

**SECTION 04100 - MASONRY, MORTAR AND ACCESSORIES****1.0 GENERAL**

- 1.01 Related Documents: The General Provisions of the Contract, including General Supplementary Conditions and General Requirements, apply to the work specified in this Section.
- 1.02 Description of Work: Provide all labor, material, and equipment necessary for the complete masonry work as shown on the Drawings and herein specified.
- 1.03 Standards:
- A. ASTM - American Society for Testing Materials
  - B. SCPI - Structural Clay Products Institute
  - C. FCPA - Florida Concrete and Products Association
  - D. ACI 530 - American Concrete Institute
- 1.04 Codes:
- A. MASONRY CEMENT ASTM C-91-88
  - B. PORTLAND CEMENT ASTM C-150-68
  - C. SAND ASTM C-144 Use clean, sharp white mortar sand.
  - D. BLOCK, REGULAR WT. ASTM C-129 with Aggregate ASTM C-33
  - E. BLOCK, LIGHT WT. ASTM C-90 with 100% ASTM C-331 Aggregate

**2.0 MATERIALS**

- 2.01 Mortar Material: Deliver masonry cement and Portland cement in unopened packages, identified by Manufacturer's names. Store and protect materials from moisture and contamination. Open only those packages necessary for the immediate scheduled unit of work.
- 2.02 Accessories: Deliver accessories packaged or bundled and identified by Manufacturer's numbers and names. Store off of the ground. Protect from damage.
- 2.03 Concrete Block: Deliver concrete block on pallets. Unload on pallets by mechanical means. Store above ground. Protect against wetting. Handle and transport to the work in a manner to minimize chipping and spilling. Compression strength of 1900 psi.
- 2.04 Masonry Cement: Masonry Cement shall conform to Specifications for Masonry Cement, ASTM C-91-68. Color to match existing adjacent building.
- 2.05 Portland Cement: Portland cement shall conform to Specifications for Portland Cement, ASTM C-150-68, Types I or II.
- 2.06 Mortar: Mortar shall conform to Specifications for Mortar for Unit Masonry, ASTM C-270-68, Types shall be as follows:
- A. Type M: 1 part Portland Cement, 1 part Type II Masonry Cement, 4 parts sand by volume.
  - B. Type S: 2 part Portland Cement, 1 part Type II Masonry Cement, 4 2 parts sand by volume.
- Note: Exposed brick veneer mortar of adjacent buildings is to be matched.

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- 2.07 Wall Reinforcement: Use ladder pattern, cold-drawn steel wire, ASTM A-82-66; hot-dipped galvanized after fabrication, ASTM A-153, Class B-2, #9 side rods, and #9 cross ties. Ladder type. At door and window openings, provide reinforcing at first and second block coursing above and below opening. Carry beyond opening 24" into adjoining wall assembly. Provide pre-fabricated corner.
- 2.08 Corrugated Metal Ties: 1" x 10" x 10 ga. **Galvanized. Use only where shown or called for on Drawings and Details.**
- 2.09 Precast Lintels: 8" Bearing minimum. Provide color match to block used for wall assembly.
- 2.10 16" x 16" x 8" Pier Block ASTM C-129 with Aggregate ASTM C-33.
- 2.11 Brick Veneer: Brick veneer shall match existing adjacent building. Contractor to obtain brick samples within three days of bid for approval and ordering within 24 hours of the Notice to Proceed.
- 2.12 Filled Cells: Provide minimum 2500 psi grout fill conforming to ASTM C476 in all vertical reinforced masonry cells. (Contractor may elect to grout solid in strict conformance with ASTM C476 (ACI 530-95, Table 3.1.2 footnote #1.)

**3.0 EXECUTION**

- 3.01 General: Work shall be performed by skilled personnel, experienced in the use of the specified materials to the best advantage and appearance when judged according to the accepted practice of the trade. No masonry shall be laid when the temperature is below 40 degrees Fahrenheit at the point of work. General Contractor and his superintendent are to monitor workmanship daily and advise mason of any and all work that is not acceptable prior to Owner and Architect having work removed and reinstalled.
- 3.02 Bonding and Coursing: Horizontal coursing shall be level; and vertical lines, joints and surfaces shall be plumb. Use running bond with 8" +/- coursing vertically. Use concave joint at all exposed block locations. All joints to be equally spaced with full head and bed joint of consistent width.
- 3.03 Mortar Bedding and Joints: Use Type M Portland Cement below-grade and Type S gray Portland Cement above grade.
- 3.04 Time and Temperature Limits: Place mortar in final position within 1-1/2 hours after mixing when the air temperature is 80 degrees Fahrenheit or higher; and within the 2-1/2 hours when the air temperature is less than 80 degrees Fahrenheit.
- 3.05 Retempering: Retemper mortars that have stiffened within the allowable time limit because of moisture evaporation, by adding water as frequently as needed to produce the proper workability.
- 3.06 Joint Reinforcement: Install joint reinforcement continuous at 16" o.c. vertically in concrete block walls. Use Masonry interlock of 50% at all wall intersections. Use galvanized truss type Dur-A-Wall or approved equal. Provide fabricated "L" and "T" sections at corners and intersections as detailed.

