

Section 834—Masonry Materials

834.1 General Description

This section includes the requirements for masonry materials, including brick; clay or shale brick; masonry stone; and mortar and grout.

834.1.01 Related References

A. Standard Specifications

Section 801—Fine Aggregate

Section 830—Portland Cement

B. Referenced Documents

AASHTO M 91

AASHTO M 240

AASHTO T 96

AASHTO T 104

ASTM C 5

ASTM C 55

ASTM C 109 (ASTM C 109M)

834.2 Materials

834.2.01 Brick

A. Requirements

1. Use bricks of the following sizes for masonry catch basins, inlets, and manholes. Use other sizes only if approved by the Office of Materials and Research.
 - 8 x 3½ x 2¼ in (190 x 90 x 57 mm)
 - 7½ x 3½ x 3½ in (178 x 90 x 90 mm)
 - 11½ x 3½ x 3½ in (273 x 90 x 90 mm)
2. Use bricks that are relatively straight, sound, and uniform in quality.
3. Clay or Shale Brick: Use clay or shale bricks that meet the requirements of AASHTO M 91.
 - a. Ensure that the maximum absorption of any individual clay or shale brick is less than 16 percent when submersed in cold water for 24 hours.
 - b. Use only clay bricks that give a clear ringing sound when struck together.
4. Concrete Brick: Use concrete bricks that meet the requirements of ASTM C 55.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

834.2.02 Masonry Stone

A. Requirements

1. Type: Use stone for rubble masonry that is sound, durable, and does not contain segregations, seams, cracks, pyrite intrusions, or other structural defects or imperfections that affect weather resistance.

- a. Do not use stone with rounded, worn, or weathered surfaces. Exposed faces cannot show scars caused by quarrying. Weathered stone will be rejected.
- b. Ensure that the stone has no more than 65 percent wear and no more than 15 percent loss after the magnesium sulfate soundness test.
- c. Use stone that can be wrought truly to lines and surfaces (curved or plain).
- d. Ensure that each stone is at least 6 in (150 mm) thick and 1 ft (300 mm) wide, except for fill stones used in wall interiors.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Percent Wear	AASHTO T 96
Soundness	AASHTO T 104

D. Materials Warranty

General Provisions 101 through 150.

834.2.03 Mortar and Grout

A. Requirements

1. Use mortar and grout that consists of fresh mixtures of one part Portland or masonry cement and three parts mortar sand and water.
You may add hydrated lime when using Portland cement in amounts not exceeding 10 percent of the weight of cement.
 - a. Cement: Use Portland cement that meets the requirements of Subsection 830.2.01 or masonry cement that meets the requirements of ASTM C 91.
 - b. Mortar Sand: Use mortar sand that meets the requirements of Subsection 801.2.02.
 - c. Mixing: Mix dry in a mixer or in a clean, tight box, until a uniform mixture is produced. Then add enough water to produce the desired consistency.
Do not use mortar and grout that has been mixed for more than 45 minutes.
Retempering of mortar is not permitted.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

Section 835—Aluminum Powder

835.1 General Description

This section includes the requirements for aluminum powder.