SECTION 040336 - HISTORIC TREATMENT OF ADOBE MASONRY

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:

Repairing historic adobe masonry.

Painting historic adobe walls.

* + - * 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 replacement wood framing, bond beams, and grounds embedded in or supporting adobe masonry.

Section 090320 "Historic Treatment of Plaster" for historic lime plaster applied on other than earthen substrates.

Section 090391 "Historic Treatment of Plain Painting" for historic paint removal and repainting on other than earthen substrates.

* + - 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 adobe masonry 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 adobe masonry under quantity allowances and only as authorized. Authorized work includes[ **work required by Drawings and 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. Repairing historic adobe is part of historic adobe repair allowance unless otherwise indicated.
				3. Repairing undermined adobe masonry and plaster outside the first-floor vestibule is part of <**Insert name of allowance**>.
				4. Replacing loose and fallen plaster, and painting entire wall, in left-side chapel is part of <**Insert name of allowance**>.
			1. DEFINITIONS

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

* + - * 1. Harling: Verb denoting the traditional method of throwing plaster against a substrate material to improve contact and bonding with substrate.
				2. Well Graded: An aggregate containing a full range of sizes.
			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 on historic treatment of adobe masonry 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 adobe masonry.

Review methods and procedures related to historic treatment of adobe masonry 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, and sequencing.

Fire-protection plan.

Adobe historic treatment program.

Coordination with building occupants.

* + - 1. SEQUENCING AND SCHEDULING

"Work Sequence" Paragraph below is an example only; revise to suit Project or delete if not prescribing a work sequence. Insert other sequences for different areas of building or types of work if needed.

* + - * 1. Work Sequence: Perform historic treatment of adobe masonry 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.

Remove plant growth that would interfere with adobe repairs unless otherwise indicated.

Dismantle existing surface-mounted objects and hardware that overlie adobe 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 adobe surfaces.

Clean adobe surface and remove loose paint and other finishes to the extent needed to perform adobe repairs.

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

Cure repaired work, and allow it 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:

Revise subparagraphs below to suit Project.

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

Indicate final grading around exterior walls.

Show locations and full-size details of control and other joints and adobe attachment to other work.

Show provisions for flashing, luminaires, and conduits as required.

Show replacement and repair anchors if any.

Show locations of scaffolding and points of scaffolding in contact with adobe 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 "Adobe Soil" Subparagraph below; revise to suit Project, and insert other Samples if required. Adobe-unit samples and plastering samples are not included below, because the existing adobe construction is typically the standard of appearance; however, adobe samples for selection could be inserted.

Adobe Soil: Minimum 16 oz. of each in plastic screw-top jars.

Provide Samples of excavated soil and each added component.

Identify blend ratios for each soil use, including adobe units, plaster, and finish-coat plaster.

Identify sources of excavated soil and each added component; include the soil-excavation location and suppliers of other components.

Include Samples of other products involving color selection.

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

Retain and revise three subparagraphs below based on required adobe-masonry repairs; insert others to suit Project.

Adobe Units: Each type of adobe unit to be used for replacing existing adobe. Include sets of Samples to show the full range of shape, color if exposed, and texture to be expected.

For each adobe type, provide straps or panels containing at least five units.

Samples in "Plaster" Subparagraph below are of limited value, because they are not applied, cured, and finished under same conditions as plaster used in actual work. A mockup provides a better sample.

Plaster: [**12-inch**] square Samples of each type of plaster in the form of briquettes. Include sets of Samples to show the full range of color if exposed and texture to be expected. Document each Sample with information necessary to produce additional material.

Paint: [**6-by-12-inch**] Samples of each type, color, and texture of paint finish for adobe applied to adobe plaster-sample briquettes or cement board. Document each Sample with information necessary to produce additional material.

Other Products: Each type in manufacturer's standard size.

Consider "Qualification Data" and "Adobe Historic Treatment Program" paragraphs below as they relate to Project goals and importance.

* + - * 1. Qualification Data: For qualified historic treatment specialist.

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

* + - * 1. Preconstruction Test Reports: For [exi**sting adobe units and mortar] [plaster] [and] [adobe replacement units]**.
				2. Adobe Historic Treatment Program: Submit before work begins.

If required, insert "Maintenance Material Submittals" 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 adobe-masonry specialist with expertise in matching and performing the types of historic adobe repairs required. Experience only in installing and repairing nonearthen masonry or cement plaster is insufficient experience for adobe historic treatment work.
				2. Adobe 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 and protection of surrounding materials and Project site.

Retain first subparagraph below if lime plaster is used.

Include methods for keeping exposed lime plaster damp during initial curing period.

Retain first subparagraph below if adobe walls are structurally weakened before or during repair work.

Include procedures to shore up, brace, and support overhead structure when repairing the supporting walls.

Retain first subparagraph below if adobe masonry 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 adobe 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 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: Build mockups of historic treatment processes for each type of adobe masonry repair and reconstruction work to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.

Locate mockups [**on existing walls where directed by Director’s Representative unless otherwise indicated] [on temporary walls with similar conditions as the existing construction] <Insert requirement**>.

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

Retain and revise one or more of five subparagraphs below to suit Project; insert others if required.

Plaster Replacement: Install **[5-sq. ft**.] area of missing or delaminating plaster[ **with texture matching the existing plaster**] <**Insert requirement**>.

Crack Repair [3 linear ft.] of plaster cracks.

