SECTION 040326 - HISTORIC TERRA COTTA UNIT MASONRY REPAIR

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 historic treatment work consisting of repairing historic terra cotta masonry as follows:

Repairing unit masonry.

Removing abandoned anchors.

Painting steel uncovered during the work.

Reanchoring veneers.

* + - * 1. Related Requirements:

Retain subparagraphs below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

Section 013591 "Historic Treatment Procedures" for general historic treatment requirements.

Section 076200 "Sheet Metal Flashing and Trim" for metal flashing installed in or on repaired masonry.

* + - 1. ALLOWANCES

Retain products and Work included in this Section that are covered by cash or quantity allowance. Do not include amounts. Insert descriptions of items in Part 2 or 3 to provide information affecting the cost of the Work that is not included under the allowance.

Quantity allowances will require a Schedule of Quantity Allowances coordinated with a Unit-Price Schedule. See "Planning the Work" Article in the Evaluations for discussion of the bidding method.

* + - * 1. Allowances for historic masonry repair are specified in Section 012100 "Allowances."

If using quantity allowances, retain three subparagraphs below or include similar language in Section 012100 "Allowances" to clarify how work covered by quantity allowances is to be authorized.

Perform historic masonry repair work under quantity allowances and only as authorized. Authorized work includes[ **work required by Drawings and the Specifications and**] work as directed in writing by Director’s Representative.

Retain first subparagraph below to suit Project.

Notify Director’s Representative [**weekly] <Insert time interval**> of extent of work performed that is attributable to quantity allowances.

Perform work that exceeds quantity allowances only as authorized by Change Orders.

Remaining paragraphs are examples only; revise to suit Project. Insert additional allowances according to retained types of work and allowances established. If there are multiple drawing designations for types of work, establish separate allowances for each drawing designation.

* + - * 1. Preconstruction testing is part of testing and inspecting allowance.
        2. Abandoned anchor removal is part of <**Insert name of allowance**>.
        3. Terra cotta removal and replacement is part of terra cotta removal and replacement allowance.
        4. Reanchoring veneers is part of veneer reanchoring allowance.
        5. Patching terra cotta units is part of masonry patching allowance.
        6. Glaze repair is part of masonry patching allowance.
      1. DEFINITIONS

Retain terms that remain after this Section has been edited for a project. Pressure spray value in "Low-Pressure Spray" Paragraph below is not standardized; revise pressure to suit Project.

* + - * 1. Low-Pressure Spray:

Pressure: [**100 to 400 psi**].

Flow Rate: [**4 to 6 gpm**].

Revise "Rebuilding (Setting) Mortar" Paragraph below to suit local usage and office practice.

* + - * 1. Rebuilding (Setting) Mortar: Mortar used to set and anchor masonry in a structure, distinct from pointing mortar installed after masonry is set in place.

Saturation coefficient is also called "C/B ratio."

* + - * 1. Saturation Coefficient: Ratio of the weight of water absorbed during immersion in cold water to weight absorbed during immersion in boiling water; used as an indication of resistance of terra cotta units to freezing and thawing.
      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] <Insert location**>.

If needed, insert list of conference participants not mentioned in Section 013591 "Historic Treatment Procedures."

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

Review minutes of Preliminary Historic Treatment Conference that pertain to masonry historic treatment and repair.

Review methods and procedures related to repairing historic terra cotta masonry, including, but not limited to, the following:

Historic treatment specialist's personnel, equipment, and facilities needed to make progress and avoid delays.

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

Quality-control program.

Fire-protection plan.

Terra cotta historic treatment 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 colored mortar immediately after approval of [**Samples] [mockups**]. Take delivery of and store at Project site a sufficient quantity to complete Project.

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

* + - * 1. Work Sequence: Perform masonry historic treatment 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 intrusion of water and other cleaning materials into the wall.

Remove paint.

Clean masonry.

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

Repair terra cotta masonry, including replacing existing masonry with new masonry materials. If required, repair backup masonry.

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 masonry work, delay application of these chemicals until after pointing and cleaning.

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

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

* + - * 1. As scaffolding is removed, patch anchor holes used to attach scaffolding. Patch holes in terra cotta units according to "Terra Cotta Patching" Article. Patch holes in mortar joints according to Section 040327 "Historic Terra Cotta Unit Masonry Repointing."
      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 masonry repair work on the structure.

Show full-size patterns with complete dimensions for new terra cotta units and their jointing, showing relationship of existing units to new units.

Indicate setting number of each new terra cotta unit and its location on the structure in annotated plans and elevations.

Show provisions for expansion joints or other sealant joints.

Show provisions for flashing, lighting fixtures, conduits, and weep holes as required.

Show replacement and repair anchors. Include details of anchors within individual terra cotta units, with locations of anchors and dimensions of holes and recesses in units required for anchors.

