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American Association State
Highway and Transportation Officials Standard
AASHTO No.: M91-78

Standard Specification for Sewer and Manhole Brick (Made From Clay or Shale)[1]

This standard is issued under the fixed designation C 32; 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.

ε[1] NOTE—Grade MM was editorially moved up to align with its values in Table 1 in June 1999.

1. Scope

1.1 This specification covers brick intended for use in (*1*) drainage structures for the conveyance of sewage, industrial wastes, and storm water, and (*2*) related structures such as manholes and catch basins.

1.1.1 *Sewer Brick*:

1.1.1.1 *Grade SS*—Brick intended for use in structures requiring low absorption and resistance to the action of sewage carrying large quantities of abrasive material at velocities exceeding 8 ft (2.4 m)/s.

1.1.1.2 *Grade SM*—Brick intended for use in structures requiring resistance to the action of sewage carrying abrasive materials at velocities less than 8 ft (2.4 m)/s.

1.1.2 *Manhole Brick*:

1.1.2.1 *Grade MS*—Brick intended for use in manholes and catch basins not requiring high degrees of abrasive resistance but where a high and uniform degree of resistance to frost action and disintegration is needed when the brick may be frozen when permeated with water.

1.1.2.2 *Grade MM*—Brick intended for use in manholes not requiring high degrees of abrasive resistance but where a moderate and nonuniform degree of resistance to frost action and disintegration is needed when the brick may be permeated with water.

1.2 The property requirements of this standard apply at the time of purchase. The use of results from testing of brick extracted from masonry structures for determining conformance or non-conformance to the property requirements (Section 3) of this standard is beyond the scope of this standard.

1.3 Brick covered by this standard are manufactured from clay, shale, or similar naturally occurring substances and subjected to a heat treatment at elevated temperatures (firing). The heat treatment must develop sufficient fired bond between the particulate constituents to provide the strength and durability requirements of this specification. (See *firing* and *fired bond* in Terminology C 43.)

1.4 The values stated in inch-pound units are to be regarded as the standard. The metric equivalents of inch-pound units given in parentheses may be approximate.

2. Referenced Documents

2.1 *ASTM Standards:*

C 43 Terminology of Structural Clay Products[2]

C 67 Test Methods for Sampling and Testing Brick and Structural Clay Tile[2]

3. Physical Properties

3.1 Brick for sewer or drainage structures shall conform to the physical properties for the specified Grades SS or SM as established in Table 1.

3.2 Brick for manholes, catch basins, and other related structures shall conform to the physical properties for the specified Grades MS or MM as established in Table 1.

3.3 Unless otherwise specified by the purchaser, brick of Grade SS shall be accepted instead of Grade SM; also Grade MS shall be accepted instead of Grade MM.

3.4 Unless otherwise specified in the invitation for bids, brick shall be either solid or cored at the option of the seller. The net cross-sectional area of cored brick in any plane parallel to the bearing surface shall be at least 75 % of the gross cross-sectional area measured in the same plane. No part of any hole shall be less than ¾ in. (19 mm) from any edge of the brick.

4. Dimensions and Permissible Variations

4.1 The size of the brick shall be specified by the purchaser, selecting any of the standard sizes of building brick.

4.2 For any lot of sewer brick furnished under this specification, not more than 2 % of the brick shall vary from the nominal size requirements specified in 4.1 by more than

[1] This specification is under the jurisdiction of ASTM Committee C-15 on Manufactured Masonry Units and is the direct responsibility of Subcommittee C15.02 on Clay Brick and Structural Clay Tile.

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[2] *Annual Book of ASTM Standards,* Vol 04.05.