Unit Replacement: Replace [**four] <Insert number**> adobe units near base of wall to demonstrate repair of basal erosion.

Change the term "plaster topping" in "Stabilizing" Subparagraph below to "plaster capping" if preferred.

Stabilizing [**3 linear ft.]** of freestanding wall with plaster topping.

Painting: Paint [**100-sq. ft.**] area of wall.

Simulate finished lighting conditions for review of mockups.

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 if existing adobe was not tested before the Contract.

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

Notify Director’s Representative [**seven] <Insert number**> days in advance of the dates and times when laboratory samples will be taken.

* + - * 1. Preconstruction Adobe Analyses: Perform testing on adobe materials and furnish soil analysis and a written report by a qualified testing agency.

Usually, test existing adobe and mortar before preparing the Specifications, and delete "Existing Adobe and Mortar," "Existing Mud Plaster," "Existing Lime Plaster," and "Temporary Patch" subparagraphs below.

Existing Adobe and Mortar: Test existing materials for the following:

Compressive Strength of Units: According to ASTM C67.

Soil Texture: Soil-particle, size-distribution analysis by the [**sieving method for percentages of very coarse, coarse, medium, fine, and very fine sand; and fragment-gradation (gravel) percentages for fine, medium, and coarse fragments] [hygrometer method for percentages of sand, silt, and clay**]; according to USDA's particle-size classification for sand and fragment sizes.

Stabilizing Materials: Report type and approximate quantity of stabilizing materials, if any.

Sampling: Carefully remove [**five] <Insert number> existing adobe units and mortar samples for testing from [from varied locations] [where indicated on Drawings] [where directed by Director’s Representative**].

Retain "Existing Mud Plaster" Subparagraph below if mud plaster is the existing type.

Existing Mud Plaster: Test existing mud plaster for the following:

Soil Texture: Soil-particle, size-distribution analysis by the [**sieving method for percentages of very coarse, coarse, medium, fine, and very fine sand; and fragment-gradation (gravel) percentages for fine, medium, and coarse fragments] [hygrometer method for percentages of sand, silt, and clay**]; according to USDA's particle-size classification for sand and fragment sizes.

Stabilizing Materials: Report type and approximate quantity of stabilizing materials, if any.

Sampling: Carefully remove [**five] <Insert number**> existing pieces of plaster for testing measuring 3 inches square or greater [**from varied locations] [where indicated on Drawings] [where directed by Director’s Representative**].

Retain "Existing Lime Plaster" Subparagraph below if lime plaster is the existing type. This testing can help determine a cause of plaster failure, especially if portland cement was used.

Existing Lime Plaster: Test existing lime plaster for the following:

Composition: 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, approximate strength, and quantity in parts of lime and portland cement, if any, used in the mix.

Sampling: Carefully remove [five] <Insert number> existing pieces of plaster for testing measuring 3 inches square or greater [**from varied locations] [where indicated on Drawings] [where directed by Director’s Representative**].

Replacement Adobe: Test proposed adobe replacement units for the following:

Compressive Strength: According to ASTM C67.

Retain "Soil Texture" Subparagraph below only if requiring that new units match the composition of existing units.

Soil Texture: Soil-particle, size-distribution analysis by the [**sieving method for percentages of very coarse, coarse, medium, fine, and very fine sand; and fragment-gradation (gravel) percentages for fine, medium, and coarse fragments] [hygrometer method for percentages of sand, silt, and clay**]; according to USDA's particle-size classification for sand and fragment sizes.

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

Division and Labeling of Samples: Before testing, split each sample into two, equal parts. Send half to the testing agency and half to Director’s Representative for its records. Label each sample with the date, location keyed to a building plan or other location system.

* + - 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. Deliver manufactured adobe units to Project site strapped together in suitable packs or pallets or in heavy-duty cartons and protected against impact and chipping.
				3. Store manufactured adobe units under cover and protected from moisture in manufacturer's original containers.
				4. Store site-made adobe units stacked on end not more than four rows high and protected from moisture.
				5. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
				6. 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.
				7. Store lime putty covered with water in sealed containers.
				8. Store adobe soil and sand where grading and other required characteristics can be maintained and contamination avoided.
				9. Handle adobe units to prevent overstressing, chipping, and other damage.
			1. FIELD CONDITIONS

Usually, retain this article; revise to suit Project. Adobe work is best performed in spring or fall.

* + - * 1. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit repair work to be performed in dry conditions unless other precautions and devices are used to protect the work areas.
				2. Conditioning: Acclimatize adobe units to ambient temperature and humidity of site locations where units are installed. Remove packaging and move units to installation locations not less than 48 hours before installing them.
				3. Hot-Weather Requirements: Protect adobe repairs when temperature and humidity conditions produce rapid evaporation of water from mortar and repair materials. Provide artificial shade, wind breaks, and water misting as required to minimize rapid evaporation during construction and for seven days after completion.

Requirements in "Temperatures" Paragraph below vary with materials and local practice; revise to suit Project. Adobe stores heat, releasing it over time, but does not insulate; see "Sustainable Design Considerations" Article in the Evaluations.