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- 3.07 Practices to be Avoided: Avoid high leads, excessive toothing, excessive racking back, mortar left to harden on surfaces and the laying of damaged or defective units.
- 3.08 Protection: Protect masonry from inclement weather during storage and construction; and protect complete work from damage. Cover all masonry with polyethylene film whenever concrete is to be poured adjacent to the masonry work.
- 3.09 Pointing and Cleaning: Point-up exterior masonry and wire brush at the end of each day. Allow the mortar to cure before cleaning. Contractor is to ensure Mason is responsible for cleaning of masonry and is responsible for inspection of workmanship on a daily basis.
- 3.10 Concrete Block: Clean with water and stiff fiber brushes at the end of each day as a minimum practice. Use a rubbing stone only where necessary to remove stubborn fins or droppings. Wire brushes are prohibited.
- 3.11 Block Insulation: Fill all cells in exterior block walls with "Core Fill 500 Thermal Masonry Foam Insulation" in block cells in exterior in place of the Masonry Fill Insulation specified, approved equal "PolyMaster 501" or other approved equal product.

**4.0 INSTALLATION**

- 4.01 Workmanship shall be of the highest quality. Sample panel of 8 foot by 4 foot, on a 12 x 18 cement concrete spread foundation with (3) #5 or, shall be laid to show masonry wall quality (brick veneer). (May be built into wall at the option of the Architect.)

Masonry laid horizontal and vertical joints and faces plumb and true. Head joints must be vertical full height of wall. Work with "Story Pole" limit "tooththing" and "racking." No masonry leads higher than the run of the wall at the end of the day.

- 4.02 Cover all masonry walls at the end of the work day during inclement weather, with waterproof material 12" wider than the wall.
- 4.03 Cutting of block is required.
- 4.04 Coordinate with the Electric/Mechanical/Plumbing, Roofing, and other trades for installation of their work.
- 4.05 Build in door, window frames, and grout solid.
- 4.06 Build in steel angle lintel and other miscellaneous metals.
- 4.07 Furnish and set precast lintel in full bed of mortar. 8" minimum bearing.
- 4.08 No admixture is permitted.
- 4.09 Masons will be responsible for the cleaning of all masonry which is to be executed at the end of each workday.

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- 5.01 Precast entablature and trim to be painted.
- 5.02 Colored tinted mortar and aggregate is to be matched from adjacent building.
- 5.03 Steel angles and miscellaneous metals.
- 5.04 Flashings, riglets

**6.0 PLACING AND BONDING:**

- 6.01 Masonry shall be stacked with suitable covering to protect them from weather: Laid in full bed of mortar: bonded at each corner and intersection of walls.
- 6.02 Block masonry work shall incorporate reinforcing bars as shown on drawings. Each bar shall be tied to the adjacent member with a minimum 48 bar diameter lap prior to being poured solid from footing to beam, run wall horizontal reinforcement through cells to be poured.
- 6.03 Horizontal joint reinforcing laid 12" end lap.
- 6.04 Control Joint in Walls: neoprene rods one and one half size of joint surface caulked with silicone. Locate  $\pm$  25'-0" o.c. coordinate with Architect prior to installation to allow coordination with wall penetrations and/or decorative wall patterns.
- 6.05 Build in weep hole using aluminum or galvanized steel tubes. Locate at bottom of brick at finish grade and sidewalks or at foundations.
- 6.06 Build in cavity vents at 4'-0" o.c. at tie beam.

**7.0 COURSING**

- 7.01 Lay block running bond, face to line, with tooled horizontal and vertical joints.
- 7.02 Use masonry interlock of 50% at all wall intersections.
- 7.03 Use inspection and clean out holes at bottom of wall if over 5 foot grout lift is used.

**8.0 TOLERANCE**

- 8.01 Plumb = 1/4" wall height. Level coursing = 1/8" in 4'-0", 1/4" full wall. Joint thickness = 1/8" max. Plane of wall = 1/4" max. Thickness of wall = 1/4" max.

**9.0 CONTROL JOINTS**

- 9.01 Control joints are required and not to exceed 25'-0" max. Form control joint by the use of sheet of felt bond breaker. Stop wall reinforcing. Pack vertical joint with rod and caulk. Color to match masonry.

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**10.0 WATERPROOFING**

10.01 Waterproofing of brick shall be as specified under Painting Section 09900.

**(END OF SECTION 04100)**