

SECTION 04200

UNIT MASONRY - BRICK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Common Brick
- B. Face brick.
- C. Pavers

1.2 REFERENCES

- A. ASTM C 126 - Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units.
- B. ASTM C 216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).
- C. ASTM C 902 - Standard Specification for Pedestrian and Light Traffic Paving Brick.
- D. ASTM C 1088 - Standard Specification for Thin Veneer Brick Units Made From Clay or Shale.
- E. ASTM C 1272 - Standard Specification for Heavy Vehicular Paving Brick.
- F. OSHA 1926.450 – 1926.454, Subpart L – Scaffolds
- G. OSHA 1926.500 – 1926.503, Subpart M – Fall Protections
- H. Related Sections -
 - 1. Section 01400 – Quality Control
 - 2. Section 04065 - Mortar and Masonry Grout.
 - 3. Section 04080 - Masonry Reinforcement Systems.
 - 4. Section 04810 - Unit Masonry Assemblies

1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Manufacturer's catalog data, detail sheets, and specifications.
- C. Selection Samples: For each product requiring color/texture selection, provide full size samples for final selection.
- D.

1.5 SAMPLE PANELS

- A. Construct sample panel at location indicated or directed, and as follows:
 - 1. Size: 4 feet by 4 feet (1.2 m by 1.2 m).
 - 2. Include all unit types and sizes to be used, and mortar joint treatment showing the proposed color range, texture, bond, mortar, tooled joints, and workmanship. All brick shipped for the sample shall be included in the panel. Larger panels with more details such as flashing, ties, cavity and weepholes may be required.
- B. Obtain architect's acceptance of sample panel before beginning construction activities of this section.
- C. Do not remove sample panel until construction activities of this section have been accepted by architect.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products of this section on pallets, with individual faces protected; keep dry.
- B. Store glazed units in protected area or under cover on level ground; keep dry. Do not double-stack pallets.
- C. Store brick off ground and cover with plastic to prevent contamination by mud, dust or materials likely to cause staining or other defects.
- D. Store mortar bags off the ground and covered.
- E. Place sand on plastic and tarps, and cover with plastic at end of day.
- F. Protect reinforcement from elements.

1.7 PRECONSTRUCTION CONFERENCE

- A. A preconstruction conference, directed by the Architect/Engineer, will be held after the award of the General Contract, but prior to beginning of masonry work to discuss:
 - 1. Method and sequence of masonry construction
 - 2. Special masonry details
 - 3. Standard of workmanship
 - 4. Quality control requirements
 - 5. Job organization
- B. Attendance is mandatory for:
 - 1. General contractor job superintendent
 - 2. Masonry subcontractor job superintendent
 - 3. Masonry subcontractor foreman
 - 4. At least two masons
 - 5. Authorized representative of the brick supplier
 - 6. Mortar material suppliers

1.8 JOB CONDITIONS

- A. Protection of Work
 - 1. Wall covering to prevent mortar joint wash out and entry of water into the wall.
 - 2. During erection, cover top of wall with strong waterproof membrane at end of each day or shutdown.
 - 3. Cover partially completed walls when work is not in progress.
 - 4. Extend cover minimum of 24" down both sides.
 - 5. Hold cover securely in place.
- B. Load application.
 - 1. Do not apply uniform floor or roof loading for at least 12 hr. after building masonry columns or walls.
 - 2. Do not apply concentrated loads for at least 3 days after building masonry columns or walls.
- C. Provide temporary bracing during masonry erection, as required, and maintain in place until building structure provides permanent bracing.

1.9 STAINING

- A. Prevent grout or mortar from staining the face of masonry.
- B. Remove immediately grout or mortar in contact with face of masonry.
- C. Protect all sills, ledges and projections from droppings of mortar, protect door jambs and corners from damage during construction.
- D. Protect the base of the wall from rain splashed mud and mortar splatter by using straw, sawdust or plastic spread along the base.
- E. Scaffold boards near the wall should be turned on edge at the end of the day.

1.10 COLD WEATHER PROTECTION

- A. When ambient air temperature is below 40°degrees F, implement cold weather procedures, and comply with the following:
 - 1. Do not lay masonry units having either a temperature below 20° F or containing frozen moisture, ice or snow on the surface.
 - 2. Heat water and sand to produce mortar between 40° F and 120° F. Protect newly constructed masonry by covering with a weather-resistive membrane for 24 hours.
 - 3. When ambient air temperature is between 32° F and 25° F, maintain mortar temperature above freezing until used in masonry.
 - 4. When ambient air temperature is between 25° F and 20° F, heat masonry surfaces under construction to 40°F and use wind breaks when wind speeds exceed 15 mph.
 - 5. When ambient air temperature falls below 20° F, provide an enclosure and auxiliary heat to maintain air temperatures above 32° F for 24 hours.

1.11 HOT WEATHER

- A. When the ambient air temperature exceeds 100° F or 90° F with a wind velocity greater than 8 mph, mortar beds shall not be spread more than 4 ft. ahead of the masonry units. Units shall be laid within one minute of spreading mortar.

