PROJECT MANUAL

Prentis Building Façade Repairs

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Repair of existing precast concrete (exterior and interior sides of panels):
   a. Removal of deteriorated concrete and subsequent replacement and patching.
   b. Crack repairs.

2. Repair of existing reinforcing steel (exterior and interior locations):
   a. Removal of deteriorated reinforcing steel and subsequent replacement.
   b. Corrosion-inhibiting treatment.

3. Cleaning of existing precast concrete (exterior faces only).
4. Sealing of existing precast concrete. (ALTERNATE #2 – SECOND AND THIRD FLOOR EXTERIOR)

1.3 UNIT PRICES

A. Work of this Section is affected by unit prices specified in Section 012200 "Unit Prices."

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

1.4 DEFINITIONS

A. Low-Pressure Spray: 100 to 200 psi (690 to 1375 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to concrete maintenance including, but not limited to, the following:

   a. Verify concrete-maintenance specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
   b. Materials, material application, sequencing, tolerances, and required clearances.
   c. Quality-control program.
   d. Coordination with building occupants.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, chemical composition, physical properties, test data, and mixing, preparation, and application instructions (including acceptable temperature ranges and climate conditions for application).

B. Samples for Initial Selection:

1. Coarse and Fine Aggregate for Patching Concrete. Include Samples in quart-sized zip-top plastic bags, representative of the range of required colors and textures. Document each Sample with color name, grade number, and or other information necessary to replicate it.

C. Samples for Verification: Cured Samples for each exposed product and for each color and texture.

1. Include sets of precast concrete patching-material Samples in the form of briquettes, at least at least 8 inches (200 mm) long by 8 inches (200 mm) wide. Document each Sample with product, mix, and or other information necessary to replicate it. **Samples must be provided, at a minimum, for both aggregate colors specified in Article 2.3. B., 2.**
2. Include sets of sealer Samples in the form of treated concrete patch tiles at least 8 inches (200 mm) long by 8 inches (200 mm) wide, representative of the range of required colors and textures.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For concrete-maintenance specialist.

B. Material Certificates: For each type of portland cement and aggregate supplied for mixing or adding to products at Project site.

C. Product Test Reports: For each concrete sealer, for tests performed by manufacturer and witnessed by a qualified testing agency.

D. Field quality-control reports.

E. Quality-Control Program: Submit before work begins.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications: Each corrosion-inhibiting-treatment and sealer manufacturer shall employ factory-authorized service representatives who are available for consultation and Project-site inspection and on-site assistance.

B. Concrete Maintenance Specialist Qualifications: Engage an experienced concrete-maintenance specialist that is trained to apply custom-mixed patching-mortar, corrosion-inhibiting treatments, and surface sealers, as well as historic masonry / concrete façade cleaning, in order to perform work of this Section. The specialist shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful results. Experience in only installing or patching new concrete is insufficient experience for concrete-maintenance work.

1. Field Supervision: Concrete-maintenance specialist shall perform full-time supervision on Project site during times that concrete-maintenance work is in progress.

2. Experience: Specialist shall have a minimum of 5-years of experience relevant to this type of work, and shall submit a written list of project experience as follows (a single project can meet more than one category requirement):

    a. Three projects involving historic concrete patching.
    b. Three projects involving historic masonry or concrete façade cleaning.
    c. Submit a reference, with current contact information, for each project.

C. Quality-Control Program: Prepare a written plan for concrete maintenance to systematically demonstrate the ability of personnel to properly perform maintenance work, including each phase or process, protection of surrounding materials during operations, and control of debris and runoff during the Work. Describe in detail materials, methods, equipment, and sequence of operations to be used for each phase of the Work.

D. **Mockups**: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution. Erect sample areas in existing walls unless otherwise indicated, to demonstrate quality of materials, workmanship, and blending with existing work.

1. Concrete Removal and Surface Preparation (concrete and steel reinforcing): Remove and air blast two separate concrete repair areas identified on the Drawings, totaling approximately 25 sq. ft. (2.3 sq. m).

    a. At a minimum, one area is to include steel reinforcing repair (blasting and cleaning), replacement, and corrosion-inhibiting agent application.

2. Concrete Patching: Remove, blast, and repair three separate areas, totaling approximately 50 sq. ft. (4.6 sq. m).
3. Crack Repair with Mortar: Perform crack repair with mortar in two separate areas, each approximately 24 inches (610 mm) long.
4. Crack Repair with Sealant: Perform crack repair with sealant in one area, approximately 24 inches (610 mm) long.
5. Cleaning of existing precast concrete: Clean an area approximately 25 sq. ft. (2.3 sq. m).

    a. Test cleaners and methods on samples of adjacent materials for possible adverse reactions. Do not use cleaners and methods known to have deleterious effect.
    b. Allow a waiting period of not less than seven days after completion of sample cleaning to permit a study of sample panels for negative reactions.