* + - * 1. Temperatures: Maintain air and substrate temperatures in work areas at not less than 45 deg F or greater than 80 deg F for at least seven days before application of adobe materials, continuously during application, and for seven days after completion. Materials not in use may be stored at not less than 45 deg F.
				2. Field Measurements: Where adobe units are indicated to fit into existing adobe construction, verify dimensions of existing adobe by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
1. PRODUCTS
	* + 1. PERFORMANCE REQUIREMENTS
				1. Adobe Unit Soundness: Adobe units at the time of placement shall be able to pass the following tests:

"Knife-Penetration Test" and "Drop Test" subparagraphs below are commonly used pass-fail field tests in the industry for evaluating unit dryness, soundness, and ability to endure normal handling and installation stresses; revise to suit Project.

Knife-Penetration Test: Press the point of a pocketknife into side of unit. The knife shall not penetrate deeper than 1/8 inch.

Drop Test: Drop whole unit on its corner onto firm, dry earth from a height of 36 inches. The unit shall not break or shatter but slight corner chipping is allowed.

Revise or delete "Test Frequency" Subparagraph below based on number of units required, delivery method, and Project requirements.

Test Frequency: Test [**two] <Insert number> arbitrary units [from each pallet of] [for every 20 units] units delivered[ and whenever a unit exhibits excess moisture content or other weakening defect**].

* + - 1. ADOBE REPLACEMENT UNITS

Retain this article if adobe replacement units are required.

* + - * 1. Site-Made Adobe Units: Formed from [**soil] [designated and modified local soil**] as follows:

Soil-Mix Proportions: As specified in "Adobe Soil Mix" Article below.

Coordinate size in "Unit Size" Subparagraph below with existing adobe masonry. If retaining more than one size, indicate location of each on Drawings or by inserts.

Unit Size: [**8 x 14 x 4 inches] [8 x 12 x 4 inches] [8 x 16 x 4 inches] [9 x 18 x 4 inches] [10 x 14 x 4 inches] [12 x 18 x 4 inches**].

Requirements and optional values in "Moisture Content," "Shrinkage Cracks," "Compressive Strength," and "Modulus of Rupture" subparagraphs below are according to the 2012 IBC for unstabilized adobe units; revise to suit Project. The test procedure for modulus of rupture is written into the IBC. If retaining these requirements, verify that the specified mix proportions above can meet the requirements.

Moisture Content: Maximum [**four] <Insert number**> percent by weight.

Shrinkage Cracks: Maximum of three shrinkage cracks in a unit, with no crack exceeding 3 inches in length or 1/8 inch in width.

Compressive Strength: [**300 psi**] for average of five units and a minimum [250 psi] for each individual unit when tested according to ASTM C67.

Modulus of Rupture: [**50 psi**] for average of five units and a minimum [35 psi] for each individual unit when tested according to [**the 2012 IBC] <Insert requirement**>.

Retain "Manufactured Adobe Units" Paragraph below if permitted or required. Unstabilized adobe is historic adobe without stabilizing additives. Generally, use unstabilized adobe for repair of historic, unstabilized adobe masonry. If required, insert "semi-stabilized adobe," which is offered by some manufacturers, and insert requirements for it.

* + - * 1. Manufactured Adobe Units [**Unstabilized] [Stabilized**] units[ of custom soil-mix proportions according to "Adobe Soil Mix" Article below].

Coordinate size in "Unit Size" Subparagraph below with existing adobe masonry; verify manufacturers' ability to produce required size. If retaining more than one size, indicate location of each on Drawings or by inserts.

Unit Size: [**8 x 14 x 4 inches] [8 x 12 x 4 inches] [8 x 16 x 4 inches] [9 x 18 x 4 inches] [10 x 14 x 4 inches] [12 x 18 x 4 inches**].

Requirements and optional values in "Moisture Content," "Shrinkage Cracks," "Compressive Strength," and "Modulus of Rupture" subparagraphs below are according to the 2012 IBC for unstabilized adobe units; revise to suit Project. The test procedure for modulus of rupture is written into the IBC. If retaining these requirements, verify that custom soil-mix proportions, if any, can meet the requirements.

Moisture Content: Maximum [**four] <Insert number**> percent by weight.

Shrinkage Cracks: Maximum of three shrinkage cracks in a unit, with no crack exceeding 3 inches in length or 1/8 inch in width.

Compressive Strength: [300 psi] for average of five units and a minimum [250 psi] for each individual unit when tested according to ASTM C67.

Modulus of Rupture: [50 psi] for average of five units and a minimum [35 psi] for each individual unit when tested according to [**the 2012 IBC] <Insert requirement**>.

Retain "Absorption Requirement for Stabilized Units" Subparagraph below if stabilized units are required. First option below is according to the 2012 IBC for stabilized adobe units; revise to suit Project. The test procedure is written into the IBC.

Absorption Requirement for Stabilized Units: Maximum [**2-1/2] <Insert number**> percent absorption by weight when tested according to [**the 2012 IBC] <Insert requirement**>.

Retain "Stabilizing Additive" Subparagraph below to restrict the additive type; delete subparagraph if there are no restrictions. Manufacturers use different standard additives.

Stabilizing Additive: Provide [**asphalt emulsion] [cactus mucilage] [or] [lime putty**] <**Insert item**> as the stabilizing additive mixed into the soil before casting the units.

* + - 1. ADOBE MORTAR
				1. Adobe Mortar Mix: Made from adobe soil mixture [**according to "Adobe Soil Mix" Article below, without straw] <Insert requirement**>. Screen out debris and aggregate larger than sand according to the USDA's "Field Book for Describing and Sampling Soils."
			2. ADOBE SOIL MIX

Retain first option in "Soil-Mix Proportions" Paragraph below, revising percentage if required, if proportions are unknown. Retain second option if required proportions are known.

