SECTION 090320 - HISTORIC TREATMENT OF PLASTER

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

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

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:

Repair[**and replacement**] of historic [**interior**] [**and**] [**exterior**] lime plaster.

Repair[**and replacement**] of interior gypsum plaster.

Retain subparagraph below only for cast-plaster fabrications.

Replication of cast [**lime**] [**and**] [**gypsum**] plasterwork.

* + - * 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 061000 "Rough Carpentry" for wood framing, grounds, and furring that support lath and plaster.

Section 090391 "Historic Treatment of Plain Painting" for paint removal, surface preparation for refinishing, and refinishing of historic plaster surfaces.

Section 092216 "Non-Structural Metal Framing" for non-load-bearing steel framing and furring that support lath and plaster.

Section 092613 "Gypsum Veneer Plastering" for gypsum-based veneer plaster applied on gypsum base for veneer plaster, unit masonry, and monolithic concrete.

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

* + - * 1. Allowances for historic treatment of plaster 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 treatment of plaster under quantity allowances and only as authorized. Authorized work includes [**work required by Drawings and Specifications and**] [**only**] 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. Historic plaster repair and replacement is part of historic plaster repair allowance unless otherwise indicated.
        2. Repair and replace plasterwork in ballroom as part of <**Insert name of allowance**>.
        3. Repair plasterwork in first floor service corridor as part of <**Insert name of allowance**>.
      1. UNIT PRICES

Retain this article if Work specified in this Section is measured and paid for under the provisions of unit prices. 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 unit price.

Retain this article with "Allowances" Article for unit-price adjustments to quantity allowances.

Retain this article without "Allowances" Article if using a single Unit-Price Schedule with a column of estimated quantities on which bids are priced and evaluated.

* + - * 1. Work of this Section is affected by unit prices specified in Section 012200 "Cost Computations."

Unit prices apply to authorized work covered by [**quantity allowances**] [**estimated quantities**].

Unit prices apply to additions to and deletions from Work as authorized by Change Orders.

* + - 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 one or both subparagraphs below if additional requirements are necessary; include information about conference.

Review minutes of Preliminary Historic Treatment Conference that pertain to historic treatment of plaster.

Review methods and procedures related to historic treatment of plaster including, but not limited to, the following:

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

Materials, material application, colors, patterns, and sequencing.

Fire-protection plan.

Plasterwork historic treatment program.

Coordination with building occupants.

* + - 1. SEQUENCING AND SCHEDULING

Paragraph below is an example only; revise to suit Project. Insert other sequences for different areas of building or types of work if needed.

* + - * 1. Perform historic treatment of plaster in the following sequence, which includes work specified in this and other Sections:

Retain subparagraphs below and insert others if required; revise to suit Project. If adjacent materials are to be replaced, consider inserting them in sequence to ensure that restored and new materials are not damaged by the work.

Dismantle existing surface-mounted objects and hardware that overlie plaster surfaces except items indicated to remain in place. Tag items with location identification and protect.

Verify that temporary protections have been installed.

Examine condition of plaster surfaces.

Clean plaster surface and remove paint and other finishes to the extent required.

Repair and replace existing plaster and supports to the degree required for a uniform, tightly adhered surface on which to paint or apply other finishes.

Cure repaired surfaces and allow them to dry for proper finishing.

Paint and apply other finishes.

Reinstall dismantled surface-mounted objects and hardware unless otherwise indicated.

* + - 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 recommendations for product application and use.

Retain "Shop Drawings" paragraph below if this information is not indicated on Drawings.

* + - * 1. Shop Drawings: For each configuration of [**new or replicated plaster molding and ornament**] <**Insert item**> required for the work.

Revise subparagraphs below to suit Project.

Include plans, elevations, and sections that show locations and extent of work.

Show full-size details of configurations, joint locations, and attachments to other work.

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

* + - * 1. Samples for Initial Selection: For each exposed product that will be exposed and not be painted or otherwise finished and for each color and texture specified.
        2. Samples for Verification: For the following products:

Retain and revise six subparagraphs below based on required plasterwork; insert others to suit Project. Retain "Cast Plaster" subparagraph only for cast-plaster fabrications.

Cast Plaster: Each type and form of cast-plaster fabrication.

Retain "Patterns for Casting" subparagraph and option in "Cast-Plaster Fabrications" subparagraph below for tight control of appearance and unit size (accommodating shrinkage, if any, of casting during curing). If retaining, consider limiting this requirement to specific, highly visible fabrications. It adds to Project time and cost.

Patterns for Casting: Before manufacturing cast-plaster fabrications, 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.

Cast-Plaster Fabrications: Provide one unit of each shape and surface design, suitable and ready for installation.[**Submit unit samples after acceptance of patterns for casting.**]

Linear Moldings: 24-inch- long section of each configuration wet-applied molding with finished joint. Show complete pattern and applied nonlinear cast-plaster shapes, if any.

Nonlinear Shapes: Full-size unit of each configuration.

Wood Lath: 18-inch- long section.

Metal Lath: 18 inches square.

Accessories: Each type in manufacturer's standard size.

Consider "Qualification Data" and "Plasterwork Historic Treatment Program" paragraphs below as they relate to Project goals and importance. To require responsive action by Architect after submittal review, move one or both paragraphs to "Action Submittals" Article. Retain third option in "Qualification Data" paragraph only if cast-plaster fabrications are required.

* + - * 1. Qualification Data: For qualified [**historic treatment specialist**] [**and**] [**cast-plaster manufacturer**].
        2. Plasterwork Historic Treatment Program: Submit before work begins.

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 plastering specialist with expertise in matching and performing the types of historic plasterwork repairs required. Experience only in installing and repairing new plasterwork, veneer plaster, or gypsum board is insufficient experience for historic treatment work.

Retain "Cast-Plaster Manufacturer Qualifications" paragraph below only if cast-plaster fabrications are required.

* + - * 1. Cast-Plaster Manufacturer Qualifications: A firm regularly engaged in manufacturing custom-cast plasterwork for building restoration purposes, of same types and of similar size, complexity, and tolerances as those required for the Work.
        2. Plasterwork Historic Treatment Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for historic treatment work and protection of surrounding materials and Project site.

