

## **DIVISION 04: MASONRY**

### **04 0000 MASONRY**

04 0513 CEMENT AND LIME MASONRY MORTARING – **9/24/09 REV**  
04 0521 MASONRY VENEER TIES  
04 0523 MASONRY ACCESSORIES

### **04 2000 UNIT MASONRY**

04 2113 BRICK VENEER MASONRY – **9/24/09 REV**

END OF TABLE OF CONTENTS

**CEMENT AND LIME MASONRY MORTARING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
  - 1. Quality of masonry mortar used on Project.
- B. Related Requirements:
  - 1. Sections Under 04 2000 Heading: Furnish and install mortar.

**1.2 REFERENCES**

- A. Reference Standards:
  - 1. ASTM International:
    - a. ASTM C 144-03, 'Standard Specification for Aggregate for Masonry Mortar.'
    - b. ASTM C 150-05, 'Standard Specification for Portland Cement.'
    - c. ASTM C 207-06, 'Standard Specification for Hydrated Lime for Masonry Purposes.'

**1.3 SUBMITTALS**

- A. Informational Submittals:
  - 1. Source Quality Control Submittals:
    - a. If pre-mixed wet mortar or pre-blended dry mortar mix are to be used, provide certification from Manufacturer or Supplier verifying that mixes meet specification requirements.
    - b. If site mixed / blended mortar is to be used, provide written description of proposed method of measuring and mixing of materials.

**PART 2 - PRODUCTS****2.1 SYSTEM**

- A. Performance
  - 1. Minimum Compressive Strength at 28 Days:
    - a. Type N: 750 psi.
    - b. Type S: 1800 psi.
- B. Materials:
  - 1. Portland Cement: Meet requirements of ASTM C 150, Type II Low Alkali unless approved otherwise in writing by Architect.
  - 2. Hydrated Lime: Meet requirements of ASTM C 207, Type S.
  - 3. Aggregate:
    - a. Standard Mortar:
      - 1) Natural or manufactured sand meeting requirements of ASTM C 144 and following:
        - a) Fineness modulus: 1.6 to 2.5 percent
        - b) Water demand, ratio by weight: 0.65 percent maximum
        - c) Grading:

Sieve	Percent Passing	
	Natural Sand	Manufactured Sand
No. 4	100	100
No. 8	95 to 100	95 to 100
No. 16	70 to 100	70 to 100
No. 30	40 to 75	40 to 75
No. 50	10 to 35	20 to 40
No. 100	2 to 15	10 to 25
No. 200	none	0 to 10

4. Water: Clean and free of acids, alkalis, and organic materials.
5. Admixtures: Use no admixtures, except for color pigments specified below, without Architect's written permission. Use of any admixture to meet cold weather requirements and admixtures that increase air entrainment are expressly forbidden under all circumstances.
6. Mortar Color Pigment:
  - a. High purity, chemically inert, unfading, alkali-fast mineral oxides, finely ground and especially prepared for mortar.
  - b. Color Standard: "Lafarge" – Cordova Tan
  - c. Type One Acceptable Products:
    - 1) Custom Color Cements by Lafarge, Herndon, VA [www.lafarge-na.com](http://www.lafarge-na.com)
    - 2) True Tone Mortar Colors by Davis Colors, Los Angeles, CA [www.daviscolors.com](http://www.daviscolors.com)
    - 3) SGS Mortar Colors by Solomon Colors, Springfield, IL [www.solomoncolors.com](http://www.solomoncolors.com)
    - 4) Equal as approved by Architect before bidding. See Section 01 6200.

## C. Mixes:

1. Unit Masonry Mortar:
  - a. Heat water and sand to **140 deg F** maximum if temperature is below **40 deg F**.
  - b. Parts by Volume:
 

Type	<u>N</u>	<u>S</u>
Portland Cement	1	1
Hydrated Lime	1	1/2

Damp Loose Sand: 2-1/4 minimum to three maximum, times sum of volumes of cement and lime used. Maintain sand piles in damp, loose condition.
  - c. Parts by Weight:
 

Type	<u>N</u>	<u>S</u>
Portland Cement	94 lbs	94 lbs
Hydrated Lime	40 lbs	20 lbs
Dry Sand	360 lbs minimum to 480 lbs maximum.	

