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

MASONRY MORTARING

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

**Section Contains**

**Standard and Colored Masonry Cement;Integral Water Repellent Mortar; Set Accelerated Mortar; Set Delayed 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. (**AllBlue 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 hidden text. Select text, type CNtr-Shft-U, it will

 turnblack 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 masonry 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

\*\* **NOTE TO SPECIFIER** \*\* Delete any products below not relevant to this project.

# SECTION INCLUDES

#### Masonry Cement Mortar.

#### MasonryCement Integral Water-repellent (IWR) Mortar.

#### MasonryCement Set Accelerated Mortar .

#### MasonryCement Set Delayed Mortar.

# RELATED SECTIONS

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

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

#### Section 0405 13.91-Tuckpoint Mortaring.

#### 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

\*\* **NOTE TO SPECIFIER** \*\* Delete references from the list below that are not actually required by the text of the edited Section.

#### American Concrete Institute (ACI):

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

#### ASTM International (ASTM):

##### ASTM C 91 - Standard Specification for Masonry Cement.

##### ASTM C 143 - Standard Test Method for Slump of Hydraulic Cement Concrete.

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

##### 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 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.

##### 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 989 - Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars.

##### ASTM C 1072 - Standard Test Method for Measurement of Masonry Flexural Bond Strength.

##### 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 1384 - Standard Specification for Admixtures for Masonry Mortars.

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

##### 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 C1714.

# 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 testing laboratory.

\*\* **NOTE TO SPECIFIER** \*\* delete paragraph below if water repellent mortar is not used.

#### Installer shall warrant that only mortar containing integral water-repellent mortar admixture at the manufacturer's recommended addition rate has been placed in exterior walls.

# 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 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 1714.

\*\* **NOTE TO SPECIFIER** \*\* delete paragraphs below if water repellent mortar is not used.

##### Water-Repellent Testing Standard: Mortar samples with integral water-repellent tested in accordance with the following:

###### ASTM E 514, extended to 72 hours.

###### ASTM C 1314.

###### ASTM C 1384.

\*\* **NOTE TO SPECIFIER** \*\* Delete paragraphs for mockups below if not required.

#### Mock-Up: Provide a mock-up of each type of masonry installation, using masonry specified elsewhere and mortar materials specified in this Section; include at least one example of each type of accessory material, for approval of mortar color and quality of workmanship.

\*\* **NOTE TO SPECIFIER** \*\* Delete one of the following two paragraphs.

##### Size: 36 by 36 inches (915 by 915 mm), minimum.

##### Size: \_\_\_\_\_\_\_\_\_, maximum.

\*\* **NOTE TO SPECIFIER** \*\* Delete one of the following two paragraphs.

##### Location: As directed by Architect.

##### Location: As indicated on drawings.

\*\* **NOTE TO SPECIFIER** \*\* Delete one of the following two paragraphs.

##### Approved mock-ups may remain in the finished work.

##### When directed by Architect, dismantle and remove mock-ups from Project site.

\*\* **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.

\*\* **NOTE TO SPECIFIER** \*\* delete paragraphs below if water repellent mortar is not used.

#### Pre-Installation Conference: A representative of the water-repellent manufacturer shall be present prior to and at the beginning of wall construction to review the work with the Architect and the Contractor.

# DELIVERY, STORAGE, AND HANDLING

#### Storage and Protection: Cementitious materials shall be manufactured and stored off the ground, under cover and shall be kept dryin 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 unit masonry 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 masonry mortar

#### **Masonry Cement &Sand Mortar**:SPEC MIX Masonry Cement & Sand Mortar is a dry, pre-blended mortar mix containing masonry cement and dried masonry sand formulated for superior bond workability and boardlife.

\*\* **NOTE TO SPECIFIER** \*\* Select mortar type below

##### Mortar Type: M.

##### Mortar Type: S.

##### Mortar Type: N.

##### Applicable Standards: ASTM C 91, ASTM C 144, ASTM C 270, 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 masonry mortar is required, add the following paragraphs

#### **Colored Masonry Cement & Sand Mortar**: SPEC MIX Masonry Cement &Sand Color Mortar is a dry, pre-blended mortar mix containing masonry cement, dried masonry sand and pigment formulated for superior bond,workability and board life.

\*\* **NOTE TO SPECIFIER** \*\* Select mortar type below

##### Mortar Type: M.

##### Mortar Type: S.

##### Mortar Type: N.

##### 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 91, ASTM C 144, ASTM C 270, 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.

\*\* **NOTE TO SPECIFIER** \*\* For concrete unit masonry walls to achieve optimal water resistance, it is essential that integral water-repellent admixtures be incorporated into concrete units ("Dry Block") and mortar during the manufacturing process. Delete paragraph below if water-repellent masonry units and mortar are not required.

#### **Integral Water-Repellent MasonryCement & Sand Mortar**: SPEC MIX Integral Water-Repellent (IWR) Masonry Mortar is a dry, pre-blended mortar mixture containing masonry cement, dried masonry sand and dry Integral Water-Repellent Mortar Admixture.

\*\* **NOTE TO SPECIFIER** \*\* Select mortar type below

##### Mortar Type: M.

##### Mortar Type: S.

##### Mortar Type: N.

##### Applicable Standards: ASTM C 91, ASTM C 144, ASTM C 270, ASTM C 595, ASTM C 780, ASTM C 979, ASTM C 1072, ASTM C 1329, ASTM C 1384, ASTM E 514, ACI 530.1, IMIAC.

