

DIVISION 04

MASONRY

**SECTION 04 0511
MASONRY MORTARING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Mortar for masonry.

1.02 RELATED REQUIREMENTS

- A. Section 04 2000 - Unit Masonry: Installation of mortar

1.03 REFERENCES

- A. ACI 530/ASCE 5/TMS 402 - Building Code Requirements For Masonry Structures; American Concrete Institute International; 2008.
- B. ACI 530.1/ASCE 6/TMS 602 - Specification for Masonry Structures; American Concrete Institute International; 2008.
- C. ASTM C 91 - Standard Specification for Masonry Cement; 2005.
- D. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2009a.
- E. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar; 2004.
- F. ASTM C 150 - Standard Specification for Portland Cement; 2007.
- G. ASTM C 270 - Standard Specification for Mortar for Unit Masonry; 2008a.
- H. IMIABC (CW) - Recommended Practices & Guide Specifications for Cold Weather Masonry Construction; International Masonry Industry All-Weather Council; 1993.
- I. IMIABC (HW) - Recommended Practices & Guide Specifications for Hot Weather Masonry Construction; International Masonry Industry All-Weather Council; current edition.

1.04 SUBMITTALS

- A. See Section 01 3323 - Submittals, for submittal procedures.
- B. Product Data: Include design mix and indicate whether the Proportion or Property specification of ASTM C 270 is to be used.

1.05 QUALITY ASSURANCE

- A. Comply with provisions of ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530.1/ASCE 6/TMS 602 or applicable building code, whichever is more stringent.
- B. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.
- C. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Masonry Cement: ASTM C 91, Type S.
 - 1. Acceptable product: use one brand throughout job.
- B. Portland Cement: ASTM C 150, Type II – Moderate.
- C. Mortar Aggregate: ASTM C 144.

- D. Water: Clean and potable.
- E. Moisture-Resistant Admixture: Water repellent compound designed to reduce capillary.
 - 1. Acceptable Products:
 - a. W.R. Grace "Dry Mortar" additive
 - b. BASF "Hydrocide" Powder

2.02 MORTAR MIXING

- A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C 270 and in quantities needed for immediate use.
- B. Maintain sand uniformly damp immediately before the mixing process.
- C. Do not use anti-freeze compounds to lower the freezing point of mortar.
- D. If water is lost by evaporation, re-temper only within two hours of mixing.
- E. Use mortar within two hours after mixing at temperatures of 90 degrees F, or two-and-one-half hours at temperatures under 50 degrees F.
- F. Mortar Proportioning-Masonry Cement Mortar
 - 1. One part masonry cement and three parts sand

PART 3 EXECUTION

3.01 PREPARATION

- A. Plug clean-out holes for grouted masonry with brick or block masonry units. Brace masonry to resist wet grout pressure.

3.02 INSTALLATION

- A. Install mortar and grout to requirements of section(s) in which masonry is specified.

3.03 SCHEDULES

- A. Use Type "S" mortar for all masonry above grade.

END OF SECTION

SECTION 04 2000
UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Clay Facing Brick
- B. Flashings.
- C. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 01 2100 - Allowances for brick allowance.
- B. Section 04 0511 - Masonry Mortaring and Grouting.
- C. Section 07 1113 - Bituminous Dampproofing: Dampproofing masonry surfaces.
- D. Section 07 1900 - Water Repellents for Masonry Sealer.
- E. Section 07 6500 - Flexible Flashing for Through Wall Flashing.
- F. Section 07 9005 - Joint Sealers: Backing rod and sealant at control joints.

1.03 REFERENCES

- A. ACI 530/ASCE 5/TMS 402 - Building Code Requirements for Masonry Structures; American Concrete Institute International; 2008.
- B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2008.
- C. ASTM C 62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale); 2008.
- D. ASTM C 129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2006.
- E. ASTM C 216 - Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale); 2007a.
- F. IMIAWC (CW) - Recommended Practices & Guide Specifications for Cold Weather Masonry Construction; International Masonry Industry All-Weather Council; 1993.
- G. IMIAWC (HW) - Recommended Practices & Guide Specifications for Hot Weather Masonry Construction; International Masonry Industry All-Weather Council; current edition.

