

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

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies requirements for construction of simulated stone veneers.

**1.2 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
- B. Samples:
1. Simulated Stone Veneer, sample panel, 3'x4' showing full color range and texture of simulated stone, bond, and proposed mortar joints.
  2. Concrete masonry units, when exposed in finish work.
- C. Shop Drawings:
1. Special masonry shapes.
  2. Drawings, showing reinforcement, applicable dimensions and methods of hanging soffit or lintel masonry and reinforcing masonry for embedment of anchors for hung fixtures.
- D. 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. Simulated Stone Veneer.
  3. Testing laboratories facilities and qualifications of its principals and key personnel to perform tests specified.
- E. Laboratory Test Reports:
1. Brick for pre-built masonry panels.
  2. Ceramic glazed facing brick.
- F. Manufacturer's Literature and Data:
1. Anchors, ties, and reinforcement.
  2. Shear keys.
  3. Reinforcing bars.

**1.3 SAMPLE PANEL**

- A. Before starting masonry, lay up a 3'x4' sample panel in accordance with Masonry Standards Joint Committee (MSJC) and Brick Industry Association (BIA).
  - 1. Use masonry units from random cubes of units delivered on site.
  - 2. Include reinforcing, ties, and anchors.
- B. Use sample panels approved by Resident Engineer for standard of workmanship of new masonry work.
- C. Use sample panel to test cleaning methods.

**1.4 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-09.....Deformed and Plain Billet-Steel Bars for  
Concrete Reinforcement.
  - C55-09.....Concrete Building Brick
  - C476-10.....Standard Specification for Grout for Masonry
  - C744-11.....Prefaced Concrete and Calcium Silicate Masonry  
Units.
  - F1667-11.....Fasteners: Nails, Spikes and Staples
- C. Masonry Industry Council:
  - Hot and Cold Weather Masonry Construction Manual-98 (R2000).
- D. American Welding Society (AWS):
  - D1.4-11 Structural Welding Code - Reinforcing Steel.
- E. Federal Specifications (FS):
  - FF-S-107C-00.....Screws, Tapping and Drive
- F. Masonry Standards Joint Committee; Specifications for Masonry Structures
  - TMS 602-08/ACI 530.1-08/ASCE 6-08 (2008 MSJC Book Version TMS-0402-08).
- G. Coronado Installation Guide / Coronado Stone Products Inc.

**PART 2 - PRODUCTS**

**2.1 SIMULATED STONE VENEER**

- A. Simulated Stone Materials: Type: Mountain Strip Stone / Color: Brookside
  - 1. Precast simulated stone, composed of following materials:
    - a. Portland Cement: ASTM C 150, Type 1, 2, or 3 depending upon color to be produced.

- b. Course Aggregates: ASTM C 330, lightweight type, color as necessary to obtain final approved color of stone.
- c. Sand: ASTM C 144, special color if required to match approved sample.
- d. Iron oxide colors.
- e. Water: Clean and free from deleterious substances.

## 2.2 MORTAR MATERIALS FOR DRY STACKED STONE

- A. Pigments: Meeting ASTM C 979, mineral oxide type.
  - 1. Mortar Color: - **Select Mortar Color-** as manufactured by Coronado Stone Products.
- B. Bonding Agent: Orco MVB as recommended by simulated stone manufacturer for direct bonding of simulated stone to masonry or concrete substrates when not using metal lath.
- C. Water: Potable.
- D. Mixing: Use thinset with acrylic additive in accordance with thinset manufacturer's recommendation.
  - 1. Thoroughly mix mortar and grout ingredients in quantities needed for immediate use.  
Mix grout to ASTM C 270, Type S proportions and mortar to ASTM C 270, Type S requirements.

### **Mortar Mix for Installing Stacked Stone**

#### **Preparing the Mortar:**

**Mortar should be mixed to a firm but workable (not too wet, not too dry) consistency similar to what is used with brick or a little wetter. Test consistency by bouncing and shaking the trowel to remove excess mortar then turn the trowel vertically (edge up). The mortar should stick to the trowel.**

2 parts Portland cement  
1 parts Polymer-Modified Thinset  
5 parts masonry sand  
2 parts premi x mortar type-S (100 lbs)  
1 part Polymer-Modified  
Thinset (50 lbs) Water to  
proper consistency  
Water to proper consistency

- 2. Do not use anti-freeze compounds to lower freezing point of mortar.

