Note to User:

This section contains macros to aid the editing process. By default Microsoft Word disables macros for virus security reasons. When you open a file that has macros, the yellow message bar appears with a shield icon and the enable content button. To enable these macros, click the Enable Content button.

SECTION 04 05 13.91

tUCKPOINT MORTARING

*(To View Hidden Text, Type* ***CTRL-H****)*

(Standard and Colored Tuckpoint Mortar)

**eDITING nOTES**: This Section has been created to assist the specifier in editing. Follow the steps below to edit this section.

 1. Copy this section from our website to your computer.

 2. The following keyboard commands will hide and un-hide text as required.

 **CNTRL-H**: Toggles to Hide and un-hide all hidden text. (**All** **Blue text is hidden** and does

 not need to be deleted for printing). Type Cntrl-h once to hide all hidden

 text, Type cntrl-h again to view all hidden text.

 **CNTRl-Shift-H**: Will hide selected text. Select unwanted text, type CNtr-Shft-H, it will

 turn blue and text will not print. **All paragraphs will automatically**

 **re-number when you hide or un-hide text**.

 **CNTRl-Shift-U**: Will Un-hide selected text. Select text, type CNtr-Shft-U, it will turn

 black again and text will print as normal.

 3. Edit Header and footer to match your project text.

\*\* **NOTE TO SPECIFIER** \*\* SPEC MIX ® mortars, grouts and silo systems.

 This Section is based on the products of SPEC MIX ®, Inc., which is located at:
 **SPEC MIX, Inc**.
 1230 Eagan Industrial Road, Suite 160.
 Eagan, MINNESOTA 55121
 Tel: 888-SPEC-MIX
 Tel: 651-994-7120
 Fax: 651-454-5315
 E-Mail: info@specmix.com
 Web: [www.specmix.com](http://www.specmix.com)

**OVERVIEW**
 SPEC MIX is your national source for high quality, factory produced cementitious products for the construction industry. With 57 licensed manufacturers located in major markets across the U.S., and Canada, the SPEC MIX team utilizes computerized batching equipment and the finest materials to ensure total quality control throughout your project. We also offer various patented silo systems to maximize a contractor's proficiency and safety rating. Our purpose is to keep the construction crew going, moving and working.

 Through our highly trained market representatives located in every territory, SPEC MIX provides you with expert technical support throughout the U.S., and Canada. Enjoy browsing the SPEC MIX web site and please call us at 888-SPECMIX for any additional information.

**COLOR MATCHING**
 When working with colored mortar, uniform color requires consistent material proportioning. With SPEC MIX this isn't a problem. SPEC MIX colored mortar consists of preblended Portland cement and sand to produce uniformity from batch to batch. No field measuring is required. The pigments are specially blended to ensure maximum color effect and proper dispersion throughout the batch.
 Containing only finely milled synthetic iron oxides, the strongest and most stable colors available, SPEC MIX colors are lime-proof, sunfast and inert. The product is environmentally safe and, in every application, SPEC MIX meets or exceeds the criteria of ASTM C 270. SPEC MIX preblended colors cover the full range of the color spectrum: brown, buff, tan, black, yellow, orange, red and white. To achieve just the right masonry look, custom colors are available upon request. Your special color is perfectly matched every time, allowing complete control of your projects.
 All SPEC MIX colors are available in appropriate strengths and proper mix designs.

**ENGINEERING SERVICES**
 SPEC MIX, Inc., engineers and scientists can provide full-service project consultation from start to finish. The SPEC MIX Engineering Services team is proficient at troubleshooting and providing quick response to our customers' project concerns and needs. Our fully equipped laboratory has the capacity for forensic concrete and mortar analysis, including petrographic, chemical, and x-ray diffraction analyses, as well as physical testing of concrete, aggregate and mortar. These capabilities ensure that the products going into SPEC MIX bags meet our quality standards.
 AIA CONTINUING EDUCATION: "Factory Preblended Mortar for Masonry Construction" is certified for 1.0 LU hours that qualify for Health, Safety and Welfare credit. For more information, contact SPEC MIX at 888-773-2649 or e-mail us at info@specmix.com.

PART 1 ‑ GENERAL

# SECTION INCLUDES

#### Standard tuckpoint mortar for existing masonry.

#### Colored tuckpoint mortar for existing masonry.

# RELATED SECTIONS

\*\* **NOTE TO SPECIFIER** \*\* Delete any Sections below not relevant to this project; add others as required.