Retain first subparagraph below if highly ornamented plasterwork or its location is particularly vulnerable to damage risks that may increase during construction operations; revise to suit Project. Consider indicating specific locations for this protection on Drawings or by inserts.

Include methods and procedures to protect plastered surfaces from damage caused by construction operations, including, but not limited to, exposure to moisture, vibration, mechanical damage, and soiling.

If materials and methods other than those indicated are proposed for any phase of historic treatment work, add 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 benchmarks in "Benchmarks" 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 benchmarks.

* + - * 1. Benchmarks: Prepare benchmarks of historic treatment processes for each type of plaster repair and reconstruction work to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.

Locate benchmarks [**on existing surfaces where directed by** Director’s Representative] [**in locations that enable viewing under same conditions as the completed Work**] <**Insert requirement**>.

Number and Size: [**Two**] <**Insert number**> wall surfaces of at least [**50 sq. ft.** ] <**Insert size**> or approximately [**48 inches**] <**Insert dimension**> in least dimension to represent surfaces and conditions for application of each type of plaster repair and reconstruction under same conditions as the completed Work. Include at least the following:

Retain one or more of six subparagraphs below if required; insert others to suit Project. Retain second option in first and second subparagraph if required; it is an example only; revise to suit Project.

Install [**4-sq. ft.** ] <**Insert value**> area of wet-applied plaster replacement[**with grooves simulating stone joints, as indicated**] <**Insert requirement**>.

Patch [**10-sq. ft.** ] <**Insert value**> area of wet-applied plaster replacement[**with grooves simulating stone joints, as indicated**] <**Insert requirement**>.

Install [**6 linear ft.** ] <**Insert dimension**> of wet-applied plaster molding.

Install [**6 linear ft.** ] <**Insert dimension**> of cast-plaster molding, but not less than [**two**] <**Insert number**> cast units.

Repair [**3 linear ft.** ] <**Insert dimension**> of plaster cracks.

Reattach [**4-sq. ft.** ] <**Insert value**> area of delaminated plaster that has not fallen.

If plaster has integral color or a special finish, insert mockup requirements here.

Simulate finished lighting conditions for review of benchmarks.

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

* + - 1. DELIVERY, STORAGE, AND HANDLING

Retain paragraphs in this article 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 materials on elevated platforms, under cover, and in a dry location with ambient temperatures continuously maintained at not less than 45 deg F .
        3. Store hydrated lime and factory-prepared lime putty 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 materials not in use in tightly covered containers.
        5. Store lime putty covered with water in sealed containers.
        6. Store sand where grading and other required characteristics can be maintained and contamination avoided.

Retain paragraph below only if cast-plaster fabrications are required.

* + - * 1. Handle cast-plaster fabrications to prevent overstressing, chipping, defacement, and other damage.
      1. FIELD CONDITIONS
         1. Comply with plaster-material manufacturers' written instructions.[**For gypsum plaster, also comply with ASTM C842 requirements.**]
         2. Temperatures: Maintain temperatures in work areas at not less than 55 deg F or greater than 80 deg F for at least seven days before application of plaster, continuously during application, and for seven days after plaster has set or until plaster has dried.
         3. Conditioning: Acclimatize cast-plaster fabrications to ambient temperature and humidity of spaces in which they are installed. Remove packaging and move units into installation spaces not less than 48 hours before installing them.
         4. Field Measurements: Where cast-plaster fabrications are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
         5. Avoid conditions that result in plaster drying out too quickly.

Distribute heat evenly; prevent concentrated or uneven heat on plaster.

Maintain relative humidity levels for prevailing ambient temperature that produce normal drying conditions.

Ventilate work areas in a manner that prevents drafts of air from contacting surfaces during plaster application and until plaster is dry.

* + - 1. REUSABLE PLASTER MOLDS AND PATTERNS

Retain this article only for cast-plaster fabrications if future need for reusable molds or patterns can be reasonably expected and Director’s Representative has space and takes responsibility for their storage and protection. Consult cast-plaster manufacturer on whether it can store molds and patterns for long or indefinite periods. Patterns from which molds were made may also be useful for display purposes. Revise this article to suit storage space limitations.

* + - * 1. On completion of the manufacturing of cast units, deliver [**one unused mold**] [**and**] [**pattern**] 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 Director’s Representative's property.
        2. Identify each piece whether it was sized for casting lime- or gypsum-plaster fabrications and where the fabrications were used.
        3. 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.

1. PRODUCTS
   * + 1. LIME-PLASTER MATERIALS
          1. Hydrated Lime: ASTM C206, [**Type S**] [**or**] [**Type N**].
          2. Lime Putty: [**Slaked hydrated lime**] [**or**] [**factory-prepared lime putty according to ASTM C1489**].
          3. Sand Aggregates: ASTM C897.

Retain "Finish-Coat Sand" subparagraph below for sieve requirements different from ASTM C897; retain option below only if required for exposed lime plaster.

Finish-Coat Sand: [**Match size, texture, and gradation of existing sand as closely as possible. Blend several sands if necessary to achieve suitable match**] <**Insert requirement**>.

Retain "Pigments for Colored Plaster " paragraph below if exposed, pigmented lime plaster is required.

* + - * 1. Pigments for Colored Plaster: ASTM C979 and having a record of satisfactory performance in lime plaster.

Retain "Fiber" paragraph below for base-coat plaster or if fiber-reinforced, cast-plaster fabrications are required; revise to suit Project. Natural fibers bond better to plaster than synthetic fibers, but synthetic fibers are more resistant to moist conditions. Proportions vary with type of fiber and lime-to-sand mixture.

* + - * 1. Fiber: 1/2 to 1 inch in length; composed of [**cattle, goat, or hog hair or body hair from horses**] [**natural linen, cotton, hemp, or jute fiber**] [**or**] [**alkali-resistant glass or polypropylene fiber**] <**Insert requirement**>; free of grease, waxes, and oils; and beaten well to separate fibers before blending into unfibered plaster material.

Proportion of Fiber to Unfibered Plaster Material: [**3.5 oz./cu. ft. of unfibered plaster material**] <**Insert value**>, adjusted as required to produce a well-fibered, cohesive, spreadable, stiff mix with fibers uniformly distributed.

