



Designation: C1790 – 21

Standard Specification for Fly Ash Facing Brick¹

This standard is issued under the fixed designation C1790; 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 specification covers fly ash brick intended for use in masonry, which are made from fly ash, water, and suitable mineral aggregates with or without the inclusion of other materials, and without the use of portland cement. This specification covers units intended for use in masonry, in both structural and facing applications.

1.2 Units covered under this specification include a fly ash binder that undergoes hydraulic, pozzolanic, alkali-activated, or geopolymer reactions, or any combination thereof. These chemical reactions, in conjunction with the other materials in the units, provide the strength and durability necessary to meet the requirements of this specification.

NOTE 1—This specification addresses properties of units formed using fly ash, aggregates, and other allowed binders. Although not required by this standard, users may request tests that establish assembly performance such as unit-mortar bond and fire resistance.

1.3 This specification 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.

1.4 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.

1.5 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *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.*

¹ This test method 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. Referenced Documents

2.1 ASTM Standards:

- C33 Specification for Concrete Aggregates
- C140 Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
- C331 Specification for Lightweight Aggregates for Concrete Masonry Units
- C426 Test Method for Linear Drying Shrinkage of Concrete Masonry Units
- C618 Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
- C979 Specification for Pigments for Integrally Colored Concrete
- C989 Specification for Slag Cement for Use in Concrete and Mortars
- C1232 Terminology for Masonry
- C1240 Specification for Silica Fume Used in Cementitious Mixtures
- C1645 Test Method for Freeze-thaw and De-icing Salt Durability of Solid Concrete Interlocking Paving Units

3. Terminology

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

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *fly ash brick, n*—a masonry unit made from fly ash, water, and suitable aggregates with or without the inclusion of other materials and specifically without the inclusion of portland cement.

4. Materials

4.1 *Cementitious Materials*—No portland cement shall be used. Materials shall conform to the following applicable specifications:

- 4.1.1 *Pozzolans*—Specification C618.
- 4.1.2 *Slag Cement*—Specification C989.
- 4.1.3 *Silica Fume*—Specification C1240.

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

- 4.2.1 *Normal Weight Aggregates*—Specification C33.
- 4.2.2 *Lightweight Aggregates*—Specification C331.

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

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