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 five subparagraphs below, and insert others to suit Project. Terra cotta samples are not included below, because the existing masonry is typically the standard of appearance; however, terra cotta samples for selection could be inserted. Revise optional joint width in "Colored Mortar" Subparagraph below to approximate existing joint widths.

Colored Mortar: Submit sets of mortar that will be left exposed 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] <Insert number**> Samples of different mixes of colored sands and cements that produce a mortar matching existing, cleaned mortar when cured and dry.

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

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

For blended sands, provide Samples of each component and blend. Identify blend ratio.

Identify sources, both supplier and quarry, of each type of sand.

Patching Compound: Submit sets of patching compound Samples in the form of plugs (patches in drilled holes) in sample units of masonry representative of the range of masonry colors on the building.

Have each set contain a close color range of at least [**three] [six] <Insert number**> Samples of different mixes of patching compound that match the variations in existing masonry when cured and dry.

Terra Cotta Glaze Replacement: Submit sets of terra cotta glaze replacement Samples applied to terra cotta shingle, with glaze colors representative of the range of glaze colors on the building.

Have each set contain a close color range of at least [**three] [six] <Insert number**> Samples of different formulas that match the variations in existing terra cotta glazes.

Include similar Samples of accessories involving color selection.

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

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

Each type of terra cotta composition and color to be used for replacing existing units. Include sets of Samples to show the full range of color and texture to be expected.

Retain "Patterns for Terra Cotta" Subparagraph and option in "Terra Cotta Units" Subparagraph below for tight control of appearance and unit size (accommodating shrinkage). If retaining, consider limiting this requirement to specific, highly visible units, because it will add to Project time and cost.

Patterns for Terra Cotta: Before manufacturing terra cotta units, submit the actual patterns from which molds will be made for casting new units. Package and ship to prevent loss or damage, or make patterns available for inspection by Director’s Representative at fabrication plant.

Terra Cotta Units: Provide one of each shape, color, and texture of unit, suitable and ready for installation.[ **Submit unit samples after acceptance of patterns for terra cotta**.]

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

Each type of patching compound in the form of briquettes, at least 3 inches long by 1-1/2 inches wide. Document each Sample with manufacturer and stock number or other information necessary to order additional material.

Each color of terra cotta glaze replacement applied to briquettes, at least 3 inches long by 1-1/2 inches wide. Document each Sample with manufacturer and stock number or other information necessary to order additional material.

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

Consider "Qualification Data," "Quality-control program," and "Terra cotta historic treatment program" paragraphs below as they relate to Project goals and importance.

* + - * 1. Qualification Data: For [**historic treatment specialist] [including field supervisors and workers] [terra cotta manufacturer] [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 terra cotta units and mortar] [and] [replacement terra cotta units**].

Retain one of or both paragraphs below if retaining programs in "Quality Assurance" Article.

* + - * 1. Quality-control program.
        2. Terra cotta historic treatment program.

If required, insert "Extra Materials" Article for extra materials that match products applied or installed.

* + - 1. QUALITY ASSURANCE

In "Historic Treatment Specialist Qualifications" Paragraph below, insert additional, specific requirements for demonstrating unique skills of firm and personnel to suit Project. See Section 013591 "Historic Treatment Procedures" for general qualifications of historic treatment specialist.

* + - * 1. Historic Treatment Specialist Qualifications: A qualified historic terra cotta repair specialist. Experience installing standard unit masonry is insufficient experience for masonry historic treatment work.

Retain "Historic Treatment Worker Qualifications" Subparagraph below if required; option is an example only.

Historic Treatment Worker Qualifications: [**When terra cotta units are being patched, assign at least one worker per crew who is trained and certified by manufacturer of patching compound to apply its products] <Insert requirement**>.

* + - * 1. Terra Cotta Manufacturer Qualifications: A firm regularly engaged in manufacturing custom architectural terra cotta units for building restoration purposes, of same type and of similar size, complexity, and tolerances as those required for the Work.
        2. 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 masonry. Include provisions for supervising worker performance and preventing damage.
        3. Terra Cotta Historic Treatment Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of historic treatment work, including protection of surrounding materials and Project site.

Retain first subparagraph below if high-lime-content mortar is used.

Include methods for keeping exposed mortar damp during curing period.

If materials and methods other than those indicated are proposed for any phase of historic treatment work, add to the quality-control program a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project.

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 historic treatment materials and processes are not mockups.

* + - * 1. Mockups: Prepare mockups of historic treatment to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.

Terra Cotta Repair: Prepare sample areas for each type of terra cotta material and assembly indicated to have repair work performed. If not otherwise indicated, size each mockup not smaller than two adjacent whole units or approximately 48 inches in least dimension. Construct sample areas in locations in existing walls where directed by Director’s Representative unless otherwise indicated. Demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:

Replacement: [**Four] <Insert number**> terra cotta units replaced.

Reanchoring Veneers: Install three masonry repair anchors in mockup wall assembly of each anchor type required.