Retain "Fabric Reinforcing" paragraph below only if fabric-reinforced, cast-plaster fabrications are required; revise to suit Project. Natural fibers bond better to plaster than synthetic fibers, but synthetic fibers are more resistant to moist conditions.

* + - * 1. Fabric Reinforcing: [**Coarse, open-weave, sackcloth made of natural linen, cotton, hemp, or jute; free of grease and oils**] [**Coarse, open-weave, alkali-resistant fiberglass or polypropylene fabric**] <**Insert requirement**>; free of grease, waxes, and oils.
      1. GYPSUM PLASTER MATERIALS
         1. Gypsum Materials:

Lightweight Gypsum Ready-Mixed Plaster: ASTM C28, with mill-mixed perlite aggregate.

Gypsum Neat Plaster: ASTM C28 for use with job-mixed aggregates.

Gypsum Wood-Fibered Plaster: ASTM C28.

High-Strength Gypsum Neat Plaster: ASTM C28; with a minimum, average, dry compressive strength of 2800 psi per ASTM C472 for a mix of 100 lb of plaster and 2 cu. ft. of sand.

Gypsum Gaging Plaster. ASTM C28.

High-Strength Gypsum Gaging Plaster: ASTM C28; with a minimum, average, dry compressive strength of 5000 psi per ASTM C472 for a neat mix.

Gypsum Ready-Mixed Finish Plaster: ASTM C28; manufacturer's standard, mill-mixed, gaged, interior finish.

Gypsum Keene's Cement: ASTM C61.

* + - * 1. Hydrated Lime: ASTM C206, [**Type S**] [**or**] [**Type N**].
        2. Aggregates:

Aggregate for Base-Coat Plasters: ASTM C35, [**sand**] [**perlite**].

Retain "Aggregate for Float Finishes" subparagraph below for float finishes. Second option below is used over base coats containing perlite.

Aggregate for Float Finishes: ASTM C35, [**sand**] [**perlite**]; graded per ASTM C842.

Retain "Fiber" paragraph below for base-coat plaster or if fiber-reinforced, cast-plaster fabrications are required; revise to suit Project. Natural fibers bond better to plaster than synthetic fibers, but synthetic fibers are more resistant to moist conditions. Proportions vary with type of fiber and gypsum-to-sand mixture.

* + - * 1. Fiber: 1/2 to 1 inch in length; composed of [**cattle, goat, or hog hair or body hair from horses**] [**natural linen, cotton, hemp, or jute fiber**] [**or**] [**glass or polypropylene fiber**] <**Insert requirement**>; free of grease, waxes, and oils; and beaten well to separate fibers before blending into unfibered plaster material.

Proportion of Fiber to Unfibered Plaster Material: [**3.5 oz./cu. ft. of unfibered plaster material**] <**Insert value**>, adjusted as required to produce a well-fibered, cohesive, spreadable, stiff mix with fibers uniformly distributed.

Retain "Fabric Reinforcing" paragraph below only if fabric-reinforced, cast-plaster fabrications are required; revise to suit Project. Natural fibers bond better to plaster than synthetic fibers, but synthetic fibers are more resistant to moist conditions.

* + - * 1. Fabric Reinforcing: [**Coarse, open-weave, sackcloth made of natural linen, cotton, hemp, or jute; free of grease and oils**] [**Coarse, open-weave, alkali-resistant fiberglass or polypropylene fabric**] <**Insert requirement**>; free of grease, waxes, and oils.

If pigmented gypsum plaster is required, insert pigment requirements here.

Retain "Bonding Compound" paragraph below if plaster is adhered to structurally sound interior unit masonry or monolithic concrete.

* + - * 1. Bonding Compound: ASTM C631.
      1. LATH

Retain this article if historic treatment of plaster includes replacing or installing lath. Lath type(s) and dimensions or weight in this article should match existing lath to maximize compatibility with remaining historic plaster; revise to suit Project. Coordinate with "Removing and Installing Lath and Accessories" Article.

* + - * 1. Wood Lath: [**1/4 inch by 1-1/4 inch**] <**Insert dimensions**> sound, straight-grained, wood strips
        2. Metal Lath:

Expanded-Metal Lath: ASTM C847, cold-rolled carbon-steel sheet, ASTM A653, G60 , hot-dip galvanized zinc coated.

Retain "Paper Backing" subparagraph below if paper backing is required. Kraft-paper-backed lath is used to reduce plaster "push-through" waste. Asphalt-saturated and laminated paper backings are also available and are typically used only for exterior applications.

Paper Backing: Kraft paper factory bonded to back of lath.

Retain one or more of "Diamond-Mesh Lath," "Flat Rib Lath," and "3/8-Inch Rib Lath" subparagraphs below to suit Project. Coordinate lath selection with framing spacing, requirements detailed on Drawings, and "Removing and Installing Lath and Accessories" Article.

Diamond-Mesh Lath: [**Flat**] [**Self-furring**], [**2.5 lb/sq. yd.** ] [**3.4 lb/sq. yd.** ].

Flat rib lath is more rigid than diamond lath. It is unsuitable for contour lathing.

Flat Rib Lath: Rib depth of not more than 1/8 inch , [**2.75 lb/sq. yd.** ] [**3.4 lb/sq. yd.** ].

3/8-Inch Rib Lath: [**3.4 lb/sq. yd.** ] [**4 lb/sq. yd.** ].

If gypsum lath or wire lath is required, insert articles here.

* + - 1. TRIM ACCESSORIES
         1. General: According to [**ASTM C1063 for lime plaster**] [**and**] [**ASTM C841 for gypsum plaster**]; coordinate depth of trim and accessories with thicknesses and number of plaster coats required.
         2. Metal Accessories:

Retain "Cornerite" subparagraph below for reinforcing plaster at internal angles of plaster on solid bases and for restrained construction using expanded-metal lath (that is not otherwise lapped); see "Accessories" Article in the Evaluations.

Cornerite: Fabricated from expanded-metal lath with ASTM A653, G60 , hot-dip galvanized zinc coating.

Retain "Striplath" subparagraph below for reinforcing plaster over joints in nonmetallic bases and between dissimilar plaster bases. Striplath also can be applied diagonally to reinforce plaster at corners of door and window openings and other areas of concentrated stress. See "Accessories" Article in the Evaluations.

