1240 Specification for Silica Fume Used in Cementitious Mixtures

¹ This specification is under the jurisdiction of ASTM Committee C15 on Manufactured Masonry Units and is the direct responsibility of Subcommittee C15.03 on Concrete Masonry Units and Related Units.

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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.

*A Summary of Changes section appears at the end of this standard

3. Terminology

3.1 Terminology defined in Terminology **C1232** shall apply for this specification.

4. Materials

4.1 *Cementitious Materials*—~~Materials~~ Cementitious materials shall conform to the following applicable specifications:

4.1.1 *Portland Cement*—Specification **C150/C150M**.

4.1.2 *Modified Portland Cement*—Portland cement conforming to Specification **C150/C150M**, modified as follows:

- (1) *Limestone*—If calcium carbonate is added to the cement, the CaCO₃ content shall not be less than 85 %.
- (2) *Limitation on Insoluble Residue*—1.5 %.
- (3) *Limitation on Air Content of Mortar*—Volume percent, 22 % max.
- (4) *Limitation on Loss on Ignition*—7 %.

4.1.3 *Blended Hydraulic Cements*—Specification **C595/C595M**.

4.1.4 *Hydraulic Cement*—Specification **C1157/C1157M**.

4.1.5 *Pozzolans*—Specification **C618**.

4.1.6 *Slag Cements*—Specification **C989/C989M**.

4.1.7 *Silica Fume*—Specification **C1240**.

4.2 *Aggregates*—Aggregates shall conform to the following specifications, except for the grading requirements:

4.2.1 *Normal Weight Aggregates*—Specification **C33/C33M**.

4.2.2 *Lightweight Aggregates*—Specification **C331/C331M**.

NOTE 2—The grading requirements of Specifications **C33/C33M** and **C331/C331M** may not be suitable for concrete grid paving unit production. Because of this, producers are allowed to modify grading to meet their needs and the requirements of this specification.

4.3 *Pigments for Integrally Colored Concrete*—Specification **C979/C979M**.

4.4 *Other Constituents*—Air-entraining agents, integral water repellents, and other constituents, shall be previously established as suitable for use in concrete grid paving units and shall conform to applicable ASTM standards, or they shall be shown by test or experience satisfactory to the specifier and not to be detrimental to the durability of the concrete grid paving unit or any material customarily used in grid paving construction.

5. Physical Requirements

5.1 Units shall have maximum length and width dimensions of 24 in. by 24 in. (610 mm by 610 mm).

5.2 Units shall have a minimum specified thickness of 3 1/8 in. (80 mm).

5.3 At the time of delivery to the work site, the units shall conform to the physical requirements prescribed in **Table 1**.

5.4 *Durability*—Durability shall be demonstrated by proven field performance satisfactory to the specifier that the grid paver units have adequate durability for the intended use.

5.4.1 *Proven Field Performance*—Satisfactory field performance is demonstrated when units similar in composition and made with the same manufacturing process as those to be supplied to the purchaser, maintain the physical requirements specified in **Table**