SECTION 040140.62 - STONE REPOINTING

Revise this Section by deleting and inserting text to meet Project-specific requirements.

1. GENERAL
   * + 1. RELATED DOCUMENTS
          1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
       2. SUMMARY
          1. Section Includes:

Repointing joints with mortar.

Repointing joints with sealant.

* + - 1. DEFINITIONS

Retain terms that remain after this Section has been edited for a project.

Revise or delete "Low-Pressure Spray" Paragraph below to suit Project. Low-pressure spray values are not standardized.

* + - * 1. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm.

Rift may be obscure in igneous rocks such as granite. Often it is obvious as with bedding planes in many sedimentary stones.

* + - * 1. Rift: The most pronounced direction of splitting or cleavage of a stone.
      1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" Paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at Project site.

If needed, insert list of conference participants.

Retain subparagraph below if additional requirements are necessary; include information about conference.

Review methods and procedures related to repointing stonework including, but not limited to, the following:

Verify stone repointing specialist's personnel, equipment, and facilities needed to make progress and avoid delays.

Materials, material application, sequencing, tolerances, and required clearances.

Quality-control program.

Coordination with building occupants.

* + - 1. SEQUENCING AND SCHEDULING

Procedure in first paragraph below may be required to ensure consistency of sand and gray portland cement, if any, throughout Project. Coordinate use of gray portland cement with "Mortar Materials" Article. Gray portland cement can vary more than white portland cement from plant to plant and from batch to batch.

* + - * 1. Order sand[ **and gray portland cement**] for pointing mortar immediately after approval of [**Samples] [mockups**]. Take delivery of and store at Project site enough quantity to complete Project.

"Work Sequence" Paragraph below is an example only; revise to suit Project or delete if not prescribing a work sequence. This sequence assumes that cleaning, if required, precedes repairs and repointing. For this, stone and joints must be sound enough to prevent water and chemicals from penetrating into building.

* + - * 1. Work Sequence: Perform stone repointing work in the following sequence, which includes work specified in this and other Sections:

Retain and revise subparagraphs below, and insert others to suit Project. Insert other sequences for different areas of building if needed.

Remove plant growth.

Inspect masonry for open mortar joints and permanently or temporarily point them before cleaning to prevent the intrusion of water and other cleaning materials into the wall.

Remove paint.

Clean stone.

Rake out mortar from joints surrounding stone to be replaced and from joints adjacent to stone repairs along joints.

Repair stonework, including replacing existing stone with new stone.

Rake out mortar from joints to be repointed.

Point mortar and sealant joints.

After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.

Retain subparagraph below if water repellents are part of Project; revise if water-repellent, graffiti-resistant coating is required.

Where water repellents are to be used on or near stonework, delay application of these chemicals until after pointing and cleaning.

If windows are to be replaced, insert subparagraph into the above sequence for the timing of window replacement.

Retain paragraph below if scaffolding anchor holes in stonework and patching them are required and acceptable; revise to suit Project.

* + - * 1. As scaffolding is removed, patch anchor holes used to attach scaffolding. Patch holes in stone according to Section 040140.61 "Stone Repair." Patch holes in mortar joints according to "Repointing" Article.
      1. SUBMITTALS
         1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Product Data: For each type of product.

Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

Include recommendations for product application and use.

Include test data substantiating that products comply with requirements.

* + - * 1. Shop Drawings:

Include plans, elevations, sections, and locations of repointing work on the structure.

Show provisions for expansion joints or other sealant joints.

Show locations of scaffolding and points of scaffolding in contact with masonry. Include details of each point of contact or anchorage.

Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs below for two-stage Samples.

* + - * 1. Samples for Initial Selection: For the following:

Retain and revise subparagraphs below and insert others to suit Project. Revise optional joint width in "Pointing Mortar" Subparagraph to approximate existing joint widths.

Pointing Mortar: Submit sets of mortar for pointing in the form of sample mortar strips, 6 inches long by [**1/4 inch] [1/2 inch**] wide, set in aluminum or plastic channels.

Have each set contain a close color range of at least [**three] [six**] Samples of different mixes of colored sands and cements that produce a mortar matching the existing, cleaned mortar when cured and dry.