Striplath: Fabricated from expanded-metal lath with ASTM A653, G60 , hot-dip galvanized zinc coating.

Cornerbeads: Fabricated from [**zinc**] [**or**] [**zinc-coated (galvanized) steel**].

Retain applicable descriptions of cornerbeads from first four subparagraphs below. If more than one type is required and locations do not fit descriptions below, indicate locations on Drawings or by inserts.

Small nose cornerbead with expanded flanges; use unless otherwise indicated.

Small nose cornerbead with perforated flanges; use on curved corners.

Small nose cornerbead with expanded flanges reinforced by perforated stiffening rib; use on columns and for finishing unit masonry corners.

Bull nose cornerbead, radius of 3/4 inch minimum, with expanded flanges; use at locations indicated on Drawings.

Casing Beads: Fabricated from [**zinc**] [**or**] [**zinc-coated (galvanized) steel**]; square-edged style; with expanded flanges.

Control Joints: Fabricated from [**zinc**] [**or**] [**zinc-coated (galvanized) steel**]; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.

Expansion Joints: Fabricated from [**zinc**] [**or**] [**zinc-coated (galvanized) steel**]; folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.

Two-Piece Expansion Joints: Fabricated from [**zinc**] [**or**] [**zinc-coated (galvanized) steel**]; formed to produce slip-joint and square-edged reveal that is adjustable from 1/4 to 5/8 inch wide; with perforated flanges.

Insert other accessories or accessories made of other materials here.

* + - 1. MISCELLANEOUS MATERIALS

Water that contains salt, alum, or plaster residue accelerates plaster set and may cause efflorescence. Water that contains organic or vegetable matter may retard plaster set, cause staining, and interfere with plaster bond.

* + - * 1. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.
        2. Fasteners for Attaching Lath to Substrates:

For Lime Plaster: ASTM C1063.

For Gypsum Plaster: ASTM C841.

For Wood Lath: ASTM C841 requirements for wood-floor-runner or wood-furring fasteners unless otherwise indicated on Drawings.

Generally, retain "Wire Ties" paragraph below. Wire, in various diameters, is used for tying expanded-metal lath to framing and supports.

* + - * 1. Wire Ties: ASTM A641, Class 1 zinc coating, soft temper, not less than 0.0475-inch diameter, unless otherwise indicated.

Retain "Plaster-Stabilization Materials" paragraph below if retaining "Reattachment of Delaminated Plaster" Article; revise to suit Project.

* + - * 1. Plaster-Stabilization Materials: Acrylic emulsion(s) and related installation products shall have proven effectiveness in reattaching delaminated plaster and shall have been used previously by historic treatment specialist with successful results.

Acrylic Emulsion(s), General: Aqueous emulsion(s) of acrylic polymer, adhesive to plaster and plaster substrates, nontoxic, and non-reemulsifiable after curing.

Prewet Solution: Low-viscosity acrylic emulsion.

Adhesive: Thickened acrylic emulsion; thickener as recommended in writing by resin manufacturer and historic treatment specialist.

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

Previous effectiveness in performing the work involved.

Little 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 in any way harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in contract.

Leave an unintended residue on surfaces.

* + - 1. CAST-PLASTER FABRICATIONS

Retain this article only if cast-plaster fabrications are required. If more than one reinforcing type is required, indicate locations on Drawings or by inserts. Coordinate with "Cast-Plaster Removal and Replacement" Article.

* + - * 1. General: Fabricate cast-plaster units with uniformly finished surfaces and sharply defined details; repair hollows, voids, scratches, and other surface imperfections.

Fabricate units of sizes and shapes to match similar existing plasterwork unless otherwise indicated.

Fabricate units in lengths and sizes that minimize number of joints between abutting units unless otherwise indicated.

Configure joints between units so that they may be finished flush or otherwise concealed inconspicuously.

Maximum deviation from true line, size, or shape shall be [**1/16 inch** ] <**Insert dimension**>, noncumulative.

* + - * 1. Composition: Fabricate units from [**lime-**] [**and**] [**gypsum-**]plaster materials. Reinforce units with [**fiber**] [**or**] [**fabric reinforcing**] <**Insert requirement**>.

Plaster Face: Molding plaster with or without aggregate as is standard with manufacturer for required surface finish.

Plaster Backup: Molding plaster with or without aggregate, but with high-proportion of plaster-saturated fiber or fabric reinforcing as is standard with manufacturer.

Retain option in "Thickness" paragraph below for surface-applied decorations whose thickness may taper to zero; revise to suit Project.

* + - * 1. Thickness: Not less than [**3/16-inch** ] <**Insert dimension**> thickness of plaster material at any point[**, except for surface-applied, fine plaster tracery as indicated on Drawings**].

If more than one finish is required in "Finish" paragraph below, indicate locations on Drawings or by inserts.

* + - * 1. Finish: [**Smooth for paint finish**] <**Insert finish**>.

Insert specific types of embedments or clips in "Embedments" paragraph below, if required, to connect fabrications to supporting substrates; insert product requirements in Part 2.

* + - * 1. Embedments: Incorporate manufacturer's standard embedments for attaching units to supporting elements unless otherwise indicated. Place embedments to develop the full strength of cast-plaster fabrications. Cover embedments with not less than [**3/16-inch** ] <**Insert dimension**> thickness of reinforced plaster material.
        2. Joint-Treatment Materials: As recommended in writing by manufacturer.

1. EXECUTION
   * + 1. HISTORIC TREATMENT SPECIALIST

Retain this article if list of preapproved firms is used 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 treatment of plaster by one of the following**] [**firms that may provide historic treatment of plaster include, but are not limited to, the following**]:

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

* + - 1. HISTORIC TREATMENT OF PLASTER, GENERAL

Retain "Historic Treatment Appearance Standard" paragraph below to control overall appearance from a distance. If retaining below for textured historic finishes, consider revising paragraph to suit Project. Delete exterior viewing requirement if there is no exterior plasterwork.

