

**SECTION 04200
UNIT MASONRY**

PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:

1. Brick masonry walls.
2. Concrete masonry units.
3. Structural glazed tile.
4. Pre-glazed concrete masonry units.
5. Cavity insulation.
6. Sand filled block.

A. Related Sections:

1. Section 01020 - Allowances:
Brick allowance.
2. Section 01400 - Quality Control: Testing.
3. Section 04100 - Mortar and Grout.
4. Section 04150 - Masonry Accessories: Reinforcement, veneer anchors and accessories.
5. Section 04400 - Stone.
6. Section 07180 - Water Repellents.
7. Section 07900 - Joint Sealers: Sealing control joints.

DELETE SECTION 01020 REFERENCE IF BRICK IS SPECIFIED. PREFERENCE IS TO SELECT AND APPROVE SAMPLE IN ADVANCE ESPECIALLY ON MATCHING EXISTING OR ADDITIONS.

1.2 SYSTEM DESCRIPTION:

A. Brick:

1. In general, the exterior walls of the University buildings constructed on the East Campus, Williams Village, older buildings on Main Campus, and buildings at the Research Park, are finished with a hard burned face brick.
2. All brick shall be selected by the Architect and approved by the Owner.
3. All exterior concrete masonry units shall be treated as specified in Section 07180 – Water Repellants. Some applications of face brick should also be treated with water repellants when recommended by design consultant and agreed to by the university.

1.3 SUBMITTALS:

A. Tests:

1. Submit compression tests of composite masonry unit system and current prism tests.

Testing method and requirements should conform to building code requirements.

LEED MRc4: Recycled Content

Provide a statement from the manufacturer stating the recycled content percentage, by weight, and whether the recycled content is post-consumer or post-industrial.

LEED MRc5: Regional Materials

Provide a statement from the manufacturer stating the materials provided are manufactured within a 500 mile radius of the project. Include location.

1.4 QUALITY ASSURANCE:

A. Certificates: If requested by the Architect, furnish manufacturer's certification and test results indicating that concrete masonry units meet specified ASTM requirements.

B. Sample Masonry Panels:

1. After material samples are approved, erect a mock-up wall panel for each type of masonry construction indicated for the project. Types may be combined in composite panels.
2. Size: Minimum 6 feet long by 4 feet high; typical thickness.
3. Locations: As directed.
4. Mock-up shall consist of the following (when specified for project):
 - a. Color, range, texture of masonry units.
 - b. Bond, color, mortar joints, tooling, control joints, special patterns.
 - c. Anchors, joint reinforcement, wall ties.
 - d. Vapor barrier, moisture barrier, flashing sheathing, studs, weep holes, and insulation.
 - e. Surrounding materials such as stone trim, precast concrete, etc.
 - f. Special component features for contiguous work such as sealant joints, corner pieces or other special shapes.
 - g. Cleaning and water repellent coating.
5. Start of masonry work will not be permitted until sample panels are approved.
6. The approved samples, after cleaning, shall be used as standards of workmanship as applied to masonry for the entire project.
7. Protect mock-ups from weather and construction operations in an approved manner.
8. Mock-ups shall not be removed until masonry work is accepted.

C. Single Source Responsibility:

1. Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.

- a. For face brick obtain all units from the same firing or run.

D. Installer Qualifications:

1. Masonry Installer must have not less than 5 years experience in masonry and successfully completed not less than 10 projects of size and complexity similar to this one.

OPTIONAL FOR UNIVERSITY AND ARCHITECT TO VERIFY TYPICAL MINIMUM REQUIREMENT.

PART 2 - PRODUCTS

2.1 MASONRY UNITS:

A. Lightweight Concrete Block (Less than 105 lbs. per cu. ft. oven-dry weight of concrete):

1. Aggregate: Conform to ASTM C331 (lightweight).
2. Hollow Load-Bearing Units: ASTM C90.
3. Solid Load-Bearing Units: ASTM C145.
4. Classification: Grade N, Type 1.
 - a. Curing: In moisture controlled atmosphere at normal pressure and temperature, or in an autoclave, to comply with requirements for Type 1 units.
5. Nominal Size: 8" x 16", thickness as indicated.

LEED MRc4: Recycled Content

Fly Ash: 5% of mixture, by weight, shall be 100% post-industrial fly ash.

B. Face Brick:

1. Comply with ASTM C216, Type FBS, Grade SW.
2. Size: Modular.

3. Color and Texture: As selected by Architect.

4. Allowance: Each bidder shall include in his proposal an allowance as specified in Section 01020.

LEED MRc4: Recycled Content
Brick shall contain post-industrial recycled content.

ON MAIN CAMPUS, COLOR AND TEXTURE IS GENERALLY TO MATCH EXISTING. ON EAST CAMPUS, AS APPROVED. AT RESEARCH PARK, PER RESEARCH PARK GUIDELINES. DELETE ALLOWANCE IF COLORS AND TEXTURES ARE SPECIFIED. IT IS PREFERRED TO PRESELECT BRICK.

