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**SECTION 04 05 13.14
STONE VENEER MORTARING**

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PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Standard stone veneer mortar for stone specified in other Sections.
- B. Colored stone veneer mortar for stone specified in other Sections.
- C. Polymer Modified stone veneer mortar for stone specified in other Sections.
- D. Polymer Modified, colored stone veneer mortar for stone specified in other Sections.

1.2 RELATED SECTIONS

- A. Section 04 05 13 - Masonry Mortaring and Grout
- B. Section 04 20 00 - Unit Masonry
- C. Section 04 43 00 - Stone Masonry
- D. Section 04 73 00 - Manufactured 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 109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
 - 2. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.
 - 3. ASTM C 150 - Standard Specification for Portland Cement.
 - 4. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes.
 - 5. ASTM C 270 - Standard Specification for Mortar for Unit Masonry.
 - 6. ASTM C 482 - Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement Paste.
 - 7. ASTM C 595 - Standard Specification for Blended Hydraulic Cements.
 - 8. ASTM C 780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Masonry.
 - 9. ASTM C 979 - Standard Specification for Pigments for Integrally Colored Concrete.
 - 10. ASTM C 1093 - Standard Practice for Accreditation of Testing Agencies for Unit Masonry.
 - 11. ASTM C 1157 - Standard Performance Specification for Hydraulic Cement.
 - 12. ASTM C 1314 - Standard Test Method for Compressive Strength of Masonry Prisms.
 - 13. ASTM C 1384 - Standard Specification for Admixtures for Masonry Mortars.



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14. ASTM C 1586 - Standard Guide for Quality Assurance of Mortars.
 15. ASTM C 1714 - Standard Specification for Pre-blended Dry Mortar Mix for Unit Masonry.
 16. ASTM E 329 - Specification for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction.
 17. 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.

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 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 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 1714.
- C. 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.
1. Size: 36 by 36 inches (915 by 915 mm), minimum.
 2. Size: _____, maximum.
 3. Location: As directed by Architect.
 4. Location: As indicated on drawings.
 5. Approved mock-ups may remain in the finished work.
 6. When directed by Architect, dismantle and remove mock-ups from Project site.
- D. 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.



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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](mailto:request_info(info@specmix.com)) (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. **Stone Veneer Mortar:** SPEC MIX Stone Veneer Mortar is a blend of Portland cement and lime, masonry cement or mortar cement, admixtures and dried masonry sand specifically designed to bond precast or lightweight masonry veneer units to interior or exterior concrete, masonry, metal studs or wood and lath substrates.
 - 1. Applicable Standards: ASTM C 109, ASTM C 144, ASTM C 150, ASTM C 207, ASTM C 270, ASTM C 482, ASTM C 595, ASTM C 780, ASTM C 1093, ASTM C 1157, ASTM C 1384, ASTM C 1586, ASTM C 1714, ACI 530.1, IMIAC.
- B. **Colored Stone Veneer Mortar:** SPEC MIX Stone Veneer Mortar Color is a blend of Portland cement and lime, masonry cement or mortar cement, admixtures, dried masonry sand and color pigments specifically designed to bond precast or lightweight masonry veneer units to interior or exterior concrete, masonry, metal studs or wood and lath substrates.
 - 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.



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2. Applicable Standards: ASTM C 109, ASTM C 144, ASTM C 150, ASTM C 207, ASTM C 270, ASTM C 482, ASTM C 595, ASTM C 780, ASTM C 979, ASTM C 1093, ASTM C 1157, ASTM C 1384, ASTM C 1586, ASTM C 1714, ACI 530.1, IMIAC.
- C. **Polymer Modified Stone Veneer Mortar:** SPEC MIX Polymer Modified Stone Veneer Mortar is a blend of Portland cement and lime, masonry cement or mortar cement, admixtures and dried masonry sand specifically designed to provide high bond strength and sag resistance to bond precast or lightweight masonry veneer units to interior or exterior concrete, masonry, metal studs or wood and lath substrates.
 1. Applicable Standards: ASTM C 109, ASTM C 144, ASTM C 150, ASTM C 207, ASTM C 270, ASTM C 482, ASTM C 595, ASTM C 780, ASTM C 1093, ASTM C 1157, ASTM C 1384, ASTM C 1586, ASTM C 1714, ACI 530.1, IMIAC.
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2.3 ACCESSORY MATERIALS

- A. Water: Clean and free from deleterious acids, alkalis, and organic matter.
- B. Admixtures: Complying with ASTM C 1384.

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 MIXING

- A. Mixing: As recommended by manufacturer.
- B. Re-tempering:
 1. Re-temper mortar by adding additional mixing water only to replace water lost due to evaporation.
 2. Do not re-temper colored mortars.
 3. Discard mortar 1.0 hour after initial mixing.
- C. Colored Mortar: Consistency of appearance shall be maintained throughout the project.



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- D. 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.

3.3 INSTALLATION

- A. Installation of mortar shall be as specified under the following Sections and in accordance with ACI/ASCE-530.1.
 - 1. Section 04 43 00 - Stone Masonry
 - 2. Section 04 73 00 - Manufactured Stone Masonry

3.4 CLEANING

- A. Comply with cleaning procedures and recommendations of the manufacturers of both the cleaning solution and the unit masonry.
 - 1. Utilize the same approved cleaning procedure as used on the sample panel or mock-up.
- B. Remove efflorescence from masonry wall exposed in the finished work in accordance with stone manufacturer's recommendations.
- C. Remove dirt or stains from masonry walls exposed in the finished work in accordance with the stone manufacturer's recommendations.
- D. Promptly remove excess wet mortar containing integral water-repellent mortar admixture from the face of the masonry as work progresses.
- E. Comply with applicable environmental laws and restrictions.

3.5 PROTECTION

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

3.6 FIELD QUALITY CONTROL

- A. Tests:
 - 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