Patching: Three small holes [**at least 1 inch in diameter] [as directed] <Insert size**> for each type of terra cotta indicated to be patched, so as to leave no evidence of repair.

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.

* + - 1. PRECONSTRUCTION TESTING

Retain this article for preconstruction testing. Revise this article based on Designer's 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.

* + - * 1. Preconstruction Testing Service: [**Director’s Representative will engage] [Engage**] a qualified testing agency to perform preconstruction testing on terra cotta masonry 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.

Replacement Terra Cotta: Test each proposed type of replacement masonry unit, according to sampling and testing methods in ASTM C67 for compressive strength, 24-hour cold-water absorption, five-hour boil absorption, saturation coefficient, and initial rate of absorption (suction).

Usually, test existing terra cotta and mortar before preparing the Specifications, and delete "Existing Terra Cotta," "Existing Mortar," and "Temporary Patch" subparagraphs below.

Existing Terra Cotta: Test each type of existing masonry unit indicated for replacement, according to testing methods in ASTM C67 for compressive strength, 24-hour cold-water absorption, five-hour boil absorption, saturation coefficient, and initial rate of absorption (suction). Carefully remove [**five] <Insert number**> existing units for testing from locations designated by Director’s Representative. Take testing samples from these units.

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. Use X-ray diffraction, infrared spectroscopy, and differential thermal analysis to supplement microscopical methods. Carefully remove existing mortar for testing from within joints at [**five] <Insert number> locations designated by [Director’s Representative] [or] [testing service**].

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 terra cotta units to Project site strapped together in suitable packs or pallets or in heavy-duty cartons and protected against impact and chipping.
        2. Deliver each piece of terra cotta with code mark or setting number on unexposed face, corresponding to Shop Drawings, using nonstaining paint.
        3. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
        4. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
        5. 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.
        6. Store lime putty covered with water in sealed containers.
        7. Store sand where grading and other required characteristics can be maintained and contamination avoided.
        8. Handle terra cotta units to prevent overstressing, chipping, defacement, and other damage.
      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 repair 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 repair work.

* + - * 1. Temperature Limits: Repair terra cotta masonry 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 masonry repair unless otherwise indicated:

When air temperature is below 40 deg F, heat mortar ingredients, masonry repair materials, and existing masonry walls 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 repair.

* + - * 1. Hot-Weather Requirements: Protect masonry repairs when temperature and humidity conditions produce excessive evaporation of water from mortar and repair 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.
        2. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.
      1. TERRA COTTA MOLDS

Retain this article only if future need for molds can be reasonably expected and Director’s Representative has space and takes responsibility for their storage and protection. Often, terra cotta manufacturers store molds for long or indefinite periods. Patterns from which molds are made might be useful for display purposes; however, they are less useful for fabrication than are molds. If any of the patterns are required, revise this article accordingly.

* + - * 1. On completion of the manufacturing of units, deliver one unused mold of each shape and size of unit delivered to Project site. Deliver to a location and at a time determined by Director’s Representative, to become property of Director’s Representative.
        2. Have molds delivered carefully packed; protected from dirt, moisture, and breakage; so as to arrive in usable, undamaged condition and enable long-term storage and possible future use.

If required, insert "Extra Materials" Article for extra materials that match products applied or installed.

1. PRODUCTS
   * + 1. PERFORMANCE REQUIREMENTS
          1. Source Limitations: Obtain each type of material for repairing historic masonry (terra cotta, cement, sand, etc.) from single source with resources to provide materials of consistent quality in appearance and physical properties.
       2. DIRECTOR’S REPRESENTATIVE-FURNISHED MATERIAL

Retain this article if applicable; revise to suit Project. If patterns are available, revise this article accordingly.

* + - * 1. Terra cotta molds from previous repair work. Return to Director’s Representative after acceptance of terra cotta repair work.
      1. MASONRY MATERIALS

Revise this article to suit Project. Insert other materials and properties if required.

Terra cotta types in "Glazed Terra Cotta" and "Brownstone Terra Cotta" paragraphs below are examples only. Revise if precast concrete units, fiber-reinforced polymer, or other materials are used to simulate terra cotta in replacement units.

* + - * 1. Glazed Terra Cotta: New terra cotta units that match existing terra cotta units in physical properties, color, gloss, surface texture, thickness, profile, dimensions, and composition of surface glaze.

Retain first option in "Terra Cotta Units Matching Existing" Subparagraph below, revising percentage if required, if properties are unknown. Retain second option if required properties are known.

Terra Cotta Units Matching Existing: Units with tested physical properties [**within 10 percent of those determined from preconstruction testing of selected existing units.] [as listed below**:]

Retain "Physical Properties" Subparagraph below if required properties are known; insert other properties to suit Project.

Physical Properties: According to ASTM C67 and as follows:

Compressive Strength: <**Insert requirement**>.

24-Hour Cold-Water Submersion Absorption: <**Insert requirement**>.

Five-Hour Boil Absorption: <**Insert requirement**>.

