

**SECTION 04 20 00**  
**UNIT MASONRY**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

This section specifies requirements for construction of masonry unit walls.

**1.2 RELATED WORK**

- A. Mortars: Section 04 05 13, MASONRY MORTARING.
- B. Steel lintels: Section 05 50 00, METAL FABRICATIONS.
- C. Sealants and sealant installation: Section 07 92 00, JOINT SEALANTS.
- D. Color and texture of masonry units: Match Existing - coordinate in field

**1.3 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
- B. Samples:
  - 1. Anchors, and ties, one each and joint reinforcing 1200 mm (48 inches) long.
  - 2. Glazed structural clay facing tile, clipped panels (triplicate) of four wall units with base units, showing color range, each color and texture.
- C. Certificates:
  - 1. Certificates signed by manufacturer, including name and address of contractor, project location, and the quantity, and date or dates of shipment of delivery to which certificate applies.
  - 2. Indicating that the following items meet specification requirements:
    - a. Glazed structural clay facing tile.
- D. Manufacturer's Literature and Data:
  - 1. Anchors, ties, and reinforcement.

**1.4 WARRANTY**

Warrant exterior masonry walls against moisture leaks and subject to terms of "Warranty of Construction", FAR clause 52.246-21, except that warranty period shall be five years.

**1.5 APPLICABLE PUBLICATIONS**

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):  
A951-06.....Steel Wire for Masonry Joint Reinforcement.

- A615/A615M-07.....Deformed and Plain Billet-Steel Bars for  
Concrete Reinforcement.
- A675/A675M-03.....Standard Specification for Steel Bars, Carbon,  
Hot-Wrought, Special Quality, Mechanical  
PropertiesC34-03 Structural Clay Load-Bearing  
Wall Tile
- C56-05.....Structural Clay Non-Load-Bearing Tile
- C67-07.....Sampling and Testing Brick and Structural Clay  
Tile
- C126-99.....Ceramic Glazed Structural Clay Facing Tile,  
Facing Brick, and Solid Masonry Units
- C476-02.....Standard Specification for Grout for Masonry
- C. Federal Specifications (FS):  
FF-S-107C-00.....Screws, Tapping and Drive
- D. Masonry Standards Joint Committee; Specifications for Masonry Structures  
(ACI 530.1-05/ASCE 6-05/TMS 602-99) (MSJC).

**PART 2 - PRODUCTS**

**2.1 CONCRETE MASONRY UNITS**

- A. Hollow Concrete Masonry Units: ASTM C90.
  - 1. Unit Weight: Normal weight.
  - 2. Sizes: Modular.

**2.2 CLAY TILE UNITS**

- A. Glazed structural Facing Tile:
  - 1. ASTM C126, Grade S, Type I (single faced units).
  - 2. Size: 6T, thickness as shown.

**2.3 REINFORCEMENT:**

- A. Joint Reinforcement:
  - 1. Form from wire complying with ASTM A951.
  - 2. Galvanized after fabrication.
  - 3. Width of joint reinforcement 40 mm (1 5/8-inches) less than nominal width of masonry wall or partition.
  - 4. Cross wires welded to longitudinal wires.
  - 5. Joint reinforcing at least 3000 mm (10 feet) in length.
  - 6. Joint reinforcing in rolls is not acceptable.
  - 7. Joint reinforcing that is crimped to form drip is not acceptable.
  - 8. Maximum spacing of cross wires 400 mm (16 inches) to longitudinal wires.
  - 9. Ladder Design:
    - a. Longitudinal wires deformed 4 mm (0.16 inch) diameter wire.
    - b. Cross wires 2.6 mm (0.10 inch) diameter.

10. Trussed Design:

- a. Longitudinal and cross wires not less than 4 mm (0.16 inch nominal) diameter.
- b. Longitudinal wires deformed.

**2.4 ANCHORS AND TIES**

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B. Corrugated Wall Tie:

1. Form from 1.5 mm (0.0598 inch) thick corrugated, galvanized steel 30 mm (1-1/4 inches) wide by lengths so as to extend at least 100 mm (4 inches) into joints of new masonry plus 38 mm (1-1/2 inch) turn-up.
2. Provide 5 mm (3/16 inch) hole in turn-up for fastener attachment.

**2.5 PREFORMED COMPRESSIBLE JOINT FILLER**

- A. Thickness and depth to fill the joint as specified.
- B. Closed Cell Neoprene: ASTM D1056, Type 2, Class A, Grade 1, B2F1.
- C. Non-Combustible Type: ASTM C612, Class 5, 1800 degrees F.

**2.6 ACCESSORIES**

A. Masonry Cleaner:

1. Detergent type cleaner selected for each type masonry used.
2. Acid cleaners are not acceptable.
3. Use soapless type specially prepared for cleaning brick or concrete masonry as appropriate.

B. Fasteners:

1. Concrete Nails: ASTM F1667, Type I, Style 11, 19 mm (3/4 inch) minimum length.

2. Masonry Nails: ASTM F1667, Type I, Style 17, 19 mm (3/4 inch) minimum length.
3. Screws: FS-FF-S-107, Type A, AB, SF thread forming or cutting.

**PART 3 - EXECUTION**

**3.1 CONSTRUCTION TOLERANCES**

- A. Lay masonry units plumb, level and true to line within the tolerances as per MSJC requirements and as follows:
- B. Maximum variation from plumb:
  1. In 3000 mm (10 feet) - 6 mm (1/4 inch).
- C. Maximum variation from level:
  1. New masonry coursing shall align with existing.
- D. Maximum variation in prepared opening dimensions:
  1. Accurate to minus 0 mm (0 inch).
  2. Plus 6 mm (1/4 inch).