**PART 3 - EXECUTION: Not Used****END OF SECTION**

**SECTION 04 0521****MASONRY VENEER TIES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Products Furnished But Not Installed Under This Section:
  - 1. Ties for veneering masonry on framed walls.
  - 2. Section 04 2200: Installation of anchor and tie system.

**PART 2 - PRODUCTS****2.1 MANUFACTURED UNITS**

- A. Manufacturers:
  - 1. Contact Information:
    - a. Dur-O-Wal by Dayton Superior, Aurora, IL [www.durowal.com](http://www.durowal.com).
    - b. Heckman Building Products Inc, Chicago, IL [www.heckmannbuildingprods.com](http://www.heckmannbuildingprods.com).
    - c. Hohmann & Barnard, Hauppauge, NY [www.h-b.com](http://www.h-b.com).
    - d. Masonry Reinforcing Corporation of America, Charlotte, NC [www.wirebond.com](http://www.wirebond.com).
- B. Unit Masonry Over Framing:
  - 1. Brick Ties:
    - a. Quality Standard:
      - 1) D/A 431, without wire reinforcing, by Dur-O-Wal Inc.
      - 2) .
  - 2. Fasteners:
    - a. Class Two Quality Standards:
      - 1) Wood Framing: Two D/A 808 screws by Dur-O-Wal Inc.

**PART 3 - EXECUTION: Not Used****END OF SECTION**

**SECTION 04 0523****MASONRY ACCESSORIES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Products Furnished But Not Installed Under This Section:
  - 1. Flexible flashing for bottom of masonry veneer.
  - 2. Flexible flashing for brick sills.
  - 3. Weep vents.
  - 4. Mortar guard materials.
- B. Related Requirements:
  - 1. Sections under 04 2000 heading: Installation.

**1.2 REFERENCES**

- A. Reference Standards:

**PART 2 - PRODUCTS****2.1 ACCESSORY PRODUCTS**

- A. Manufacturers:
  - 1. Manufacturer List:
    - a. Advanced Building Products Inc, Springvale, ME [www.advancedflashing.com](http://www.advancedflashing.com).
    - b. Dur-O-Wal by Dayton Superior, Aurora, IL [www.durowal.com](http://www.durowal.com).
    - c. Hohmann & Barnard, Hauppauge, NY [www.h-b.com](http://www.h-b.com).
    - d. Masonry Reinforcing Corporation of America, Roundtree, NC [www.wirebond.com](http://www.wirebond.com).
    - e. Masonry Technology Inc, Cresco, IA [www.masonrytechnology.com](http://www.masonrytechnology.com).
    - f. Mortar Net USA Ltd, Gary, IN [www.mortarnet.com](http://www.mortarnet.com).
    - g. Sandell Manufacturing Co, Schenectady, NY [www.sandellmfg.com](http://www.sandellmfg.com).
    - h. York Manufacturing Inc, Sanford, ME [www.yorkflashings.com](http://www.yorkflashings.com).
- B. Materials:
  - 1. Flexible Flashing:
    - a. Five ounces copper per sq ft of material with two layers of kraft paper.
    - b. Type Two Acceptable Product:
      - 1) Cop-R-Kraft Duplex by Advanced Building Products.
      - 2) Copper Kraft Duplex by Sandell Manufacturing Co.
      - 3) Cop-R-Tex Duplex by York.
      - 4) Equal as approved by Architect before installation. See Section 01 6200.
  - 2. Weep Vents:
    - a. Type One Acceptable Products:
      - 1) Cell Vent:
        - a) D/A 1006 by Dur-O-Wall:
        - b) #QV - Quadro-Vent by Hohmann & Barnard.
        - c) #3601 Cell Vent by Masonry Reinforcing Corporation of America.
      - 2) Cavity Vent by Masonry Technology.
    - b. Equals as approved by Architect before bidding. See Section 01 6200.
  - 3. Mortar Guard:

- a. Thickness as recommended by Manufacturer for air space.
- b. Category Four Approved Products. See Section 01 6200 for definition of Categories.
  - 1) The Mortar Net.
  - 2) Mortar Net by Hohmann & Barnard.