* + - * 1. Soil-Mix Proportions: [**Within five percent of proportions determined from preconstruction testing of selected existing adobe units.] [As listed below**:]

Retain "Sand," "Silt," and "Clay" subparagraphs below if required proportions are known. The optional values are for an adobe soil without straw; revise to suit Project. Insert gravel size and percentage if larger-than-sand aggregate is acceptable. Local soils that are too high in clay content are usually reproportioned by the addition of sand or straw.

Sand: [**55-75] <Insert number**(s)> percent by volume[ **and with a coarse to fine sand proportion of about 1:2 according to the particle-size classification of USDA's "Field Book for Describing and Sampling Soils."]** <Insert requirement>. Add adobe-mud sand if required to maintain proportion of clay.

Silt: [**10-30**] <Insert number(s)> percent by volume.

Clay [**15] <Insert number**(s)> percent by volume.

Revise "Screening" Subparagraph below to suit Project. A designated local soil source may not require screening to remove gravel.

Screening: Screen out debris and aggregate larger than sand according to the USDA's "Field Book for Describing and Sampling Soils."

Retain "Straw" Subparagraph below if required; revise if other fibrous materials are required or allowed.

Straw: After screening, add straw to sand, silt, and clay mixture at the rate of <**Insert requirement**>.

* + - 1. PLASTER

Retain this article for repair or replacement plaster applied to adobe units. Do not mix plaster types. Use all coats made of mud plaster or all coats made of lime plaster. The options below for using lime water as the liquid component of site-made plaster is recommended by some experts for better adhesion.

* + - * 1. Site-Made Mud Plaster: Made from [**soil] [designated and modified local soil**] as follows[ **and using lime water as the liquid component**]:

Retain first option in "Base Coats: Soil-Mix Proportions" Subparagraph below if matching adobe unit composition. Retain second option, revising percentage if required, if proportions are unknown. Retain last option if required proportions are known.

Base Coats: Soil-Mix Proportions [**according to "Adobe Soil Mix" Article.] [within five percent of those determined from preconstruction testing of selected existing plaster samples.] [as listed below**:]

Retain "Sand," "Silt," and "Clay" subparagraphs below if required proportions are known. The optional values in this mix are the same as specified in "Site-Made Adobe Units" Paragraph above for an adobe without straw. Local soils that are too high in clay content are usually reproportioned by the addition of sand or straw. Straw may also be added to plaster for aesthetic effect.

Sand: [**55-75] <Insert number**(s)> percent by volume[ **and with a coarse to fine sand proportion of about 1:2] <Insert requirement**>. Add additional adobe-mud sand if required to maintain proportion of clay.

Silt: [**10-30] <Insert number**(s)> percent by volume.

Clay [**15] <Insert number**(s)> percent by volume.

Screening: Screen out debris and aggregate larger than sand according to the USDA's "Field Book for Describing and Sampling Soils."

Retain "Straw" Subparagraph below if required; revise if other fibrous materials are required or allowed.

Straw: After screening, add straw to sand, silt, and clay mixture at the rate of <**Insert requirement**>.

Retain "Finish Coats" Subparagraph below to suit Project.

Finish Coats: Soil-mix proportions same as base coats except as follows:

Sand: Use finish-coat sand.

Straw: [**Omit straw] <Insert requirement**>.

Pigment: Add pigment as required for color.

Color: [**Match Samples] [As selected by Director’s Representative from full range of colors and color densities] <Insert color**>.

* + - * 1. Site-Made Lime Plaster: Formed from lime putty and lime-plaster sand as proportioned as follows[ **and using lime water as the liquid component**]:

Insert other mixes in "Base Coats" and "Finish Coats" subparagraphs below to suit Project.

Base Coats: [**1 part lime putty, 3 parts sand] [1 part lime putty, 3 parts sand, and straw] <Insert mix**>.

Retain first subparagraph below if using straw in the mix.

Add straw to mix at the rate of <**Insert requirement**> and evenly distribute it without clumps.

Finish Coats: [**As required to match finish of design reference sample] [1 part lime putty, 2 parts finish-coat sand] [1 part lime putty, 2 parts finish-coat sand, pigment as required for color] <Insert requirement or proportions**>.

Color: [**Match Sample] [As selected by Director’s Representative from full range of colors and color densities] <Insert color**>.

Retain one of first two options and one of last two options in "Manufactured Mud Plaster" Paragraph below. Manufacturers may offer stabilized or "semi-stabilized" mud plaster using lime or portland cement to reduce water absorption. See discussion on portland cement plaster in the "Plaster" Article in the Evaluations.

* + - * 1. Manufactured Mud Plaster: Prepackaged, [**unstabilized] [lime-stabilized] natural mud plaster [having a record of long-term satisfactory performance when applied to adobe masonry**] [of custom soil-mix proportions according to "Adobe Soil Mix" Article].

Finish-Coat Color: [**As indicated by manufacturer's designations] [Match Sample] [As selected by Director’s Representative from full range of colors and color densities] <Insert color**>.

Insert requirements here for manufactured lime mortar if required and if products are known that have a record of long-term satisfactory performance when applied to adobe masonry.

