

**SECTION 04 01 00
MAINTENANCE OF MASONRY**

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Repointing existing damaged masonry joints.
2. Replacing existing damaged masonry units if required.

1.2 RELATED REQUIREMENTS: None.

1.3 APPLICABLE PUBLICATIONS

A. Comply with references to extent specified in this section.

B. ASTM International (ASTM):

1. C67-14 - Sampling and Testing Brick and Structural Clay Tile.
2. C144-11 - Aggregate for Masonry Mortar.
3. C150/C150M-15 - Portland Cement.
4. C216-15 - Facing Brick (Solid Masonry Units Made from Clay or Shale).
5. C270-14a - Mortar for Unit Masonry.
6. C295/C295M-12 - Petrographic Examination of Aggregates for Concrete.

1.4 SUBMITTALS

A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Manufacturer's Literature and Data:

1. Description of each product.
2. Replacement units (if required) indicating manufacturer recommendation for each application.

C. Samples:

1. Not required.

D. Test reports:

1. Recommended mortar mix and mortar materials sources.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Must have experience in completion of work, similar in nature, material, and extent specified.

1.6 DELIVERY

A. Deliver products in manufacturer's original sealed packaging.

1.7 STORAGE AND HANDLING

- A. Store materials covered, protected from weather, and elevated above grade. Prevent contamination of aggregates.
- B. Protect products from damage during handling and construction operations.

1.8 FIELD CONDITIONS

- A. Environment:
 - 1. Cold Weather Requirements: Maintain mortar ingredients and substrate within temperature range between 4 degrees C (40 degrees F) and 49 degrees C (120 degrees F) when outside temperature is less than 4 degrees C (40 degrees F).
 - 2. Hot Weather Requirements: Protect mortar-joint from evaporation of moisture from mortar material. When required, provide adequately shaded work area.

1.9 WARRANTY

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Mortar Components:
 - 1. Hydrated Lime: ASTM C207, Type S.
 - 2. Aggregate: ASTM C144.
 - 3. Portland Cement: ASTM C150/C150M, Type I.
 - 4. Ardex cement and concrete repair materials listed in the contract drawings. The specified products may be substituted with equivalent products with the approval of the COR.
 - 5. Water: Potable, free of substances that are detrimental to grout, masonry, and metal.

2.2 REPLACEMENT MASONRY UNITS

- A. Face Brick:
 - 1. Matching existing if and where required.
 - 2. Efflorescence: Rated slight efflorescent when tested according to ASTM C67.
- B. Other Masonry Units: Match existing.

2.3 MIXES

- A. Tuck Pointing Mortar: ASTM C270.
 - 1. Type N mortar to be used.
 - 2. Alternate mixes may be used with the written permission of the Contracting Officer.

2.4 ACCESSORIES

- A. Cleaning Agent: Soapless, non-acidic, detergent, specially prepared for cleaning brick masonry.
- B. Concrete Bonding Adhesive: Exterior grade synthetic emulsion used to adhere new cementitious materials to old.
- C. Bonding and Anti-Corrosion Agent: Two-part, exterior grade bonding agent used when new cementitious material must bond to steel or cast iron as well as existing concrete.

PART 3 - EXECUTION**3.1 PREPARATION**

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.
- C. Protect from mortar droppings and cleaning operations.
- D. Remove existing fixtures and fittings concealing masonry joints to permit repointing and repair.
- E. Prior to repair of area, fully clean and apply concrete bonding adhesive if no steel or cast iron is visible or bonding and anti-corrosion agent if steel or cast iron is visible within the repair area.

3.2 EXISTING MORTAR JOINTS

- A. Cut out existing bed and head mortar joints, to uniform depth of 19 mm (3/4 inches), or to sound mortar without damaging edges and faces of existing masonry units to remain.
- B. Remove dust and debris from joints. Do not rinse when temperature is below freezing.

3.3 TUCK POINTING

- A. Dampen joints immediately before tuck pointing. Allow masonry units to absorb surface water.
- B. Tightly pack tuck pointing mortar into joints in thin layers, 6 mm (1/4 inch) thick, maximum.
- C. Allow layer to become slightly hardened before applying next layer.

- D. Pack final layer flush with surfaces of masonry units.

3.4 MASONRY UNIT REPLACEMENT

- A. Cut out mortar joints surrounding masonry units requiring replacement.
 - 1. Remove existing masonry units creating opening for replacement masonry unit installation.
 - 2. Remove mortar, dust, and debris from opening perimeter surfaces.
- B. Dampen surfaces of surrounding existing masonry before installing replacement masonry units.
 - 1. Allow existing masonry to absorb surface moisture before installing replacement units.
 - 2. Butter contact surfaces of existing masonry and replacement masonry units with mortar.
 - 3. Center replacement masonry units in opening and press into position.
 - 4. Remove excess mortar.
 - 5. Tuck point replacement masonry units to ensure full head and bed joints.

3.5 JOINT TOOLING

- A. Tool repointed and/or replaced masonry joints when mortar becomes slightly hardened.
- B. Produce smooth, compacted, joint matching existing.

3.6 CLEANING

- A. Remove mortar splatter from exposed surfaces immediately.
- B. Clean exposed masonry surfaces on completion.
- C. Remove mortar droppings and other foreign substances from wall surfaces.
- D. Wet surfaces with clean water.
- E. Wash with cleaning agent.
- F. Brush masonry surfaces with stiff fiber brushes while washing.
- G. Immediately after washing, rinse with clean water. Remove traces of detergent, foreign streaks or stains.

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