* + - * 1. Historic Treatment Appearance Standard: Completed work is to have a uniform appearance as viewed by Director’s representative from building interior at [**5 feet** ] [**10 feet** ] <**Insert distance**> away from surface and from building exterior at [**20 feet** ] [**50 feet** ] <**Insert distance**> away from surface.

Revise "General" paragraph below to suit Project.

* + - * 1. General: In treating historic plaster, disturb it as minimally as possible and as follows unless otherwise indicated:

Dismantle loose, damaged, or deteriorated plaster, lath, and support systems that cannot be repaired.

Verify extent of plaster deterioration against that indicated on Drawings. Consult Director’s representative on types and extent of required work.

Verify that substrate surface conditions are suitable for repairs.

Provide lath, furring, and support systems for plaster included in the work of this Section.

Replace lost details in new, wet-applied and cast plaster that replicate existing or indicated plaster configurations.

Leave repaired plasterwork in proper condition for painting or applying other finishes as indicated.

Install temporary protective measures to protect historic surfaces that shall be treated later.

* + - * 1. Illumination: Perform plastering work with adequate, uniform illumination that does not distort the flatness or curvature of surfaces.
      1. EXAMINATION
         1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrate and environmental conditions, installation tolerances, and other conditions affecting performance of the Work.

If existing substrates cannot be prepared to an acceptable condition for plastering work, notify Director’s representative in writing.

Notify Director’s representative of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

Retain "Masonry Substrates" paragraph below if plaster is directly applied on masonry.

* + - * 1. Masonry Substrates: Verify that mortar joints are struck flush. Notify Director’s representative of undocumented masonry substrate without flush joints. Proceed with plastering as directed by Director’s representative.
        2. Begin historic plastering work only after unsatisfactory conditions have been corrected.
      1. PREPARATION FOR PLASTERING
         1. Substrates: Prepare according to plaster manufacturer's written instructions and as follows:

Clean surfaces to remove dust, loose particles, grease, oil, incompatible curing compounds, form-release agents, and other foreign matter and deposits that could impair bond with plaster.

Remove ridges and protrusions greater than 1/8 inch and fill depressions greater than 1/4 inch with patching material. Allow to set and dry.

* + - 1. PLASTER REMOVAL AND REPLACEMENT, GENERAL

Retain this article if areas of plaster replacement are required.

* + - * 1. Dismantle plaster that is damaged or deteriorated to the limits indicated. Carefully dismantle areas along straight edges that lie over supports, without damaging surrounding plasterwork.
        2. Maintain lath and supporting members in an undamaged condition so far as practicable. Dismantle damaged lath and supports that cannot be repaired or resecured and replace with new work of same type.
        3. Notify Director’s representative of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
        4. Do not deviate more than plus or minus 1/8 inch in 10 feet from a true plane in finished plaster surfaces, as measured by a 10-foot straightedge placed on surface.
        5. Clean substrate surfaces to remove grease, waxes, oils, waterborne staining, debris, and other foreign matter and deposits that could impair bond with repair material.

Revise first two paragraphs below for plaster substrate conditions.

* + - * 1. Wet [**wood lath**] [**masonry**] [**and**] [**concrete**] bases before plaster application. Keep substrate damp to the touch but without visible water droplets.
        2. Wet remaining plaster abutting the replacement plaster before installing new plasterwork.
        3. Finish plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.
        4. Provide plaster surfaces that are ready to receive field-applied finishes indicated.
      1. FLAT LIME-PLASTER REMOVAL AND REPLACEMENT <**Insert drawing designation**>

Copy this article and re-edit for significantly different types of flat plaster to be removed and replaced.

Insert drawing designation. Use these designations on Drawings to identify locations. If retaining more than one mix or finish, indicate locations on Drawings or by inserts. See "Delineating the Work" Article in the Evaluations for discussion.

* + - * 1. General: Dismantle deteriorated plaster to existing sound plaster[**at locations indicated on Drawings**].

Inspect for lath deterioration. If any, replace lath.

Sand bonding surfaces of repair area, and clean the surface with a nonmetallic bristle brush.

Wet substrate to damp condition, but without visible water droplets, then install new plaster to original profiles.

* + - * 1. Lime-Plaster Base Coats:

Retain last option in "Scratch Coat" subparagraph below if using hair fiber.

Scratch Coat: [**1 part lime putty, 2-1/2 parts base-coat sand**] [**1 part lime putty, 2-1/2 parts base-coat sand, and fiber**] <**Insert mix**>.[**Add hair fiber to mix and evenly distribute it without clumps just before spreading.**]

Brown Coat: [**1 part lime putty, 3 parts base-coat sand**] <**Insert mix**>.

* + - * 1. Lime-Plaster Finish Coats:

Retain applicable finish-coat mixes from three subparagraphs below; insert other mixes to suit Project. Coordinate with requirements in "Lime-Plaster Finishes" paragraph below. If finish coats are integrally colored, insert mix requirements. More lime produces a softer but smoother surface; more sand produces a harder but textured surface. Revise terminology to suit local usage and office practice.

Retain "Finish-Coat Mix for Smooth-Troweled Finishes" subparagraph below if retaining first option in "Adhering Cast Plaster" paragraph in "Cast-Plaster Removal and Replacement" Article; revise to suit Project.

Finish-Coat Mix for Smooth-Troweled Finish: [**As required to match finish of design reference sample**] [**3 parts lime putty, 1 part finish-coat sand**] <**Insert requirement or proportions**>.

Finish-Coat Mix for Smooth-Float Finish: [**As required to match finish of design reference sample**] [**1 part lime putty, 1 part finish-coat sand**] <**Insert requirement or proportions**> <**Insert proportions**>.

Finish-Coat Mix for Sandy Float Finish: [**As required to match finish of design reference sample**] [**1 part lime putty, 3 parts finish-coat sand**] <**Insert requirement or proportions**>.

* + - * 1. Lime-Plaster Finishes: [**Match finish(es) of design reference sample(s)**] <**Insert requirement**>.

Retain applicable finishes from three subparagraphs below; insert other finishes to suit Project. If finish coats are integrally colored, indicate color locations on Drawings or by inserts.

Provide smooth-troweled finish [**unless otherwise indicated**] [**where indicated**] <**Insert locations**>. Apply in [**one layer**] [**two layers**] [**three layers**] <**Insert quantity**> totaling [**1/16 inch** ] [**1/8 inch** ] [**3/16 inch** ] thick.