* + - 1. PAINT

Retain this article for paint applied to plaster or directly to adobe units. Insert gypsum whitewash, colored clay washes, water glass, or other paints if required in lieu of lime whitewash.

Revise "Site-Made Lime Whitewash" Paragraph below to suit Project; recipes vary. Retain last option below if other than natural white color is required.

* + - * 1. Site-Made Lime Whitewash: Mixture of [**50 lb**.] hydrated lime mixed with [**water] [cactus mucilage and water**] and [**10 lb**.] of salt (sodium chloride) to the consistency of milk with two percent milkfat.[ **Add pigment for required color to liquid component before mixing with dry components.**]

Color: [**Match Sample] [As selected by Director’s Representative from full range of colors and color densities] [Natural white] <Insert color**>.

* + - * 1. Manufactured Lime Whitewash: Prepackaged, lime-based whitewash having a record of long-term satisfactory performance when applied to [**adobe units] [mud plaster] [and] [lime plaster] <Insert requirement**>.

Color: [**As indicated by manufacturer's designations] [Match Sample] [As selected by Director’s Representative from full range of colors and color densities] [Natural white] <Insert color**>.

* + - 1. MATERIALS

The ASTM C206 standard in "Hydrated Lime" Paragraph below requires a finer sieve size than does ASTM C207; however, historic limes were often more coarsely ground and most packaged limes comply with both standards.

* + - * 1. Hydrated Lime: ASTM C206, Type S; or ASTM C207, Type S.

Retain "Quicklime" Paragraph below and second option in "Lime Putty" Paragraph below for the most choice by the plasterer. Some plasterers prefer slaking quicklime although it requires greater care and weeks of preparation before use.

* + - * 1. Quicklime: ASTM C5.
				2. Lime Putty: [**Slaked hydrated lime] [Slaked quicklime] [or] [factory-prepared lime putty according to ASTM C1489**].
				3. Lime Water: A fully saturated solution of calcium hydroxide, made by stirring hydrated lime or lime putty in clean water and removing the undissolved calcium hydroxide.

"Adobe-Mud Sand" Paragraph below refers to added sand for adobe units and mud plaster if required in addition to the sand already in the soil as excavated. Natural or river sand is rounded and more frequently used in older structures; manufactured sand is angular and was used for adobe after stone-crushing equipment became available.

* + - * 1. Adobe-Mud Sand: Washed, well graded, [**natural sand] [or] [manufactured sand]** with **[coarse to fine sand proportion of about 1:2] <Insert requirement**> according to the particle-size classification of USDA's "Field Book for Describing and Sampling Soils," except medium sand classification is included with coarse sand.

Retain sand texture in "Finish-Coat Sand for Mud Plaster" Subparagraph below based on the required smoothness of the plaster finish.

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

Retain "Lime-Plaster Sand" Paragraph below only for lime plaster; revise to suit Project.

* + - * 1. Lime-Plaster Sand: ASTM C897.

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

Finish-Coat Sand for Lime Plaster: [**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" Paragraph below if pigmented plaster or paint is required.

* + - * 1. Pigments: [**Natural clays] [or] [ASTM C979**] and having a record of satisfactory performance in the required type of plaster or paint.

Retain "Straw" Paragraph below if required. Insert additional straw requirements, if any, or revise if other fibrous materials are required or allowed.

* + - * 1. Straw: Clean, dry, mold-free, chopped straw.

Revise "Cactus Mucilage" Paragraph below to suit Project. Insert quantities of ingredients; recipes vary.

* + - * 1. Cactus Mucilage: Viscous liquid obtained by soaking cut-up, prickly pear cactus (genus "Opuntia") leaves (cladodes) in water or lime water for three days and straining out the cactus pieces. Use it quickly; discard mucilage that has begun to spoil as determined by an unpleasant odor.

Retain option in "Water" Paragraph below if lime plaster is required. Water that contains salt, alum, or plaster residue may cause efflorescence in mud or lime plaster and accelerates lime-plaster set. Water that contains organic or vegetable matter may cause staining and interfere with mud or lime-plaster plaster bond, and may retard lime-plaster set.

* + - * 1. Water: Potable and free of substances capable of damaging adobe or plaster[ **or affecting lime-plaster set**].
				2. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:

Previous effectiveness in performing the work involved.

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. EXECUTION
	* + 1. HISTORIC TREATMENT SPECIALIST

Retain this article if using a list of preapproved firms as a 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 adobe masonry by one of the following] [firms that may provide historic treatment of adobe masonry include, but are not limited to, the following**]:

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

* + - 1. HISTORIC TREATMENT OF ADOBE MASONRY, GENERAL
				1. Have adobe work performed only by qualified historic treatment specialist.

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.

* + - * 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**] away from surface and from building exterior at [**20 feet] [50 feet**] away from surface.

Revise "Description" Paragraph below to suit Project.

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

Dismantle loose, damaged, or deteriorated adobe units and plaster that cannot be repaired.

Verify extent of 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 temporary shoring support systems for weakened adobe masonry included in the work of this Section.

Replace lost details in new adobe and plaster that replicate existing or indicated configurations.

Leave repaired adobe or 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 masonry and 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 historic treatment specialist 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 repair or 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.

* + - * 1. Begin historic adobe masonry work only after unsatisfactory conditions have been corrected.
			1. PLASTER REMOVAL AND REPLACEMENT <**Insert drawing designation**>

Copy this article and re-edit for significantly different types of plaster to be removed and replaced. Retain this article also for replastering areas where plastered adobe units are replaced.