Submit with precise measurements on ingredients, proportions, gradations, and source of colored sands from which each Sample was made.

Sand Type Used for Pointing Mortar: Minimum 8 oz. of each in plastic screw-top jars.

Sealant materials.

Include similar Samples of accessories involving color selection.

* + - * 1. Samples for Verification: For the following:

Retain and revise three subparagraphs below and insert others to suit Project.

Samples in first subparagraph below are of limited value because they are not cured under same conditions as mortar used in actual work. A mockup provides a better sample.

Each type, color, and texture of pointing mortar in the form of sample mortar strips, 6 inches long by [**1/4 inch] [1/2 inch**] wide, set in aluminum or plastic channels.

Include with each Sample a list of ingredients with proportions of each. Identify sources, both supplier and quarry, of each type of sand and brand names of cementitious materials and pigments if any.

Sealant materials.

Accessories: Each type of anchor, accessory, and miscellaneous support.

Coordinate "Qualification Data" Paragraph below with qualification requirements in in "Quality Assurance" Article.

* + - * 1. Qualification Data: For [**stone repointing specialist] [including field supervisors and workers] [and] [testing service**].

Retain "Preconstruction Test Reports" Paragraph below if specifying preconstruction testing in "Preconstruction Testing" Article as Contractor's responsibility.

* + - * 1. Preconstruction Test Reports: For existing stone and mortar.

Retain paragraph below if program is retained in "Quality Assurance" Article.

* + - * 1. Quality-control program.
      1. QUALITY ASSURANCE
         1. Stone Repointing Specialist Qualifications: Engage an experienced stone repointing firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing standard unit masonry or new stone masonry is insufficient experience for stone repointing work.

Field Supervision: Stone repointing specialist firms shall maintain experienced full-time supervisors on Project site during times that stone repointing work is in progress.

* + - * 1. Quality-Control Program: Prepare a written quality-control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging stonework. Include provisions for supervising performance and preventing damage.

Retain required mockups in "Mockups" Paragraph below; insert others to suit Project. Test areas that were prepared or are required as part of a separate contract to evaluate and establish stone repointing materials and processes are not mockups.

* + - * 1. Mockups: Prepare mockups of stone repointing to demonstrate aesthetic effects and to set quality standards for materials and execution.

Repointing: Rake out joints in two separate areas[, e**ach approximately 36 inches high by 48 inches wide] [as indicated**] for each type of repointing required, and repoint one of the areas.

Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Director’s Representative specifically approves such deviations in writing.

Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

* + - 1. PRECONSTRUCTION TESTING

Retain this article for preconstruction testing. Revise this article based on Specifiers knowledge of the building's materials and experience with similar work. Project-specific preconstruction testing can be expensive but may be the best means of proving that performance requirements are met if existing stone and mortar were not tested before the Contract.

* + - * 1. Preconstruction Testing Service: [**Director’s Representative will engage] [Engage**] a qualified testing agency to perform preconstruction testing on stone units as follows:

Retain applicable subparagraphs below; revise tests and insert others if required.

Provide test specimens as indicated and representative of proposed materials and existing construction.

Usually test existing stone and mortar before preparing the Specifications, and delete "Existing Stone," "Existing Mortar," and "Temporary Patch" subparagraphs below. Delete entire "Preconstruction Testing" article if deleting these subparagraphs and not inserting other subparagraphs.

Existing Stone: Test each type of existing stone indicated for repointing according to ASTM C170 for compressive strength, wet and dry, perpendicular and parallel to rift; ASTM C99 for modulus of rupture, wet and dry, perpendicular and parallel to rift; and ASTM C97 for absorption and bulk specific gravity. Carefully remove five existing stones from locations designated by Director’s Representative. Take testing samples from these stones.

Existing Mortar: Test according to ASTM C1324, modified as agreed by testing service and Director’s Representative for Project requirements, to determine proportional composition of original ingredients, sizes and colors of aggregates, and approximate strength.

Temporary Patch: As directed by Director’s Representative, provide temporary materials followed by permanent repairs at locations from which existing samples were taken.

* + - 1. DELIVERY, STORAGE, AND HANDLING

Retain paragraphs below that are applicable to products retained in Part 2.