1.04 SUBMITTALS

- A. See Section 01 3323 - Submittals, for submittal procedures.
- B. Product Data: Provide data for mortar, and masonry accessories.
- C. Samples: Submit 6 samples of facing brick units to illustrate color, texture, and extremes of color range.
- D. Provide 3'-4" x 3'-4" mockup of brick and mortar for approval; mock up may not remain as part of the project.

1.05 QUALITY ASSURANCE

- A. Comply with provisions of ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents.

1.06 PRE-INSTALLATION MEETING

- A. Convene one week before starting work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.
- B. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

PART 2 PRODUCTS

2.01 BRICK UNITS

- A. Facing Brick: ASTM C 216, Type FBS, Grade SW.
 - 1. Color and texture: to match existing brick units.
 - 2. Nominal size: As indicated on drawings.
 - 3. Special shapes: Molded units as required by conditions indicated, unless standard units can be sawn to produce equivalent effect.
 - 4. See Section 01-2100 - Allowances.
- B. Building (Common) Brick: ASTM C 62, Grade MW; cored units.
 - 1. Nominal size: As indicated on drawings.

2.02 MORTAR MATERIALS

- A. Mortar: As specified in Section 04 0511.

2.03 FLASHINGS

- A. Through Wall Flashing: Copper fabric as specified in Section 07 6500.

2.04 ACCESSORIES

- A. Preformed Control Joints: Polyvinyl chloride material. Provide with corner and tee accessories, fused joints.
 - 1. Manufacturers:
 - a. Dur-O-Wal: www.dur-o-wal.com.
 - b. Hohmann & Barnard, Inc: www.h-b.com.
 - c. Masonry Reinforcing Corporation of America: www.wirebond.com.
- B. Joint Filler: Closed cell polyurethane; oversized 50 percent to joint width; self expanding; width as required x by maximum lengths available.
- C. Weeps: Polyethylene tubing, polyester mesh.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

- A. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Brick Units:
 - 1. Bond: Running.
 - 2. Coursing: Three units and three mortar joints to equal 8 inches.
 - 3. Mortar Joints: concave.

- D. Minor deviations in location of door or window openings to make work course out will be at the contractor's discretion; major changes must have approval of architect.

3.04 PLACING AND BONDING

- A. Lay hollow masonry units with face shell bedding on head and bed joints.
- B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- C. Remove excess mortar and mortar smears as work progresses.
- D. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- E. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

3.05 WEEPS/CAVITY VENTS

- A. Install weeps in walls at 24 inches on center horizontally above through-wall flashing as indicated on the drawings.

3.06 MASONRY FLASHINGS

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
 - 1. Extend flashings full width at such interruptions and at least 4 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
 - 2. Remove or cover protrusions or sharp edges that could puncture flashings.
 - 3. Seal lapped ends and penetrations of flashing before covering with mortar.
- B. Extend metal flashings to within 1/4 inch of exterior face of masonry.
- C. Lap end joints of flashings at least 4 inches and seal watertight with mastic or elastic sealant.

3.07 TOLERANCES

- A. Maximum Variation from Alignment of Columns and Pilasters: 1/4 inch.
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- F. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.
- G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.08 CLEANING

- A. Remove excess mortar and mortar droppings.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with cleaning solution.
- D. Use non-metallic tools in cleaning operations.
- E. Use of acids for cleaning masonry will not be allowed.

3.09 MASONRY SEALER

- A. Treat all exposed masonry with sealer as specified in Section 07 1900.

3.10 SCHEDULES

- A. Facing Brick Units:
 - 1. As indicated on the drawings.

END OF SECTION