- Masonry cement: ASTM C91 (list acceptable manufacturers)
- Mortar cement: ASTM C1329 (list acceptable manufacturers)
- Hydrated lime: ASTM C207, Type S
- Sand: ASTM C144, clean and washed
- Grout aggregates: ASTM C404
- Water: clean and potable
- Admixtures: no calcium chloride permitted (list others permitted or prohibited)
- Mortar type: ASTM C270, Type (M, S, N, O, or K), proportion specification (default), or property specifications (minimum compressive strength for structural masonry)
- Grout type: ASTM C476 (fine or coarse)

18.2.2 Masonry Accessories

- Metals:
  - Cold-drawn steel wire, ASTM A82
  - Welded steel wire fabric, ASTM A185 or A497
  - Sheet metal, ASTM A366
  - Plate, headed, and bent bar ties, ASTM A36
  - Reinforcing steel:
    - Billet steel deformed bars, ASTM A615
    - Rail steel deformed bars, ASTM A616
    - Axle steel deformed bars, ASTM A617
- Corrosion protection:
  - Stainless steel, ASTM A167, Type 304
  - Hot-dip galvanized steel, ASTM A153, Class B
- Masonry ties: manufacturer, model number, type of metal
- Veneer anchors: manufacturer, model number, type of metal
- Fasteners: list appropriate types
- Joint reinforcement: ASTM A951, wire gauge, type (ladder or truss), corrosion protection (see above)
- Accessories: through-wall flashing, weep-hole accessories, drainage accessories, control joint shear keys, compressible expansion joint filler, cleaning agents

18.2.3 Masonry Units

- Facing brick: ASTM C216, Grade (MW or SW), Type (FBX, FBS, or FBA), unit size, color and texture, manufacturer, minimum compressive strength
- Glazed brick: ASTM C1405, Class (exterior or interior), Grade (S or SS), Type (I or II), unit size, color and texture, manufacturer, minimum compressive strength
- Building brick: ASTM C62, Grade (SW, MW, or NW), unit size, minimum compressive strength
- Hollow brick: ASTM C652, Grade (SW or MW), Type (HBX, HBS, HBA, or HBB), unit size, color and texture, manufacturer, minimum compressive strength

- Hollow or solid loadbearing CMU: ASTM C90, weight (normal, medium, or light), unit size, color and texture (architectural block only), minimum compressive strength
- Non-loadbearing CMU: ASTM C129, weight (normal, medium, or light), unit size, color and texture (architectural block only), minimum compressive strength
- Concrete brick: ASTM C55, Grade (N or S), weight (normal or light), unit size, color and texture, manufacturer, minimum compressive strength

18.2.4 Construction

- Preconstruction conference
- Submittals, sample panels, mock-ups, testing
- Storage and protection of materials, hot and cold weather protection procedures
- Tolerances for placement and alignment of masonry
- Mortar mixing, retempering, placement, joint tooling, and pointing
- Wetting of brick with high IRA, unit blending, unit placement
- Installation of flashing and weep holes, connectors, joint reinforcement, control joints, and/or expansion joints
- Placing reinforcement, grouting methods
- Temporary bracing and shoring, protection during construction, protection of finished work, moist curing

18.2.5 Quality Control Tests

Laboratory testing of materials and assemblages is usually limited to structural masonry rather than veneer systems. Mortar, grout, and masonry prisms may all be tested before construction to establish quality standards, and tested during construction to verify compliance (refer to Chapter 17). Tests may also be used as part of the material selection process.

When mortar is specified to have a certain minimum compressive strength for structural masonry, it is required to meet the property specification of ASTM C270 rather than the default proportion specification. To verify that the contractor's proposed mortar mix meets the strength requirements, a sample can be tested in accordance with ASTM C270, but the results will not be comparable for testing later field samples, because the methods of preparing the lab sample are not the same as those used in the field. If subsequent testing of field samples will also be required, both preconstruction and construction testing should be done in accordance with ASTM C780, *Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry*. The preconstruction test sets a quality standard against which field-tested samples may be compared. ASTM C780 actually includes several different types of tests, including compressive strength, board life, mortar-aggregate ratio, water content, air content, and tensile strength. Specify only those tests that are needed.

Grout testing before and during construction can be done by a single test, ASTM C1019, *Standard Method of Sampling and Testing Grout,* which applies to both laboratory-prepared and field-prepared samples.

The compressive strength (f'_m) of structural masonry may be verified by the unit strength method or by the prism test method (refer to Chapter 12).