**3.2 INSTALLATION GENERAL**

- A. Keep finish work free from mortar smears or spatters, and leave neat and clean.
- B. Anchor masonry as specified in Paragraph, ANCHORAGE.
- C. Tooling Joints:
  1. Do not tool until mortar has stiffened enough to retain thumb print when thumb is pressed against mortar.
  2. Tool while mortar is soft enough to be compressed into joints and not raked out.
  3. Finish joints in exterior face masonry work with a jointing tool, and provide smooth, water-tight concave joint unless specified otherwise.
  4. Tool Exposed interior joints in finish work concave unless specified otherwise.
- D. Lintels:
  1. Lintels are not required for openings less than 1000 mm (3 feet 4 inches) wide that have hollow metal frames.
  2. Use steel lintels for openings.
  3. Length for minimum bearing of 100 mm (4 inches) at ends.
- E. Wall Units:
  1. Lay out field units to provide for running bond of infill partitions, with vertical joints in second course centering on first course units unless specified otherwise.
  2. Align head joints of alternate vertical courses.
  3. At sides of openings, balance head joints in each course on vertical center lines of openings.
  4. Use no piece shorter than 100 mm (4 inches) long.

5. On interior partitions provide a 6 mm (1/4 inch) open joint for caulking between existing construction and abutting masonry partitions.
- F. Before connecting new masonry with previously laid, remove loosened masonry or mortar, and clean and wet work in place as specified under wetting.
- G. When new masonry partitions start on existing floors, machine cut existing floor finish material down to concrete surface. Coordinate with cove base unit to provide proper alignment with existing.

### **3.3 ANCHORAGE**

- A. GSFT Units to masonry perimeter:
  1. Use individual ties.
  2. Space at 10 inches maximum vertically.

### **3.4 REINFORCEMENT**

- A. Joint Reinforcement:
  1. Use as joint reinforcement single wythe concrete masonry unit walls or partitions.
  2. Joint reinforcement is required in every other course of CMU and GSFT masonry

### **3.5 CONCRETE MASONRY UNITS**

- A. Laying:
  1. Lay concrete masonry units with 10 mm (3/8 inch) joints, with a bond overlap of not less than 1/4 of the unit length.
  2. Do not wet concrete masonry units before laying.
  3. Lay first course in a full mortar bed.
  4. Set anchorage items as work progress.
  5. Lay concrete masonry units with full face shell mortar beds and fill head joint beds for depth equivalent to face shell thickness.
  6. Lay concrete masonry units so that cores of units, that are to be filled with grout, are vertically continuous with joints of cross webs of such cores completely filled with mortar. Unobstructed core openings not less than 50 mm (2 inches) by 75 mm (3 inches).
  7. Horizontal reinforcement shall be placed as the masonry work progresses.

### **3.6 GLAZED STRUCTURAL FACING TILE (GSFT)**

- A. Lay facing tile in running bond. Match existing adjacent bond and joints in alteration work.

B. Laying:

1. Set facing tile units in full bed of mortar with ends buttered, and units shoved into place. Fill joints with mortar, and rake out 9 mm (3/8 inch) deep for pointing.
2. Use clean units when set.
3. Perform cutting and grinding of units by power-driven cutting saws and grinders.
4. Cove Base Units:
  - a. Set base flush with finish floor.
5. Joints:
  - a. Match existing.
  - b. Maximum variations in joint width 2 mm (1/16 inch).

**3.7 POINTING**

- A. Fill joints with pointing mortar using rubber float trowel to rub mortar solidly into raked joints.
- B. Wipe off excess mortar from joints of glazed masonry units with dry cloth.
- C. Finish exposed joints in finish work with a jointing tool to provide a smooth concave joint unless specified otherwise.
- D. At joints with existing work match existing joint and mortar color

**3.8 PLACING REINFORCEMENT**

- A. General: Clean reinforcement of loose rust, mill scale, earth, ice or other materials which will reduce bond to mortar or grout. Do not use reinforcement bars with kinks or bends or bars with reduced cross-section due to excessive rusting or other causes.
- B. Position reinforcement accurately at the spacing indicated. Horizontal reinforcement may be placed as the masonry work progresses.
- C. Embed prefabricated horizontal joint reinforcement as the work progresses, with a minimum cover of 1/2 inch.
- D. Anchoring: Anchor masonry work to supporting existing jambs as indicated.

**3.9 CLEANING AND REPAIR**

- A. General:
  1. Clean exposed masonry surfaces on completion.
  2. Protect adjoining construction materials and landscaping during cleaning operations.
  3. Cut out defective exposed new joints to depth of approximately 19 mm (3/4 inch) and repoint.
  4. Remove mortar droppings and other foreign substances from wall surfaces.

B. Concrete Masonry Units:

1. Immediately following setting, brush exposed surfaces free of mortar or other foreign matter.
2. Allow mud to dry before brushing.

C. Glazed Structural Facing Tile:

1. Clean as recommended by tile manufacturer. Protect light colored mortar joints from discoloration during cleaning.
2. Prepare schedule of test locations.

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Renovate Kitchen Design  
Department of Veterans Affairs

Project No. 528A8-05-801  
Albany, New York

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