Saturation Coefficient: <**Insert requirement**>.

Initial Rate of Absorption: <**Insert requirement**>.

Tolerances as Fabricated: [**According to tolerance requirements in ASTM C212, Type FTX] <Insert requirement**>.

Retain "Date Identification" Subparagraph below for historic treatment projects where differentiation of new units from original units is required.

Date Identification: Emboss in the clay body on a concealed, interior surface of each unit in easily read 1/2-inch high characters, "MADE <**Insert year**>." Manufacturer's name may also be embossed.

* + - * 1. Brownstone Terra Cotta: New, unglazed[ **or translucent, slip-glazed**], through-body colored, brownstone terra cotta units that match existing terra cotta units in physical properties, colors, color variation within units, surface texture, unit profile, and dimensions.

Retain first option in "Brownstone Terra Cotta Units Matching Existing" Subparagraph below, revising percentage if required, if properties are unknown. Retain second option if required properties are known.

Brownstone Terra Cotta Units Matching Existing: Units with tested physical properties [**within 10 percent of those determined from preconstruction testing of selected existing units.] [as listed below**:]

Retain "Physical Properties" Subparagraph below if required properties are known; insert other properties to suit Project.

Physical Properties: According to ASTM C67 and as follows:

Compressive Strength: <**Insert requirement**>.

24-Hour Cold-Water Submersion Absorption: <**Insert requirement**>.

Five-Hour Boil Absorption: <**Insert requirement**>.

Saturation Coefficient: <**Insert requirement**>.

Initial Rate of Absorption: <**Insert requirement**>.

Tolerances as Fabricated: [**According to tolerance requirements in ASTM C212, Type FTX] <Insert requirement**>.

For existing terra cotta that exhibits a range of colors or color variation within units, provide terra cotta that proportionally matches that range and variation rather than terra cotta that matches an individual color within that range.

Retain "Date Identification" Subparagraph below for historic treatment projects where differentiation of new units from original units is required.

Date Identification: Emboss in the clay body on a concealed, interior surface of each unit in easily read 1/2-inch high characters, "MADE <**Insert year**>." Manufacturer's name may also be embossed.

Retain "Building Brick" Paragraph below if rebuilding brick backup wythes is required. Revise paragraph if other types of backup masonry are required.

* + - * 1. Building Brick: Brick having same vertical dimension as existing backup brick, according to ASTM C62[, **Grade SW, MW, or NW.][ and Section 040322 "Historic Brick Unit Masonry Repair."]**
      1. MORTAR MATERIALS

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; 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.

Usually, retain "Hydrated Lime" Paragraph and delete "Factory-Prepared Lime Putty" and "Quicklime" paragraphs below. If hydrated lime is not required, usually retain "Factory-Prepared Lime Putty" Paragraph and delete "Quicklime" Paragraph to ensure that lime is properly slaked. Quicklime must be slaked (a lengthy, separate process) before it is used. If retaining "Factory-Prepared Lime Putty" Paragraph, delete "Preparing Lime Putty" Paragraph in "Mortar Mixes" Article.

* + - * 1. Hydrated Lime: ASTM C207, Type S.
        2. Factory-Prepared Lime Putty: ASTM C1489.
        3. Quicklime: ASTM C5, pulverized lime.
        4. Mortar Sand: ASTM C144 unless otherwise indicated.

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

Retain one of or both subparagraphs below to suit Project. Revise "Colored Mortar" Subparagraph below to produce mortar quality and appearance required for Project.

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

Retain subparagraph below if required.

For exposed mortar, provide sand with rounded edges.

If known, indicate source of sand and size and gradation. Insert requirements for other special aggregates, such as seashell fragments, if any.

Retain "Mortar Pigments" Paragraph below if pigmented mortar is permitted.

* + - * 1. Mortar Pigments: ASTM C979, compounded for use in mortar mixes, and having a record of satisfactory performance in masonry mortars.
        2. Water: ASTM C270, potable.
      1. MANUFACTURED REPAIR MATERIALS
         1. Terra Cotta Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching terra cotta masonry.

Use formulation that is vapor and water permeable (equal to or more than the terra cotta unit), exhibits low shrinkage, has lower modulus of elasticity than the terra cotta units being repaired, and develops high bond strength to all types of masonry.

Use formulation having working qualities and retardation control to permit forming and sculpturing where necessary.

Formulate patching compound used for patching terra cotta in colors and textures to match each unit being patched. Provide [su**fficient number of] [no fewer than three] <Insert number**> colors to enable matching the color, texture, and variation of each unit.

Retain "Terra Cotta Glaze Replacement" Paragraph below only for repairing glazed terra cotta units.

* + - * 1. Terra Cotta Glaze Replacement: High-solids, nonyellowing, fade-resistant, waterborne acrylic latex, polyurethane, or epoxy coating intended for exterior use as terra cotta glaze replacement. Product shall be custom mixed by manufacturer to match color and gloss of existing terra cotta glaze.
      1. ACCESSORY MATERIALS

Revise first four anchor paragraphs below if types other than stainless steel are required. Type 304 stainless steel is typical, but some jurisdictions or conditions may require Type 316. Firms often indicate type on Drawings.