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

* + - * 1. Dismantle plaster that is delaminated (loose) or irreparably damaged or deteriorated to the limits indicated.

Verify extent of detachment of plaster that has not yet fallen by tapping on plaster surface and evaluating the hollow or solid resonance.

Carefully dismantle areas along straight edges, without damaging surrounding plasterwork.

* + - * 1. Verify whether plaster is mud, lime, or another type, and the type of remaining adjacent plaster. Use same type of plaster for replacement work unless otherwise indicated.

Revise methods in first paragraph below to suit Project requirements and office practice. Previous repairs may have sealed the substrate or used replacement units that were too smooth.

* + - * 1. Verify whether condition of substrate contributed to plaster failure. If substrate is too smooth, cut out [**every other] [every third] <Insert requirement**> adobe masonry joint [**1/2-inch**] deep to key replacement plaster with the adobe[ **and abrade adobe surface with stainless-steel-wire brush**].

Furring, lath, and plaster reinforcements are seldom used in historic adobe construction. These are generally not retained or replaced.

* + - * 1. Dismantle furring, lath, and reinforcement materials if any in repair area.
				2. Preparation for Plastering:

Clean substrate surfaces to remove dust, loose particles, grease, wax, oil, salts, waterborne staining, debris, and other foreign matter and deposits that could impair bond with replacement plaster. Do not apply plaster over deteriorated coatings.

Remove ridges and protrusions greater than 1/8 inch and fill depressions greater than 1/4 inch with adobe mud or plaster. Allow patch to set and dry.

Wet entire adobe substrate before applying each coat of plaster. Do not soak. Keep substrate damp to the touch but without visible water droplets.

Wet remaining plaster abutting the replacement plaster before installing new plasterwork. Do not soak.

* + - * 1. Application: Apply [**mud plaster] [lime plaster] in [one base coat and one finish coat] [one base coat and two finish coats] [two base coats and one finish coat] [two base coats and two finish coats] <Insert requirement>[ to a total thickness that aligns flush with remaining sound plaster**].

Base-coat thickness: [**3/8 to 3/4 inch**].

Finish-coat thickness: [**3/16 to 3/8 inch**].

The option in first subparagraph below for using lime water as the liquid component is recommended by some experts for better adhesion.

Dampen substrate for each coat with [**water] [lime water**] in small areas as the work progresses.

Retain one of two options in first subparagraph below depending on local practice; some plasterers prefer harling only the first coat because of difficulty in obtaining a uniform thickness.

[**Harl plaster] [Harl** first coat and trowel-apply remaining coat(s), pressing firmly,] in small, adjacent gobs against the adobe substrate, working on small, dampened areas of the wall at a time.

Do not reuse plaster that has fallen to the ground.

Fully compact each coat and allow it to dry until it becomes thumbprint hard before scoring and applying next coat.

Generally, retain one of two subparagraphs below; revise to suit Project. Drying between mud-plaster coats reduces the likelihood that shrinkage cracks will telegraph through the full thickness of cured mud plaster. Lime plaster should not be allowed to fully dry between coats.

For mud plaster, cure (dry) each coat before applying next coat.

For lime plaster, allow each coat to set but not dry before applying next coat.

Generally, retain last option in first paragraph below. Wood trowels are typically used for plastering adobe walls except for the finish coat if a very smooth or polished surface finish is wanted.

* + - * 1. Cut back high areas and float or trowel plastered area level with [**wood] <Insert requirement**> trowel.[ **Use plastic or metal trowel only for smooth-troweled finish**.]
				2. Plaster Finish: Provide [**finish matching finish of remaining sound plaster] [finish matching finish of design reference sample] [smooth-troweled finish] [smooth-float finish] [sandy-float finish] <Insert requirement**>.

Revise first paragraph below to describe differing plaster grounds. Coordinate with Drawing details.

* + - * 1. Finish plaster flush with lintels, rough frames of windows and doors, and other built-in items or accessories that act as a plaster ground unless otherwise indicated.

Generally, retain "Tolerances" Paragraph below; revise to suit Project.

* + - * 1. Tolerances: Completed plaster installation shall not deviate from a true plane by more than [**1/8 inch**] as measured by a [**5-fo**ot] straightedge placed at any location on a surface, except where existing plaster is retained as a substrate for new plasterwork.

Generally, retain one of first two paragraphs below; revise to suit Project.

* + - * 1. Cure mud plaster by sheltering the wall to ensure slow drying over [**three] [five] <Insert number**> consecutive days, including weekends and holidays. Control the rate of curing to prevent cracking.
				2. Cure lime plaster (initial curing) by maintaining repaired area in damp condition over [**five**] [**seven] <Insert number**> consecutive days, including weekends and holidays.

Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.

Adjust damp-curing methods to maintain dampness without eroding the surface.

Revise paragraph below to suit Project. Retain option below only if finished plaster is painted. Exposed crack repairs will be evident.

* + - * 1. Through-cracking within a plastered surface or separation at edge of a repair is unacceptable. Remove the repair and replace. Dismantle such work and reinstall[ **or repair as a crack repair**].
			1. CRACK REPAIR <**Insert drawing designation**>

Copy this article and re-edit for significantly different types and sizes of cracks to be repaired. This article describes repairing stable, nonmoving cracks; revise to suit Project if crack is known to be moving.