* + - * 1. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
        2. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
        3. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.
        4. Store sand where grading and other required characteristics can be maintained and contamination avoided.
      1. FIELD CONDITIONS

Usually retain this article; revise to suit Project.

* + - * 1. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit repointing work to be performed according to product manufacturers' written instructions and specified requirements.

Retain "Temperature Limits" or "Cold-Weather Requirements" Paragraph below. Retain second if cold-weather construction is permitted for pointing work.

* + - * 1. Temperature Limits: Repoint mortar joints only when air temperature is between 40 and 90 deg F and is predicted to remain so for at least seven days after completion of the Work unless otherwise indicated.
        2. Cold-Weather Requirements: Comply with the following procedures for mortar-joint pointing unless otherwise indicated:

When air temperature is below 40 deg F, heat mortar ingredients and existing stone to produce temperatures between 40 and 120 deg F.

When mean daily air temperature is below 40 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for seven days after pointing.

* + - * 1. Hot-Weather Requirements: Protect mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar materials. Provide artificial shade and wind breaks, and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F and above unless otherwise indicated.

1. PRODUCTS

See Editing Instruction No. 1 in the Evaluations for cautions about named manufacturers and products.

* + - 1. PERFORMANCE REQUIREMENTS
         1. Source Limitations: Obtain each type of material for stone repointing (cement, sand, etc.) from single source with resources to provide materials of consistent quality in appearance and physical properties.
      2. MORTAR MATERIALS

Retain one or more paragraphs in this article to suit Project. Delete masonry cement and mortar cement if not allowed by "Mortar Mixes" Article. See Evaluations for discussion of masonry cement and mortar cement.

In "Portland Cement" Paragraph below, gray portland cement is sometimes used to help obtain correct mortar color.

* + - * 1. 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.

Retain subparagraph below if required.

Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C114.

* + - * 1. Hydrated Lime: ASTM C207, Type S.
        2. Masonry Cement: ASTM C91.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

Hanson Brick and Tile; Lehigh Hanson.

Holcim US.

QUIKRETE.

Approved equivalent.

* + - * 1. Mortar Cement: ASTM C1329.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

Cemex, Inc.

Holcim US.

Approved equivalent.

* + - * 1. Mortar Sand: ASTM C144.

Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.

Revise "Color" Subparagraph below to produce mortar quality and appearance required for Project.

Color: Natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color.

Retain "Mortar Pigments" Paragraph below for pigmented mortar.

* + - * 1. Mortar Pigments: ASTM C979, compounded for use in mortar mixes, and having a record of satisfactory performance in stone mortars.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

Davis Colors.

LANXESS Corporation.

Solomon Colors, Inc.

Approved equivalent.

* + - * 1. Water: Potable.
      1. ACCESSORY MATERIALS

Retain "Sealant Materials" and "Joint-Sealant Backing" paragraphs below if sealant joints are required unless all sealant work, including sealant within stonework repairs, is specified in Section 079200 "Joint Sealants."

* + - * 1. Sealant Materials:

Sealant manufacturer's standard elastomeric sealant(s) of base polymer and characteristics indicated below and according to applicable requirements in Section 079200 "Joint Sealants."

Retain and coordinate type(s) of joint sealant required in "Type" Subparagraph below with applicable subparagraph titles used in Section 079200 "Joint Sealants" in which various sealant types are specified. Revise sealant type to suit Project.

Type: [**Single-component, nonsag urethane sealant] <Insert type**>.

Colors: Provide colors of exposed sealants to match colors of mortar adjoining installed sealant unless otherwise indicated.

Retain "Ground-Mortar Aggregate" Subparagraph below if retaining requirement in Part 3 for dressing exposed sealant joints with ground-mortar aggregate.

Ground-Mortar Aggregate: Custom crushed and ground pointing mortar sand or existing mortar retrieved from joints. Grind to a particle size that matches the adjacent mortar aggregate and color. Remove all fines passing the No. 100 sieve.

In "Joint-Sealant Backing" Paragraph below, verify with joint-sealant manufacturers the suitability of each material for sealant selected. See the Evaluations in Section 079200 "Joint Sealants."