* + - * 1. Terra Cotta Anchors: Type and size indicated or, if not indicated, to match existing, formed metal anchors in size and type. Fabricate anchors from [**Type 304] [Type 316**] stainless steel.

In "Masonry Repair Anchors, Expansion Type" Paragraph below, verify availability with manufacturers if specifying Type 316 stainless steel.

* + - * 1. Masonry Repair Anchors, Expansion Type: Mechanical fasteners designed for masonry veneer stabilization consisting of 1/4-inch diameter, [**Type 304] [Type 316**] stainless-steel rod with brass expanding shells at each end and water-shedding washer in the middle. Expanding shells shall be designed to provide positive mechanical anchorage to veneer on one end and backup masonry on the other.

In "Masonry Repair Anchors, Spiral Type" Paragraph below, verify availability with manufacturers if specifying Type 316 stainless steel.

* + - * 1. Masonry Repair Anchors, Spiral Type: Driven-in, [**Type 304] [Type 316**] stainless-steel spiral rods designed to be installed in drilled holes and relying on screw effect rather than adhesive to secure them to backup and veneer. Anchors are flexible in plane of veneer but rigid perpendicular to it.

Revise "Masonry Repair Anchors, Expanding Grout Sleeve Type" Paragraph below if inserting systems by other manufacturers.

* + - * 1. Masonry Repair Anchors, Expanding Grout Sleeve Type: Fabric sleeve system with [**Type 304**] [**Type 316**] stainless-steel tube through which system manufacturer's grout is pumped to expand the sleeve, fill cavities within wall, and bond mechanically and chemically with interior of wall construction; and complete with other devices required for installation.

Retain "Setting Buttons and Shims" Paragraph below to ensure equal joint spacing.

* + - * 1. Setting Buttons and Shims: Resilient plastic, nonstaining to masonry, sized to suit joint thicknesses and bed depths of terra cotta units, less the required depth of pointing materials unless removed before pointing.
        2. Masking Tape: Nonstaining, nonabsorbent material; compatible with mortar, joint primers, sealants, and surfaces adjacent to joints; and that easily comes off entirely, including adhesive.

Insert paragraph(s) for other types of masking products, including tapes, sheets, etc., to suit Project.

Retain "Antirust Coating" Paragraph below if retaining requirement in Part 3 for coating existing anchors within wall.

* + - * 1. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer according to [**MPI #23 (surface-tolerant, anticorrosive metal primer)] [or] [SSPC-Paint 20 or SSPC-Paint 29 zinc-rich coating] <Insert requirement**>.

Coordinate surface-preparation standard in "Surface Preparation" Subparagraph below with surface-preparation standard in "Painting Steel Uncovered during the Work" Article. If known, consider inserting manufacturer's name and product name.

Surface Preparation: Use coating requiring no better than [**SSPC-SP 2, "Hand Tool Cleaning,"] [SSPC-SP 3, "Power Tool Cleaning,"] [or] [SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning,"] <Insert surface-preparation standard**> surface preparation according to manufacturer's literature or certified statement.

Limit in "VOC Limit" Subparagraph below is the EPA limit for rust-preventive architectural coatings.

VOC Limit: Use coating with a VOC content of [**400 g/L**] or less.

* + - * 1. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:

Previous effectiveness in performing 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 do the following:

Remove, alter, or harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in Contract.

Leave residue on surfaces.

* + - 1. MORTAR MIXES

Retain "Preparing Lime Putty" Paragraph below unless hydrated lime or factory-prepared lime putty is used.

* + - * 1. Preparing Lime Putty: Slake quicklime and prepare lime putty according to appendix to ASTM C5 and manufacturer's written instructions.
        2. 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.
        3. 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 "Rebuilding (Setting) Mortar by Volume," "Rebuilding (Setting) Mortar by Type," "Rebuilding (Setting) Mortar by Property," or "Rebuilding (Setting) Mortar by ASTM C1713 Composition" Subparagraph below, or revise to indicate specific requirements for each type of terra cotta unit indicated. Consider revising portland cement to white portland cement if exposed, light-colored mortar is required.

Volumetric proportions in "Rebuilding (Setting) Mortar by Volume" Subparagraph below are examples only; revise to suit Project.

Rebuilding (Setting) Mortar by Volume: ASTM C270, Proportion Specification, [**1 part portland cement, 2 parts lime, and 7 parts sand] [1 part portland cement, 4 parts lime, and 12 parts sand] <Insert proportions**>.

Rebuilding (Setting) Mortar by Type: ASTM C270, Proportion Specification, [**Type N] [Type O] <Insert type**> unless otherwise indicated; with cementitious material limited to portland cement and lime.