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

* + - * 1. Cut out and repair cracks to the following extent:

All cracks in area indicated.

Cracks indicated on Drawings.

Retain subparagraph below to guide the Contractor in determining cracks to repair if all repair locations are not indicated on Drawings; revise to suit Project or office practice.

Cracks at locations of the following defects:

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

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

Hollow-sounding cracks when tapped by metal object.

Eroded crack surfaces 1/4 inch or more deep.

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

Cracks filled with substances other than adobe materials.

* + - * 1. Cut out cracks as follows, according to procedures demonstrated in approved mockup:

Revise first subparagraph below according to depth and width required to rake out cracks for Project.

Remove material from cracks to depth of [**1 inch] [2 inches] [and] [not less than that required to expose sound, unweathered adobe] <Insert requirement**>. Do not remove unsound adobe more than [4 inches] deep; consult Director’s Representative for direction.

Widen cracks only as necessary to fill them with repair mortar.

Remove adobe material within raked-out cracks to square off back of raked-out groove. Brush, vacuum, or flush cracks to remove dirt and loose debris.

Abrade smooth, side surfaces of crack, if any, by gouging (keying) the inside area of the crack.

Do not spall edges of adobe along sides of cut-out cracks.

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

* + - * 1. Notify Director’s Representative of unforeseen detrimental conditions, including voids in wall construction, loose adobe units, rotted wood, rusted metal, and other deteriorated items.

Retain one option in "Filling with Mortar" Paragraph below that is most compatible with the surface composition of wall being repaired.

* + - * 1. Filling with Mortar: Use [**mud plaster] [lime plaster] <Insert requirement**>.

Spray crack interior surfaces and adjacent adobe with water to dampen the wall and remove debris. Do not soak. Time spraying so that, at time of filling, prepared crack surfaces are damp but free of standing water. If water dries, spray prepared surfaces again before filling.

Apply repair mortar first to areas where existing adobe was removed to depths greater than surrounding areas in the prepared groove. Apply in layers not greater than [3/8 inch] until a uniform depth is formed. Fully compact each layer thoroughly and allow it to dry until thumbprint hard before applying next layer.

Generally, retain one of two subparagraphs below; revise to suit Project. Drying between mud-plaster layers reduces the likelihood that full-depth shrinkage cracks will form at edges of mud-plaster repair. Lime plaster should not be allowed to fully dry between layers.

For mud plaster, cure (dry) each layer before applying next layer.

For lime plaster, allow each layer to set but not dry before applying next layer.

After deep areas have been filled to same depth as remaining cracks, point cracks by placing mortar in layers not greater than [**3/8 inch**]. Fully compact each layer and allow it to dry until thumbprint hard before applying next layer.

Generally, retain one of two subparagraphs below; revise to suit Project. Drying between mud-plaster layers reduces the likelihood that full-depth shrinkage cracks will form at edges of mud-plaster repair. Lime plaster should not be allowed to fully dry between layers.

For mud plaster, cure (dry) each layer before applying next layer.

For lime plaster, allow each layer to set but not dry before applying next layer.

Do not spread mortar beyond repair edges onto adjacent adobe surfaces or featheredge the mortar.

Generally, retain one of two subparagraphs below; revise to suit Project.

Cure mud plaster by sheltering the wall to ensure slow drying over [**three] [five] <Insert number**> consecutive days, including weekends and holidays. Control the rate of curing to prevent cracking.

Cure lime plaster (initial curing) by maintaining repaired area in damp condition over [five] [seven] <Insert number> consecutive days, including weekends and holidays.

Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.

Adjust damp-curing methods to maintain dampness without eroding the surface.

* + - 1. ADOBE UNIT REPLACEMENT <**Insert drawing designation**>

Copy this article and re-edit for significantly different types of unit-replacement repairs. This article specifies adobe unit replacement required because of basal erosion, coving from rising damp, crushing or slumping of over-moist units, bulging, or partial depth collapse; revise to suit Project.

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

* + - * 1. Description: Where backup masonry is fractured or unstable and at locations indicated, repair adobe masonry by removing adobe units that are broken or deteriorated and rebuilding with whole, new adobe construction. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with whole units.

Dismantle plaster that is delaminated (loose), irreparably damaged or deteriorated, and as required to exposed for replacement defective adobe units according to the requirements of "Plaster Removal and Replacement" Article above.

* + - * 1. Shoring: Erect temporary shoring to protect and stabilize from movement the remaining construction above and around the adobe masonry being repaired.

Shore up ceilings and roofs above the work areas.

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

Shore up lintels, wood framing, bond beams, and grounds embedded in or supported by adobe masonry.[ **Coordinate with new framing, bond beams, and wood repairs, which are specified in other Sections**.]

Stabilize remaining adobe masonry that surrounds each removal area as the repair work progresses.

Sequence constructing, removing, and relocating temporary shoring and bracing with adobe repair work where replacement is extensive in depth or width in order to prevent weakening the wall unacceptably during the repair work.

Remove shoring and bracing after repairs are complete.

* + - * 1. Dismantling and Inspection: Inspect for excessive moisture in the adobe masonry assembly.

Dismantle crushed, softened, broken, and otherwise damaged adobe units and mortar.

Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for adobe replacement.

Maintain adjacent masonry in an undamaged condition.

Allow remaining and otherwise sound masonry to dry out before proceeding with the repair work.