**PART 3 - EXECUTION: Not Used**

**END OF SECTION**

**BRICK VENEER MASONRY****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
  - 1. Furnish and install masonry units as veneer on framing as described in Contract Documents.
- B. Products Installed But Not Furnished Under This Section:
  - 1. Section 10 1424: Engraved Stone Panel Signage.
  - 2. Section 05 1223: Metal Lintels.
  - 3. Section 07 7126: Reglets.

**1.2 REFERENCES**

- A. Reference Standards:
  - 1. ASTM International:
    - a. ASTM C 216-05a, 'Standard Specification for Facing Brick (Solid Masonry Made from Clay or Shale).'
- B. Definitions:
  - 1. Cold Weather, as referred to in this Section, is four hours with ambient temperature below **40 deg F** in 24-hour period.
  - 2. Hot Weather, as referred to in this Section, is ambient air temperature above **100 deg F** or ambient air temperature above **90 deg F** with wind velocity **8 mph** or greater.

**1.3 ADMINISTRATIVE REQUIREMENTS**

- A. Pre-Installation Conference: Schedule pre-installation conference during construction of mockup panel.

**1.4 SUBMITTALS**

- A. Action Submittals:
  - 1. Samples: One full size brick minimum, one sample of each special shape, and samples which demonstrate full range of color and texture.
- B. Closeout Submittals:
  - 1. Operation And Maintenance Data:
    - a. Manufacturer's literature or cut sheet.
    - b. Color and type selection.

**1.5 QUALITY ASSURANCE**

- A. Mockups:
  - 1. Panel **4 feet** long by **3 feet** high of proposed color range, texture, bond, mortar, and workmanship. Include mock-up framing and sheathing to show wall construction to be used on Project, including anchor and tie systems, etc.
  - 2. Do not start work of this Section until Architect has accepted sample panel.
  - 3. Use panel as standard of comparison for masonry work built of same material.

## 1.6 DELIVERY, HANDLING, AND STORAGE

- A. Check, carefully unload, and deliver material to site in such a manner as to avoid soiling, damaging, or chipping.
- B. Store material on planks clear of ground and protect from damage, dirt, or disfigurement.

## PART 2 - PRODUCTS

### 2.1 SYSTEM

- A. Performance:
  - 1. Design Criteria:
    - a. Meet requirements of ASTM C 216, Grade SW, Type FBX.
      - 1) Rating for efflorescence shall be 'Not Effloresced.'
      - 2) Exposed faces shall be finished and have less than 5 percent chippage and have crack-free appearance when viewed from **15 feet** away.
    - b. Brick shall be cleanable using standard method specified below when using specified mortar.
- B. Materials:
  - 1. Mortar: Type 'N' as specified in Section 04 0513.
  - 2. Brick:
    - a. Brick shall be true to size and shape. No warped brick permitted. Brick for Project shall be fired in same run.
    - b. **3-5/8 inches** wide by **2-1/4 inches** high by **7-5/8 inches** long modular brick.
    - c. Quality Standard: Belden Brick; Canton, OH
    - d. Type One Acceptable Manufacturers, Style, And Color:
      - 1) **Belden Brick, modular, Admiral Red Velour A.**
      - 2) Equal as approved by Architect before bidding. See Section 01 6200.