Provide smooth-float finish [**unless otherwise indicated**] [**where indicated**] <**Insert locations**>. Apply in [**one layer**] [**two layers**] [**three layers**] <**Insert quantity**> totaling [**1/16 inch** ] [**1/8 inch** ] [**3/16 inch** ] thick.

Provide sandy-float finish [**unless otherwise indicated**] [**where indicated**] <**Insert locations**>. Apply in [**one layer**] [**two layers**] [**three layers**] <**Insert quantity**> totaling [**1/16 inch** ] [**1/8 inch** ] [**3/16 inch** ] thick.

Revise paragraph below to suit Project.

* + - * 1. Hairline cracking within the plaster or plaster separation at edge of a replacement is unacceptable. Completely dismantle such work and reinstall or repair as a crack repair.
      1. FLAT GYPSUM-PLASTER REMOVAL AND REPLACEMENT <**Insert drawing designation**>

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

Insert drawing designation. Use these designations on Drawings to identify locations. If retaining more than one mix or finish, indicate locations on Drawings or by inserts. See "Delineating the Work" Article in the Evaluations for discussion.

* + - * 1. General: Dismantle deteriorated plaster to existing sound plaster[**at locations indicated on Drawings**]. Use replacement plaster mixes of gypsum, lime, and aggregate; and application according to ASTM C842 unless otherwise indicated.

Inspect for lath deterioration. If any, replace lath.

Sand bonding surfaces of repair area, and clean the surface with a nonmetallic bristle brush.

Wet substrate to damp condition, but without visible water droplets, then install new plaster to original profiles.

* + - * 1. Bonding Compound: Apply on [**unit masonry**] [**and**] [**concrete**] plaster bases.
        2. Gypsum-Plaster Base Coats:

Retain applicable base coats from five subparagraphs below.

Base Coats over Wood Lath: Gypsum [**neat plaster with job-mixed sand and fiber**] [**wood-fibered plaster with job-mixed sand**] [**lightweight ready-mixed plaster with fiber**] <**Insert mix**>.

Retain one of two "Base Coats over Expanded-Metal Lath" subparagraphs below for plaster applied to expanded-metal lath.

Base Coats over Expanded-Metal Lath: [**High-strength gypsum**] [**Gypsum neat**] plaster with job-mixed sand for scratch and brown coats.[**Add fiber to scratch coat.**]

Base Coats over Expanded-Metal Lath:

Scratch Coat: Gypsum wood-fibered plaster; neat or with job-mixed sand.

Brown Coat: Gypsum [**wood-fibered plaster with job-mixed sand**] [**neat plaster with job-mixed sand**] [**lightweight ready-mixed plaster**] [**neat plaster with job-mixed perlite**].

Base Coats over Unit Masonry: Gypsum [**wood-fibered plaster with job-mixed sand**] [**neat plaster with job-mixed sand**] [**lightweight ready-mixed plaster**] <**Insert mix**>.

Base-Coat Mix over Monolithic Concrete: [**Gypsum neat plaster with job-mixed sand**] <**Insert mix**>.

* + - * 1. Gypsum-Plaster Finish Coats:

Retain applicable finish-coat mixes from three subparagraphs below. Coordinate with requirements in "Gypsum-Plaster Finishes" paragraph below. Mix proportions are stipulated in ASTM C842. If finish coats are integrally colored, insert mix requirements. Gypsum ready-mixed finish plaster is suitable for use only with sanded base coats. High-strength gypsum gaging plaster is unsuitable for use with lightweight-aggregate base coats.

Retain "Finish-Coat Mix for Smooth-Troweled Finishes" subparagraph below if retaining first option in "Adhering Cast Plaster" paragraph in "Cast-Plaster Removal and Replacement" Article; revise to suit Project.

Finish-Coat Mix for Smooth-Troweled Finishes: [**Gypsum gaging plaster**] [**Gypsum ready-mixed finish plaster**] [**High-strength gypsum gaging plaster**] [**Gypsum Keene's cement**] <**Insert finish-coat plaster**>.

Finish-Coat Mix for Float Finishes: [**Gypsum gaging plaster**] [**Gypsum Keene's cement**] <**Insert finish-coat plaster**>.

Finish-Coat Mix for Textured Finishes: [**Gypsum ready-mixed finish plaster**] <**Insert finish-coat plaster**>.

* + - * 1. Gypsum-Plaster Finishes: [**Match finish(es) of design reference sample(s)**] <**Insert requirement**>.

Retain applicable finishes from three subparagraphs below; insert other finishes to suit Project. If finish coats are integrally colored, indicate color locations on Drawings or by inserts.

Provide troweled finish [**unless otherwise indicated**] [**where indicated**] <**Insert locations**>.

Provide float finish [**unless otherwise indicated**] [**where indicated**] <**Insert locations**>.

Provide textured finish [**where indicated**] <**Insert locations**>.

* + - 1. CAST-PLASTER REMOVAL AND REPLACEMENT <**Insert drawing designation**>

Retain this article only if cast-plaster fabrications are required. Copy this article and re-edit for significantly different types or sizes of cast-plaster fabrications 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.

* + - * 1. General: Dismantle and replace cast-plaster that is damaged or deteriorated[**at locations indicated on Drawings**]. Carefully dismantle whole cast units from joint to joint, without damaging surrounding plasterwork.

Coordinate removal and installation of cast plaster with other plaster repair and installation work.

Inspect for deterioration of supporting plaster and lath, and repair or replace deteriorated material as required for a sound substrate.

Maintain lath and supporting members in an undamaged condition so far as practicable. Dismantle damaged lath and supports that cannot be repaired or resecured and replace with new work of same type.

Sand repair bonding surfaces and clean the surface with a nonmetallic bristle brush.

Wetting Substrate: Wet to damp condition, but without visible water droplets.

Revise "Replacement Material" paragraph below to suit Project. Retain second option if required for historic accuracy. Cast-gypsum plaster is most common today and looks like cast lime plaster. Coordinate below with "Cast-Plaster Fabrications" Article.