#### Section 04 01 20.91 - Unit Masonry Restoration.

#### Section 04 05 13 - Masonry Mortaring and Grout

#### Section 04 20 00 - Unit Masonry

#### Section 04 21 00 - Clay Unit Masonry

#### Section 04 22 00 - Concrete Unit Masonry

#### Section 04 43 00 - Stone Masonry

# REFERENCES

#### American Concrete Institute (ACI):

##### ACI 530.1-02 - Specification for Masonry Structures.

#### ASTM International (ASTM):

##### ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.

##### ASTM C 150 - Standard Specification for Portland Cement.

##### ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes.

##### ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete.

##### ASTM C 270 - Standard Specification for Mortar for Unit Masonry.

##### ASTM C 595 - Standard Specification for Blended Hydraulic Cements.

##### ASTM C 780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Masonry.

##### ASTM C 979 - Standard Specification for Pigments for Integrally Colored Concrete.

##### ASTM C 1093 - Standard Practice for Accreditation of Testing Agencies for Unit Masonry.

##### ASTM C 1157 - Standard Performance Specification for Hydraulic Cement.

##### ASTM C 1314 - Standard Test Method for Compressive Strength of Masonry Prisms.

##### ASTM C 1586 - Standard Guide for Quality Assurance of Mortars.

##### ASTM C 1714 - Standard Specification for Pre-blended Dry Mortar Mix for Unit Masonry.

##### ASTM E 329 - Specification for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction.

##### ASTM E 514 - Standard Test Method for Water Penetration and Leakage Through Masonry.

#### International Masonry Industry All-Weather Council (IMIAC):

##### IMIAC - International Masonry Industry All-Weather Council (IMIAC): Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

##### IMIAC - International Masonry Industry All-Weather Council (IMIAC): Recommended Practices and Guide Specifications for Hot Weather Masonry Construction.

#### National Concrete Masonry Association (NCMA):

##### NCMA TEK Bulletin #8-2A - Removal of Stains from Concrete Masonry.

##### NCMA TEK Bulletin #8-3A - Control and Removal of Efflorescence.

#### The Brick Industry Association (BIA):

##### BIA Technical Note 20 – Cleaning Brick.

# SYSTEM DESCRIPTION

#### Design and Performance Requirements: Provide mortar mixes that have been selected, manufactured, mixed and installed to comply with the following:

##### ASTM C 270.

##### ASTM C 1714.

# SUBMITTALS

#### Submit under provisions of Section 01 33 00 – Submittal Procedures.

#### Product Data: Submit manufacturer's product data.

#### Samples: Submit selection and verification samples of colored mortar.

#### Quality Assurance/Control Submittals:

##### Submit manufacturer's certificates that products meet or exceed specified requirements.

##### Submit test results prepared by a qualified independent testing laboratory.

# QUALITY ASSURANCE

#### Manufacturer Qualifications: Firm specializing in manufacture of masonry installation materials, including mortars, with minimum 10 years experience.

#### Quality Assurance/Control Testing: Test Reports prepared by a qualified independent laboratory indicating compliance with the following performance requirements:

\*\* **NOTE TO SPECIFIER** \*\* Usually delete one of the following two paragraphs. Test method ASTM C 780 is acceptable for pre-construction and construction evaluation of mortars for plain and reinforced unit masonry. There is no ASTM method for determining the conformance or nonconformance of a field prepared mortar to the Property Specification of ASTM C 270. Compressive strength values resulting from field tested mortars do not represent the compressive strength of mortar as tested in the laboratory nor that of the mortar in the wall. Physical properties of field sample mortars should not be used to determine compliance with ASTM C 270 intended as criteria to determine the acceptance or rejection of the mortar.
 Consult with manufacturer for more information on retaining or deleting the following paragraphs.

##### Mortar samples tested in accordance with ASTM C 270.

##### Mortar samples tested in accordance with ASTM C 780.

\*\* **NOTE TO SPECIFIER** \*\* Delete paragraph below if Work of this Section is not extensive or complex enough to justify a preinstallation meeting. If retaining, coordinate with Division 01 requirements.

#### 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.

# DELIVERY, STORAGE, AND HANDLING

#### 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.

# PROJECT CONDITIONS

#### Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

##### Cold Weather Requirements: In accordance with "Recommended Practices and Guide Specifications for Cold Weather Masonry Construction" by IMIAC.

##### Hot Weather Requirements: "Recommended Practices and Guide Specifications for Hot Weather Masonry Construction" by IMIAC.

#### Do not build or apply mortar products on frozen substrates.

##### Remove and replace mortar damaged by frost or by freezing conditions.

#### Vent temporary heaters to exterior to prevent damage to masonry work from carbon dioxide build-up.

 PART 2 – PRODUCTS

## MANUFACTURERS

#### 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)](http://admin.arcat.com/users.pl?action=UserEmail&company=SPEC%20MIX%26reg;,%20Inc.&coid=43312&rep=&fax=&message=RE:%20Spec%20Question%20(04062spe):%20%20&mf=); Web: [www.specmix.com](http://www.specmix.com)

#### Requests for substitutions will be considered in accordance with provisions of Section 01 25 00 – Substitution Procedures.