### 2.2 ACCESSORY PRODUCTS

- A. Cleaning Compounds:
  - 1. Use type of compound recommended by Brick Manufacturer based on minerals present in masonry units.
  - 2. Type Two Acceptable Products:
    - a. 202 or 202V by Diedrich Technologies, Oak Creek, WI [www.diedrichtechnologies.com](http://www.diedrichtechnologies.com).
    - b. Surekleen No. 600 or Vana-Trol by ProSoCo Inc, Kansas City, KS [www.prosoco.com](http://www.prosoco.com).
    - c. Equal as approved by Architect before use. See Section 01 6200.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Special Techniques:
  - 1. Cold Weather Requirements:
    - a. Do not lay masonry in Cold Weather unless authorized by Architect.
    - b. Heat mixing water and sand as required during Cold Weather to produce mortar temperatures at application of between **70 and 120 deg F**.
    - c. Heat masonry units to **40 deg F** minimum when ambient temperature is below **20 deg F**.
    - d. Provide windbreaks during construction if ambient temperature is **35 deg F** or below and wind velocities exceed **15 mph**.

- e. If ambient temperature is **20 deg F** or below, provide enclosure for masonry under construction with heat sources and maintain temperature in enclosure at **40 deg F** minimum. Maintain temperature around masonry at **40 deg F** minimum for first 48 hrs after construction.
  - f. Keep materials free of ice and snow. Do not lay masonry on frozen material.
2. Hot Weather Requirements:
- a. In Hot Weather, cool mixing water as necessary to maintain mortar and grout temperatures below **90 deg F**.
  - b. In Hot Weather, prevent rapid drying of walls by using fog spray or by covering wall with plastic or wet canvas or burlap.
- B. Interface With Other Work:
1. Make cuts proper size to accommodate work of other trades. Cut openings for electrical devices using cover plates no larger than can be covered by standard size plate.
  2. Replace unit masonry in which larger than necessary openings are cut. Do not patch openings with mortar or other material.
- C. Tolerances:
1. Masonry shall be laid true to vertical and horizontal planes within **1/8 inch in 10 feet**, non-cumulative. Recess masonry where indicated.
  2. Maintain **3/8 inch** mortar joints throughout.
- D. Masonry Veneer Ties:
1. Free of material that may destroy bond.
  2. Install as detailed by screwing through sheathing into framing. Begin approximately **8 inches** from base of masonry and with maximum spacing of **16 inches** vertically and horizontally thereafter. Install final row of ties within **8 inches** of top course of brick.
- E. Flashing: Install embedded flashing behind lower edge of air infiltration barrier.
- F. Laying:
1. Layout:
    - a. Running bond except where noted otherwise. Select brick so there is uniform distribution of hues.
    - b. Use solid brick where brick coursing would otherwise show cores.
  2. Joints:
    - a. Do not tool until mortar has taken initial set.
    - b. Tool concave. When tooling joints, squeeze mortar back into joint.
    - c. Point holes in joints. Fill and tool properly.
  3. Use mortar within two hours of initial mixing. Discard mortar that has begun to set.
  4. Wet each brick to saturation. Lay brick when surface is dry. Brick absorption when laid should not exceed 0.025 oz/sq inch maximum.
  5. Set masonry units within one minute of spreading mortar. Shove brick into place in full mortar bed, do not lay.
  6. Completely fill horizontal and vertical joints. Do not furrow bed joints.
  7. Strike back-side joints on brick flush. Do not allow mortar build-up in cavity between masonry veneer and stud wall sheathing.
  8. Step back unfinished work for joining with new work. Use toothing only with Architect's approval.
- G. Weepholes: Install at **33 inches** on center maximum at bottom masonry course.
- H. Mortar Guard: Place mortar guard continuously between brick or CMU and sheathing at bottom course of masonry.

**3.2 CLEANING**

- A. After mortar has hardened, wet masonry and clean with specified cleaning compound. Use stiff fibered brush for application. Rinse masonry surfaces with water immediately after cleaning. Leave masonry clean, free of mortar daubs, and with tight mortar joints.
- B. Remove and replace defective material at Architect's direction and at no additional cost to Owner.
- C. Clean up masonry debris and remove from site.

**3.3 PROTECTION**

- A. Protect masonry with cover during rainy weather.

**END OF SECTION**