* + - * 1. Replacement Material: Replace cast [**lime-plaster**] fabrications [**in kind**] [**or**] [**with cast gypsum-plaster fabrications**]. Replace cast gypsum-plaster fabrications with cast gypsum-plaster fabrications.

Revise "Adhering Cast Plaster" paragraph below to suit Project; insert details on Drawing if requiring other installation methods and insert product requirements for other materials in Part 2.

* + - * 1. Adhering Cast Plaster: [**Wet the substrate in replacement area and affix cast plaster using finish-coat plaster for smooth-troweled finish as adhesive**] <**Insert requirement**>. Support units until adhesive can fully support weight of plaster. Remove excess adhesive.
        2. Install cast-plaster fabrications level, plumb, true, and aligned with adjacent materials and ready to receive required finishes. Use concealed shims secured with wet plaster where required for alignment.

Retain option in first subparagraph below if replacement, cast-plaster units have a visible jointing pattern; revise to suit Project.

Install replacement, cast-plaster units into bonding and coursing pattern of existing units.[**Maintain articulated joint widths, if any, between units to match existing joints.**]

Finish nonarticulated joints with joint-treatment materials so that they are flush or otherwise concealed inconspicuously.

Where cast-plaster units are joined to form composite fabrications, join units inconspicuously and as recommended in writing by manufacturer.

Repair hollows, voids, scratches, and other surface imperfections on units.

Revise paragraph below to suit Project.

* + - * 1. Hairline cracking within the plaster or plaster separation at edge of a replacement is unacceptable. Completely dismantle such work and reinstall or repair as a crack repair as directed by Director’s representative.
      1. REMOVING AND INSTALLING LATH AND ACCESSORIES

Retain this article if historic treatment of plaster may include replacing or installing lath or plaster accessories. Lath and accessory type(s) should match existing lath to maximize compatibility with remaining historic plaster; revise to suit Project. If retaining more than one type, indicate locations of each on Drawings or by inserts.

* + - * 1. General: Dismantle existing plaster as necessary to expose deteriorated or rusted lath, wire ties, and support system, back to firm substrates and supports. Repair with new materials, well secured to existing lath in good condition and to building structure.

Cutting: Cut lath so it can be taken out completely from one support to the next. Cut to avoid cracking surrounding plaster.

Cut out existing base-coat plaster beyond the edges of the new lath to permit new plaster to extend onto the old lath. Then step subsequent plaster coats to permit new plaster to extend over the old material.

Fasten new lath to support system and to good existing lath. Wire tie at least every 6 inches .

Install new lath according to [**ASTM C1063 for lime plaster**] [**and**] [**ASTM C841 for gypsum plaster**].

* + - * 1. Notify Director’s representative of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
        2. Wood Lath: Install wood lath in same orientation and spacing as remaining wood lath and with lath ends supported by furring or framing. Stagger ends of adjacent laths over different supports, not aligned, and secure with fasteners at each end and spaced a maximum of 24 inches o.c. into supports.
        3. Metal Lath: Install according to [**ASTM C1063 for lime plaster**] [**and**] [**ASTM C841 for gypsum plaster**].

Retain one or more of four subparagraphs below to suit Project. Delete all if only one type of metal lath is required or if locations of each type of lath are indicated on Drawings.

Partition Framing and Vertical Furring: Install [**flat diamond-mesh**] [**flat rib**] lath.

Flat-Ceiling and Horizontal Framing: Install [**flat diamond-mesh**] [**flat rib**] lath.

Diamond-mesh lath requires closely spaced supports when used on ceilings.

Curved-Ceiling Framing: Install flat diamond-mesh lath.

On Solid Surfaces, Not Otherwise Furred: Install self-furring, diamond-mesh lath.

* + - 1. PATCH-TYPE REPAIR <**Insert drawing designation**>

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

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

Patch-type repair mixes can vary widely depending on base plaster type, patch size and shape, and Installer's preferences. A repair mix should finish well and shrink little. Often, gypsum products are used with cracked lime-plaster to speed setting and reduce shrinkage.

* + - * 1. General: Patch voids, fractured surfaces, and crushed areas in otherwise sound plaster that are larger than cracks[**at locations indicated on Drawings**].

Notify Director’s Representative of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

Inspect for deterioration of supporting plaster and lath, and repair or replace deteriorated material as required for a sound substrate.

Rake perimeter of hole to sound plaster, and slightly undercut existing plaster to enable replacement plaster to tuck behind existing plaster.

Replace missing lath in kind. Bridge gaps in wood lath with expanded-metal lath, overlapping wood by 6 inches and fastening them together.

Clean hole to remove loose materials and other foreign matter and deposits that could impair bond with repair material. Where grease, waxes, oils, waterborne staining, or other foreign matter and deposits that could impair bond with repair material have penetrated into the plaster, enlarge the hole to remove these deposits.

Wet substrate to damp condition, but without visible water droplets, then install patch material to original profiles.

Maintain adjacent plasterwork in an undamaged condition so far as practicable.

First option in "Lime-Plaster Mix" paragraph below is sometimes used for small patches; revise to suit Project. Retain last option below if using fiber in first coat of two-coat patch.

* + - * 1. Lime-Plaster Mix: [**3 parts lime putty, 1 part gypsum neat plaster or gypsum gaging plaster**] [**1 part lime putty, 3 parts sand**] [**1 part lime putty, 2-1/2 parts sand, applied in two coats with fiber in first coat**] [**Repair mix demonstrated in** benchmarks] <**Insert proportions**>.[**Add hair fiber to mix and evenly distribute it without clumps just before spreading.**]

First option in "Gypsum-Plaster Mix" paragraph below is sometimes used for small patches; revise to suit Project. Retain last option below if using fiber in first coat of two-coat patch.

* + - * 1. Gypsum-Plaster Mix: [**Gypsum gaging plaster**] [**Gypsum neat plaster with job-mixed sand**] [**Gypsum neat plaster with job-mixed sand, applied in two coats with fiber in first coat**] [**Repair mix demonstrated in** benchmarks] <**Insert proportions**>.[**Add hair fiber to mix and evenly distribute it without clumps just before spreading.**]
        2. Finishing: Finish flat surfaces flush and with same texture as adjacent existing plaster. For molded plaster shapes, tool surface to restore the sharp edges and the shape of the molded shape to original contours.
        3. Hairline cracking within the plaster or plaster separation at edge of a patch is unacceptable. Completely dismantle such work and reinstall or repair.
      1. HAIRLINE CRACK REPAIR <**Insert drawing designation**>

Copy this article and re-edit for significantly different types of hairline crack repair.

