

**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.

**1.2 RELATED REQUIREMENTS**

- A. Mortars for new masonry: Section 04 05 13, MASONRY MORTARING.

**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. C207-06(2011) - Hydrated Lime for Masonry Purposes.
5. C216-15 - Facing Brick (Solid Masonry Units Made from Clay or Shale).
6. C270-14a - Mortar for Unit Masonry.
7. 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 indicating manufacturer recommendation for each application.

C. Samples:

1. Pointing Mortar: Molded, 150 mm (6 inches) long for each type, texture, and color.

D. Test reports:

1. Preconstruction test results of existing masonry mortar and units.
2. Recommended mortar mix and mortar materials sources.

**1.5 QUALITY ASSURANCE**

- A. Installer Qualifications:

1. Documented experience in completion of work, similar in design, material, and extent specified.

B. Preconstruction Testing:

1. Existing Brick: according to ASTM C67.
2. Existing Mortar: according to ASTM C295/C295M.
  - a. Recommend mortar mix compatible with existing and mortar material sources required to match existing color and texture.

- C. Mockups: Prepare mockup in size indicated on Drawings, demonstrating quality and aesthetics of tuck pointing and masonry unit replacement and cleaning.

**1.6 DELIVERY**

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, color, production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

**1.7 STORAGE AND HANDLING**

- A. Store materials covered, protected from weather, and elevated above grade.
  1. 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. Water: Potable, free of substances that are detrimental to grout, masonry, and metal.

**2.2 PRODUCTS - GENERAL**

- A. Basis of Design: Section 09 06 00, SCHEDULE FOR FINISHES.
- B. Provide each product from one manufacturer and from one production run.

**2.3 REPLACEMENT MASONRY UNITS****A. Face Brick:**

1. ASTM C216, Grade SW, Type FBS matching existing.
2. Efflorescence: Rated slight efflorescent when tested according to ASTM C67.

**B. Other Masonry Units: Match existing.****2.4 MIXES****A. Tuck Pointing Mortar: ASTM C270; Appendix X3.**

1. Type K.
2. Type K: 1 part Portland cement, 4 parts hydrated lime and 11-1/4 to 15 parts fine sand.

**2.5 ACCESSORIES**

- A. Cleaning Agent: Soapless, non-acidic, detergent, specially prepared for cleaning brick, stone, concrete and masonry.

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.
  1. Protect from mortar droppings and cleaning operations.
- C. Remove existing fixtures and fittings concealing masonry joints to permit repointing and repair.

**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.
  - 1. 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.
  - 3. Prevent debris from falling into cavity.
- 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 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.
  - 1. Remove traces of detergent, foreign streaks or stains.

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