

**SECTION 04066**  
**ROSENDALE NATURAL CEMENT-BASED MASONRY MORTAR**

**PART 1 - GENERAL**

**1.1 SECTION INCLUDES**

A. Mortar for Unit Masonry and Masonry Repointing

**1.2 RELATED SECTIONS**

*Note to Specifier: Select appropriate related section(s)*

- A. Section 04200 - Masonry Units, for installation of mortar
- B. Section 04210 - Clay Masonry Units, for installation of mortar
- C. Section 04220 - Concrete Masonry Units, for installation of mortar
- D. Section 04901 - Masonry Restoration, for installation of mortar
- E. Section 04902 - Clay Masonry Restoration, for installation of mortar

**1.3 REFERENCES**

- A. American Society for Testing and Materials (ASTM)
  1. ASTM C109 Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)
  2. ASTM C144, Specification for Aggregate for Masonry Mortar
  3. ASTM C10, Specification for Natural Cement
  4. ASTM C207, Specification for Hydrated Lime for Masonry Purposes
  5. ASTM C780 Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
  6. ASTM C1148, Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar

## **1.4 SUBMITTALS**

A. Submit the following in accordance with Section 01330:

1. Product Data

a. Submit manufacturer's instructions, product data and MSDS.

b. Submit data indicating proportion or property specifications used for each type of mortar including natural cement, lime sand and coloring admixtures, if any.

2. Samples: Submit cured samples of colored mortar to Architect for initial review

3. Manufacturer's Certificate: Certify that products meet or exceed specified requirements, and ingredients meet applicable ASTM standards.

B. Submit the following:

1. Mortar Mix Design.

2. Submit Certificate of Training from Rosendale Natural Cement mortar system manufacturer for each mason who will be performing repointing work.

## **1.5 QUALITY ASSURANCE**

A. Cementitious materials, aggregates and color admixtures are to be blended and packaged under factory controlled conditions, requiring only the addition of water on site.

B. Restoration Specialist: Work must be performed by a firm having not less than 5 years successful experience in comparable masonry restoration projects and employing personnel skilled in the restoration process and operations indicated.

1. Only skilled journeymen masons who are trained, certified and experienced with the materials and methods specified and are familiar with the design requirements shall be used for masonry restoration

C. Mock-Up: Before starting work, prepare and repoint a sample area of not less than 10 feet high and 10 feet long using the procedures, proposed colors and texture, finish and workmanship for approval by the Architect.

## **1.6 DELIVERY, STORAGE AND HANDLING**

A. Deliver prepackaged, dry-blended mortar mix to project site in clearly labeled plastic-lined bags each bearing the name and address of the manufacturer, Production Codes or Batch Numbers, and color or formula numbers. Individual bag weight is approximately 50 pounds.

B. Store mortar off the ground and in accordance with manufacturer's instructions to prevent contamination by foreign materials. Maintain packaged materials in a clean, dry state protected against weather, traffic and foreign materials.

## **1.7 ENVIRONMENTAL REQUIREMENTS**

### **A. Cold Weather Requirements**

1. When ambient air temperature is below 40 °F, heat mixing water to maintain mortar temperature between 40 and 120 °F until placed. If necessary, store materials in a heated area to allow mortar temperatures to remain above 40 °F throughout the placement and finishing cycle.

2. Subject to written approval of the mortar manufacturer, and in accordance with their written dosage instructions, add the recommended quantity and type of non-chloride accelerating admixture when temperatures are below 32 °F.

3. If color control is important, mortar should only be placed at temperatures above 50 °F as low temperatures tend to lighten color.

### **B. Hot Weather Requirements**

1. Under hot, dry and windy conditions use proper predampening, protection and moist curing procedures as required to keep mortar moist for 72 hours following final tooling.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

A. Prepackaged mortar shall be custom-matched, Rosendale or Translantic 12M Preblended Natural Cement Mortar as manufactured by Edison Coatings, Inc., Plainville, CT (860) 747-2220.