Insert additional properties in "Rebuilding (Setting) Mortar by Property" Subparagraph below if required.

Rebuilding (Setting) Mortar by Property: ASTM C270, Property Specification, [**Type N**] [**Type O] <Insert type**> unless otherwise indicated; with cementitious material limited to portland cement and lime.

"Rebuilding (Setting) Mortar by ASTM C1713 Composition" Subparagraph below is based on proportion specification of ASTM C1713; revise if property specification is required. Volumetric proportion is an example only; revise to suit Project. See the Evaluations for discussion of ASTM C1713.

Rebuilding (Setting) Mortar by ASTM C1713 Composition: ASTM C1713, with binder material limited to [**portland cement and lime] <Insert binder(s)>, and with a volume ratio of [1 part portland cement, 1 part lime, and 6 parts sand] <Insert proportions**>.

Retain "Colored Mortar" Subparagraph below if adding mortar pigment to setting-mortar mix in order to set and point masonry with rebuilding (setting) mortar.

Colored Mortar: Add mortar pigments to produce exposed, setting (rebuilding) mortar of colors required.

1. EXECUTION
   * + 1. HISTORIC TREATMENT SPECIALIST

Retain this article if using list of preapproved firms as quality-control procedure.

If retaining second option in "Historic Treatment Specialist Firms" Paragraph below, include procedure for approving other firms in Document 002213 "Supplementary Instructions to Bidders."

* + - * 1. Historic Treatment Specialist Firms: Subject to compliance with requirements, [**provide historic terra cotta repair by one of the following] [firms that may provide historic terra cotta repair include, but are not limited to, the following**]:

<**Insert, in separate subparagraphs, names of historic treatment specialist firms**>.

* + - 1. PROTECTION
         1. Prevent mortar from staining face of surrounding masonry and other surfaces.

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

Keep wall area wet below rebuilding and repair work to discourage mortar from adhering.

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

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

* + - * 1. Remove[ **gutters and**] downspouts and associated hardware adjacent to immediate work area, and store during masonry repair work. Reinstall when repairs are complete.

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

* + - 1. MASONRY REPAIR, GENERAL
         1. Have repair work performed only by qualified historic treatment specialist.

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

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

Copy this article and re-edit for significantly different conditions and anchor types to be removed.

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. Remove abandoned anchors, brackets, wood nailers, and other extraneous items [**no longer in use unless indicated to remain] [indicated to be removed**].

Remove items carefully to avoid spalling or cracking masonry.

Notify Director’s Representative before proceeding if an item cannot be removed without damaging surrounding masonry. Do the following where directed:

Revise first two subparagraphs below if cutting off an item flush is acceptable. Ferrous items continue to corrode if cut off flush.

Cut or grind off item approximately [3/4 inch] beneath surface, and core drill a recess of same depth in surrounding masonry as close around item as practicable.

Immediately paint exposed end of item with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended dry film thickness per coat. Keep paint off sides of recess.

Patch the hole where each item was removed unless directed to remove and replace the terra cotta unit.

* + - 1. TERRA COTTA REMOVAL AND REPLACEMENT <**Insert drawing designation**>

Copy this article and re-edit for significantly different shapes and sizes of terra cotta to be removed and replaced.

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. At locations indicated, remove terra cotta units that are damaged, spalled, or deteriorated. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
        2. Support and protect remaining masonry that was supported by removed units.

Retain option in first paragraph below if applicable; revise to suit Project.

* + - * 1. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.[ **Coordinate with new flashing, reinforcement, and lintels, which are specified in other Sections.]**
        2. Notify Director’s Representative of unforeseen detrimental conditions, including voids, cracks, bulges, loose masonry units in existing backup, rotted wood, rusted metal, and other deteriorated items.
        3. Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for terra cotta replacement.
        4. Install replacement units into bonding and coursing pattern of existing units.

Retain first subparagraph below for glazed terra cotta; retain second for brownstone terra cotta.

Do not cut or grind glazed terra cotta.

If minor cutting of replacement brownstone terra cotta is required, use a motor-driven grinder or saw designed to cut masonry with clean, sharp, unchipped edges. Do not cut or grind more than [**1/8 inch**] along any edge.

Maintain joint width for replacement units to match existing joints.

Retain subparagraph below especially for narrow joints.

Use setting buttons or shims to set units accurately spaced with uniform joints.

* + - * 1. Set replacement units in a full bed of rebuilding (setting) mortar. Replace existing, formed metal anchors with new terra cotta anchors [**of size and type indicated] [matching existing configuration].**

First subparagraph below is an example only; revise to suit Project.

Embed anchors in mortar, and fill voids behind units with mortar.

Retain one of first two subparagraphs below. Coordinate with mortar mixes in Part 2. First subparagraph assumes that setting and repointing are done at same time; second assumes that joints are repointed separately.

Tool exposed mortar joints in repaired areas to match joints of surrounding existing terra cotta.