1.12 PREPARATION

- A. Establish lines, levels and coursing. Protect from disturbances.
- B. Wetting Brick.
 - 1. Wet brick with average absorption rates in excess of 30 g./min/30 sq. in. determined by ASTM C67, so that rate of absorption when laid does not exceed this amount. During cold weather construction, these brick may require sprinkling with warm or hot water just before laying. During cold weather construction, the absorption rate may reach 40g./min/30 sq. in. before wetting may be required. The masons discretion must be counted upon to determine optimum workability for brick and mortar.
 - 2. Recommended procedure to insure that brick are nearly saturated, surface dry when laid is to place a hose on the pile of brick until the water runs from the pile. This should be done one day before brick are to be used. In extremely warm weather, place hose on pile several hours before brick are to be used.

1.13 CLEANING REINFORCEMENT

- A. Before being placed, remove loose rust, ice and other coatings from reinforcement.

2.0 GENERAL ERECTION REQUIREMENTS

A. Construction Tolerances

- 1. Variation from Plumb: For vertical lines and surfaces of columns, walls and arises do not exceed 1/4" in 10' or 3/8" in a story height not to exceed 20', nor 1/2" in 40' or more. For external corners, expansion joints, control joints and other conspicuous lines, do not

- e. At openings provide additional ties, spaced not more than 3 ft. apart around the perimeter and within 12" of the opening.
 - f. Place ties 8" from the edge for tops of walls and for control joints.
- F. Cavity Width - During construction the width is to be approximately 2". If rigid insulation is placed in the cavity, there is to be a 1" clear cavity after wall construction.

3.01 WORKMANSHIP AND INSTALLATION

A. Mortar Handling

1. Mixing Procedures

- a. Thoroughly mix ingredients in clean mechanical batcher for 3 to 5 minutes.
- b. Mix mortar ONLY in quantities needed for immediate use.
- c. Measure materials by volume or equivalent weight, using the same measurement for each material and batch. Do not measure by shovel.
- d. If mortar color is to be used, add in accordance with manufacturers recommendations. Ensure uniformity of mix and coloration.
- e. DO NOT use anti-freeze compounds to lower the freezing point of mortar or accelerators.

2. Retempering

- a. If necessary, retemper mortar within two hours of mixing to replace water lost by evaporation.
- b. DO NOT retemper mortar after two (2) hours from time of mixing. Throw away after 2 hours.
- c. ONLY add a small amount of water within a basin formed in the mortar, than rework mortar.
- d. Dashing or pouring water over mortar WILL NOT be permitted.
- e. Discard all mortar that has stiffened because of chemical reaction (hydration), or which is harsh, nonplastic.

3.02 BRICK INSTALLATION

- A. DO NOT install cracked, broken, chipped, or otherwise damaged masonry units.
- B. Lay-out and adjust each coursing to each wall space so that no course shall finish at an external corner or at a jamb with a piece less than 1/2 size unit wherever possible. Bond of each course at jamb openings shall be symmetrical.
- C. Lay brick plumb and true to lines, head joints to line up and be plumb.
- D. Lay with completely filled mortar joints; bed joints should not be deeply furrowed and brick should be buttered with sufficient mortar to fill head joints.
- E. Rock closures into place with head joints thrown against two adjacent brick in place.
- F. Adjust units to line and level while mortar is soft and plastic. Do not disturb unit once in place except to completely remove and set in fresh bed of mortar. If head joints are opened during adjusting, refill head joints.
- G. Do not pound corners and jambs to fit stretcher units after they are set in position. Where an adjustment must be made after mortar has started to harden, remove mortar and replace with fresh mortar.
- H. Keep cavity in cavity walls clean by:
 - 1. Installing a type of subsurface drainage matting in the cavity to prevent mortar droppings from clogging the cavity
 - or
 - 2. Plastering excess mortar onto back of brick
 - or
 - 3. Placing wood strips with attached wire pulls on metal ties. Before placing next row of metal ties, remove and clean wood strips.

- I. Minimize brick cleaning by:
 1. Careful workmanship should be practiced to prevent excessive mortar droppings and if any mortar droppings do adhere to the brick, they should be immediately removed.
 2. After tooling, mortar tailings should be cut off with a trowel and excessive mortar and dust brushed from the surface.
 3. Avoid any motion that will result in rubbing or pressing mortar particles into the brick faces.

3.06 CLEANING

- A. Cut out any defective joints and holes in exposed masonry and repoint with mortar.
- B. Clean all exposed unglazed masonry:
 1. At least 21 days prior to regular cleaning apply cleaning agent to sample wall area of 20 sq. ft. in location acceptable to Architect/Engineer.
 2. Do Not proceed with cleaning until sample area is approved by Architect/Engineer.
 3. Dry clean the wall first, removing blobs of mortar with wooden paddles or tools.
 4. No wet cleaning shall take place within seven days of placing masonry.
 5. Do not use high pressure spray to apply cleaning solution or rinsing down the walls; unless approved in advance by Architect in writing.
- C. When cleaning agent is required:
 1. Follow brick manufacturer's recommendations.
 2. Thoroughly wet surface of masonry.
 3. Scrub with acceptable cleaning agent, avoiding mortar joints.
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