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**SECTION 04 05 13.91
TUCKPOINT MORTARING**
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PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Standard tuckpoint mortar for existing masonry.
- B. Colored tuckpoint mortar for existing masonry.

1.2 RELATED SECTIONS

- A. Section 04 01 20.91 - Unit Masonry Restoration.
- B. Section 04 05 13 - Masonry Mortaring and Grout
- C. Section 04 20 00 - Unit Masonry
- D. Section 04 21 00 - Clay Unit Masonry
- E. Section 04 22 00 - Concrete Unit Masonry
- F. Section 04 43 00 - Stone Masonry

1.3 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 530.1-02 - Specification for Masonry Structures.
- B. ASTM International (ASTM):
 - 1. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.
 - 2. ASTM C 150 - Standard Specification for Portland Cement.
 - 3. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes.
 - 4. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete.
 - 5. ASTM C 270 - Standard Specification for Mortar for Unit Masonry.
 - 6. ASTM C 595 - Standard Specification for Blended Hydraulic Cements.
 - 7. ASTM C 780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Masonry.
 - 8. ASTM C 979 - Standard Specification for Pigments for Integrally Colored Concrete.
 - 9. ASTM C 1093 - Standard Practice for Accreditation of Testing Agencies for Unit Masonry.
 - 10. ASTM C 1157 - Standard Performance Specification for Hydraulic Cement.
 - 11. ASTM C 1314 - Standard Test Method for Compressive Strength of Masonry Prisms.
 - 12. ASTM C 1586 - Standard Guide for Quality Assurance of Mortars.
 - 13. ASTM C 1714 - Standard Specification for Pre-blended Dry Mortar Mix for Unit Masonry.



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14. ASTM E 329 - Specification for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction.
15. ASTM E 514 - Standard Test Method for Water Penetration and Leakage Through Masonry.
- C. International Masonry Industry All-Weather Council (IMIAC):
 1. IMIAC - International Masonry Industry All-Weather Council (IMIAC): Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.
 2. IMIAC - International Masonry Industry All-Weather Council (IMIAC): Recommended Practices and Guide Specifications for Hot Weather Masonry Construction.
- D. National Concrete Masonry Association (NCMA):
 1. NCMA TEK Bulletin #8-2A - Removal of Stains from Concrete Masonry.
 2. NCMA TEK Bulletin #8-3A - Control and Removal of Efflorescence.
- E. The Brick Industry Association (BIA):
 1. BIA Technical Note 20 – Cleaning Brick.

1.4 SYSTEM DESCRIPTION

- A. Design and Performance Requirements: Provide mortar mixes that have been selected, manufactured, mixed and installed to comply with the following:
 1. ASTM C 270.
 2. ASTM C 1714.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 33 00 – Submittal Procedures.
- B. Product Data: Submit manufacturer's product data.
- C. Samples: Submit selection and verification samples of colored mortar.
- D. Quality Assurance/Control Submittals:
 1. Submit manufacturer's certificates that products meet or exceed specified requirements.
 2. Submit test results prepared by a qualified independent testing laboratory.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Firm specializing in manufacture of masonry installation materials, including mortars, with minimum 10 years experience.
- B. Quality Assurance/Control Testing: Test Reports prepared by a qualified independent laboratory indicating compliance with the following performance requirements:
 1. Mortar samples tested in accordance with ASTM C 270.
 2. Mortar samples tested in accordance with ASTM C 780.
- C. Pre-Installation Meeting: At least three weeks prior to commencing masonry work conduct a meeting at the project site to discuss contract requirements and job conditions; require the attendance of masonry contractor, and installers of related materials; notify Architect in advance of meeting.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Storage and Protection: Cementitious materials shall be manufactured and stored off the ground, under cover and shall be kept dry in accordance with ASTM C1714.



1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
 - 1. Cold Weather Requirements: In accordance with "Recommended Practices and Guide Specifications for Cold Weather Masonry Construction" by IMIAC.
 - 2. Hot Weather Requirements: "Recommended Practices and Guide Specifications for Hot Weather Masonry Construction" by IMIAC.
- B. Do not build or apply mortar products on frozen substrates.
 - 1. Remove and replace mortar damaged by frost or by freezing conditions.
- C. Vent temporary heaters to exterior to prevent damage to masonry work from carbon dioxide build-up.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: SPEC MIX®, Inc., which is located at: 1230 Eagan Industrial Road, Suite 160, Eagan, MN 55121; Toll Free Tel: 888-SPEC-MIX (773-2649); Tel: 651-994-7120; Email: [request info \(info@specmix.com\)](mailto:request_info@specmix.com); Web: www.specmix.com
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 25 00 – Substitution Procedures.
- C. Obtain products from a single manufacturer.

2.2 MORTAR

- A. **Tuckpoint Mortar:** SPEC MIX Tuckpoint Mortar is a specialized blend of Portland cement, hydrated lime and dried masonry sand specifically formulated for superior bond and tooling characteristics when applied in tuckpointing applications.
 - 1. Applicable Standards: ASTM C 144, ASTM C 150, ASTM C 207, ASTM C 270 for tuckpoint mortar, ASTM C 595, ASTM C 780, ASTM C 1093, ASTM C 1157, ASTM C 1314, ASTM C 1586, ASTM C 1714, ACI 530.1, IMIAC.
- B. **Colored Tuckpoint Mortar:** SPEC MIX Tuckpoint Mortar Color is a specialized blend of Portland cement, hydrated lime, dried masonry sand and color pigment specifically formulated for superior bond and tooling characteristics when applied in tuckpointing applications.
 - 1. Pigments:
 - a. Natural and synthetic, milled, blended iron oxides.
 - b. Carbon added for darker colors shall not exceed 4 percent.
 - c. Produce uniform and consistent color.
 - d. Inert, stable to atmospheric conditions, sunfast, weather resistant, alkali resistant, water insoluble, lime proof and nonbleeding.
 - e. Free of deleterious fillers and extenders.
 - 2. Color: Custom color.
 - 3. Applicable Standards: ASTM C 144, ASTM C 150, ASTM C 207, ASTM C 270 for tuckpoint mortar, ASTM C 595, ASTM C 780, ASTM C 979, ASTM C 1093, ASTM C 1157, ASTM C 1314, ASTM C 1586, ASTM C 1714, ACI 530.1, IMIAC.