C. Structural Glazed Tile:

1. Manufacturer and Type: Stark Ceramics, Inc. 6T Series or approved equal.
2. Standards: ASTM C126, Grade SS and ASTM C652, Grade SW, Type HBX.
3. Size: 5-1/3" x 12".
4. Color: As selected by Architect.
5. Glazed Faces: Provide on exposed faces, one or more faces as required.
6. Special Shapes:
 - a. Provide bull nose at exterior corners, jambs, curbs and sills.
 - b. Provide matching cove base.
 - c. Provide special shapes as required or detailed.

LEED MRc4: Recycled Content

Ceramic tile shall contain post-consumer recycled content.

D. Pre-Glazed Concrete Masonry Units:

1. Lightweight, modular concrete block units with a permanent glazed facing conforming to ASTM C744.
2. Manufacturer and Type: "Spectra-Glaze II" by the Burns and Russell Company or approved substitute.

2.2 RIGID AND MASONRY FILL INSULATION:

A. Products:

1. Dow Styrofoam SM by Dow Chemical Company
2. Foamular 250 by U.C. Industries.

3. Approved substitute.

B. Rigid Insulation:

1. Type: Extruded polystyrene. Expanded polystyrene (EPS) is not acceptable.
2. Compressive Strength: 25 pounds per square inch per ASTM D 1621.
3. Water Absorption: 1% by volume per ASTM C272.
4. Aged R-Value: 5.0 per square foot per degree Fahrenheit per BTU per inch of thickness per ASTM C518.

C. Masonry Fill Insulation: As recommended by the design consultant and approved by the university.

PART 3 - EXECUTION

3.1 MASONRY INSTALLATION:

A. General:

1. Lay masonry plumb, level and true to lines to the tolerances indicated. Bond as indicated on elevations and details.
2. Adjust masonry dimensions and install starter units as required to eliminate small cuts and to maintain bond. Cut units neatly as required to fit adjoining work.
3. Construct slots, chases, cavities and similar spaces as required for other work.
4. Masonry dimensions for exterior openings are nominal. Lay out masonry openings to provide 1/4" maximum sealant joint at metal frames.
5. Chipping and infilling is not allowed.

B. Solid Units:

1. Use solid units for top course of exterior piers, walls, window sills, etc., as indicated and required.
2. Use solid units for soldier courses in bearing walls and wherever cores of hollow units would be exposed to view or weather.

C. Mortar Joints:

1. Lay masonry work in shoved manner in full beds of unfurrowed mortar. Completely fill vertical and horizontal joints and voids with mortar.

2. Joints: Plumb and level.
3. Joint Treatment:
 - a. Tool exposed joints to slightly concave surface, well bonded to units.
 - b. Cut unexposed joints flush.
4. Avoid overplumbing and pounding of the corners and jambs to fit stretcher units after being set in position. Where an adjustment must be made after the mortar has started to harden, remove mortar and replace with fresh mortar.

D. Built-In Items:

1. Steel Door Jambs: Grout steel door jambs set in masonry full of mortar as wall is built.
2. Lintels: Install lintels furnished under Section 05500 for openings over 16" in width. Install in beds of mortar and do necessary pointing. Fill hollow masonry units full with grout for three courses at lintel bearings.
3. Coordinate with Mechanical and Electrical for built-in items with outlets centered on or aligned with masonry joints in exposed work.

3.2 CONCRETE BLOCK INSTALLATION:

- A. Acoustical Sand Fill: Fill blocks with sand as walls are laid up as indicated. Keep cells clean and free of mortar blockage to allow solid fill without voids.

SAND FILL IS TYPICAL AT MUSICAL RE-HEARSAL ROOMS AND SIMILAR LOCATIONS.

- B. Where built-in items are to be embedded in cells of hollow masonry units, place a layer of metal lath in the joints below and fill cells with mortar or grout.

3.3 BRICK INSTALLATION:

- A. General: Unless otherwise indicated, lay brick in running bond.

3.4 GLAZED STRUCTURAL TILE INSTALLATION:

- A. General: Unless otherwise indicated, lay tile in stacked bond.

3.5 RIGID AND MASONRY FILL INSULATION:

- A. Rigid Insulation: Install with adhesive as recommended by manufacturer if veneer anchors are insufficient to hold insulation tight against inside wythe.
- B. Masonry Fill Insulation: Pour loose fill insulation into voids in lifts not to exceed 16" vertically. Rod well to assure complete filling before laying subsequent courses. Do not insulate voids of cells where vertical reinforcing or grouting is indicated.

3.6 CONTROL JOINTS:

- A. Provide vertical expansion, control and isolation joints in masonry where shown, but not to exceed industry standard as proposed by the design consultant approved by the university. Rake out mortar in preparation for application of joint sealers as specified in Section 07900.

3.7 FIELD QUALITY CONTROL:

- A. Masonry: Submit tests for each class of unit and type of masonry assemblage two weeks prior to start of construction. Prepare specimens and tests in accordance with International Building Code requirements and recognized industry standards.

END OF SECTION 04200