### **2.2 MATERIALS**

A. Natural Cement: Natural cement or quick-setting natural cement processed from argillaceous limestone and meeting the requirements of ASTM C10. Artificial mixtures of other cementitious materials, fly ash, slag, Portland cement, hydraulic lime or lime-pozzolan mixtures are not permitted as substitutes for natural cement.

B. Hydrated Lime: ASTM C207 Type S, incorporated as a finely divided powder in uniform particle size, free of lumps, flakes or other inconsistencies.

C. Mortar Aggregate: ASTM C144 natural sand blend, rounded to sub-angular in shape, washed, screened and dried. Aggregate to be selected to match the color and texture of the original mortar aggregates as closely as possible while remaining in compliance with ASTM C144 grading and soundness requirements.

D. Mortar Colors: Inorganic mineral oxides meeting the requirements of ASTM C979, at levels not to exceed 10% on cement weight, except for carbon black, which may not exceed 2% on cement weight. Use of color pigments shall be limited to the minimum amount required to adjust mortar color, and use of properly matched aggregates and natural cement matrix shall be the primary means of achieving color match.

E. Admixtures: NO admixtures shall be used without the express written consent of the Architect and the mortar manufacturer. Calcium chloride is not permitted in any mortar.

F. Water: Potable, free of deleterious quantities of materials which may affect mortar performance or appearance.

## 2.3 MIXING MORTAR

A. All mortar shall be preblended, pre-colored and prepackaged under controlled factory conditions. All ingredients are to be batched within plus or minus 1% accuracy, except pigments which shall be weighed to a precision of 0.02%.

1. Mortar shall conform to the proportion requirements as required to match original mortar, as determined by petrographic analysis.

2. Petrographic analysis shall be performed in accordance with ASTM C1324 by a certified independent laboratory experienced in the identification of natural cements.

B. Thoroughly mix mortar in quantities needed for immediate use, using mechanical mortar mixer or paddle mixer. Add approximately half the required water and mix mortar for a minimum of 2 minutes, and then slowly add water as needed to reach the desired working consistency. Do not exceed mix time of 5 minutes.

C. Add only clean, potable water at the project site. Do not add sand, stone, cement, lime, bonding agents, coloring admixtures, set accelerators, plasticizers, air entraining admixtures or other materials unless specifically authorized in writing.

D. Use a batch type mixer in accordance with ASTM C270, Subparagraph 6.3.

E. Use of ready mix mortar (ASTM C1142) is PROHIBITED.

F. Use mortar within  $\frac{1}{2}$  hour of mixing, after which unused mortar is to be discarded. Do not retemper mortars which have begun to set. If quick setting mortar is being used, working time is reduced to  $\frac{1}{4}$  hour.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

A. Pre-dampen masonry surfaces to receive repointing mortar for a minimum of 20 minutes prior to mortar placement. Masonry surfaces should be saturated but free of excess or standing water at time of mortar placement.

B. Fill mortar completely into joints, compacting it into the rear and corners of the joint. Build up the mortar to the full depth of the joint without interruption.

C. Immediately tool filled joint to the specified profile. Match to adjacent, existing profile or to original profile as instructed.

D. To avoid changing the appearance of the building, it may be necessary to slightly recess the mortar from the masonry surface. Do not flush fill joints in worn masonry if this results in a visually wider joint than the original.

E. Remove excess mortar and smears using a stiff natural bristle brush and clean water before it has set.

H. Wet cure tooled joints as required by lightly misting with clean water periodically for a minimum of 3 days following installation. Misting should be performed every hour or two on the first day, as required to maintain the mortar in a wet condition, and this may be reduced to every three or four hours on subsequent days.

I. Allow mortar to fully cure for a minimum of 28 days before final cleaning. Longer cure times are required in cooler weather. Only low pressure should be used to avoid damaging newly repointed joints. Use only cleaning materials approved by the mortar manufacturer, and only at the approved rates of dilution and dwell time.