2.3 ACCESSORY MATERIALS

- A. Water: Clean and free from deleterious acids, alkalis, and organic matter.



PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to receive masonry work and conditions under which masonry will be installed.
- B. Do not proceed with masonry work until surfaces and conditions comply with requirements indicated in referenced masonry installation standard and manufacturer's printed instructions.

3.2 REMOVAL OF EXISTING MORTAR

- A. Removal of Existing Mortar: Cut out existing mortar joints (both bed and head joints) and remove by means of a toothing chisel or a special pointer's grinder, to a uniform depth of to 3/4-inch (19 mm), or until sound mortar is reached.
 - 1. Take care to not damage edges of existing masonry units to remain.
- B. Remove dust and debris from the joints by brushing, blowing with air or rinsing with water. Do not rinse when temperature is below freezing.

3.3 REPLACEMENT OF MASONRY UNITS

- A. Remove damaged, spalled, or deteriorated masonry units. Carefully demolish or remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full size units.
- B. Support and protect remaining masonry that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.
- C. Clean masonry units surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.
- D. Replace removed units with new units that match existing. Do not use broken units unless they can be cut to usable size.
- E. Install replacement units into bonding and coursing pattern of existing units. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
- F. Maintain joint width for replacement units to match existing joints.
- G. Lay replacement units with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place.

3.4 MIXING

- A. Mixing: As recommended by manufacturer.
- B. Retempering:
 - 1. Retemper mortar by adding additional mixing water only to replace water lost due to evaporation.
 - 2. Do not retemper colored mortars.
 - 3. Discard mortar 2.5 hours after initial mixing.
- C. Colored Mortar: Consistency of appearance shall be maintained throughout the project.

3.5 INSTALLATION OF TUCK POINTING MORTAR

- A. Install mortar in accordance with ACI/ASCE-530.1:



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- B. Immediately prior to application of mortar, dampen joints to be tuck pointed. Prior to application of pointing mortar, allow masonry units to absorb surface water.
- C. Tightly pack mortar into joints in thin layers, approximately 1/4-inch (6 mm) thick maximum.
- D. Allow layer to become "thumbprint hard" before applying next layer.
- E. Pack final layer flush with surfaces of masonry units. When mortar becomes "thumbprint hard", tool joints.
- F. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repaint.

3.6 TOOLING OF JOINTS

- A. Tool joints with a jointing tool to produce a smooth, compacted, concaved joint.
- B. Tool joints in patch work with a jointing tool to match the existing surrounding joints.

3.7 CLEANING

- A. Comply with cleaning procedures and recommendations of the manufacturers of both the cleaning solution and the unit masonry.
- B. Remove efflorescence from masonry wall exposed in the finished work in accordance with manufacturer's recommendation, NCMA TEK Bulletin #8-3A and/or BIA Technical Note 20 – Cleaning Brick.
- C. Remove dirt or stains from masonry walls exposed in the finished work in accordance with the manufacturer's recommendations, NCMA TEK Bulletin #8-2A and/or BIA Technical Note 20 – Cleaning Brick.
- D. Comply with applicable environmental laws and restrictions.
- E. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure.
 - 1. Do not use metal scrapers or brushes.
 - 2. Do not use acidic or alkaline cleaners.

3.8 PROTECTION

- A. Protection: Protect newly pointed joints from rain, until pointed joints are sufficiently hard enough to prevent damage.
- B. Cold Weather Protection:
 - 1. Tuck pointing may be performed in freezing weather when methods of protection are utilized.
 - 2. Comply with applicable sections of "Recommended Practices for Cold Weather Construction" as published by International Masonry Industry All Weather Council.
 - 3. Existing surfaces at temperatures to prevent mortar from freezing or causing other damage to mortar.
- C. Protect installed work from damage due to subsequent construction activity on the site.

3.9 FIELD QUALITY CONTROL

- A. Tests:



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1. Frequency: As determined by the Architect based upon total time for construction of masonry with not less than two tests per each level of masonry construction, foundation to roof or floors.
 2. Testing Laboratory: Independent of the Owner, Architect and Contractor; the testing laboratory, in addition to meeting requirements of ASTM E-329, and must be an approved laboratory competent to perform cement physical testing. All tests must be performed in strict accordance with the applicable ASTM standard.
 3. Distribution of Results of Tests: Within 24 hours of results of tests, copies of the results shall be submitted to the Architect, Contractor, masonry contractor, and the grout supplier if applicable.
- B. Mortar Testing:
1. Testing per ASTM C 780 when the property specification is specified.
 2. When the proportion specification is specified, field quality control shall be performed by inspection only.
 3. For determining hardened mortar properties, prepare three test specimens for each test age and property. A strength test shall be the average of the strengths of the specimens at the age specified.
 4. Specimens shall be tested at 7 and 28 days.
 5. In case of dispute, the mortar proportions must be tested in accordance with the property specification of ASTM C 270.

END OF SECTION