Rake out mortar used for setting terra cotta before mortar sets according to Section 040327 "Historic Terra Cotta Unit Masonry Repointing." Point at same time as repointing of surrounding area.

When mortar is hard enough to support units, remove shims and other devices interfering with pointing of joints.

Retain "Curing" Paragraph below for all mortars. Proper moist curing is critical for high-lime-content mortars.

* + - * 1. Curing: 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 the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

* + - 1. BACKUP MASONRY REMOVAL AND REPLACEMENT <**Insert drawing designation**>

This article assumes that there is brick backup masonry. Copy this article and re-edit for significantly different shapes, sizes, and types of backup masonry to be removed and replaced.

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

* + - * 1. Where backup masonry is fractured or unstable and at locations indicated, remove mortar and masonry units that are broken or deteriorated and rebuild with whole, new brick or whole salvaged backup masonry units. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.

Retain first paragraph below or delete first paragraph and retain remaining paragraphs.

* + - * 1. Perform backup masonry removal and replacement according to requirements in Section 040322 "Historic Brick Unit Masonry Repair."
        2. Support and protect remaining masonry that surrounds removal area.

Retain option in first paragraph below if applicable; revise to suit Project.

* + - * 1. Maintain flashing, reinforcement, anchors, lintels, and adjoining construction in an undamaged condition.[ **Coordinate with new flashing, reinforcement, and lintels, which are specified in other Sections.**]
        2. Notify Director’s Representative of unforeseen detrimental conditions, including voids, cracks, bulges, loose masonry units beyond the removal area, rotted wood, rusted metal, and other deteriorated items.
        3. Remove in an undamaged condition as many whole bricks as possible.

Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.

Remove sealants by cutting close to brick with utility knife and cleaning with solvents.

Store brick for reuse. Store off ground, on skids, and protected from weather.

Deliver cleaned brick not required for reuse to Director’s Representative unless otherwise indicated.

* + - * 1. Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for brick replacement.
        2. Replace removed damaged brick with salvaged backup brick in good condition, where possible, or with new building brick matching existing backup brick. Do not use broken units unless they can be cut to usable size.
        3. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
        4. Lay replacement brick with rebuilding (setting) mortar and with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C67 initial rates of absorption (suction) of more than 30 g/30 sq. in. per min. Use wetting methods that ensure that units are nearly saturated but surface is dry when laid.

Retain "Curing" Paragraph below for all mortars. Proper moist curing is critical for high-lime-content mortars.

* + - * 1. Curing: 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 the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

* + - 1. REANCHORING VENEERS <**Insert drawing designation**>

Copy this article and re-edit for significantly different types of veneer reanchoring.

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

Consult Project structural Director’s Representative about anchor-spacing requirement in first paragraph below; revise to suit Project.

* + - * 1. Install masonry repair anchors in horizontal mortar joints and according to manufacturer's written instructions. Space anchors not more than [**16 inches o.c. vertically and 24 inches o.c. horizontally] <Insert requirement**> apart unless otherwise indicated. Install at locations to avoid penetrating flashing.
        2. Recess anchors 5/8 inch or more from surface of mortar joint, and fill recess with pointing mortar according to Section 040327 "Historic Terra Cotta Unit Masonry Repointing."
      1. PAINTING STEEL UNCOVERED DURING THE WORK <**Insert drawing designation**>

Retain this article if steel may be uncovered during the Work. Revise to accommodate another method or methods if required.

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. Notify Director’s Representative if steel is exposed during masonry removal. Where Director’s Representative determines that steel is structural, or for other reasons cannot be totally removed, prepare and paint it as follows:

Coordinate "Surface Preparation" Subparagraph below with surface-preparation standard for antirust coating retained in "Accessory Materials" Article.

Surface Preparation: Remove paint, rust, and other contaminants according to [**SSPC-SP 2, "Hand Tool Cleaning,"] [SSPC-SP 3, "Power Tool Cleaning,"] [or] [SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning,"] <Insert surface**-**preparation** **standard**> as applicable to comply with paint manufacturer's recommended preparation.

Antirust Coating: Immediately paint exposed steel with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).

Consult Project structural Director’s Representative about dimension of acceptable steel loss in paragraph below; revise to suit Project.

* + - * 1. If on inspection and rust removal, the thickness of a steel member is found to be reduced from rust by more than [**1/16 inch**], notify Director’s Representative before proceeding.
      1. TERRA COTTA PATCHING <**Insert drawing designation**>

Copy this article and re-edit for significantly different types and sizes of terra cotta patching.

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

Patching slightly to moderately damaged terra cotta units is usually much less expensive than replacement. For historic treatment projects, it is also important to retain as much of original fabric of building as possible.

* + - * 1. Patch the following terra cotta units unless another type of repair or replacement is indicated:

Usually, retain first subparagraph below and indicate units that require patching on Drawings.

Units indicated to be patched.

Retain three subparagraphs below with or without subparagraph above; revise to suit Project.