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

#### **Colored Integral Water-Repellent MasonryCement & Sand Mortar**: SPEC MIX Integral Water-Repellent (IWR) Color Masonry Mortar is a dry, pre-blended mortar mixture containing masonry cement, dried masonry sand, color pigments, and dry Integral Water-Repellent Mortar Admixture.

\*\* **NOTE TO SPECIFIER** \*\* Select mortar type below

##### Mortar Type: M.

##### Mortar Type: S.

##### Mortar Type: N.

##### 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 91, ASTM C 144, ASTM C 270, ASTM C 595, ASTM C 780, ASTM C 979, ASTM C 1072, ASTM C 1329, ASTM C 1384, ASTM E 514, ACI 530.1, IMIAC.

\*\* **NOTE TO SPECIFIER** \*\* Set Accelerated mortar below is specially formulated for faster set times in winter construction. if Set Accelerated mortar is required, add the following paragraphs.

#### **Set Accelerated,MasonryCement & Sand Mortar**: SPEC MIX Set Accelerated, Masonry Cement & Sand Mortar is a dry pre-blended mortar mix containing masonry cement, dried masonry sand , and Non-Chloride, Set-Accelerating.admixture.

\*\* **NOTE TO SPECIFIER** \*\* Select mortar type below

##### Mortar Type: M.

##### Mortar Type: S.

##### Mortar Type: N.

##### Applicable Standards: ASTM C 91, ASTM C 144, ASTM C 270, ASTM C 595, ASTM C 780, ASTM C 1072, ASTM C 1093, ASTM C 1157, ASTM C 1314, ASTM C 1384, ASTM C 1586, ASTM C 1714, ACI 530.1, IMIAC.

\*\* **NOTE TO SPECIFIER** \*\* Set Accelerated colored mortar below is specially formulated for faster set times in winter construction. if colored mortar is required, add the following paragraphs.

#### **Set Accelerated,Colored, Masonry Cement & Sand Mortar**: SPEC MIX Set Accelerated, Masonry Cement & Sand Color Mortar is a dry pre-blended mortar mix containing masonry cement, dried masonry sand, color pigments,and Non-Chloride, Set-Accelerating admixture.

\*\* **NOTE TO SPECIFIER** \*\* Select mortar type below

##### Mortar Type: M.

##### Mortar Type: S.

##### Mortar Type: N.

##### 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 91, ASTM C 144, ASTM C 270, ASTM C 595, ASTM C 780, ASTM C 979, ASTM C 1072, ASTM C 1093, ASTM C 1157, ASTM C 1314, ASTM C 1384, ASTM C 1586, ASTM C 1714, ACI 530.1, IMIAC.

\*\* **NOTE TO SPECIFIER** \*\* Set delayed mortar below is specially formulated for longer board life in hot weather (> 90 degrees) construction. if Set delayed mortar is required, add the following paragraphs.

#### **Set Delayed, Masonry Cement& SandMortar**: SPEC MIX Set Delayed, Masonry Cement& Sand Mortar is a dry pre-blended mortar mix containing masonry cement, dried masonry sand , and Set-Delaying Admixture.

\*\* **NOTE TO SPECIFIER** \*\* Select mortar type below

##### Mortar Type: M.

##### Mortar Type: S.

##### Mortar Type: N.

##### Applicable Standards: ASTM C 91, ASTM C 144, ASTM C 270, ASTM C 595, ASTM C 780, ASTM C 1072, ASTM C 1093, ASTM C 1157, ASTM C 1314, ASTM C 1384, ASTM C 1586, ASTM C 1714, ACI 530.1, IMIAC.

\*\* **NOTE TO SPECIFIER** \*\* Set delayed colored mortar below is specially formulated for longer board life in hot weather (> 90 degrees) construction. if colored mortar is required, add the following paragraphs.

#### **Set Delayed, Colored,Masonry Cement & SandMortar**: SPEC MIX Set Delayed, Masonry Cement & Sand Color Mortar is a dry pre-blended mortar mix containing masonry cement, dried masonry sand, color pigments, and Set-Delayingadmixture.

\*\* **NOTE TO SPECIFIER** \*\* Select mortar type below

##### Mortar Type: M.

##### Mortar Type: S.

##### Mortar Type: N.

##### 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 91, ASTM C 144, ASTM C 270, ASTM C 595, ASTM C 780, ASTM C 979, ASTM C 1072, ASTM C 1093, ASTM C 1157, ASTM C 1314, ASTM C 1384, ASTM C 1586, ASTM C 1714, ACI 530.1, IMIAC.

## ACCESSORY MATERIALS

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

#### Admixtures: Complying with ASTM C 1384.

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.

### INSTALLATION

#### Mixing: As recommended by manufacturer.

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

#### Re-tempering:

##### Re-temper mortar by adding additional mixing water only to replace water lost due to evaporation.

##### Do not re-temper colored mortars.

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

#### Installation of mortar shall be as specified under each of the following Sections and in accordance with ACI/ASCE-530.1:

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

##### 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

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

#### Protection: Cover the top of unfinished masonry work to protect it from the weather and to prevent accumulation of water in the cores of the masonry units.

### CLEANING

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

##### Utilize the same approved cleaning procedure as used on the sample panel or mock-up.

#### Remove efflorescence from masonry wall exposed in the finished work in accordance with manufacturer's recommendations,NCMA TEK Bulletin #8-3Aand/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, and and NCMA TEK Bulletin #8-2Aand/or BIA Technical Note 20 – Cleaning Brick.

#### Promptly remove excess wet mortar containing integral water-repellent mortar admixture from the face of the masonry as work progresses.

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

### PROTECTION

#### 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 sections.

### 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