#### Obtain products from a single manufacturer.

## MORTAR

**\*\* NOTE TO SPECIFIER \*\*** Standard tuckpoint mortar

#### **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.

##### 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.

\*\* **NOTE TO SPECIFIER** \*\* if colored tuckpoint mortar is required, add the following paragraphs

#### **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.

##### Pigments:

###### Natural and synthetic, milled, blended iron oxides.

###### Carbon added for darker colors shall not exceed 4 percent.

###### Produce uniform and consistent color.

###### Inert, stable to atmospheric conditions, sunfast, weather resistant, alkali resistant, water insoluble, lime proof and nonbleeding.

###### Free of deleterious fillers and extenders.

##### Color: Custom color.

##### 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.

## ACCESSORY MATERIALS

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

PART 3 – EXECUTION

### EXAMINATION

#### Examine surfaces to receive masonry work and conditions under which masonry will be installed.

#### Do not proceed with masonry work until surfaces and conditions comply with requirements indicated in referenced masonry installation standard and manufacturer's printed instructions.

### removal of existing mortar

#### 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.

##### Take care to not damage edges of existing masonry units to remain.

#### Remove dust and debris from the joints by brushing, blowing with air or rinsing with water. Do not rinse when temperature is below freezing.

\*\* **NOTE TO SPECIFIER** \*\* If replacement of existing masonry units is required; add text below or edit to meet project requirements

### REPLACEMENT OF MASONRY UNITS

#### 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.

#### Support and protect remaining masonry that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

#### Clean masonry units surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.

#### Replace removed units with new units that match existing. Do not use broken units unless they can be cut to usable size.

#### 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.

#### Maintain joint width for replacement units to match existing joints.

#### Lay replacement units with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place.

### MIXING

#### Mixing: As recommended by manufacturer.

\*\* **NOTE TO SPECIFIER** \*\* Retempering mortar will alter the water - cement ratio which may affect compressive strength and color consistency.

#### Retempering:

##### Retemper mortar by adding additional mixing water only to replace water lost due to evaporation.

##### Do not retemper colored mortars.

##### Discard mortar 2.5 hours after initial mixing.

#### Colored Mortar: Consistency of appearance shall be maintained throughout the project.

### INSTALLATION OF TUCK POINTING MORTAR

#### Install mortar in accordance with ACI/ASCE-530.1:

#### 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.

#### Tightly pack mortar into joints in thin layers, approximately 1/4‑inch (6 mm) thick maximum.

#### Allow layer to become "thumbprint hard" before applying next layer.

#### Pack final layer flush with surfaces of masonry units. When mortar becomes "thumbprint hard", tool joints.

#### Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

### TOOLING OF JOINTS

\*\* **NOTE TO SPECIFIER** \*\* select one of the following two paragraphs to meet project requirements

#### Tool joints with a jointing tool to produce a smooth, compacted, concaved joint.

#### Tool joints in patch work with a jointing tool to match the existing surrounding joints.

### CLEANING

#### Comply with cleaning procedures and recommendations of the manufacturers of both the cleaning solution and the unit masonry.

#### 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.

#### 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.

#### Comply with applicable environmental laws and restrictions.

#### 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.

##### Do not use metal scrapers or brushes.

##### Do not use acidic or alkaline cleaners.

### PROTECTION

#### Protection: Protect newly pointed joints from rain, until pointed joints are sufficiently hard enough to prevent damage.

#### Cold Weather Protection:

##### Tuck pointing may be performed in freezing weather when methods of protection are utilized.

##### Comply with applicable sections of "Recommended Practices for Cold Weather Construction" as published by International Masonry Industry All Weather Council.

##### Existing surfaces at temperatures to prevent mortar from freezing or causing other damage to mortar.

#### Protect installed work from damage due to subsequent construction activity on the site.

\*\* **NOTE TO SPECIFIER** \*\* Delete the following paragraphs if Field Quality Control is specified in another masonry section.

### FIELD QUALITY CONTROL

#### Tests:

##### 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.

##### 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.

##### 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.

#### Mortar Testing:

##### Testing per ASTM C 780 when the property specification is specified.

##### When the proportion specification is specified, field quality control shall be performed by inspection only.

##### 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.

##### Specimens shall be tested at 7 and 28 days.

##### In case of dispute, the mortar proportions must be tested in accordance with the property specification of ASTM C 270.

END OF SECTION