Units with holes.

Consider retaining option in one of or both subparagraphs below to define an acceptable defect size; revise to suit Project.

Units with chipped edges or corners.[ **Patch chipped edges or corners measuring more than 3/4 inch in least dimension.]**

Units with small areas of deep deterioration.[ **Patch deep deteriorations measuring more than 3/4 inch in least dimension and more than 1/4 inch deep**.]

Retain first paragraph below if there are existing patches in unsatisfactory condition. Retain one of two options; retain first if not all existing patches require replacement and their locations are indicated on Drawings; revise to suit Project.

* + - * 1. Remove and replace existing patches [**where indicated] [unless otherwise indicated or approved by Director’s Representative].**
        2. Patching Terra Cotta:

Remove deteriorated material as determined by sounding gently with a small hammer. Carefully remove additional material so patch does not have feathered edges but has square or slightly undercut edges on area to be patched and is at least [**1/4 inch**] thick, but not less than recommended in writing by patching compound manufacturer.

Mask adjacent mortar joint or rake out for repointing if patch extends to edge of unit.

Retain first subparagraph below for brownstone terra cotta units that exhibit a color variation.

Mix patching compound in individual batches to match each unit being patched. Combine one or more colors of patching compound, as needed, to produce exact match.

Rinse surface to be patched and leave damp, but without standing water.

Brush-coat surfaces with slurry coat of patching compound according to manufacturer's written instructions.

Place patching compound in layers as recommended in writing by patching compound manufacturer, but not less than 1/4 inch or more than 2 inches thick. Roughen surface of each layer to provide a key for next layer.

Do not apply patching compound over mortar joints. If patching compound bridges mortar joints, cut out joints after patching compound hardens.

Trowel, scrape, or carve surface of patch to match texture, details, and surrounding surface plane or contour of the unit. Shape and finish surface before or after curing, as determined by testing, to best match existing terra cotta.

Keep each layer damp for 72 hours or until patching compound has set.

Retain subparagraph below for glazed terra cotta.

After final layer of patching compound has cured, apply terra cotta glaze replacement according to manufacturer's written instructions. Apply two or more coats, as needed, to match glaze of adjacent terra cotta units.

* + - 1. TERRA COTTA GLAZE REPAIR <**Insert drawing designation**>

Copy this article and re-edit for significantly different types of glazes.

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

Repairing damaged glaze rather than replacing otherwise sound terra cotta units is usually much less expensive. For historic treatment projects, it is also important to retain as much of original fabric of building as possible.

* + - * 1. Repair the glaze on the following terra cotta units that are otherwise sound unless another type of repair or replacement is indicated:

Usually, retain first subparagraph below and indicate units that require glaze repair on Drawings.

Units indicated to have glaze repaired.

Retain both subparagraphs below with or without subparagraph above; revise to suit Project.

Units with abraded or chipped glaze.

Units with spots or areas of shallow deterioration greater than glaze thickness and less up to [**1/16 inch**] deep.

Retain first paragraph below if existing glaze repairs are in unsatisfactory condition. Retain one of two options; retain first if not all existing repairs require replacement and their locations are indicated on Drawings; revise to suit Project.

* + - * 1. Remove and replace discolored or mismatched glaze repairs [**where indicated] [unless otherwise indicated or approved by Director’s Representative**].
        2. Application: After other repairs have cured, apply terra cotta glaze replacement according to manufacturer's written instructions. Apply two or more coats, as needed, to match glaze of adjacent terra cotta units. Do not apply glaze to joint surfaces between units or within joints that will be mortared or sealed.
      1. FINAL CLEANING

Retain this article only if overall cleaning of existing masonry occurs before repair work is completed.

Delete first paragraph below if overall cleaning of repaired historic masonry is included in another Section.

* + - * 1. After mortar has fully hardened, thoroughly clean exposed masonry 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 nonmasonry 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

Retain "Testing Agency" Paragraph if Director’s Representative retains full-time inspectors or "Architect's Project Representatives" Paragraph below if Architect's representatives will be on-site daily to make observations, or both.

* + - * 1. Testing Agency: Director’s Representative will engage qualified independent testing agencies to perform tests and inspections. Allow inspectors use of lift devices and scaffolding, as needed, to perform inspections.
        2. Architect's Project Representatives: Architect will assign Project representatives to help carry out Architect's responsibilities at the site, including observing progress and quality of portion of the Work completed. Allow Architect's Project representatives use of lift devices and scaffolding, as needed, to observe progress and quality of portion of the Work completed.
        3. Notify [**testing agency] [and] [Architect's Project representatives**] in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until [**inspectors] [and] [Architect's Project representatives**] have had reasonable opportunity to make inspections and observations of work areas at lift device or scaffold location.
      1. MASONRY-WASTE DISPOSAL
         1. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property.
         2. Masonry Waste: Remove masonry waste and legally dispose of off Director’s Representative's property.

END OF SECTION 040326