6. Surface Sealer: Apply to an area approximately 25 sq. ft. (2.3 sq. m). (ALTERNATE #1).

    a. Test sealers and methods on samples of adjacent materials for possible adverse reactions. Do not use sealers and methods known to have deleterious effect.
    b. Allow a waiting period of not less than seven days after completion of sample sealing to permit a study of sample panels for negative reactions.

7. Contractor is responsible for creation of additional mockups upon rejection of initial mockups.
8. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
9. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's written instructions for minimum and maximum temperature requirements and other conditions for storage.

B. Store cementitious materials off the ground, under cover, and in a dry location.

C. Store aggregates covered and in a dry location; maintain grading and other required characteristics and prevent contamination.

1.10 FIELD CONDITIONS

A. Cold-Weather Requirements for Cementitious Materials: Do not apply unless concrete-surface and air temperatures are above 40 deg F (5 deg C) and will remain so for at least 48 hours after completion of Work.

B. Hot-Weather Requirements for Cementitious Materials: Protect repair work when temperature and humidity conditions produce excessive evaporation of water from patching materials. Provide artificial shade and wind breaks, and use cooled materials as required. Do not apply to substrates with temperatures of 90 deg F (32 deg C) and above.

C. Environmental Limitations for Acrylic Sealers: Follow manufacturer’s written recommendations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: For repair products, obtain each color, grade, finish, type, and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.

2.2 PATCHING CONCRETE MIXTURES, GENERAL

A. Patching Mortar Requirements:

1. Only the custom-mixed patching concrete specified herein is acceptable for use on this Project.
2. Color and Aggregate Texture: Provide patching mortar and aggregates of colors and sizes necessary to produce patching mortar that matches existing, adjacent, exposed concrete. Blend several aggregates if necessary to achieve suitable matches.
3. Compressive Strength: Not less than 5000 psi (34.5 MPa) at 28 days when tested according to ASTM C 109/C 109M.
1. Job-Mixed Maximum W/C Ratio: 0.45.
2. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
3. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery.

2.3 PATCHING CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M, Type I, white.

B. Aggregates: Quartzite angular chip aggregate, washed and graded according to ASTM C 33/C 33M.

1. Products: Subject to compliance with requirements, provide product by the following source:

a. Coloured Aggregates; Aurora, Ontario.

2. Color: Snow White Calcite or Translucent Quartz(ite), to match existing and based on approved mockups.
3. Coarse-Aggregate Size (95% of aggregate): #1; 0.05 inches (1.2 mm) minimum; 0.24 inches (6 mm) maximum, retained in a No. 16 sieve.
4. Fine Aggregate (5% of aggregate): #350; sand-sized particles, passing a No. 16 sieve, free of materials with deleterious reactivity to alkali in cement.

C. Latex Bonding Agent Admixture, Non-Redispersible: ASTM C 1059/C 1059M, Type II.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Laticrete; L&M Construction Chemicals, Everbond.
b. Mapei; Planicrete AC.

D. Water-Reducing, Accelerating Admixture: ASTM C 494/C 494M.

E. Air-Entraining Admixture: DO NOT USE.

F. Water: ASTM C 94/C 94M and potable.

2.4 BONDING AGENTS

A. Mortar Scrub Coat: Use same aggregate and cement materials used for concrete patching.

2.5 JOINT REPAIR – MORTAR

A. Job-Mixed Crack Repair Mortar: Use same aggregate and cement materials used for concrete patching.

1. Compressive Strength: Not less than 5000 psi (34.5 MPa) at 28 days when tested according to ASTM C 109/C 109M.
2. Color: To match existing, adjacent, exposed concrete, and new concrete patching mixture.

B. Pozzolans for Grout: ASTM C 618.

2.6 FIELD MIXES

A. General: Mix products, in clean containers.

1. Discard materials that have begun to set.

B. Concrete Patch Mix: Mix materials to obtain the following volumetric breakdown:

1. Portland Cement Paste: 35%
2. Coarse-Aggregate: 55.5%
3. Fine-Aggregate: 3.5%
4. Air: 6.0%

C. Mortar Scrub Coat: 1 part portland cement and 2-1/2 parts quartzite fine aggregate complying with ASTM C 144, except 100 percent passing a No. 16 (1.18-mm) sieve.

1. Mix dry ingredients with enough water to provide consistency of thick cream.

D. Joint Repair Mortar Mix: Mix consisting of 1 part portland cement and 1 part quartzite fine aggregate complying with ASTM C 144 except 100 percent passing a No. 16 (1.18-mm) sieve.

2.7 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

2.8 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

B. Galvanized Reinforcing Bars: ASTM A 615/A 615M, Grade 60 deformed bars, ASTM A 767/A 767M, zinc coated after fabrication and bending (if required to match existing conditions).

1. To be used within precast concrete of window panel locations only upon field verification that existing reinforcing uncovered in such locations is galvanized.

C. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.

D. Galvanized-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from galvanized-steel wire into flat sheets.

1. To be used within precast concrete of window panel locations only upon field verification that existing reinforcing uncovered in such locations is galvanized.

E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.9 CORROSION-INHIBITING MATERIALS

A. Corrosion-Inhibiting Treatment: Waterborne solution of alkaline corrosion-inhibiting chemicals that forms a protective film on steel reinforcement.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Cortec Corporation; MCI 2020 Series.
b. Euclid Chemical Company (The), an RPM company; Duralprep 3020.
c. Sika Corporation; Sika FerroGard 903.

2.10 CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F (60 to 71 deg C).

C. Job-Mixed Detergent Solution: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium polyphosphate, 1/2 cup (125 mL) of dye and perfume free laundry detergent, and 20 quarts (20 L) of hot water for every 5 gal. (20 L) of solution required.

2.11 SEALER MATERIALS (ALTERNATE #2 – SECOND AND THIRD FLOOR EXTERIORS)

A. Waterborne Acrylic or Solvent-based Sealer: High-performance, breathable water-repellant and sealer recommended by the manufacturer for the concrete substrate.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Edison Coatings, Inc.; Elastowall 351 or System 90W.
b. Prosoco; SureKlean Weather Seal, Custom Masonry Sealer or Siloxane WB Concentrate.

2. Color: Clear.

PART 3 - EXECUTION

3.1 GENERAL EXECUTION REQUIREMENTS

A. Comply with the applicable American Concrete Institute’s (ACI) Repair Guides, TechNotes, and Specifications, and the International Concrete Repair Institute’s (ICRI) Technical Guidelines.

3.2 CONCRETE MAINTENANCE

A. Comply with manufacturers' written instructions for surface preparation and product application.

3.3 EXAMINATION

A. Locate final extent of areas of deteriorated or delaminated concrete using hammer and mark boundaries. Mark areas for removal by simplifying and squaring off boundaries. At columns and walls make boundaries level and plumb unless otherwise indicated.

B. Perform sounding surveys as the Work progresses to detect hazards resulting from concrete-maintenance work.

3.4 PREPARATION

A. Ensure that supervisory personnel are on-site and on duty when concrete maintenance work begins and during its progress.

B. Protect persons, motor vehicles, surrounding surfaces of building being repaired, building site, plants, and surrounding buildings from harm resulting from concrete maintenance work.

1. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
2. Use only proven protection methods appropriate to each area and surface being protected.
3. Provide temporary barricades, barriers, and directional signage to exclude public from areas where concrete maintenance work is being performed.
4. Protect floors and other surfaces along haul routes from damage, wear, and staining.
5. Protect adjacent interior surfaces and equipment by covering them with heavy polyethylene film and waterproof masking tape. If practical, remove items, store, and reinstall after potentially damaging operations are complete.
6. Dispose of debris and runoff from operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

C. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is in working order.

1. Prevent solids such as aggregate or mortar residue from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from concrete maintenance work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

D. Preparation for Concrete Removal: Examine construction to be repaired to determine best methods to safely and effectively perform concrete maintenance work. Examine adjacent work to determine what protective measures will be necessary. Make explorations, probes, and inquiries as necessary to determine condition of construction to be removed in the course of repair.

1. Provide and maintain shoring, bracing, and temporary structural supports as required to preserve stability and prevent unexpected or uncontrolled movement, settlement, or collapse of construction being demolished and construction and finishes to remain. Strengthen or add new supports when required during progress of removal work.

E. Reinforcing-Bar Preparation: Remove loose and flaking rust from exposed reinforcing bars by wire brushing until only tightly adhered light rust remains.

1. Where section loss of reinforcing bar is more than 25 percent, or 20 percent in two or more adjacent bars, cut bars and remove and replace as indicated on Drawings.
2. Remove additional concrete as necessary to provide at least 1/2-inch (13-mm) clearance at existing and replacement bars.
3. Splice replacement bars to existing bars according to ACI 318 (ACI 318M) by lapping only.
4. New reinforcing bars are to match the thickness of the original bars, extending at least 12-inches for #3 bars and 18-inches for #4 or larger bars, in each direction beyond deteriorated area. Treat existing and new exposed and prepped reinforcing with corrosion-inhibiting agent.

F. Surface Preparation for Corrosion-Inhibiting Treatment: Clean reinforcing to remove dirt, oils, films, and other materials detrimental to treatment application.

1. Allow surface to dry before applying corrosion-inhibiting treatment.

G. Nonacidic Surface Preparation for Sealers: Clean concrete to remove dirt, oils, films, and other materials detrimental to sealer application.

1. Use manufacturer’s recommended surface preparation materials and methods.

3.5 CONCRETE REMOVAL

A. Do not overload structural elements with debris.

B. Saw-cut perimeter of areas indicated for removal to a depth of at least 1/2 inch (13 mm) Make cuts perpendicular to concrete surfaces and no deeper than cover on reinforcement.

C. Remove deteriorated and delaminated concrete by breaking up and dislodging from reinforcement.

D. Remove additional concrete if necessary to provide a depth of removal of at least 1/2 inch (13 mm) over entire removal area.

E. Where half or more of the perimeter of reinforcing bar is exposed, bond between reinforcing bar and surrounding concrete is broken, or reinforcing bar is corroded, remove concrete from entire perimeter of bar and to provide at least 1/2-inch (13-mm) clearance around bar.

F. Test areas where concrete has been removed by tapping with hammer, and remove additional concrete until unsound and disbonded concrete is completely removed.

G. Thoroughly clean removal areas of loose concrete, dust, and debris.

H. Air Blast sound concrete to remain, prior to applying patching material, to provide surfaces with a fractured profile of at least **1/8 inch (3 mm) / Level 8 surface** profile that are approximately perpendicular or parallel to original concrete surfaces. At columns and walls, make top and bottom surfaces level unless otherwise directed.

3.6 BONDING AGENT APPLICATION

A. Scrub Coat for Job-Mixed Patching Concrete: Dampen repair area and surrounding concrete 6 inches (150 mm) beyond repair area. Remove standing water and apply slurry scrub coat with a brush, scrubbing it into surface, filling pores and voids, and thoroughly coating repair area. If scrub coat dries, recoat before placing patching mortar or concrete.

3.7 PATCHING CONCRETE APPLICATION

A. Pretreatment: Apply anticorrosion agent to reinforcement as specified in the article below.

B. Pretreatment: Apply specified mortar scrub coat to concrete substrate.

C. General Placement: Place patching concrete by troweling toward edges of patch to force intimate contact with edge surfaces. For large patches, fill edges first and then work toward center, always troweling toward edges of patch. At fully exposed reinforcing bars, force patching mortar to fill space behind bars by compacting with trowel from sides of bars.

1. Provide forms where necessary to confine patch to required shape.
2. Wet substrate and forms thoroughly and then remove standing water.

D. Vertical Patching: Place material in lifts of not more than 1-1/2 inches (38 mm) or less than 1/4 inch (6 mm). Do not feather edge.

E. Overhead Patching: Place material in lifts of not more than 1 inch (25 mm) or less than 1/4 inch (6 mm). Do not feather edge.

F. Consolidation: After each lift is placed, consolidate material and screed surface.

G. Multiple Lifts: Where multiple lifts are used, score surface of lifts to provide a rough surface for placing subsequent lifts. Allow each lift to reach final set before placing subsequent lifts.

H. Finishing: Allow surfaces of lifts that are to remain exposed to become firm and then finish to a textured surface matching adjacent concrete.

1. Form, tool, and screed surfaces to match and blend with adjacent surfaces.
2. Use nylon brushes to roughen the surface as needed, pending results of approved mock-ups.

I. Curing: Wet-cure cementitious patching materials for not less than seven days by water-fog spray or water-saturated absorptive cover.

3.8 CRACK REPAIR, GENERAL

A. Repair cracks wider than 1/16 inch (1.6 mm).

B. Route cracks to depth of 2-1/2 times joint width, but not less than 1/2 inch (13 mm) or not less than that required to expose sound, unweathered concrete. Provide reveals with square backs to allow for full contact with pointing mortar.

1. Do not spall edges of concrete during widening.
2. Route by hand with chisel and resilient mallet. Do not use power-operated grinders without Architect's written approval based on approved quality-control program.

C. Clean cracks or flush joints to remove dirt and loose debris with brush, vacuum, or oil-free compressed air to remove loose particles. Clean precast concrete substrate of oil, dirt, and other substances that would interfere with bond.

3.9 CRACK REPAIR WITH MORTAR

A. Fill cracks by pointing with specified crack repair mortar.

1. Point all joints by placing mortar in layers not greater than 3/8 inch (9 mm). Fully compact each layer and allow to become thumbprint hard before applying next layer. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.
2. When mortar is thumbprint hard, tool joints flush with surface of surrounding concrete. Remove excess mortar from edge of joint by brushing.
3. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours including weekends and holidays.

    a. Acceptable curing methods include covering with wet burlap and plastic sheeting, or periodic hand misting.
    b. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.

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

3.10 CRACK REPAIR WITH SEALANT

A. Fill sealant joints with specified joint sealant and cure, according to Division 07 Section "Joint Sealants" and the following:

1. Install cylindrical sealant backing beneath the sealant, except where space is insufficient. There, install bond-breaker tape.
2. Install sealant using only proven installation techniques that will ensure that sealant will be deposited in a uniform, continuous ribbon, without gaps or air pockets, and with complete wetting of the joint bond surfaces equally on both sides. Fill joint flush with surrounding concrete.
3. Install sealant as recommended by sealant manufacturer.

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

3.11 CORROSION-INHIBITING-TREATMENT APPLICATION

A. Apply corrosion-inhibiting treatment to all new and exposed and cleaned / prepped existing steel reinforcing.

B. Apply by brush in two coats at manufacturer's recommended application rate. Remove film of excess treatment by high-pressure air blasting before patching treated concrete.

3.12 CLEANING CONCRETE, GENERAL

A. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water will not wash over cleaned, dry surfaces.

1. Do not use wire brushes
2. Use spray equipment that provides controlled application at volume and pressure indicated, measured at spray tip. Adjust pressure and volume to ensure that cleaning methods do not damage concrete.

    a. Equip units with pressure gages.

3. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.
4. For heated water-spray application, use equipment capable of maintaining temperature between 140 and 160 deg F (60 and 71 deg C) at flow rates indicated.

B. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging concrete surfaces.

C. Water Application Methods:

1. Water-Spray Applications: Unless otherwise indicated, hold spray nozzle at least 6 inches (150 mm) from surface of concrete and apply water in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.

D. After cleaning is complete, remove protection no longer required. Remove tape and adhesive marks.

3.13 CLEANING CONCRETE

A. Hot-Water Wash: Use hot water applied by medium-pressure spray.

B. Detergent Cleaning:

1. Wet concrete with hot water applied by low-pressure spray.
2. Scrub concrete with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Allow solution to dwell on surface for 5-10 minutes. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that concrete surface remains wet.
3. Rinse with hot water applied by low-pressure spray to remove detergent solution and soil.
4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.

3.14 SEALER APPLICATION (ALTERNATE #2)

A. Apply sealer by brush, roller, or airless spray at manufacturer's recommended application rate.

3.15 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage, at their discretion, a qualified testing agency to perform tests and inspections.

1. Job-Mixed Patching Mortar: One randomly selected sample, minimum, for each day's work, tested for compressive strength according to ASTM C 109/C 109M.

B. Product will be considered defective if it does not pass tests and inspections.

C. Review test and inspection reports.

D. Manufacturers Field Service: Engage manufacturers' factory-authorized service representatives for consultation and Project-site inspection and to provide on-site assistance when requested by Architect.

1. Have manufacturers' factory-authorized service representatives perform the following number of Project-site inspections to observe progress and quality of the Work, distributed over the period of product installation, regardless of on-site assistance requested by Architect:

a. Corrosion-Inhibiting Treatment: Two inspections.
b. Sealer: Two inspections.

3.16 CONCRETE MAINTENANCE SCHEDULE

A. Precast Concrete Facade: Perform the following as indicated on Drawings:

1. Removal of deteriorated concrete (interior and exterior, as indicated in Drawings).
2. Removal of deteriorated steel reinforcing (interior and exterior, as indicated in Drawings).
3. Corrosion-inhibiting treatment to new and exposed existing reinforcing (interior and exterior, as indicated in Drawings).
4. Patching of precast concrete (interior and exterior, as indicated in Drawings).
5. Crack Repairs to exterior precast concrete facade.
6. Cleaning of exterior precast concrete facade.
7. Application of sealer to exterior precast concrete façade of second and third floors (ALTERNATE #2).

END OF SECTION 030130

SECTION 040310 - HISTORIC STONE MASONRY CLEANING **(ALTERNATE #1 – FIRST FLOOR EXTERIOR)**

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes historic treatment work consisting of cleaning historic stone masonry (veneer) surfaces.

1.2 DEFINITIONS

A. Low-Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference on historic masonry cleaning at Project site.

1. Review methods and procedures related to cleaning historic masonry.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.5 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic masonry cleaning specialist. Experience cleaning new masonry work is insufficient experience for historic treatment work.

B. Mockups: Prepare mockups of cleaning on existing surfaces to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Cleaning: Clean an area approximately 25 sq. ft. (2.3 sq. m) of existing stone veneer surface condition.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F (60 to 71 deg C).

C. Detergent Solution, Job Mixed: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium pyrophosphate (TSPP), 1/2 cup (125 mL) of laundry detergent, and 20 quarts (20 L) of hot water for every 5 gal. (20 L) of solution required.

PART 3 - EXECUTION

3.1 CLEANING MASONRY, GENERAL

A. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water do not wash over dry, cleaned surfaces.

B. Use only those cleaning methods indicated for each masonry material and location.

1. Brushes: Do not use wire brushes or brushes that are not resistant to chemical cleaner being used.
2. Spray Equipment: Use spray equipment that provides controlled application at volume and pressure indicated, measured at nozzle. Adjust pressure and volume to ensure that cleaning methods do not damage masonry.

a. Equip units with pressure gauges.
b. For water-spray application, use fan-shaped spray that disperses water at an angle of 25 to 50 degrees.
c. For heated water-spray application, use equipment capable of maintaining temperature between 140 and 160 deg F (60 and 71 deg C) at flow rates indicated.

C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces. Keep wall wet below area being cleaned to prevent streaking from runoff.

D. Water-Spray Application Method: Unless otherwise indicated, hold spray nozzle at least 6 inches (150 mm) from masonry surface, and apply water in horizontal back-and-forth sweeping motion, overlapping previous strokes to produce uniform coverage.

3.2 PRELIMINARY CLEANING

A. Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to planned cleaning methods. Extraneous substances include paint, sealant / caulking, asphalt, and tar.

1. Carefully remove heavy accumulations of rigid materials from masonry surface with sharp chisel. Do not scratch or chip stone surface.

2. Remove asphalt and tar with solvent-type paste paint remover, per manufacturer’s written recommendations.

3.3 CLEANING STONEWORK (Marble Veneer Exterior Paneling around First Floor):

A. Detergent Cleaning:

1. Wet surface with hot water applied by low-pressure spray.
2. Scrub surface with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet.

3. Rinse with hot water applied by low-pressure spray to remove detergent solution and soil.
4. Repeat cleaning procedure above, where required to produce cleaning effect established by mockup.

END OF SECTION 040310

SECTION 050372 - HISTORIC DECORATIVE METAL REPAIR

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes historic treatment of decorative metal in the form of repair as follows:

1. Stabilizing and protecting corroding aluminum.
2. Repairing damaged aluminum curtain wall components in place.

1.2 DEFINITIONS

A. Low-Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).

B. Medium-Pressure Spray: 400 to 800 psi (2750 to 5510 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.

PART 2 - PRODUCTS

2.1 METAL MATERIALS

A. General: Provide decorative metal materials made of the alloys, forms, and types that match existing metals and have the ability to receive finishes matching existing finishes unless otherwise indicated.

2.2 PREPARATORY CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F (60 to 71 deg C).

C. Detergent Solution, Job Mixed: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium pyrophosphate (TSPP), 1/2 cup (125 mL) of laundry detergent, and 20 quarts (20 L) of hot water for every 5 gal. (20 L) of solution required.

2.3 MISCELLANEOUS MATERIALS

A. Metal Patching Compound: Single-part, metal filler, metal body – metal to metal filler, metal-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of metal repair indicated, tooling time required for the detail of work, and site conditions.

Compound shall be produced for filling metal that has deteriorated because of corrosion. Filler shall be capable of filling deep holes and spreading to feather edge.

B. Fasteners: Fasteners of the same basic metal as fastened metal unless otherwise indicated. Use metals that are noncorrosive and compatible with each metal joined.

1. Provide stainless steel fasteners unless otherwise indicated.
2. Use concealed fasteners for interconnecting decorative metal components and for attaching them to other work unless exposed fasteners are unavoidable or the existing fastening method.
3. For exposed fasteners, use Phillips-type machine screws of head profile flush with metal surface unless otherwise indicated.
4. Finish exposed fasteners to match finish of metal fastened unless otherwise indicated.

2.4 METAL FABRICATION

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

1. Allen Architectural Metals, Inc.
2. Alloy Casting Co., Inc.
3. Alvin Products
4. f2 Industries.
5. Historical Arts & Casting, Inc.
6. King Architectural Metals, Inc.
7. Olek Lejbzon & Co.
8. Schiff Architectural Detail.
9. Wagner Companies (The).

B. Fabricate repairs of aluminum items and components in sizes and profiles to match existing decorative aluminum, with accurate curves, lines, and angles. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.

C. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for fasteners. Use concealed fasteners where possible; use exposed fasteners to match existing work.

2.5 ALUMINUM FINISHES

A. Clear Anodic Finish: AAMA 611, Class I, 0.018 mm, or thicker over a satin (directionally textured) mechanical finish.

PART 3 - EXECUTION

3.1 HISTORIC DECORATIVE METAL REPAIR, GENERAL

A. Execution of the Work: In repairing historic items, disturb remaining existing work as minimally as possible and as follows:

1. Stabilize decorative metal to reestablish structural integrity and weather resistance while maintaining the existing form of each item.

2. Remove deteriorated coatings and corrosion.
3. Sequence work to minimize time before protective coatings are reapplied.
4. Repair items where stabilization is insufficient to stop progress of deterioration.
5. Repair items in place unless otherwise indicated.
6. Replace or reproduce historic items where indicated or scheduled.
7. Make historic treatment of materials reversible whenever possible.
8. Install temporary protective measures to stabilize decorative metal that shall be repaired later.

B. Mechanical Coating Removal: Use only the gentlest mechanical methods, such as scraping and natural or nylon bristle brushing, that do not abrade metal substrate. Do not use abrasive methods, such as sanding, or power tools except as approved by Architect.

C. Repair Decorative Metal Item: Match existing materials and features, retaining as much original material as possible to complete the repair.

3.2 PREPARATORY CLEANING

A. General: Use only those methods indicated for each type of decorative metal and its location.

1. Brushes: If using wire brushes, use stainless steel. Use brushes that are resistant to chemicals being used.

B. Water Cleaning: Clean with warm or hot water applied by medium-pressure spray. Supplement with natural-fiber or plastic bristle brush. Use small brushes to remove soil from joints and crevices.

C. Detergent Cleaning:

1. Wet surface with warm or hot water applied by low or medium-pressure spray.
2. Scrub surface with detergent solution and natural-fiber or plastic bristle brush until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet.
3. Rinse with warm or hot water applied by low or medium-pressure spray to remove detergent solution and soil.

3.3 HISTORIC DECORATIVE METAL SCHEDULE

A. Treatment for Aluminum Curtain wall: Repair deteriorated section of curtain wall where indicated in Drawings.

1. General: Perform work in the field.
2. Preparatory Cleaning of Repair Location.
3. Delamination Removal: Remove flaking aluminum.
4. Repair: Apply metal patching compound per manufacturer instructions to even the surface. Attach an aluminum flat bar over the compound and original material with stainless steel screws to re-establish the original profile and further protect the historic material.

END OF SECTION 050372

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Urethane joint sealants.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Preconstruction field-adhesion-test reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

C. Sample warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

B. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.6 PRECONSTRUCTION TESTING

A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1. Conduct field tests for each kind of sealant and joint substrate.

a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

2. Notify Architect in advance of dates and times when test joints will be erected.
3. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
4. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.7 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
2. When joint substrates are wet.
3. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.8 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 URETHANE JOINT SEALANTS

A. Urethane, S, P, 25, T: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic-use, urethane joint sealant; ASTM C 920, Type S, Grade P, Class 25, Uses T, M, A, O.

1. Basis-of-Design Product: Tremco Inc.; Vulkem 45 SSL, or one of the following comparable products.

a. W. R. Meadows; Pourthane SL.
b. Sika Corporation; Sikaflex 1c SL.

B. Urethane, S, NS, 100/50, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Uses NT, M, A, O.

1. Basis-of-Design Product: Sika Corporation; Sikaflex-15 LM, or the following comparable product.

a. Tremco, Inc.; Dymonic 100.

2.3 JOINT-SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

2.4 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion.
3. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning

operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

a. Concrete.
b. Stone.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces.

3.2 INSTALLATION OF JOINT SEALANTS

A. General: Comply with ASTM C 1193 and joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

C. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

D. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

E. Cleaning and Protection:

1. Immediately clean excess sealant from exposed surfaces.
2. Protect sealant joints during and after curing from contamination and damage.

3.3 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces **JS-1.**

1. Joint Locations:

a. Isolation and contraction joints between cast-in-place concrete paving and stone, aluminum, or precast concrete.

2. Joint Sealant: Urethane, P, 25, T.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior and interior joints in vertical surfaces and horizontal nontraffic surfaces **JS-2.**

1. Joint Locations:

   a. Joints within or between precast concrete panels.
   b. Perimeter joints of aluminum frames.

2. Joint Sealant: Urethane, NS, 100/50, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

SECTION 090120 - MAINTENANCE OF PLASTER **(ALTERNATE #3 – SECOND AND THIRD FLOOR INTERIORS)**

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Repair and replacement of interior gypsum veneer plaster and gypsum base for veneer plaster over precast concrete surfaces.

1.2 UNIT PRICES

A. Work of this Section is affected by unit prices specified in Section 012200 "Unit Prices."

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site. Include Owner regarding moving of furniture.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.5 QUALITY ASSURANCE

A. Mockups: Prepare a full-thickness finish mockup for veneer plaster patch repair work to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Number and Size: One or two wall surface of at least 15 sq. ft. (1.4 sq. m) to represent surfaces and conditions for application of each type of plaster repair and reconstruction under same conditions as the completed Work.
2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain gypsum veneer plaster products, including gypsum base for veneer plaster, joint reinforcing tape, and embedding material, from single manufacturer.

2.2 GYPSUM VENEER PLASTER

A. Two-Component Gypsum Veneer Plaster: ASTM C 587, with separate formulations; one for base-coat application and one for finish-coat application over substrates.

1. Base Coat:
   a. National Gypsum Company; Gold Bond Kal-Kote Basecoat Veneer Plaster.
   b. United States Gypsum Company; Diamond Veneer Basecoat.

2. Smooth Finish Coat:
   a. National Gypsum Company; Gold Bond Kal-Kote Smooth Finish Plaster.
   b. United States Gypsum Company; Diamond Veneer Finish.

2.3 AUXILIARY MATERIALS

A. Bonding Agent: ASTM C 631, polyvinyl acetate, per manufacturer's recommendations.

B. Patching Mortar: Refer to specification Section 030140 "Maintenance of Precast Concrete."

PART 3 - EXECUTION

3.1 PLASTER REMOVAL AND REPLACEMENT, GENERAL

A. Dismantle loose, damaged, or deteriorated plaster that cannot be repaired. Carefully dismantle areas without damaging surrounding plasterwork. Maintain existing substrate in an undamaged condition so far as practicable.

1. Install temporary protective measures as needed to protect surrounding surfaces.

B. Verify that substrate surface conditions are suitable for repairs.

1. Where concrete substrate is found to be damaged and not suitable for veneer plaster patch repair, refer to specification Section 030140 "Maintenance of Precast Concrete." Perform all concrete patch repairs to precast concrete substrates prior to performing veneer plaster patching.

C. Clean substrate surfaces to remove grease, waxes, oils, waterborne staining, debris, and other foreign matter and deposits that could impair bond with repair material.

D. Wet remaining plaster abutting the replacement plaster to a damp condition, before installing new plasterwork.

E. Do not deviate more than plus or minus 1/8 inch in 10 feet (3 mm in 3 m) from a true plane in finished plaster surfaces, as measured by a 10-foot (3-m) straightedge placed on surface.

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

3.2 GYPSUM VENEER PLASTERING

A. Monolithic Concrete Substrates: Prepare according to gypsum veneer plaster manufacturer's written recommendations and as follows:

1. 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 gypsum veneer plaster.
2. Remove ridges and protrusions greater than 1/8 inch (3 mm) and fill depressions greater than 1/4 inch (6.4 mm) with patching mortar. Allow to set and dry.
3. Apply bonding agent on dry concrete substrates according to gypsum veneer plaster manufacturer's written recommendations.

B. Gypsum Veneer Plaster Mixing: Mechanically mix gypsum veneer plaster materials to comply with ASTM C 843 and with gypsum veneer plaster manufacturer's written recommendations.

C. Gypsum Veneer Plaster Application: Comply with ASTM C 843 and with veneer plaster manufacturer's written recommendations.

1. Two-Component Gypsum Veneer Plaster:

a. Base Coat: Hand trowel or machine apply base coat over substrate to a uniform thickness of 1/16 to 3/32 inch (1.6 to 2.4 mm), to match adjacent existing. Fill all voids and imperfections.
b. Finish Coat: Trowel apply finish-coat plaster over base-coat plaster to a uniform thickness of 1/16 to 3/32 inch (1.6 to 2.4 mm), to match adjacent existing.

D. Concealed Surfaces: Do not omit gypsum veneer plaster behind cabinets, furniture, furnishings, and similar removable items. Contractor must identify and coordinate the Owner moving of furniture from walls with Owner. Omit veneer plaster in the following areas where it will be concealed from view in the completed Work unless otherwise indicated:

1. Above suspended ceilings.
2. Behind existing wood, vinyl, or carpet trim scheduled to remain.

E. Gypsum Veneer Plaster Finish: Smooth-troweled finish unless otherwise indicated.

1. Finish surfaces flush and with same texture as adjacent existing plaster.

END OF SECTION 092613

SECTION 099123 - INTERIOR PAINTING **(ALTERNATE #3 – SECOND AND THIRD FLOORS)**

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on interior substrates:

1. Wood.
2. Plaster.

1.2 DEFINITIONS

A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

B. Samples: For each type of paint system and in each color and gloss of topcoat.

1.4 QUALITY ASSURANCE

A. Mockup: Apply a mockup of the paint system indicated for plaster substrates, and the color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Select one scheduled wall surface to represent surfaces and conditions for application of the paint system.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in the Interior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

B. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

C. Colors: Match Existing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Wood: 15 percent.
2. Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting. Contractor must identify and coordinate the Owner moving of furniture from walls with Owner.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 INTERIOR PAINTING SCHEDULE

A. Wood Substrates: Wood trim.

1. Latex over Latex Primer System MPI INT 6.3T:

a. Prime Coat: Primer, latex, for interior wood, MPI #39.

1) Benjamin Moore; Fresh Start, Multi-Purpose Latex Primer.
2) Sherwin-Williams; Multi-Purpose, Latex Primer/Sealer.
3) Valspar; Bonding Primer Interior/Exterior.

b. Intermediate Coat: Latex, interior, matching topcoat.

c. Topcoat: Latex, interior (MPI Gloss Level 3), MPI #52.

1) Benjamin Moore; Fresh Start: Ultra Spec 500, Waterborne Interior Eggshell.
2) Sherwin-Williams; ProMar 400, Interior Latex Low Lustre.
3) Valspar; Medallion Interior Satin.

B. Plaster Substrates:

1. Latex over Latex Primer System MPI INT 9.2AA:

a. Prime Coat: Primer sealer, latex, interior, MPI #137.

1) Benjamin Moore; Fresh Start, Multi-Purpose Latex Primer.
2) Sherwin-Williams; Multi-Purpose, Latex Primer/Sealer.
3) Valspar; Bonding Primer Interior/Exterior.

b. Intermediate Coat: Latex, interior, matching topcoat.

c. Topcoat: Latex, interior (MPI Gloss Level 3), MPI #52.

1) Benjamin Moore; Fresh Start: Ultra Spec 500, Waterborne Interior Eggshell.
2) Sherwin-Williams; ProMar 400, Interior Latex Low Lustre.
3) Valspar; Medallion Interior Satin.

END OF SECTION 099123