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

Crack-repair mixes can vary widely depending on base plaster type and Installer's preferences. A repair material should finish well and shrink little. Often gypsum products are used with cracked lime-plaster.

* + - * 1. General: Repair cracks [**1/32 inch** ] <**Insert dimension**> in width or narrower in otherwise sound plaster[**at locations indicated on Drawings**].

Notify Director’s Representative of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

Maintain adjacent plasterwork in an undamaged condition so far as practicable.

* + - * 1. Existing Topcoat: Open crack in existing topcoat to at least [**1/8 inch** ] <**Insert dimension**> in width and check for broken fiber reinforcement in base coats.
        2. Existing Base Coats: Do not open crack wider in existing base coats unless inspection or other indication shows that the fiber reinforcement has broken. Where inspections indicate failure of fiber reinforcement, proceed as for a large crack repair, but only for length of crack with broken fiber reinforcement.
        3. Clean out crack to remove loose materials and other foreign matter and deposits that could impair bond with repair material. Where grease, waxes, oils, waterborne staining, or other foreign matter and deposits that could impair bond with repair material have penetrated into the topcoat plaster, widen the crack and sand surface of the exposed basecoat to remove these deposits.
        4. Wet substrate to damp condition, but without visible water droplets.
        5. Force [**finish-coat plaster without aggregate**] [**repair material demonstrated in** benchmarks] <**Insert requirement**> into crack, filling crack to original plaster profile.
        6. Finishing: Finish flat surfaces flush and with same texture as adjacent existing plaster. For molded plaster shapes, tool surface to restore the sharp edges and the shape of the molded shape to original contours.
      1. LARGE CRACK REPAIR <**Insert drawing designation**>

Copy this article and re-edit for significantly different types of large crack repair.

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

Crack-repair mixes can vary widely depending on base plaster type and Installer's preferences. A repair material should finish well and shrink little. Often gypsum products are used with cracked lime-plaster to reduce shrinkage.

* + - * 1. General: Repair cracks over [**1/32 inch** ] <**Insert dimension**> in width in otherwise sound plaster[**at locations indicated on Drawings**].

Notify Director’s Representative of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

Maintain adjacent plasterwork in an undamaged condition so far as practicable.

* + - * 1. Open crack to at least [**1/8 inch** ] <**Insert dimension**> in width and full depth with V-groove tool, and check for bond separation or lath deterioration.
        2. Abrade side surfaces of crack and remove inner crack debris by gouging (keying) the inside area of the crack.
        3. Clean out crack to remove loose materials and other foreign matter and deposits that could impair bond with repair material. Where grease, waxes, oils, waterborne staining, or other foreign matter and deposits that could impair bond with repair material have penetrated into the plaster, widen the crack to remove these deposits.
        4. Wet substrate to damp condition, but without visible water droplets.
        5. Install [**finish-coat plaster**] [**repair material demonstrated in** benchmarks] <**Insert requirement**> to fill crack to original plaster profile.
        6. Finishing: Finish flat surfaces flush and with same texture as adjacent existing plaster. For molded plaster shapes, tool surface to restore the sharp edges and the shape of the molded shape to original contours.

Retain "Offset Cracks" paragraph below if applicable. These cracks are typically indications of substrate failure or separation between coats.

* + - * 1. Offset Cracks: If the crack is offset in surface plane by more than [**1/8 inch** ] <**Insert dimension**>, dismantle the plaster on each side of the crack, a minimum width of 6 inches and down to the lath or other substrate. Then, repair as specified for flat-plaster removal and replacement.
      1. REATTACHMENT OF DELAMINATED PLASTER <**Insert drawing designation**>

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

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

Revise method described in this article to suit Project based on Architect's experience and consultations with historic treatment specialists.

* + - * 1. General: Reattach plaster that has detached from its wooden lath[**at locations indicated on Drawings**].

Notify Director’s Representative of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

Maintain adjacent plasterwork in an undamaged condition so far as practicable.

* + - * 1. Verify extent of detachment of plaster that has not yet fallen by tapping on plaster surface and evaluating the hollow or solid resonance.
        2. Protect floors from spillage and debris in the vicinity of work. Use materials resistant to the passage of fluids used in work.
        3. Drill 1/4-inch injection ports (holes) through the plaster spaced 3 to 6 inches apart over surface of detached plaster. Dislodge loose plaster particles, and vacuum debris from holes.
        4. Prewet injection ports, gaps at edges of lost plaster, back of plaster, and wooden lath with prewet solution.
        5. Inject adhesive into ports, enough to fill gaps between detached plaster and lath, and inject into gaps at edges of lost plaster.
        6. Clean off excess and smeared adhesive while wet.

First option in first paragraph below is typically used, because it leaves the work area free of obstructions and uses less temporary material.

* + - * 1. Apply temporary battens over surface of treated plaster to prevent further separation during repair work. Secure battens in place against plaster with [**screws through the battens and plaster and into the wood lath**] [**braces supported from floor below**] <**Insert requirement**>.
        2. Maintain temporary battens in place for a week or more, allowing adhesive to coalesce and dry.
        3. Remove battens, patch holes and missing plaster, and repair cracks.
      1. INSTALLATION TOLERANCES

Retain this article if required; revise to suit Project.

* + - * 1. Completed plaster installation shall not deviate from a true plane by more than [**1/8 inch** ] <**Insert dimension**> as measured by a 5-foot straightedge placed at any location on a surface, except where existing plaster is retained as a substrate for new plasterwork.
      1. CLEANING AND PROTECTION
         1. Protect work of other trades against damage. Promptly remove plaster from surfaces not indicated to be repaired or plastered. Do not scratch or damage finished surfaces.
         2. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.
         3. Correct damage to other historic surfaces and to new work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Director’s Representative, and leave in an undamaged condition.
         4. Remove temporary protection and enclosure of other work.

END OF SECTION 090320