* + - * 1. Joint-Sealant Backing:

Cylindrical Sealant Backings: ASTM C1330, [**Type C (closed-cell material with a surface skin)] [or] [Type B (bicellular material with a surface skin**)], and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended in writing by sealant manufacturer for preventing sealant from adhering to rigid, inflexible, joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

* + - * 1. Masking Tape: Nonstaining, nonabsorbent material; compatible with mortar, joint primers, sealants, and surfaces adjacent to joints; and that easily comes off entirely, including adhesive.
        2. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:

Previous effectiveness in performing the work involved.

Minimal possibility of damaging exposed surfaces.

Consistency of each application.

Uniformity of the resulting overall appearance.

Do not use products or tools that could leave residue on surfaces.

* + - 1. MORTAR MIXES
         1. 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.

Retain "Mixing Pointing Mortar" Subparagraph below if mortar prehydration is required.

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.

* + - * 1. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Director’s Representative's approval.

Retain "Mortar Pigments" Subparagraph below if using pigments; revise to suit Project.

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, unless otherwise demonstrated by a satisfactory history of performance.

* + - * 1. Do not use admixtures in mortar unless otherwise indicated.
        2. Mixes: Mix mortar materials in the following proportions:

Retain "Pointing Mortar by Volume," "Pointing Mortar by Type," or "Pointing Mortar by Property" Subparagraph below, or revise to indicate specific requirements for each type of stone indicated. Consider revising portland cement to white portland cement if light-colored mortar is required. Retain last option in subparagraphs if using pigments.

The volumetric proportion in "Pointing Mortar by Volume" Subparagraph below is an example only; revise to suit Project.

Pointing Mortar by Volume: ASTM C270, Proportion Specification, [**1 part portland cement, 1 part lime, and 6 parts sand].[ Add mortar pigments to produce mortar colors required.]**

Pointing Mortar by Type: ASTM C270, Proportion Specification, [**Type N**] unless otherwise indicated; with cementitious material limited to [**portland cement and lime] [masonry cement] [or] [mortar cement].[ Add mortar pigments to produce mortar colors required.**]

Insert additional properties in "Pointing Mortar by Property" Subparagraph below if required.

Pointing Mortar by Property: ASTM C270, Property Specification, [**Type N**] unless otherwise indicated; with cementitious material limited to [**portland cement and lime] [masonry cement] [or] [mortar cement].[ Add mortar pigments to produce mortar colors required.]**

1. EXECUTION
   * + 1. PROTECTION
          1. Prevent mortar from staining face of surrounding stone and other surfaces.

Cover sills, ledges, and other projecting items to protect them from mortar droppings.

Keep wall area wet below pointing work to discourage mortar from adhering.

Immediately remove mortar splatters in contact with exposed stone and other surfaces.

Retain paragraph below if applicable; insert other items that may interfere with execution of this work.

* + - * 1. Remove[ **gutters and**] downspouts and associated hardware adjacent to stone and store during stone repointing. Reinstall when repointing is complete.

Provide temporary rain drainage during work to direct water away from building.

* + - 1. STONE REPOINTING, GENERAL

Retain "Appearance Standard" Paragraph below to control overall appearance from a distance.

* + - * 1. Appearance Standard: Repointed surfaces are to have a uniform appearance as viewed from [**20 feet] [50 feet**] away by Director’s Representative.
      1. REPOINTING <**Insert drawing designation**>

Copy this article and re-edit for significantly different types and sizes of joints to be repointed.

Insert drawing designation. Use these designations on Drawings to identify locations. See "Delineating the Work" Article in the Evaluations for discussion of these designations.

* + - * 1. Rake out and repoint joints to the following extent:

Retain first subparagraph below if complete repointing of selected areas is indicated on Drawings.

All joints in areas indicated.

Joints indicated as sealant-filled joints.

Retain subparagraphs below if spot-repointing of missing and deteriorated joints is required.

Joints at locations of the following defects:

Holes and missing mortar.

Cracks that can be penetrated 1/4 inch or more by a knife blade 0.027 inch thick.

Cracks [**1/16 inch] [1/8 inch**] or more in width and of any depth.