Notify Director’s Representative of unforeseen detrimental conditions, including voids, cracks, bulges, loose units beyond the removal area, rotted wood, rusted metal, and other deteriorated items.

* + - * 1. Install new adobe units in sound condition, matching type of existing units. Do not use new, broken units unless they can be cut to usable size.

Install adobe replacement units into bonding and coursing pattern of existing units.

Install units with concave side down.

If cutting is required, use saw capable of cutting adobe with clean, sharp, unchipped edges.

* + - * 1. Preparation for Setting Units and Mortaring: Prepare wall cavity by spraying dry areas to damp yet firm condition and without visible water droplets.

Spray new adobe units and repair area with water so that surfaces are damp yet firm and free of standing water. Do not soak units or wall cavity. If water dries, spray surfaces again before infilling the repair area.

Revise "Setting Units and Mortaring" Paragraph below to suit project and office practice. A compacted, low-moisture or "dry" adobe mortar prevents shrinking and settlement that would occur with a wet mix. Shims or spacing stones left in place will create hard spots that would crack adobe units.

* + - * 1. Setting Units and Mortaring: Prepare a low-moisture adobe mortar mix (dry mix) with about five percent water content. Use this mix, well compacted, to completely fill bed, head, and collar joints.

Set new adobe units tightly into position with wood shims. Place units against fresh mortar in collar joint when filling partial wall thickness.

Install low-moisture mortar in layers and compact tightly.

Remove shims and fill the voids with low-moisture mortar, compacted in layers.

* + - * 1. Finishing: Finish flat surfaces flush with adjacent adobe. For molded shapes, tool adobe surface to restore the shape and edge contours.

Retain drying time in paragraph below based on depth and extent of repair and office practice.

* + - * 1. Cure repaired adobe masonry by sheltering the wall to ensure slow drying over [**seven] [10] <Insert number**> consecutive days, including weekends and holidays before replastering or painting.
			1. STABILIZING FREESTANDING WALL WITH PLASTER TOPPING <**Insert drawing designation**>

Copy this article and re-edit for significantly different types of protection from weathering for freestanding or ruined walls. Change the term "Plaster Topping" in the article title to "Plaster Capping" if preferred.

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. Dismantle existing protective plaster, if any, that is loose, irreparably damaged, or deteriorated.
				2. Preparation for Plastering:

Clean top of wall to remove dust, loose particles, grease, wax, oil, salts, waterborne staining, debris, and other foreign matter and deposits that could impair bond with protective plaster.

Wet adobe substrate before applying protective plaster. Do not soak. Keep substrate damp to the touch but without visible water droplets.

Wet remaining plaster abutting the replacement plaster before installing new plaster. Do not soak.

Lime plaster is generally preferred over mud plaster for stabilization.

* + - * 1. Application: Apply [**lime plaster base coat] <Insert material> in [two] [three] <Insert number>** layers to a minimum total thickness of **[1 inch] [2 inches**].

Retain one of first two options in first subparagraph below depending on local practice; some plasterers prefer harling only the first coat because of difficulty in obtaining a uniform thickness.

[**Harl plaster] [Harl first coat and trowel-apply remaining coat(s), pressing firmly**,] in gobs onto top of the adobe wall, working on small, dampened areas of the wall at a time. Do not reuse plaster that has fallen to the ground.

While pressing down firmly to get a good bond, float or trowel plastered area to rough contours of the top surface of wall.

Fully compact each layer thoroughly and allow it to dry until thumbprint hard before scoring, moistening, and applying next layer.

* + - * 1. Shape or mound top of plaster to drain standing water from top of wall and trowel smooth.
				2. Cure lime plaster (initial curing) by maintaining repaired area in damp condition over [**five] [seven] <Insert number**> consecutive days, including weekends and holidays.

Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.

Adjust damp-curing methods to maintain dampness without eroding the surface.

* + - * 1. Remove plaster that strikes faces of the wall.
			1. PAINTING <**Insert drawing designation**>

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

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

* + - * 1. Preparation: Clean substrate surfaces to remove dust, loose particles, grease, wax, oil, salts, waterborne staining, debris, and other foreign matter and deposits that could impair bond. Do not apply whitewash over deteriorated coatings.

Spray substrate surface with water to dampen it. Do not soak. If water dries, spray prepared surfaces again before painting.

Retain last option in "Application" Paragraph below if allowing either brush or burlap application.

* + - * 1. Application: Apply whitewash in [**two] [three] <Insert number> thin coats using [a wide, natural-fiber or nylon brush] [or] [large pieces of clean burlap].[ Do not use both brush and burlap to apply whitewash**.]

Work first coat well into the pores of the substrate.

Apply succeeding coats when previous coat has begun to dry but is still damp. Mist lightly if necessary.

Alternate direction of application from vertical to horizontal, with the last coat applied horizontally.

Minimize overlaps and holidays in each coat.

* + - * 1. Cure whitewash by sheltering the wall to ensure slow drying over [**three] [five] <Insert number**> consecutive days, including weekends and holidays.
			1. WASTE DISPOSAL
				1. Salvageable Materials: Unless otherwise indicated, excess materials are Contractor's property.
				2. Waste: Remove waste and legally dispose of off of State’s property.
			2. CLEANING AND PROTECTION
				1. Protect work of other trades against damage. Promptly remove adobe materials 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 adobe masonry historic treatment work.
				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 protections and enclosure of other work.

END OF SECTION 040336