### **PART 3 - EXECUTION**

#### **3.1 JOB CONDITIONS**

A. Protection:

1. Cover tops of walls with non-staining waterproof covering, when work is not in progress. Secure to prevent wind blow off.
2. On new work protect base of wall from mud, dirt, mortar droppings, and other materials that will stain face, until final landscaping or other site work is completed.

B. Cold Weather Protection:

1. Masonry may be laid in freezing weather when methods of protection are utilized.
2. Comply with MSJC and "Hot and Cold Weather Masonry Construction Manual".

#### **3.2 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).
2. In 6000 mm (20 feet) - 10 mm (3/8 inch).
3. In 12 000 mm (40 feet) or more - 13 mm (1/2 inch).

C. Maximum variation from level:

1. In any bay or up to 6000 mm (20 feet) - 6 mm (1/4 inch).
2. In 12 000 mm (40 feet) or more - 13 mm (1/2 inch).

D. Maximum variation from linear building lines:

1. In any bay or up to 6000 mm (20 feet) - 13 mm (1/2 inch).
2. In 12 000 mm (40 feet) or more - 19 mm (3/4 inch).

E. Maximum variation in cross-sectional dimensions of columns and thickness of walls from dimensions shown:

1. Minus 6 mm (1/4 inch).
2. Plus 13 mm (1/2 inch).

F. Maximum variation in prepared opening dimensions:

1. Accurate to minus 0 mm (0 inch).
2. Plus 6 mm (1/4 inch).

#### **3.3 INSTALLATION GENERAL**

- A. Keep finish work free from mortar smears or spatters, and leave neat and clean.
- B. Install simulated stone veneer by 'dry stack' method in accordance with the manufactures installation guide.

### 3.4 ANCHORAGE

#### A. Veneer to Frame Walls:

1. Use adjustable veneer anchors.
2. Fasten anchor to stud through sheathing with self-drilling and tapping screw, one at each end of loop type anchor.
3. Space anchors not more than 400 mm (16 inches) on center vertically at each stud.

#### B. Veneer to Concrete Walls:

1. Anchor new masonry facing to concrete with corrugated wall ties spaced at 400 mm, (16 inch) maximum vertical intervals, and at 600 mm (2 feet) maximum horizontal intervals. Fasten ties to concrete with power actuated fasteners or concrete nails.

### 3.5 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. //

### 3.6 GROUTING

#### A. Preparation:

1. Clean grout space of mortar droppings before placing grout.
2. Close cleanouts.
3. Install vertical solid masonry dams across grout space for full height of wall at intervals of not more than 9000 mm (30 feet). Do not bond dam units into wythes as masonry headers.
4. Verify reinforcing bars are in cells of units or between wythes as shown.

#### B. Placing:

1. Place grout by hand bucket, concrete hopper, or grout pump.
2. Consolidate each lift of grout after free water has disappeared but before plasticity is lost.
3. Do not slush with mortar or use mortar with grout.
4. Interruptions:
  - a. When grouting must be stopped for more than an hour, top off grout 40 mm (1-1/2 inch) below top of last masonry course.

- b. Grout from dam to dam on high lift method.
  - c. A longitudinal run of masonry may be stopped off only by raking back one-half a masonry unit length in each course and stopping grout 100 mm (4 inches) back of rake on low lift method.
- C. Puddling Method:
- 1. Double wythe masonry constructed grouted in lifts not to exceed 300 mm (12 inches) or less than 50 mm (2 inches) wide.
  - 2. Consolidate by puddling with a grout stick during and immediately after placing.
  - 3. Grout the cores of concrete masonry units containing the reinforcing bars solid as the masonry work progresses.
- D. Low Lift Method:
- 1. Construct masonry to a height of 1.5 m (5 ft) maximum before grouting.
  - 2. Grout in one continuous operation and consolidate grout by mechanical vibration and reconsolidate after initial water loss and settlement has occurred.

### **3.7 CLEANING AND REPAIR**

- A. General:
- 1. Clean exposed masonry surfaces on completion. Remove excess mortar and smears using brush or steel wool.
  - 2. Protect adjoining construction materials and landscaping during cleaning operations.
  - 3. Remove mortar droppings and other foreign substances from wall surfaces.
  - 4. Replace defective mortar. Match adjacent work.
  - 5. Clean soiled surfaces with non-acidic solution, acceptable to the stone manufacturer.
  - 6. Use non-metallic tools in cleaning operations.
  - 7. Leave surfaces thoroughly clean and free of mortar and other soiling.

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