

SECTION 040140.62 – STONE REPOINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes repointing joints with mortar.
- B. Related Sections:
 - 1. Section 040120.64 Brick & Terra Cotta Masonry Repointing
 - 2. Section 079200 – Joint Sealants.
- C. Industry Standards
 - ASTM (American Society for Testing and Materials)

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings.
- C. Samples: For each exposed product and for each color and texture specified.

PART 2 – PRODUCTS

2.1 MORTAR MATERIALS

- A. Portland Cement: ASTM C150, Type I or Type II, except Type III may be used for cold-weather construction; white [**or gray, or both**] where required for color matching of mortar.
 - 1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C114.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Masonry Cement: ASTM C91.
- D. Mortar Cement: ASTM C1329.
- E. Mortar Sand: ASTM C144.

1. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary, to achieve suitable match.
 2. Color: Natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color.
- F. Mortar Pigments: ASTM C979, compounded for use in mortar mixes, and having a record of satisfactory performance in stone mortars.
- G. Water: Potable.

2.2 MORTAR MIXES

- A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.
1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again, adding only enough water to produce a damp, unworkable mix that retains its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.
- B. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Architect's approval.
1. Mortar Pigments: Where mortar pigments are indicated, do not add pigment exceeding 10 percent by weight of the cementitious or binder materials, except for carbon black which is limited to 2 percent.
- C. Do not use admixtures in mortar unless otherwise indicated.
- D. Mixes: Mix mortar materials in the following proportions:
1. Pointing Mortar by Type: ASTM C270, Proportion Specification, Type N. **[Add mortar pigments to produce mortar colors required.]**

PART 3 – EXECUTION

3.1 PROTECTION

- A. Remove **[gutters and]** downspouts and associated hardware adjacent to stone and store during stone repointing. Reinstall when repointing is complete.
1. Provide temporary rain drainage during work to direct water away from building.

3.2 REPOINTING

- A. Rake out and repoint joints to the following extent:
1. All joints in areas indicated.
 2. Joints indicated as sealant-filled joints. Seal joints according to *Section 079200 – Joint Sealants*.
 3. Joints at locations of the following defects:
 - a. Holes and missing mortar.
 - b. Cracks that can be penetrated 1/4 inch or more by a knife blade 0.027 inch thick.
 - c. Cracks **[1/16 inch] [1/8 inch] <Insert dimension>** or more in width and of any depth.
 - d. Hollow-sounding joints when tapped by metal object.
 - e. Surfaces eroded 1/4 or more inches deep.
 - f. Deterioration to point that mortar can be easily removed by hand, without tools.
 - g. Joints filled with substances other than mortar.
- B. Do not rake out and repoint joints where not required.
- C. Rake out joints as follows, according to procedures demonstrated in approved mockup:
1. Remove mortar from joints to depth of **[joint width plus 1/8 inch] [2 times joint width] [2-1/2 times joint width] [not less than 1/2 inch] [not less than 3/4 inch] [and] [not less than that required to expose sound, unweathered mortar]**. Do not remove unsound mortar more than 2 inches deep; consult Design-Professional-of-Record **[or HPD]** for direction.
 2. Remove mortar from stone surfaces within raked-out joints to provide reveals with square backs and to expose stone for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
 3. Do not spall edges of stone units or widen joints. Replace or patch damaged stone units as directed by Design-Professional-of-Record **[or HPD]**.
- D. Notify Design-Professional-of-Record **[or HPD]** of unforeseen detrimental conditions including voids in mortar joints, cracks, loose stone, rotted wood, rusted metal, and other deteriorated items.
- E. Pointing with Mortar:
1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
 2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than **[3/8 inch] <Insert dimension>** until a uniform depth is formed. Fully compact each layer, and allow it to become thumbprint hard before applying next layer.
 3. After deep areas have been filled to same depth as remaining joints, point joints by placing mortar in layers not greater than **[3/8 inch] <Insert dimension>**. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing stone has worn or rounded edges, slightly recess finished mortar surface below face of stone to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed stone surfaces or to featheredge the mortar.

4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.
 5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.
 6. Hairline cracking within mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.
- F. Where repointing work precedes cleaning of existing stone, allow mortar to harden at least 30 days before beginning cleaning work.

3.3 FINAL CLEANING

- A. After mortar has fully hardened, thoroughly clean exposed stone surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, applied by low pressure spray.
1. Do not use metal scrapers or brushes.
 2. Do not use acidic or alkaline cleaners.

END OF SECTION 040140.62