Hollow-sounding joints when tapped by metal object.

Eroded surfaces 1/4 inch or more deep.

Deterioration to point that mortar can be easily removed by hand, without tools.

Joints filled with substances other than mortar.

* + - * 1. Do not rake out and repoint joints where not required.
        2. Rake out joints as follows, according to procedures demonstrated in approved mockup:

Revise first subparagraph below according to depth required to rake out joints for Project. See the Evaluations.

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 Director’s Representative for direction.

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.

Do not spall edges of stone units or widen joints. Replace or patch damaged stone units as directed by Director’s Representative.

* + - * 1. Notify Director’s Representative of unforeseen detrimental conditions including voids in mortar joints, cracks, loose stone, rotted wood, rusted metal, and other deteriorated items.
        2. Pointing with Mortar:

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.

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 until a uniform depth is formed. Fully compact each layer, and allow it to become thumbprint hard before applying next layer.

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. 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.

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.

Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.

Revise subparagraph below to suit Project.

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

Retain "Pointing with Sealant" Paragraph below if sealant joints are required unless all sealant work, including sealant within stone repairs, is specified in Section 079200 "Joint Sealants."

* + - * 1. Pointing with Sealant: Comply with Section 079200 "Joint Sealants" and as follows:

After raking out, keep joints dry and free of mortar and debris.

Option in first subparagraph below establishes priming as default requirement rather than relying on Contractor's judgment.

Clean and prepare joint surfaces.[ **Prime joint surfaces unless sealant manufacturer recommends against priming**.] Do not allow primer to spill or migrate onto adjoining surfaces.

Fill sealant joints with specified joint sealant.

Install cylindrical sealant backing beneath the sealant. Where space is insufficient for cylindrical sealant backing, install bond-breaker tape.

Install sealant using only proven installation techniques that ensure that sealant is deposited in a uniform, continuous ribbon, without gaps or air pockets, and with complete wetting of the joint bond surfaces equally on both sides. Fill joint flush with surrounding stonework and matching the contour of adjoining mortar joints.

Install sealant as recommended in writing by sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead:

Fill joints to a depth equal to joint width, but not more than 1/2 inch deep or less than 1/4 inch deep.

Tool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant from surfaces adjacent to joint.

Retain "Sanded Joints" Subparagraph below to dull the surface of sealant and blend it better with mortar joints. Sealant manufacturers generally do not recommend this procedure because their sealants are not performance tested with this treatment.

Sanded Joints: Immediately after first tooling, apply ground-mortar aggregate to sealant, gently pushing aggregate into the surface of sealant. Lightly retool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant and aggregate from surfaces adjacent to joint.

Do not allow sealant to overflow or spill onto adjoining surfaces, or to migrate into the voids of adjoining surfaces, particularly rough textures. Remove excess and spillage of sealant promptly as the work progresses. Clean adjoining surfaces by the means necessary to eliminate evidence of spillage, without damage to adjoining surfaces or finishes, as demonstrated in an approved mockup.

* + - * 1. Where repointing work precedes cleaning of existing stone, allow mortar to harden at least 30 days before beginning cleaning work.
      1. FINAL CLEANING

Retain this article only if overall cleaning of existing stonework occurs before pointing work is completed.

Revise first paragraph below if chemical cleaning of repointed stonework is required; delete if overall cleaning of repointed stonework is included in another Section.

* + - * 1. 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.

Do not use metal scrapers or brushes.

Do not use acidic or alkaline cleaners.

Paragraphs below are examples only; revise to suit Project.

* + - * 1. Clean adjacent nonstone surfaces. Use detergent and soft brushes or cloths.
        2. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.
        3. Remove masking materials, leaving no residues that could trap dirt.
      1. FIELD QUALITY CONTROL
         1. Testing Agency: Director’s Representative will engage qualified testing agencies to perform tests and inspections. Allow inspectors use of lift devices and scaffolding, as needed, to perform inspections.
         2. Notify [**inspectors] [and] [Director’s Representative**] in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until [**inspectors] [and] [Director’s Representative**] have had reasonable opportunity to make inspections and observations of work areas at lift device or scaffold location.

END OF SECTION 040140.62