

**SECTION 042000
UNIT MASONRY**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A Concrete block.
- B Clay facing brick.
- C Mortar and grout.
- D Reinforcement and anchorage.
- E Flashings.
- F Accessories.

1.02 RELATED REQUIREMENTS

- A Section 040511 - Masonry Mortaring and Grouting.
- B Section 079200 - Joint Sealants: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

- A ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2022.
- B ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire 2019.
- C ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement 2022.
- D ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2022.
- E ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units 2022.
- F ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units 2022.
- G ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale) 2022.
- H BIA Technical Notes No. 7 - Water Penetration Resistance – Design and Detailing 2017.
- I BIA Technical Notes No. 13 - Ceramic Glazed Brick Exterior Walls 2017.
- J TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2022.

1.04 SUBMITTALS

- A Product Data: Provide data for masonry units and fabricated wire reinforcement.
- B Samples: Submit four samples of facing brick units to illustrate color, texture, and extremes of color range.
- C Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

- A Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

1.06 DELIVERY, STORAGE, AND HANDLING

- A Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

- A Concrete Block: Comply with referenced standards and as follows:
 - 1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depths as indicated on drawings for specific locations.
 - 2. Load-Bearing Units: ASTM C90, normal weight.
 - a. Minimum compressive strength on net area = 2800 psi (@28 days).
 - b. Hollow block.
 - c. Exposed Faces: Manufacturer's standard color and texture where indicated.
 - d. Manufacturers:
 - 1) Beavertown Block Co, Inc
 - 2) Nitterhouse Masonry Products, LLC
 - 3) York Building Products
 - 4) Or Approved Equal.
 - 3. Nonloadbearing Units: ASTM C129.
 - a. Hollow block, as indicated.
 - b. Normal weight.
 - c. Manufacturers:
 - 1) Same as above.

2.02 BRICK UNITS

- A Manufacturers:
 - 1. Belden Brick: www.beldenbrick.com/#sle.
 - 2. Glen-Gery Brick.
 - 3. Endicott Clay Products Co: www.endicott.com/#sle.
 - 4. Or Approved Equal.
- B Facing Brick: ASTM C216, Type FBS Smooth, Grade SW.
 - 1. Color and texture: As selected during submittal approval.
 - 2. Nominal size: As indicated on drawings.
 - 3. Special shapes: Molded units as required by conditions indicated, unless standard units can be sawn to produce equivalent effect.

2.03 MORTAR AND GROUT MATERIALS

- A Mortar and Grout: As specified in Section 040511.

2.04 REINFORCEMENT AND ANCHORAGE

- A Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi), deformed billet bars; galvanized.
- B Joint Reinforcement: Use ladder type joint reinforcement where vertical reinforcement is involved and truss type elsewhere, unless otherwise indicated.
- C Single Wythe Joint Reinforcement: ASTM A951/A951M.
 - 1. Type: Truss or ladder.

2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
 3. Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.
- D Multiple Wythe Joint Reinforcement: ASTM A951/A951M.
1. Type: Truss, ladder, or tab.
 2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
 3. Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.

2.05 FLASHINGS

- A Metal Flashing Materials:
- B Combination Asphaltic Flashing Materials - Copper:
1. Copper/Asphalt Flashing: 3 oz/sq ft copper sheet coated with elastic asphalt compound on both sides.

2.06 ACCESSORIES

- A Joint Filler: Closed cell rubber; oversized 50 percent to joint width; self expanding; in maximum lengths available.
- B Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.
- C Weeps:
1. Type: Molded PVC grilles, insect resistant.
- D Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

PART 3 EXECUTION

3.01 EXAMINATION

- A Verify that field conditions are acceptable and are ready to receive masonry.
- B Verify that related items provided under other sections are properly sized and located.
- C Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

- A Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COLD AND HOT WEATHER REQUIREMENTS

- A Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

3.04 COURSING

- A Establish lines, levels, and coursing indicated. Protect from displacement.
- B Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C Concrete Masonry Units:
1. Bond: Running.

2. Coursing: One unit and one mortar joint to equal 8 inches.
 3. Mortar Joints: Concave.
- D Brick Units:
1. Bond: Running.
 2. Coursing: Three units and three mortar joints to equal 8 inches.
 3. Mortar Joints: Concave.

3.05 PLACING AND BONDING

- A Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B Lay hollow masonry units with face shell bedding on head and bed joints.
- C Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- D Remove excess mortar and mortar smears as work progresses.
- E Interlock intersections and external corners.
- F Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- G Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
- H In grouted and/or reinforced masonry walls, use masonry units with cores that align vertically. Provide continuous unobstructed cells for reinforcement placement and grouting.

3.06 WEEPS/CAVITY VENTS

- A Install weeps in veneer and cavity walls at 24 inches on center horizontally on top of through-wall flashing at bottom of walls.

3.07 CAVITY MORTAR CONTROL

- A Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.
- B Install cavity mortar diverter at base of cavity and at other flashing locations as recommended by manufacturer to prevent mortar droppings from blocking weep/cavity vents.

3.08 REINFORCEMENT AND ANCHORAGE - GENERAL, SINGLE WYTHE MASONRY, AND CAVITY WALL MASONRY

- A Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches on center.
- B Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
- C Place continuous joint reinforcement in first and second joint below top of walls.
- D Lap joint reinforcement ends minimum 6 inches.
- E Vertical reinforcement shall be installed in accordance with TMS 402/602.

3.09 CONTROL AND EXPANSION JOINTS

- A Do not continue horizontal joint reinforcement through control or expansion joints.

3.10 BUILT-IN WORK

- A As work progresses, install built-in fabricated metal frames and other items to be built into the work and furnished under other sections.
- B Install built-in items plumb, level, and true to line.

3.11 TOLERANCES

- A Install masonry within the site tolerances found in TMS 402/602.
- B Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- C Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- D Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- E Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- F Maximum Variation of Mortar Joint Thickness: Head joint, minus 1/4 inch, plus 3/8 inch.

3.12 CLEANING

- A Remove excess mortar and mortar droppings.
- B Replace defective mortar. Match adjacent work.
- C Clean soiled surfaces with cleaning solution.
- D Use non-metallic tools in cleaning operations.

3.13 PROTECTION

- A Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION