CHIEF PLENTY COUPS STATE PARK SPECIAL CONDITIONS

1. The Contractor shall examine the site and all conditions thereon and shall take into consideration all such conditions as may affect the work under the contract.

2. The Contractor shall have a valid Montana Contractor's License.

3. The Contractor shall warrant and guarantee all work performed under this Contract for a period of one (1) year from the date of Final Acceptance, unless the work has been abused by or neglected by the staff of the Montana Fish, Wildlife and Parks.

4. Damage: Any work damaged by failure to provide adequate protection shall be removed and replaced at the Contractor's expense. Any damage to any existing structures or landscaping caused by the Contractor or their negligence shall be their obligation to repair at no cost to the Owner.

5. Toilets: The Contractor may supply their own toilet facilities and/or can use the Park sanitary facilities with coordination with the Park Manager.

6. Clean-up: The Contractor shall remove all temporary protection and all debris attributed to the execution of the Contract.

7. Demolition and construction waste must be removed from the site each day or placed in Contractor furnished waste receptacles. The Owner's waste receptacles shall not be used by the Contractor. Construction waste includes nails generated by the removal of the old siding.

8. The State Building Permit has been obtained by the Owner. Contractor shall be responsible for any other permits fees, and/or licenses required for the work in this Contract.

9. Telephone: The Contractor shall provide a telephone/cellphone number for the project superintendent.

10. The Contractor or workman shall not park private vehicles or equipment in parking spaces designated for visitor or employee use. Designated parking for the Contractor, workmen, and equipment shall be determined by the Park Manager.

11. The contractor shall not drive vehicles or equipment on the yard areas or off established roads unless approved by the Owner's project representative or Park Manager. Damage to the landscape areas shall be repaired by the Contractor at no cost to the Owner and may be substantial due to the cultural resources.

12. The Contractor shall use an approved staging and storage area for materials. Materials purchased by the contractor may be compensated on a monthly basis provided the material has been approved through the submittal process, insurance coverage is provided, and an invoice is provided.

13. The contractor shall provide all security measures necessary to assure the protection of equipment, materials storage, completed work and the project in general.

14. Chief Plenty Coups State Park is an important archeological and cultural public space. The contractor may not remove any items or material other than what is shown as demolition on the plans. If unforeseen cultural items are uncovered during construction, the Park Manager must be immediately notified.

15. The Contractor shall schedule work between the hours of 7:00 a. m. to 7:00 p.m. on working days Monday through Friday, any adjustments to this schedule must be approved by the Owner's project representative. Saturday and Sunday work may be allowed if approved by the Park Manager and Owner.

16. Undesirable language and other such devices are hereby specifically prohibited on the project site.

17. Radios and loud conversation will not be allowed on the project.

18. Use of tobacco products and other controlled substances on the project site is not permitted. Smoking anywhere other than an enclosed vehicle, is strictly prohibited at Chief Plenty Coups State Park.

19. Archeological excavation and research around the foundation of the Chief's House will occur mid-May 2023. Construction may not begin until June 19, 2023.

20. Due to two popular events that generate a large amount of visitorship, work will not be allowed to occur during the Day of Honor celebration (Friday September 1, 2023 and Monday September 4, 2023), and Native American Heritage Day (September 28 – September 31, 2023). The site shall be completely picked up and clean and any work underway shall be carefully secured to discourage public access or interference.

END OF SECTION

Cushing Terrell

PROJECT MANUAL

August 24, 2022

Chief Plenty Coups State Park
Pryor, Montana 59066

Chief Plenty Coups House & Store

100% Construction Documents

Bidding and Contract Requirements, Divisions 2 – 9

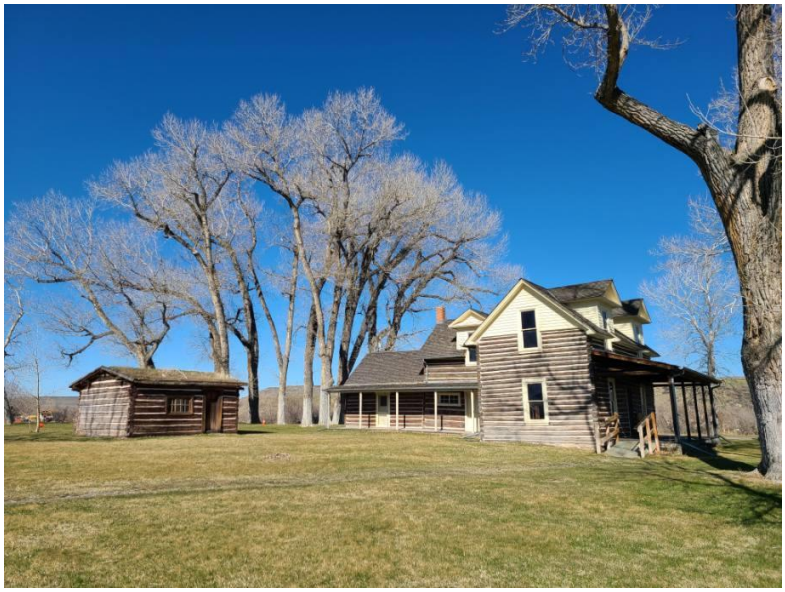

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TABLE OF CONTENTS

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.3 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Schedule of selective demolition activities, with starting and ending dates for each activity.

B. Predemolition photographs.

1.5 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.
2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

F. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.6 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Engage a professional engineer to perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

B. Inventory and record the condition of items to be removed and salvaged.

3.2 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

C. Remove temporary barricades and protections where hazards no longer exist.

3.3 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
2. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
3. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.4 CLEANING

A. Remove demolition waste materials from Project site and recycle or dispose of them according to Section 017419 "Construction Waste Management and Disposal."

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 024296 - HISTORIC REMOVAL AND DISMANTLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Historic treatment procedures for removal and dismantling work for designated historic spaces, areas, rooms, and surfaces and the following specific work:

a. Removal and dismantling of indicated portions of building or structure and debris hauling.
b. Removal and dismantling of indicated site elements and debris hauling.
c. Salvage of existing items to be reused or recycled.

1.2 DEFINITIONS

A. Dismantle: To disassemble or detach a historic item from a surface, or a nonhistoric item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

B. Existing to Remain: Existing items that are not to be removed or dismantled, except to the degree indicated for performing required Work.

C. Remove: To take down or detach a nonhistoric item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

D. Retain: To keep an element or detail secure and intact.

E. Salvage: To protect removed or dismantled items and deliver them to Owner.

1.3 FIELD CONDITIONS

A. Conditions existing at time of inspection for bidding purposes will be maintained by Owner as long as practicable.

1. Before removal and dismantling, Owner will remove the following items:

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

C. Hazardous Materials:

1. It is not expected that hazardous materials will be encountered in the Work.

    a. Coordinate removal of hazardous materials with Owner prior to the start of the Work.
    b. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.

        1) In the case of asbestos, stop work in the area of potential hazard, shut off fans and other air handlers ventilating the area, and rope off area until the questionable material is identified. Resume work in the area of concern after safe working conditions are verified.

2. It is unknown whether hazardous materials will be encountered in the Work.

    a. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.

        1) In the case of asbestos, stop work in the area of potential hazard, shut off fans and other air handlers ventilating the area, and rope off area until the questionable material is identified. Resume work in the area of concern after safe working conditions are verified.

3. Hazardous materials are present in construction affected by removal and dismantling work. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

    a. Hazardous material remediation

    b. Do not disturb hazardous materials or items suspected of containing hazardous materials,

    c. If unanticipated asbestos is suspected, stop work in the area of potential hazard, shut off fans and other air handlers ventilating the area, and rope off area until the questionable material is identified. Resume work in the area of concern after safe working conditions are verified.

D. Storage or sale of removed or dismantled items on-site is not permitted unless otherwise indicated.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Preparation for Removal and Dismantling: Examine construction to be removed or dismantled to determine best methods to safely and effectively perform removal and dismantling work.

1. Verify that affected utilities are disconnected and capped.
2. Inventory and record the condition of items to be removed and dismantled for reinstallation or salvage. Enter this information on the inventory of salvaged items.
3. Engineering Survey: Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures as a result of removal and dismantling Work.

B. Perform surveys as the Work progresses to detect hazards resulting from historic removal and dismantling procedures.

3.2 HISTORIC REMOVAL AND DISMANTLING

A. General: Have removal and dismantling work performed by a qualified historic removal and dismantling specialist.

B. Comply with requirements in Section 013591 "Historic Treatment Procedures" for identifying and storing historic items.

END OF SECTION

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, and other pozzolans materials subject to compliance with requirements.

B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture:

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates:

B. Material Test Reports:

1.5 QUALITY ASSURANCE

A. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with ASTM C94/C94M and ACI 301.

1.7 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1.

1. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixutre designs.

B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

2.2 FORM-FACING MATERIALS

1. Rough-Formed Finished Concrete: Metal or another approved material.

2.3 CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C150/C150M, Type I/II , gray.
2. Fly Ash: ASTM C618, Class C or F.

B. Normal-Weight Aggregates: ASTM C33/C33M, coarse aggregate or better, graded. Provide aggregates from a single source.

1. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Air-Entraining Admixture: ASTM C260/C260M.

D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C494, Type A.
2. Retarding Admixture: ASTM C494, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C494, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C494, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C494, Type G.
6. Plasticizing and Retarding Admixture: ASTM C1017, Type II.

E. Water and Water Used to Make Ice: ASTM C94/C94M, potable

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

B. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.

C. Water: Potable or complying with ASTM C1602/C1602M.

D. Clear, Waterborne, Membrane-Forming, Dissipating Curing Compound: ASTM C309, Type 1, Class B.

1. 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:

a. Anti-Hydro International, Inc.
b. ChemMasters, Inc.
c. Dayton Superior.
d. Euclid Chemical Company (The); an RPM company.
e. Kaufman Products, Inc.
f. Lambert Corporation.
g. Laticrete International, Inc.
h. Nox-Crete Products Group.
i. SpecChem, LLC.
j. TK Products.
k. Vexcon Chemicals Inc.
l. W.R. Meadows, Inc.

2.5 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.

1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.6 CONCRETE MIXTURES

A. Class B: Normal-weight concrete used for foundation walls.

1. Minimum Compressive Strength: 4500 psi at 28 days.
2. Slump Limit: 5 inches, plus or minus 1 inch.
3. Air Content:

a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M and ASTM C1116/C1116M, and furnish batch ticket information.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.

PART 3 - EXECUTION

3.1 INSTALLATION OF EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.

1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3.2 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.

1. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.

3.3 FINISHING FORMED SURFACES

A. Related Unformed Surfaces:

1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a color and texture matching adjacent formed surfaces.

3.4 FINISHING FLOORS AND SLABS

A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

3.5 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

A. Filling In:

1. Provide other miscellaneous concrete filling indicated or required to complete the Work.

3.6 CONCRETE CURING

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Comply with ACI 301 and ACI 306.1 for cold weather protection during curing.
2. Comply with ACI 301 and ACI 305.1 for hot-weather protection during curing.

B. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:

1. Begin curing immediately after finishing concrete.

3.7 TOLERANCES

A. Conform to ACI 117.

3.8 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.

3.9 PROTECTION

A. Protect concrete surfaces as follows:

1. Prohibit use of acids or acidic detergents over concrete surfaces.

END OF SECTION

SECTION 060312 - HISTORIC WOOD REPAIR

PART 1 - GENERAL

1.1 SUMMARY

A. Related Requirements:

1. Section 013591 "Historic Treatment Procedures" for general historic treatment requirements.
2. Section 080314 "Historic Treatment of Wood Doors" for historic wood door repairs, including related trim.
3. Section 080352 "Historic Treatment of Wood Windows" for historic wood window repairs, including related trim.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include recommendations for product application and use. Include test data substantiating that products comply with requirements.

1.3 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic wood-repair specialist, experienced in repairing, refinishing, and replacing wood in whole and in part. Experience only in fabricating and installing new woodwork is insufficient experience for wood historic treatment work.

B. Wood-Repair-Material Manufacturer Qualifications: A firm regularly engaged in producing wood consolidant and wood-patching compound that have been used for similar historic wood-treatment applications with successful results, and with factory-authorized service representatives who are available for consultation, Project-site inspection, and on-site assistance.

PART 2 - PRODUCTS

2.1 HISTORIC WOOD REPAIR, GENERAL

A. Quality Standard: Comply with applicable requirements in Section 12, "Historic Restoration Work," and related requirements in AWMAC/WI's "North American Architectural Woodwork Standards" for construction, finishes, grade rules, and other requirements unless otherwise indicated.

2.2 REPLICATED WOOD ITEMS

A. Replicated Wood Trim: Custom-fabricated replacement wood units and components, with operating and latching hardware.

1. Wood Species: Match species of existing wood.
2. Wood Member and Trim Profiles: Match profiles and detail of existing.
3. Hardware: Reuse existing unless otherwise indicated.

2.3 WOOD-REPLACEMENT MATERIALS

A. Wood, General: Clear fine-grained lumber; kiln dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch deep by 2 inches wide.

1. Species: Match species of each existing type of wood component or assembly unless otherwise indicated.

B. Exterior Trim: Match existing species.

C. Interior Trim: Match existing species.

2.4 WOOD-REPAIR MATERIALS

A. Wood-Patching Compound: Two-part, epoxy-resin, wood-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of wood repair indicated, tooling time required for the detail of work, and site conditions. Compound must be designed for filling voids in damaged wood materials that have deteriorated due to weathering and decay. Compound must be capable of filling deep holes and spreading to featheredge.

1. Manufacturers: Subject to compliance with requirements, :

2.5 HARDWARE

A. Hardware, General: Reinstall hardware required for each type of replicated or repaired wood, including, but not limited to, hinges, pulls, latches, fasteners, and accessories indicated or required for proper operation. Hardware must smoothly operate, tightly close, and secure units appropriately for frequency of use, unit weight, and dimensions.

B. Replacement Hardware: Replace existing damaged or missing hardware with new hardware manufactured by one of the following:

2.6 MISCELLANEOUS MATERIALS

A. Borate Preservative Treatment: Inorganic, borate-based solution, with disodium octaborate tetrahydrate as the primary ingredient; manufactured for preserving weathered and decayed wood from further damage caused by fungi and wood-boring insects; complying with AWPA P5; containing no boric acid.

B. Adhesives: Epoxy wood adhesives with minimum 15- to 45-minute cure at 70 deg F, in gunnable and liquid formulations as recommended in writing by adhesive manufacturer for each type of repair and exposure condition.

C. Fasteners: Use fastener metals that are noncorrosive and compatible with each material joined.

1. Use concealed fasteners for interconnecting wood components.
2. Use concealed fasteners for attaching items to other work unless exposed fasteners are the existing fastening method.

2.7 WOOD FINISHES

A. Unfinished Replacement Units: Provide exposed exterior and interior wood surfaces of replacement units unfinished; smooth, filled, and suitably prepared for on-site priming and finishing.

PART 3 - EXECUTION

3.1 PREPARATION

A. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

3.2 HISTORIC WOOD REPAIR, GENERAL

A. General: In treating historic items, disturb them as minimally as possible and as follows:

1. Stabilize and repair wood to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
2. Remove coatings and apply borate preservative treatment before repair. Remove coatings in accordance with Section 090391 "Historic Treatment of Plain Painting" unless otherwise indicated.
3. Repair items in place where possible.
4. Install temporary protective measures to protect wood-treatment work that is indicated to be completed later.

5. Refinish historic wood in accordance with Section 090391 "Historic Treatment of Plain Painting" unless otherwise indicated.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the Work, use only the gentlest mechanical methods, such as scraping and natural-fiber bristle brushing, that will not abrade wood substrate, reducing clarity of detail. Do not use abrasive methods, such as sanding, wire brushing, or power tools, except as approved by Architect.

C. Repair and Refinish Existing Hardware: Dismantle hardware; strip paint, repair, and refinish it to match finish samples; and lubricate moving parts just enough to function smoothly.

D. Repair Wood: Match existing materials and features, retaining as much original material as possible to perform repairs.

1. Unless otherwise indicated, repair wood by consolidating, patching, splicing, or otherwise reinforcing wood with new wood matching existing wood or with salvaged, sound, original wood.
2. Where indicated, repair wood by limited replacement matching existing material.

E. Replace Wood: Where indicated, duplicate and replace units with units made from salvaged, sound, original wood or with new wood matching existing wood. Use surviving prototypes to create patterns for duplicate replacements.

F. Identify removed items with numbering system corresponding to item locations, to ensure reinstallation in same location.

3.3 WOOD PATCH-TYPE REPAIR

A. General: Patch wood that exhibits depressions, holes, or similar voids, and that has limited amounts of rotted or decayed wood.

1. Remove rotted or decayed wood down to sound wood.

B. Apply borate preservative treatment to accessible surfaces either before applying wood consolidant or after removing rotted or decayed wood.

3.4 WOOD-REPLACEMENT REPAIR

A. General: Replace parts of or entire wood items at locations indicated on Drawings and where damage is too extensive to patch.

1. Remove broken, rotted, and decayed wood down to sound wood.
2. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member.

3. Secure new wood using finger joints, multiple dowels, or splines with adhesive and nailing to ensure maximum structural integrity at each splice. Use only concealed fasteners. Fill nail holes and patch surface to match surrounding sound wood.

B. Apply borate preservative treatment to accessible surfaces after replacements are made. Apply treatment liberally by brush to joints, edges, and ends; top, sides, and bottom.

C. Repair remaining depressions, holes, or similar voids with patch-type repairs.

D. Reinstall items removed for repair into original locations.

END OF SECTION

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood blocking and nailers.
2. Wood furring and grounds.

1.2 ACTION SUBMITTALS

A. Product Data:

1. For each type of process and factory-fabricated product.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: Comply with DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, [mark grade stamp on end or back of each piece] [or] [omit grade stamp and provide certificates of grade compliance issued by grading agency].
3. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content:

1. Boards: 15 percent.

2.2 MISCELLANEOUS LUMBER

A. Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.

3. Furring.
4. Grounds.

2.3 FASTENERS

A. General: Fasteners are to be of size and type indicated and comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches into wood substrate.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M or ASTM F2329.

B. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 as appropriate for the substrate.

2.4 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets:

1. Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Do not splice structural members between supports unless otherwise indicated.

C. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).

3.2 PROTECTION

A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION

SECTION 061300 - HEAVY TIMBER CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing using unsawn logs .

1.2 DEFINITIONS

A. Logs: Round, unsawn, wood members.

B. Inspection agencies, and the abbreviations used to reference them, include the following:

1. WCLIB: West Coast Lumber Inspection Bureau.
2. WWPA: Western Wood Products Association.

C. Shop Drawings: For log framing. Show layout, dimensions of each member, and details of connections.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates:

1. For logs specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by ALSC's Board of Review.

B. Certificates of Inspection: Issued by lumber-grading agency for exposed timber not marked with grade stamp.

1.4 QUALITY ASSURANCE

A. Timber Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.

B. Timber Vendor Qualifications: A vendor that is certified for chain of custody by an FSC-accredited certification body.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Schedule delivery of materials to avoid extended on-site storage and to avoid delaying the Work.

B. Store materials under cover and protected from weather and contact with damp or wet surfaces. Provide for air circulation within and around stacks and under temporary coverings.

PART 2 - PRODUCTS

2.1 LOGS

A. Round, unsawn wood members: Clean-peeled wood logs complying with TP; with at least 80 percent of inner bark removed and with knots and limbs cut flush with the surface.

B. Species: Old-growth wood. Species of buildings vary due to availability at time of construction. Match replacement logs with adjacent species.

2.2 DAUBING & CHINKING

A. To match existing. The existing shall be matched in color and type.

2.3 LOG CONNECTORS

A. Basis-of-Design Products: Subject to compliance with requirements, provide products or comparable products by one of the following:

1. Simpson Strong-Tie Company, Inc.

B. Provide bolts, 3/4 inch unless otherwise indicated, complying with ASTM A 307, Grade A; provide nuts complying with ASTM A 563; and, where indicated, provide flat washers.

2.4 MISCELLANEOUS MATERIALS

A. End Sealer: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.

B. Penetrating Sealer: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish.

2.5 FABRICATION

A. Camber: Fabricate horizontal members and inclined members with a slope of less than 1:1, with natural convex bow (crown) up, to provide camber.

B. Field fabricate members by cutting, trimming, and contouring to provide full contact bearing at log-framed connections.

C. Predrill for fasteners and assembly of units.

D. Coat crosscuts with end sealer.

E. Seal Coat: After fabricating and surfacing each unit, apply a saturation coat of penetrating sealer on surfaces of each unit as indicated .

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Erect log framing true and plumb. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.

1. Install horizontal nad sloping members with crown edge up, and provide not less than 4 inches of bearing on supports. Provide continuous members unless otherwise indicated.
2. Handle and temporarily support log framing to prevent surface damage, compression, and other effects that might interfere with indicated finish.

B. Fitting: Fit members by cutting and restoring exposed surfaces to match specified surfacing.

1. Predrill for fasteners using timber connectors as templates.
2. Finish exposed surfaces as directed by the Architect.
3. Coat crosscuts with end sealer.

C. Install log connectors as indicated.

1. Unless otherwise indicated, install bolts with same orientation within each connection and in similar connections.

2. Install bolts with orientation as indicated or, if not indicated, as directed by Architect.
3. Countersink and plug all bolt holes.

3.2 ADJUSTING

A. Repair damaged surfaces and finishes after completing erection. Replace damaged heavy timber framing if repairs are not approved by Architect.

END OF SECTION

SECTION 061516 - WOOD ROOF DECKING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes wood roof decking.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 WOOD ROOF DECKING, GENERAL

A. General: Comply with DOC PS 20 and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

2.2 ACCESSORY MATERIALS

A. Fastener Material: Hot-dip galvanized steel.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Do not use materials with defects that impair quality of material or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut material at edges and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach by fastening by complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
2. ICC-ES evaluation report for fastener.

D. Apply joint sealant to seal roof decking at exterior walls at the following locations:

1. Between roof decking and supports located at exterior walls.
2. Between roof decking and exterior walls that butt against underside of roof decking.

END OF SECTION

SECTION 062013 - EXTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior wood trim.
2. Lumber.
3. Lumber soffits.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers between each bundle to provide air circulation.

1. Protect materials from weather by covering with waterproof sheeting, securely anchored.
2. Provide for air circulation around stacks and under coverings.

1.4 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecast weather conditions permit work to be performed and at least one coat fo specified finish can be applied without exposure to rain, snow, or dampness.

B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.

1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with applicable rules of any rules-writing agency certified by the American Lumber Standard Committee's (ALSC) Board of Review. Grade lumber by an agency certified by the ALSC's Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of inspection agency, indicating grade, species, moisture content at time of surfacing, and mill.
2. For exposed lumber, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by inspection agency.

B. Hardboard: ANSI A135.4.

2.2 EXTERIOR TRIM

A. Lumber Trim for Painted Finish:

1. Maximum Moisture Content: 15 percent with at least 85 percent of shipment at 12 percent or less.
2. Finger Jointing: Not allowed.
3. Face Surface: Surfaced (smooth).

2.3 LUMBER SIDING

A. Provide kiln-dried clapboard lumber siding complying with DOC PS 20 that matches existing size and species.

2.4 LUMBER SOFFITS

A. Provide kiln-dried lumber siding complying with DOC PS 20 that matches existing size and species.

2.5 MISCELLANEOUS MATERIALS

A. Fasteners for Exterior Finish Carpentry: Provide nails or screws, in sufficient length to penetrate not less than 1-1/2 inches into wood substrate.

1. For face-fastening siding, provide ringed-shank siding nails or hot-dip galvanized-steel siding nails.
2. For applications not otherwise indicated, provide hot-dip galvanized-steel fasteners.

B. Wood Glue: Waterproof resorcinol glue recommended by manufacturer for exterior carpentry use.

C. Flashing: Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim" for flashing materials installed in exterior finish carpentry.

D. Sealants: Latex, complying with ASTM C834 Type OP, Grade NF and applicable requirements in Section 079200 "Joint Sealants," and recommended by sealant and substrate manufacturers for intended application.

2.6 FABRICATION

A. Back out or kerf backs of standing and running trim wider than 5 inches, except members with ends exposed in finished work.

B. Ease edges of lumber less than 1 inch in nominal thickness to 1/16-inch radius and edges of lumber 1 inch or more in nominal thickness to 1/8-inch radius.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance iwth requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

B. Prime lumber and moldings to be painted, including both faces and edges, unless factory primed.

1. Cut to required lengths and prime ends.
2. Comply with requirements in Section 099113 "Exterior Painting."

3.3 INSTALLATION, GENERAL

A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.

1. Do not use manufactured units with defective surfaces, sizes, or patterns.

B. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials.

1. Use concealed shims where necessary for alignment.
2. Scribe and cut exterior finish carpentry to fit adjoining work.
3. Refinish and seal cuts as recommended by manufacturer.
4. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining exterior finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.
5. Coordinate exterior finish carpentry with materials and systems in or adjacent to it.
6. Provide cutouts for mechanical and electrical items that penetrate exterior finish carpentry.

3.4 INSTALLATION OF STANDING AND RUNNING TRIM

A. Install flat-grain lumber with bark side exposed to weather.

B. Install trim with minimum number of joints as is practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches long, except where necessary.

1. Use scarf joints for end-to-end joints.
2. Stagger end joints in adjacent and related members.

C. Fit exterior joints to exclude water.

1. Cope at returns and miter at corners to produce tight-fitting joints, with full-surface contact throughout length of joint.
2. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.

D. Where face fastening is unavoidable, countersink fasteners, fill surface flush, and sand unless otherwise indicated.

3.5 INSTALLATION OF SIDING

A. Install siding to comply with manufacturer's written instructions and warranty requirements.

B. Horizontal Lumber Siding:

1. Apply starter strip along bottom edge of sheathing or sill.
2. Install first course of siding, with lower edge at least 1/8 inch below starter strip and subsequent courses lapped 1 inch over course below.

    a. Nail at each stud.
    b. Do not allow nails to penetrate more than one thickness of siding.

3. Leave 1/8-inch gap at trim and corners unless otherwise recommended by manufacturer, and apply sealant.

C. Finish: Apply finish within two weeks of installation.

3.6 ADJUSTING

A. Replace exterior finish carpentry that is damaged or does not comply with requirements.

1. Exterior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

B. Adjust jointery for uniform appearance.

3.7 PROTECTION

A. Protect installed products from damage from weather and other causes during construction.

B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.

1. Indications that amterials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION

SECTION 064214 - STILE AND RAIL WOOD PANELING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Stile and rail wood paneling for opaque finish.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

PART 2 - PRODUCTS

2.1 PANELING FABRICATORS

A. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of paneling and wood trim wood frames.

B. Fabricators: Subject to compliance with requirements, available fabricators offering products that may be incorporated into the Work:

1. .

2.2 PANELING, GENERAL

A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of stile and rail wood paneling (stile and rail wall surfacing) indicated for construction, finishes, installation, and other requirements.

2.3 STILE AND RAIL WOOD PANELING FOR OPAQUE FINISH

A. Grade: Custom.

B. Wood Species: Matching existing species as close as possible..

C. Stiles and Rails: Solid lumber , shop filled on face, with lumber-banded edges, at paneling fabricator's option.

D. Shop assemble stile and rail paneling into largest units practical for delivery and installation. Provide shop-prepared detachable joints for necessary field connections. Sand and pull joints tight in shop so field joints will comply with joint tolerances for specified grade. Unless otherwise indicated, provide continuous mortise-and-tenon joints between panel units and provide removable temporary protection for joints during handling and delivery.

1. Outside Corner of Stile and Rail Paneling: Shop prepare using lock-mitered or mitered-and-splined construction. Assemble, sand, and glue in shop if site conditions permit.

2.4 MATERIALS

A. Materials, General: Provide materials that comply with requirements of referenced quality standard for each quality grade specified unless otherwise indicated.

B. Wood Moisture Content: 8 to 13 percent.

2.5 FABRICATION

A. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site.

PART 3 - EXECUTION

3.1 INSTALLATION OF STILE AND RAIL WOOD PANELING

A. Before installation, condition paneling to humidity conditions in installation areas.

B. Grade: Install paneling to comply with quality standard grade of paneling to be installed.

C. Install paneling level, plumb, true in line, and without distortion. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches. Install with no more than 1/16 inch in 96-inch vertical cup or bow and 1/8 inch in 96-inch horizontal variation from a true plane.

D. Scribe and cut paneling to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Complete finishing work specified in this Section to extent not completed at shop or before installation of paneling. Fill nail holes with matching filler where exposed.

END OF SECTION

SECTION 070150.19 - PREPARATION FOR REROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Full tear-off of roof system at areas indicated on Drawings.
   2. Removal of flashings and counterflashings.

1.2 PREINSTALLATION MEETINGS

A. Preliminary Roofing Conference: Before starting removal Work, conduct conference at Project site.

   1. Review method and procedure related to roofing tear-off, including, but not limited to, the following:

      a. Proposed demolition methodology and protection of historic building and sacred site.
      b. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
      c. Existing roof deck conditions requiring Architect notification.

         1) Condition and acceptance of existing roof deck nad base flashing substrate for reuse.

1.3 INFORMATIONAL SUBMITTALS

A. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as having been damaged by reroofing operations.

   1. Submit before Work begins.

B. Landfill Records: Indicate receipt and acceptance of demolished roofing materials by a landfill facility.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements:

   1. Comply with governing EPA notificaiton regulations before beginning roofing removal.

2. Comply with hauling and disposal regulations of AHJ (Authorities Having Jurisdiction).

1.5 FIELD CONDITIONS

A. Existing Roofing System: Cedar shingleroofing.

B. Owner will not occupy portions of building immediately below reroofing area.

1. Conduct reroofing so Owner's operations are not disrupted.
2. Provide Owner with not less than 72 hours' written notice of activities that may affect Owner's operations.
3. Coordinate work activities daily with Owner so Owner has adequate advance notice to place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.

C. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

1. During roof demolition activities, do not traffic over newly installed/finish roof assemblies without providing specified protections.

D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

E. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.

1. Construction Drawings and Project Manual for existing roofing system are provided for Contractor's convenience and information, but they are not a warranty of existing conditions. They are intended to supplement rather than serve in lieu of Contractor's own investigations. Contractor is responsible for conclusions derived from existing documents.

F. Limit construction loads on existing roof areas scheduled to be reroofed as not to damage or permanently deflect existing roof decking or support structure..

G. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.

1. Remove only as much roofing in one day as can be made watertight in the same day.

PART 2 - PRODUCTS

2.1 Not used.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protection of In-Place Conditions:

B. Seal or isolate windows that may be exposed to airborne substances created in removal of existing materials.

C. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

3.2 ROOF TEAR-OFF

A. General:

1. Notify Owner each day of extent of roof tear-off proposed for that day.
2. Use roof removal and tear-off methods that do not impact or vibrate existing roof deck/structure, existing building, or surround site.

B. Full Roof Tear-off: Remove existing roofing and other roofing system components down to the existing roof deck.

1. Remove fasteners from deck.

3.3 DISPOSAL

A. Collect demolished materials and place in containers.

1. Promptly dispose of demolished materials.
2. Do not allow demolished materials to accumulate on-site.
3. Storage of demolished items or materials on-site is not permitted.

B. Transport and legally dispose of demolished materials off Owner's property.

3.4 DECK PREPARATION

A. Inspect deck after tear-off of roofing system.

B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect.

1. Do not proceed with installation until directed by Architect.

C. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect.

1. Do not proceed with installation until directed by Architect.

END OF SECTION

SECTION 073129 - WOOD SHINGLES AND SHAKES

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. Fire rated wood roof shingles.
2. Underlayment materials.

B. Related Requirements:

1. Section 061000 "Rough Carpentry."

1.3 DEFINITIONS

A. Roofing Terminology: See ASTM D1079 for definitions of terms related to roofing Work in this Section.

1.4 ACTION SUBMITTALS

A. Product Data: For the following:

1. Wood roof shingles.
2. Underlayment materials.

B. Shop Drawings: For metal flashing and trim.

C. Samples: For each exposed product, in sizes indicated.

1. Wood Roof Shingles: Full size.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranty: For manufacturer's materials warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For wood products to include in maintenance manuals.

B. Materials warranties.

C. Roofing Installer's warranty.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Wood Roof Shingles: 10 of each size and type, in unbroken bundles.

1.8 QUALITY ASSURANCE

A. Grading Agency Qualifications: An independent testing and inspecting agency recognized by authorities having jurisdiction as qualified to label wood products for compliance with referenced grading rules.

B. Installer shall have installed five (5) minimum shingle roofs on properties listed in the National Register of Historic Places.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Store roofing materials in a dry, well-ventilated location protected from weather, sunlight, and moisture in accordance with manufacturer's written instructions.

B. Store underlayment rolls on end, on pallets or other raised surfaces. Do not double-stack rolls.

C. Protect unused roofing materials from weather, sunlight, and moisture when left overnight or when roofing Work is not in progress.

D. Handle, store, and place roofing materials in a manner to prevent damage to roof deck or structural supporting members.

1.10 FIELD CONDITIONS

A. Environmental Limitations: Proceed with installation only when existing and forecasted weather conditions permit product installation and related Work to be performed in accordance with manufacturer's written instructions and warranty requirements.

1. Install self-adhering, polymer-modified bitumen sheet underlayment within the range of ambient and substrate temperatures recommended in writing by manufacturer.

1.11 WARRANTY

A. Materials Warranty: Manufacturer's warranty in which manufacturer agrees to repair or replace products that fail in materials within specified warranty period. Material failures include manufacturing defects that result in leaks.

1. Materials Warranty Period: Limited lifetime from date of Substantial Completion.

B. Roofing Installer's Warranty: On warranty form at end of this Section, signed by Installer, in which Installer agrees to repair or replace installed products that fail in materials or workmanship within specified warranty period.

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

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain each type of product from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Grading Rules: Provide wood products that comply with CSSB grading rules for products indicated.

1. Identification: Attach a label to each bundle of wood products that identifies manufacturer, type of product, grade, dimensions, and identification mark of grading agency acceptable to authorities having jurisdiction.

2.3 WOOD ROOF SHINGLES

A. Cedar Shingles: Smooth-sawn western red cedar shingles.

1. Grade: No. 1, Blue label, with starter courses of No. 1.
2. Fire Retardant Treatment; Class B
3. Size: 16 inches long; 0.40 inch thick at butt.

2.4 UNDERLAYMENT MATERIALS

A. Self-Adhering, Polymer-Modified Bitumen Sheet: ASTM D1970/D1970M, minimum 55-mil-thick sheet; glass-fiber-mat-reinforced, polymer-modified asphalt; with slip-resistant top surface and release backing; cold applied.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Atlas Roofing Corporation.
b. Carlisle WIP Products; a brand of Carlisle Construction Materials.
c. CertainTeed Saint-Gobain.
d. GAF.
e. Owens Corning.

2. Top Surface: Granule.

2.5 ACCESSORIES

A. Asphalt Roofing Cement: ASTM D4586/D4586M, Type II, asbestos free.

B. Elastomeric Flashing Sealant: ASTM C920, Type S, Grade NS, one-part, non-sag, elastomeric polymer sealant; of class and use classifications required to seal joints and remain watertight; recommended in writing by manufacturer for installation of flashing systems.

C. Roofing Nails: ASTM F1667, stainless steel, Type 304, box-type wire nails, sharp pointed, and of sufficient length to penetrate a minimum of 3/4 inch into sheathing or to penetrate through roof sheathing less than 3/4 inch thick.

1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

D. Underlayment Nails: Aluminum, stainless steel, or hot-dip galvanized-steel wire nails with low-profile metal or plastic caps, 1-inch-minimum diameter.

1. Provide with minimum 0.0134-inch-thick metal cap, 0.010-inch-thick power-driven metal cap, or 0.035-inch-thick plastic cap; and with minimum 0.083-inch-thick ring shank or 0.091-inch-thick smooth shank of length to penetrate at least 3/4 inch into roof sheathing or to penetrate through roof sheathing less than 3/4 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored and that provisions have been made for flashings and penetrations through wood roofing.
3. Verify that vent stacks and other penetrations through roofing are installed and securely fastened.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT MATERIALS

A. Comply with underlayment manufacturer's written installation instructions and with recommendations in CSSB's "New Roof Construction Manual" and NRCA's "The NRCA Roofing Manual: Steep-Slope Roof Systems" applicable to products and applications indicated unless more stringent requirements are specified in the Section or indicated on Drawings.

B. Self-Adhering, Polymer-Modified Bitumen Sheet: Install, wrinkle free, on roof deck.

1. Comply with low-temperature installation restrictions of underlayment manufacturer.
2. Install lapped in direction that sheds water.
3. Lap sides not less than 4 inches. Lap ends not less than 6 inches, staggered 24 inches between succeeding courses.
4. Roll laps with roller.
5. Eaves: Extend from edges of eaves 24 inches beyond interior face of exterior wall.
6. Cover underlayment within seven days.

3.3 INSTALLATION OF WOOD ROOF SHINGLES

A. Install wood roof shingles in accordance with manufacturer's written instructions and recommendations in CSSB's "New Roof Construction Manual" and NRCA's "The NRCA Roofing Manual: Steep-Slope Roofing Systems."

B. Install wood-shingle starter course along lowest roof edge.

1. Install in double layer with joints offset a minimum of 1-1/2 inches.
2. Extend 1-1/2 inches over fascia.

C. Install first course of wood roof shingles directly over starter course and in continuous straight-line courses across roof deck. Install second and succeeding courses of wood roof shingles in continuous straight-line courses across roof deck.

1. Extend 1-1/2 inches over rake edge, to align with existing rake shingles.
2. Offset joints between shingles in succeeding courses a minimum of 1-1/2 inches. Do not align vertical joints in alternate courses.
3. Space shingles a minimum of 1/4 inch and a maximum of 3/8 inch apart.
4. Fasten each shingle with two nails spaced 3/4 to 1 inch from edge of shingle and 1-1/2 to 2 inches above butt line of succeeding course. Drive fasteners flush with top surface of shingles without crushing wood.
5. Maintain weather exposure of 4 inches for 16-inch-long shingles, to match existing exposure.

3.4 ROOFING INSTALLER'S WARRANTY

A. WHEREAS <**Insert name**> of <**Insert address**>, herein called the "Roofing Installer," has performed roofing and associated work ("the work") on the following project:

1. Owner: <**Insert name of Owner**>.

2. Owner Address: <**Insert address**>.
3. Building Name/Type: <**Insert information**>.
4. Building Address: <**Insert address**>.
5. Area of the Work: <**Insert information**>.
6. Acceptance Date: <**Insert date**>.
7. Warranty Period: <**Insert time**>.
8. Expiration Date: <**Insert date**>.

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant the work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that, during Warranty Period, Roofing Installer will, at Roofing Installer's own cost and expense, make or cause to be made such repairs to or replacements of the work as are necessary to correct faulty and defective work and as are necessary to maintain the work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to the work and other parts of the building, and to building contents, caused by:

    a. Lightning;
    b. Peak gust wind speed;
    c. Fire;
    d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    e. Faulty construction of copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
    f. Vapor condensation on bottom of roofing; and
    g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When the work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to the work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of the work.
4. During Warranty Period, if Owner allows alteration of the work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of the alterations, but only to the extent the alterations affect the work covered by this Warranty. If Owner engages Roofing Installer to perform the alterations, Warranty shall not become null and void unless Roofing Installer, before starting the alterations, notified Owner in writing, showing reasonable cause for claim, that the alterations would likely damage or deteriorate the work, thereby reasonably justifying a limitation or termination of this Warranty.

5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a use or service more severe than originally specified, this Warranty shall become null and void on date of the change, but only to the extent the change affects the work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect the work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on the work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of the work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this <**Insert day**> day of <**Insert month**>, <**Insert year**>.

1. Authorized Signature: <**Insert signature**>.
2. Name: <**Insert name**>.
3. Title: <**Insert title**>.

END OF SECTION 073129

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Formed roof sheet metal fabrications.

1.2 COORDINATION

A. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leak-proof, secure, and noncorrosive installation.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with the following:

a. Owner and/or Owners Representative with authority to approve changes and/or modifications to the contract between Owner and Contractor.
b. Archtiect
c. Sheet Metal Flashing and Trim Installers Personnel including:

1) Superintendent
2) Foreman
3) Other key personnel having day-to-day responsibility for sheet metal flashing and trim installation quality and progress.

d. Other Installer whose work interfaces with or affects sheet metal flashing and trim installation

2. Review methods and procedure related to sheet metal flashing and trim.
3. Examine substrate conditions for compliance iwht requirements, including flatness and attachment to structural members.
4. Review special roof details that will affect sheet metal flashing.
5. Document proceedings, including corrective measure and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
8. Include details of roof-penetration flashing.
9. Include details of special conditions.
10. Include details of connections to adjoining work.

C. Color Chart: Pre-finished metal Manufacturers standard color chart illustrating full range of available colors for selection by Architect.

D. Color Chart: Sealant Manufacturers color chart illustrating full range of available colors for selection by Architect.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

B. Sample warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

B. Executed warranty.

1.7 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.9 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, are to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim are not to rattle, leak, or loosen, and are to remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 140 deg F, ambient; 200 deg F, material surfaces.

2.2 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Copper Sheet: ASTM B370, cold-rolled copper sheet, H00 or H01 temper.

1. Manufacturers: Subject to compliance with requirements, :
2. Nonpatinated, Exposed Finish: Mill.

2.3 UNDERLAYMENT MATERIALS

A. Felt: ASTM D226/D226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.

2.4 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.

2. Fasteners for Zinc-Coated (Galvanized) or Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329.

C. Solder:

1. For Copper: ASTM B32, Grade Sn50, 50 percent tin and 50 percent lead with maximum lead content of 0.2 percent.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

E. Elastomeric Sealant: ASTM C920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

1. Submit sealant Manufacturers color chart illustrating full range of available colors for selection by Architect.

2.5 FABRICATION, GENERAL

A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
2. Obstain field measurements for accurate fit before shop fabrication.
3. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

a. Provide pre-drilled/punched elongated holes for concealed fasteners to allow for movement and reduce dimpling and oil-canning of exposed surfaces.

B. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form moveable, non-lapping butt joints with backer plates between adjacent flashing components.

2. Use lapped expansion joints only where indicated on Drawings.

D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

E. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.

F. Seams:

1. Fabricate nonmoving seams with flat-lock seams. .
2. Do not use graphite pencils to mark metal surfaces.

2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing : Fabricate in minimum 96-inch- long, but not exceeding 12-foot-long sections. Furnish with 6-inch- wide, joint cover plates. Shop fabricate interior and exterior corners.

1. Joint Style: Butted with expansion space and 6-inch-wide, concealed backup plate.
2. Fabricate from the following materials:

a. Copper: 20 oz./sq. ft..

B. Counterflashing and End Wall Flashing: Fabricate in minimum 96-inch-long, but not exceeding 10-foot-long sections. Miter corners, seal watertight. Joint Styel: 4 inch overlap. Fabricate from the following materials:

1. Copper: 16 oz./sq. ft.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Very that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Use fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of sealant.
3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
5. Install continuous cleats with fasteners spaced not more than 12 inches o.c.
6. Space individual cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
7. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.

    a. Pre-drill or punch elongated holes for fasteners to allow for expansion/contraction and to reduce dimpling and oil canning in exposed surfaces.

8. Do not field cut sheet metal flashing and trim by torch.
9. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.
2. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
3. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Seal joints as required for watertight construction.

1. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.

1. Pretin edges of sheets with solder to width of 1-1/2 inches; however, reduce pretinning where pretinned surface would show in completed Work.
2. Do not use torches for soldering.
3. Heat surfaces to receive solder, and flow solder into joint.

a. Fill joint completely.
b. Completely remove flux and spatter from exposed surfaces.

4. Copper Soldering: Tin edges of uncoated sheets, using solder for copper.

H. Rivets: Rivet joints in where necessary for strength.

3.3 PRE-MANUFACTURED METAL SYSTEMS INSTALLATION

A. General: Install pre manufactured metal system components as specified by Manufacturer. Secure using specified fasteners.

1. Provide pre-manufactured corners and transitions.

3.4 INSTALLATION OF ROOF FLASHINGS

A. Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and cited sheet metal standard.

1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

B. Counterflashing: Coordinate installation of counterflashing with installation of base flashing.

1. Fabricate counterflashing to spring tightly to base flashing.

2. Extend counterflashing 4 inches over base flashing.
3. Lap counterflashing joints minimum of 4 inches.

4. Secure in waterproof manner.

3.5 INSTALLATION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.6 FIELD QUALITY CONTROL

A. Sheet metal Installer shall assign competent personnel to monitor the sizing, shaping, preparation, application and finishing (tooling) of sealants applied as part of sheet metal flashing and trim installations.

1. Sealant joints not sized, shaped, prepared, applied or finished per manufacturers written requirements or referenced standards shall be removed and replaced at no additional cost to the Owner.

a. Exposed sealant joints, that in the Architects opinion, present a sloppy appearance shall be removed and replaced at no additional cost to the Owner.

3.7 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

3.8 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet emtal flashing and trim in clean condition during construction.

B. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION

SECTION 080314 - HISTORIC TREATMENT OF WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Historic treatment of wood doors in the form of the following:

a. Repairing wood doors and trim.
b. Repairing, refinishing, and replacing hardware.

B. Related Requirements:

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

1.2 DEFINITIONS

A. Door: Generally, this term includes door frame, leaves, hardware, side panels or lights, fan light, transom, storm and screen doors, and storm vestibule unless otherwise indicated by context.

B. Wood Door Component Terminology: Wood door components for historic treatment work include the following classifications:

1. Frame Components: Head, jambs, stop, and threshold or sill.
2. Leaf Components: Stiles, rails, and muntins.
3. Exterior Trim: Exterior casing, brick mold, and cornice or drip cap.
4. Interior Trim: Casing.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans, elevations, sections, and details of replacement parts indicating materials, profiles, joinery, reinforcing, method of splicing into or attaching to existing wood door, accessory items, and finishes.

1.5 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic wood door specialist, experienced in repairing, refinishing, and replacing wood doors in whole and in part. Experience only in fabricating and installing new wood doors is insufficient experience for wood-door historic treatment work.

B. Wood-Repair-Material Manufacturer Qualifications: A firm regularly engaged in producing wood consolidant and wood-patching compound that have been used for similar historic wood-treatment applications with successful results, and with factory-authorized service representatives who are available for consultation and Project-site inspection and on-site assistance.

PART 2 - PRODUCTS

2.1 HISTORIC TREATMENT OF WOOD DOORS QUALITY STANDARD

A. Quality Standard: Comply with applicable requirements in Section 12, "Historic Restoration Work," and related requirements in AWMAC/WI's "North American Architectural Woodwork Standards" for construction, finishes, grades of wood doors, and other requirements unless otherwise indicated.

2.2 WOOD-REPLACEMENT MATERIALS

A. Wood, General: Clear fine-grained lumber; kiln dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch deep by 2 inches wide.

1. Species: Match species of each existing type of wood component or assembly unless otherwise indicated.

2.3 WOOD-REPAIR MATERIALS

A. Wood-Patching Compound: Two-part, epoxy-resin, wood-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of wood repair indicated, tooling time required for the detail of work, and site conditions. Compound to be designed for filling voids in damaged wood materials that have deteriorated because of weathering and decay. Compound to be capable of filling deep holes and spreading to feather edge.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work:

2.4 HARDWARE

A. Replacement Hardware: Replace existing damaged or missing hardware that matches existing in-kind.

2.5 WOOD DOOR FINISHES

A. Unfinished Replacement Units: Provide exposed exterior and interior wood surfaces of replacement units unfinished; smooth, filled, and suitably prepared for on-site priming and finishing.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean wood doors and trim of mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. After cleaning, rinse thoroughly with fresh water. Allow to dry before repairing or painting.

B. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

3.2 HISTORIC TREATMENT OF WOOD DOORS, GENERAL

A. General: In treating historic items, disturb them as minimally as possible and as follows:

1. Stabilize and repair wood doors to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
2. Remove coatings and apply borate preservative treatment before repair. Remove coatings in accordance with Section 090391 "Historic Treatment of Plain Painting" unless otherwise indicated.
3. Repair items in place where possible.
4. Install temporary protective measures to protect wood door work that is indicated to be completed later.
5. Refinish historic wood doors in accordance with Section 090391 "Historic Treatment of Plain Painting" unless otherwise indicated.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the Work, use only the gentlest mechanical methods, such as scraping and natural-fiber bristle brushing, that will not abrade wood substrate, reducing clarity of detail. Do not use abrasive methods such as sanding, wire brushing, or power tools except as approved by Architect.

C. Repair and Refinish Existing Hardware: Dismantle door hardware; strip paint, repair, and refinish it to match finish Samples; and lubricate moving parts just enough to function smoothly.

D. Repair Wood Doors: Match existing materials and features, retaining as much original material as possible to perform repairs.

1. Unless otherwise indicated, repair wood doors by consolidating, patching, splicing, or otherwise reinforcing wood with new wood matching existing wood or with salvaged, sound, original wood.
2. Where indicated, repair wood doors by limited replacement matching existing material.

E. Replace Wood Units: Where indicated, duplicate and replace units with units made from salvaged, sound, original wood or with new wood matching existing wood. Use surviving prototypes to create patterns for duplicate replacements.

F. Protection of Openings: Where doors are indicated for removal, cover resultant openings with temporary enclosures so that openings are weathertight during repair period.

G. Identify removed doors, frames, leaves, trim, and members with numbering system corresponding to door locations to ensure reinstallation in same location.

3.3 WOOD DOOR MEMBER-REPLACEMENT REPAIR

A. General: Replace parts of or entire wood door members at locations where damage is too extensive to patch.

1. Remove broken, rotted, and decayed wood down to sound wood.
2. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member.
3. Secure new wood using finger joints, multiple dowels, or splines with adhesive and nailing to ensure maximum structural integrity at each splice. Use only concealed fasteners. Fill nail holes and patch surface to match surrounding sound wood.

B. Clean spilled materials from adjacent surfaces immediately.

C. Reinstall units removed for repair into original openings.

END OF SECTION

SECTION 080352 - HISTORIC TREATMENT OF WOOD WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes historic treatment of wood windows in the form of the following:

1. Repairing wood windows and trim.
2. Replacing wood window frames and sash units.
3. Reglazing.
4. Repairing, refinishing, and replacing hardware.

B. Related Requirements:

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

1.2 DEFINITIONS

A. Window: Includes window frame, sash, hardware, trim, storm window, and exterior and interior shutters unless otherwise indicated by context.

B. Exterior Trim: Exterior casing, brick mold, and cornice or drip cap.

C. Interior Trim: Casing, stool, and apron.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans, elevations, and sections showing locations and details of each new unit and its corresponding window locations in the building on annotated plans and elevations.

1.5 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic wood window specialist, experienced in repairing, refinishing, and replacing wood windows in whole and in part. Experience only in fabricating and installing new wood windows is insufficient experience for wood-window historic treatment work.

B. Wood-Repair-Material Manufacturer Qualifications: A firm regularly engaged in producing wood consolidant and wood-patching compound that have been used for similar historic wood-treatment applications with successful results, and with factory-authorized service representatives who are available for consultation and Project-site inspection and on-site assistance.

PART 2 - PRODUCTS

2.1 HISTORIC TREATMENT OF WOOD WINDOWS, GENERAL

A. Quality Standard: Comply with applicable requirements in Section 12, "Historic Restoration Work," and related requirements in AWI/AWMAC/WI's "Architectural Woodwork Standards" for construction, finishes, grades of wood windows, and other requirements unless otherwise indicated.

2.2 REPLICATED WOOD WINDOW UNITS

A. Replicated Wood Window Frames and Sash: Custom-fabricated replacement wood units and trim, with operating and latching hardware.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work:
2. Wood Species: Match wood species of exterior window trim and sash parts.
3. Wood Window Members and Trim: Match profiles and detail of existing window members and trim.
4. Glazing Stops: Provide replacement glazing stops coordinated with glazing system indicated.
5. Exposed Hardware: Match existing exposed window hardware.

2.3 WOOD-REPLACEMENT MATERIALS

A. Wood, General: Clear fine-grained lumber; kiln dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch deep by 2 inches wide.

1. Species: Match species of each existing type of wood component or assembly unless otherwise indicated.

2.4 WOOD-REPAIR MATERIALS

A. Wood-Patching Compound: Two-part epoxy-resin wood-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of wood repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be designed for filling voids in damaged wood materials that have deteriorated due to weathering and decay. Compound shall be capable of filling deep holes and spreading to feather edge.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work:

2.5 GLAZING MATERIALS

A. Glass: See Section 088000 "Glazing.".

2.6 HARDWARE

A. Window Hardware: Provide complete sets of window hardware consisting of sash balances, hinges, pulls, latches, and accessories indicated for each window or required for proper operation. Sets shall include replacement hardware to complement repaired and refinished, existing hardware. Window hardware shall smoothly operate, tightly close, and securely lock wood windows and be sized to accommodate sash or ventilator weight and dimensions.

B. Replacement Hardware: Replace existing damaged or missing hardware with new hardware that matches existing, in-kind.

2.7 MISCELLANEOUS MATERIALS

A. Fasteners: Use fastener metals that are noncorrosive and compatible with each material joined.

1. Match existing fasteners in material and type of fastener unless otherwise indicated.

2.8 WOOD WINDOW FINISHES

A. Unfinished Replacement Units: Provide exposed exterior and interior wood surfaces of replacement units unfinished; smooth, filled, and suitably prepared for on-site priming and finishing.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean wood windows of mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. After cleaning, rinse thoroughly with fresh water. Allow to dry before repairing or painting.

B. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

3.2 HISTORIC TREATMENT OF WOOD WINDOWS, GENERAL

A. General: In treating historic items, disturb them as minimally as possible and as follows:

1. Stabilize and repair wood windows to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
2. Repair items in place where possible.
3. Install temporary protective measures to protect wood window work that is indicated to be completed later.
4. Refinish historic wood windows according to Section 090391 "Historic Treatment of Plain Painting" unless otherwise indicated.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and natural-fiber bristle brushing, that will not abrade wood substrate, reducing clarity of detail. Do not use abrasive methods such as sanding, wire brushing, or power tools except as approved by Architect.

C. Repair and Refinish Existing Hardware: Dismantle window hardware; strip paint, repair, and refinish it to match finish samples; and lubricate moving parts just enough to function smoothly.

D. Repair Wood Windows: Match existing materials and features, retaining as much original material as possible to perform repairs.

1. Unless otherwise indicated, repair wood windows by consolidating, patching, splicing, or otherwise reinforcing wood with new wood matching existing wood or with salvaged, sound, original wood.
2. Where indicated, repair wood windows by limited replacement matching existing material.
3. Sash Balance: Repair sash balances to function according to type as specified in "Hardware" Article" above. Provide missing sash balances.

E. Replace Wood Units: Where indicated, duplicate and replace units with units made from salvaged, sound, original wood or with new wood matching existing wood. Use surviving prototypes to create patterns for duplicate replacements.

F. Protection of Openings: Where sash or windows are indicated for removal, cover resultant openings with temporary enclosures so that openings are weathertight during repair period.

G. Identify removed windows, frames, sash, and members with numbering system corresponding to window locations to ensure reinstallation in same location.

3.3 WOOD WINDOW MEMBER-REPLACEMENT REPAIR

A. General: Replace parts of or entire wood window members at locations where damage is too extensive to patch.

1. Remove broken, rotted, and decayed wood down to sound wood.
2. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member.
3. Secure new wood using finger joints, multiple dowels, or splines with adhesive and nailing to ensure maximum structural integrity at each splice. Use only concealed fasteners. Fill nail holes and patch surface to match surrounding sound wood.

B. Glazing: Reglaze units before reinstallation.

1. Mill new and rout existing glazed members to accommodate new glass thickness.
2. Provide replacement glazing stops coordinated with glazing system indicated.
3. Provide glazing stops to match contour of sash frames.

C. Reinstall units removed for repair into original openings.

3.4 GLAZING

A. Comply with combined written instructions of manufacturers of glass, glazing systems, and glazing materials, unless more stringent requirements are indicated.

B. Remove cracked and damaged glass and glazing materials from openings and prepare surfaces for reglazing.

C. Remove existing glass and glazing where indicated on Drawings, and prepare surfaces for reglazing.

D. Size glass as required by Project conditions to provide necessary bite on glass, minimum edge and face clearances, with reasonable tolerances.

E. Apply primers to joint surfaces where required for adhesion of glazing system, as determined by preconstruction testing.

F. Install setting bead, side beads, and back bead against stop in glazing rabbets before setting glass.

G. Install glass with proper orientation so that coatings, if any, face exterior or interior as required.

H. Disposal of Removed Glass: Remove from Owner's property and legally dispose of it unless otherwise indicated.

END OF SECTION

SECTION 090190.52 - MAINTENANCE REPAINTING

PART 1 - GENERAL

1.1 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

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

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

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

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

PART 2 - PRODUCTS

2.1 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are 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, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: As selected by Architect from full range of industry colors.

2.2 PAINT MATERIALS, GENERAL

A. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Primers, Sealers, and Undercoaters: 200 g/L.
4. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
5. Pretreatment Wash Primers: 420 g/L.
6. Floor Coatings: 100 g/L.
7. Clear Wood Finishes, Varnishes: VOC not more than 350 g/L.
8. Shellacs, Clear: 730 g/L.
9. Shellacs, Pigmented: 550 g/L.
10. Stains: 250 g/L.

B. Transition Coat: Paint manufacturer's recommended coating for use where a residual existing coating is incompatible with the paint system.

2.3 PAINT MATERIAL MANUFACTURERS

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

B. Basis-of-Design Product: Subject to compliance with requirements, provide products indicated in "Paint Materials" Article or comparable product by one of the following:

PART 3 - EXECUTION

3.1 MAINTENANCE REPAINTING, GENERAL

A. Execution of the Work: In repainting surfaces, disturb them as minimally as possible and as follows:

1. Remove failed coatings and corrosion and repaint.
2. Verify that substrate surface conditions are suitable for repainting.
3. Allow other trades to repair items in place before repainting.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use gentle methods, such as scraping and lightly hand sanding, that will not abrade softer substrates, reducing clarity of detail.

C. Heat Processes: Do not use torches, heat guns, or heat plates.

3.2 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of painting work. Comply with paint manufacturer's written instructions for inspection.

B. Maximum Moisture Content of Substrates: Do not begin application of coatings unless moisture content of exposed surface is below the maximum value recommended in writing by paint manufacturer and not greater than the following maximum values when measured with an electronic moisture meter appropriate to the substrate material:

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

C. Alkalinity: Do not begin application of coatings unless surface alkalinity is within range recommended in writing by paint manufacturer. Conduct alkali testing with litmus paper on exposed plaster, cementitious, and masonry surfaces.

3.3 PAINT REMOVAL

A. General: Remove paint where indicated. Where cleaning methods have been attempted and further removal of the paint is required because of incompatible or unsatisfactory surfaces for repainting, remove paint to extent required by conditions.

1. Brushes: Use brushes that are resistant to chemicals 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 spray methods do not damage surfaces.

a. Equip units with pressure gages.
b. Unless otherwise indicated, hold spray nozzle at least 6 inches from surface and apply material in horizontal, back-and-forth sweeping motion, overlapping previous strokes to produce uniform coverage.

c. For chemical spray application, use low-pressure tank or chemical pump suitable for chemical indicated, equipped with nozzle having a cone-shaped spray.
d. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.
e. For heated water-spray application, use equipment capable of maintaining temperature between 140 and 160 deg F at flow rates indicated.

B. Paint Removal with Hand Tools: Remove paint manually using hand-held scrapers, wire brushes, sandpaper, and metallic wool as appropriate for the substrate material.

3.4 PAINT APPLICATION, GENERAL

A. Prepare surfaces to be painted according to the Surface-Preparation Schedule and with manufacturer's written instructions for each substrate condition.

B. Apply a transition coat over incompatible existing coatings.

C. Blending Painted Surfaces: When painting new substrates patched into existing surfaces or touching up missing or damaged finishes, apply coating system specified for the specific substrate. Apply final finish coat over entire surface from edge to edge and corner to corner.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION

SECTION 090391 - HISTORIC TREATMENT OF PLAIN PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes historic treatment of plain painting as follows:

1. Removing existing paint.
2. Repairing substrates.
3. Plain painting of historic surfaces.

B. Related Requirements:

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

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Modern Paint Materials: Paint materials not designed to match historic paint formulations but that may be required to match historic paint colors.

C. Plain Painting: For historic treatment, this means painting that requires attention to historic treatment requirements, but no special, decorative or artistic painting skill.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site Insert location.

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

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.5 INFORMATIONAL SUBMITTALS

A. Color Matching Certificate: For computer color matching of historic colors.

1.6 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic painting specialist with expertise in matching and touching up existing painting. Experience only in new painting work is insufficient experience for historic treatment work.

B. Color Matching: Custom computer-match paint colors to colors indicated in historic painting schedule(s) at the end of Part 3. For colors indicated by a standardized coding system, obtain a color chip for each color indicated from the color-coding-system company; computer match paint colors to the color chips.

PART 2 - PRODUCTS

2.1 PAINT REMOVERS

A. Low-Odor, Solvent-Type Paste Paint Remover: Manufacturer's standard low-odor, water-rinsable, solvent-type paste, gel, or foamed emulsion formulation for removing paint from wood as required to suit Project; and containing no methanol or methylene chloride.

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

a. Cathedral Stone Products, Inc.; S-305.
b. PROSOCO, Inc.; Enviro Klean SafStrip or Enviro Klean SafStrip 8.

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are 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, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: As selected by Architect from full range of industry colors.

2.3 MODERN PAINT MATERIAL MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Benjamin Moore & Co.
2. Glidden Professional.

3. Sherwin-Williams Company (The).

PART 3 - EXECUTION

3.1 HISTORIC TREATMENT OF PAINTING, GENERAL

A. Execution of the Work: In treating historic items, disturb them as minimally as possible and as follows:

1. Remove failed coatings and corrosion and repaint.
2. Verify that substrate surface conditions are suitable for painting.
3. Allow other trades to repair items in place and retain as much original material as possible before repainting.
4. Install temporary protective measures to protect historic painted surfaces that shall be treated later.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and lightly hand sanding, that will not abrade softer substrates, reducing clarity of detail. Do not use abrasive methods such as rotary sanding, rotary wire brushing, or power tools except as indicated as part of the historic treatment program and as approved by Architect.

C. Heat Processes: Do not use torches, heat guns, or heat plates.

3.2 EXAMINATION

A. Examine substrates and conditions, with historic treatment specialist present, for compliance with requirements for maximum moisture content and other conditions affecting performance of painting work. Comply with paint manufacturer's written instructions for inspection.

B. Maximum Moisture Content of Substrates: Do not begin application of coatings unless moisture content of exposed surface is below the maximum value recommended in writing by paint manufacturer and not greater than the following maximum values when measured with an electronic moisture meter appropriate to the substrate material:

1. Nominal Wood, 2 inch or less : 19 percent.
2. Nominal Wood, more than 2 inch : 15 percent.

3.3 PREPARATORY CLEANING

A. General: Use only the gentlest, appropriate method necessary to clean surfaces in preparation for painting. Clean all surfaces, corners, contours, and interstices.

3.4 PAINT REMOVAL

A. Paint Removal with Hand Tools: Remove paint manually using hand-held scrapers, wire brushes, sandpaper, and metallic wool as appropriate for the substrate material. Do not use other methods except as indicated as part of the historic treatment program and as approved by Architect.

3.5 SUBSTRATE REPAIR

A. General: Repair substrate surface defects that are inconsistent with the surface appearance of adjacent materials and finishes.

B. Wood Substrate:

1. Repair wood defects including dents and gouges more than 1/4 inch in size and all holes and cracks by filling with wood-patching compound and sanding smooth. Reset or remove protruding fasteners.
2. Where existing paint is allowed to remain, sand irregular buildup of paint, runs, and sags to achieve a uniformly smooth surface.

3.6 PAINT APPLICATION, GENERAL

A. Prepare surfaces to be painted according to the Surface-Preparation Schedule and with manufacturer's written instructions for each substrate condition.

B. Blending Plain Painted Surfaces: When painting new substrates patched into existing surfaces or touching up missing or damaged finishes, apply coating system specified for the specific substrate. Apply final finish coat over entire surface from edge to edge and corner to corner.

3.7 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.8 SURFACE-PREPARATION SCHEDULE

A. General: Before painting, prepare surfaces for painting according to applicable requirements specified in this schedule.

1. Examine surfaces to evaluate each surface condition according to paragraphs below.
2. Where existing degree of soiling prevents examination, preclean surface and allow it to dry before making an evaluation.
3. Repair substrate defects according to "Substrate Repair" Article.

B. Surface Preparation for MPI DSD 0 Degree of Surface Degradation:

1. Surface Condition: Existing paint film in good condition and tightly adhered.
2. Paint Removal: Not required.
3. Preparation for Painting: Wash surface by detergent cleaning; use solvent cleaning where needed. Roughen or degloss cleaned surfaces to ensure paint adhesion according to paint manufacturer's written instructions.

C. Surface Preparation for MPI DSD 1 Degree of Surface Degradation:

1. Surface Condition: Paint film cracked or broken but adhered.
2. Paint Removal: Scrape by hand-tool cleaning methods to remove loose paint until only tightly adhered paint remains.
3. Preparation for Painting: Wash surface by detergent cleaning; use other cleaning methods for small areas of bare substrate if required. Roughen, degloss, and sand the cleaned surfaces to ensure paint adhesion and a smooth finish according to paint manufacturer's written instructions.

D. Surface Preparation for MPI DSD 2 Degree of Surface Degradation:

1. Surface Condition: Paint film loose, flaking, or peeling.
2. Paint Removal: Remove loose, flaking, or peeling paint film by hand-tool or chemical paint-removal methods.
3. Preparation for Painting: Wash surface by detergent cleaning; use solvent cleaning where needed. Use other cleaning methods for small areas of bare substrate if required. Sand surfaces to smooth remaining paint film edges. Prepare bare cleaned surface to be painted according to paint manufacturer's written instructions for substrate construction materials.

E. Surface Preparation for MPI DSD 4 Degree of Surface Degradation:

1. Surface Condition: Missing material, small holes and openings, and deteriorated or corroded substrate.
2. Substrate Preparation: Repair, replace, and treat substrate according to "Substrate Repair" Article and requirements in other Specification Sections.

3. Preparation for Painting: Sand substrate surfaces to smooth remaining paint film edges and prepare according to paint manufacturer's written instructions for substrate construction materials. Remove rust.
4. Painting: Paint as required for MPI DSD 2 degree of surface degradation.

3.9 EXTERIOR HISTORIC PAINTING SCHEDULE

A. Wood Siding:

1. Latex System: MPI REX 6.2A system.

   a. Prime Coat: For MPI DSD 1 degree of surface degradation, touch up with topcoat.
   b. Prime Coat: For MPI DSD 2 degree of surface degradation, spot prime with Primer, Latex for Exterior Wood[**, MPI #6**].
   c. Color: Match colors indicated on Drawings.

B. Wood Windows:

1. Latex System: MPI REX 6.3A system.

   a. Prime Coat: For MPI DSD 1 degree of surface degradation, touch up with topcoat.
   b. Prime Coat: For MPI DSD 2 degree of surface degradation, spot prime with Primer, for Exterior Wood[**, MPI #6**].
   c. Intermediate Coat: Latex, exterior, matching topcoat.
   d. Color: Match colors indicated on Drawings.

3.10 INTERIOR HISTORIC PAINTING SCHEDULE

A. Wood Doors Windows Frames,Base Trim, Ceilings, & Other items as directed by the Architect. :

1. Latex System over Latex Primer: MPI RIN 6.3U system.

   a. Prime Coat: For MPI DSD 1 degree of surface degradation, touch up with topcoat.
   b. Prime Coat: For MPI DSD 2 degree of surface degradation, spot prime with Primer, Latex, for Interior Wood[**, MPI #39**].
   c. Intermediate Coat: Latex, interior, matching topcoat.
   d. Color: Match colors indicated on Drawings.

2. Low-Odor Latex System over Latex Primer: MPI RIN 6.3V system.

   a. Prime Coat: For MPI DSD 1 degree of surface degradation, touch up with topcoat.
   b. Prime Coat: For MPI DSD 2 degree of surface degradation, spot prime with Primer, Latex, for Interior Wood[**, MPI #39**].

c. Intermediate Coat: Latex, interior, matching topcoat.
d. Color: Match colors indicated on Drawings.

END OF SECTION

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Primers.
2. Finish coatings.

B. Related Requirements:

1. Section 090391 "Historic Treatment of Plain Painting" for general historic treatment requirements.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Related Requirements:

a. Section 090391 "Historic Treatment of Plain Painting" for general historic treatment requirements.

2.2 PAINT PRODUCTS, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are 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, provide products recommended in writing by topcoat manufacturer for use in paint system and on substrate indicated.

B. Colors: As selected by Architect from manufacturer's full range.

2.3 PRIMERS

A. Exterior, Latex Wood Primer: White, waterborne-emulsion primer formulated for resistance to extractive bleeding, mold, and microbials; for hiding stains; and for use on exterior wood subject to extractive bleeding.

1. Related Requirements:

a. Section 090391 "Historic Treatment of Plain Painting" for general historic treatment requirements.

2.4 FINISH COATINGS

A. Exterior Latex Paint, Flat: Water-based, pigmented coating; formulated for alkali, mold, microbial, and water resistance and for use on exterior surfaces, such as primed wood.

1. Related Requirements:

a. Section 090391 "Historic Treatment of Plain Painting" for general historic treatment requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

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

B. 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 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.

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

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified in this Section.

3.3 INSTALLATION

A. Apply paints in accordance with manufacturer's written instructions.

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 CLEANING AND PROTECTION

A. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

B. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION

SECTION 099123 - INTERIOR PAINTING

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. Primers.
2. Water-based finish coatings.

B. |Related Requirements:

1. Section 090391 "Historic Treatment of Plain Painting" for general historic treatment requirements.

2. Section 099300 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on interior wood substrates.

1.3 ACTION SUBMITTALS

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

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.5 QUALITY ASSURANCE

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identifies with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures of less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Related Requirements:

a. Section 090391 "Historic Treatment of Plain Painting" for general historic treatment requirements.

2.2 PAINT PRODUCTS, GENERAL

A. 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.

2.3 PRIMERS

A. Interior Latex Primer for Wood: Waterborne-emulsion primer formulated for resistance to extractive bleeding, mold, and microbials; for hiding stains; and for use on interior wood subject to extractive bleeding.

1. Manufacturers: Subject to compliance with requirements, [provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:

a. Related requirements:

1) Section 090391 "Historic Treatment of Plain Painting" for general historic treatment requirements.

2.4 WATER-BASED FINISH COATS

A. Interior, Latex, Institutional Low Odor/VOC, Flat: White or colored latex paint with low-odor characteristics and a VOC of less than 10 grams per liter, for use in areas, such as hospitals and other occupied buildings, where the odor and VOC levels of conventional latex products would preclude their use.

1. Manufacturers: Subject to compliance with requirements,

a. Related requirements:

1) Section 090391 "Historic Treatment of Plain Painting" for general historic treatment requirements.

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. Fiber-Cement Board: 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 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.

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

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 INSTALLATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.

2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. 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.

E. Paint the following surfaces where previous paint exists as necessary:

1. Door.
2. Door trim.
3. Base trim.
4. Ceilings.
5. Other items as directed by the Architect.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
3. Allow empty paint cans to dry before disposal.
4. Collect waste paint by type and deliver to recycling or collection facility.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION

SECTION 099300 - STAINING AND TRANSPARENT FINISHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and application of wood stains and transparent finishes:

1. Primers
2. Wood stains.
3. Transparent finishes.

B. Related Requirements:

1. Section 090391 "Historic Treatment of Plain Painting" for general historic treatment requirements.

1.2 DEFINITIONS

A. FLP: Forest Products Laboratory

B. USDA: United States Department of Agriculture

C. Dovetails and Broad Axes-Hands On Guide to Cabin Preservation: the USDA guide document for historic cabin preservation, publication no. 0E02A43.

D. MPI: Master Painter's Institute

1.3 ACTION SUBMITTALS

A. Product Data: Three product ingredients are needed for a FPL Water-Repellent Log Oil Mix. For each product, include product data from manufacturer.

1.4 QUALITY ASSURANCE

A. Formula application must generally maintain consistent visual appearance. Project Representative will inspect periodically for conformity.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials per manufacturer's requiremnets in well-ventilated areas with ambient temberatures continiously maintained at not less than 45 degrees and not more than manufacturer's specifications. Flammable products must be stored away from sacred sites, in a location acceptable to FWP Management.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste on-site unless stored in metal/fireproof container away from other flammable materials.

1.6 FIELD CONDITIONS

A. Apply finishes only when temperature of surfaces to be finished and ambient air temperatures are above 50 deg F.

B. Do not apply finishes to damp or wet surfaces.

C. Do not apply exterior finishes in snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Boiled Linseed Oil: Sunnyside Corperation 872G5, or equal
2. Paraffin Wax: GulfWaxTM or equal.
3. Solvent/Mineral Spirits: Sunnyside Low Odor Mineral Spirits 803G1, or equal.

2.2 MATERIALS, GENERAL

A. SDS information sheets must be kept on-site for FLP ingredients.

B. Following are applicable excerpts from the USDA publication describing the FLP application and ingredients. When “logs " are referenced, the same application is true for wood siding. The full report can be found at https://www.fs.fed.us/t-d//pubs/pdfpubs/pdf15232802/1523-2802_Dovetails+Broadaxes_Sec508_08-09-17_WEB_150dpi.pdf

C.

Modern wood preservatives and water-repellent coatings aren't appropriate for treating wood in a historic log cabin. People sometimes treated the logs or wood roofing of historic cabins with a combination of paraffin wax, plant-based oil, and solvent to help protect the wood. The oil protects the wood and the paraffin wax repels water. The FPL developed an effective formula of this historic log treatment Using Paint, Stain, and Oil during the 1970s that you may use to recoat cabin logs. Although this formula is the most effective treatment for logs that aren't painted or stained, it has a strong smell and is sticky and extremely flammable. The table below shows the formula:

Ingredients	For 1 gallon	For 5 gallons
Boiled linseed oil	1/2 gallon	2 1/2 gallons
Paraffin wax	1 ounce	4-5 ounce
Solvent (mineral spirits or turpentine)	Add to make 1 gallon	Add to make 5 gallons

To make the mix, start by grating the paraffin with a cheese grater. Ensure that the solvent is at room temperature. Slowly stir the grated paraffin into the solvent, mixing vigorouosly to dissolve the wax. Add the linseed oil, again stirring until the consistency is uniform. Then, add the solvent and stir to mix thoroughly.

If possible, mix only as much as the FPL log oil as you can use in a day to avoid having to store this very flammable mixture. If you must store the FPL log oil at low or freezing temperatures, the ingredients may separate. You can reheat the formula to room temperature and stir it to a uniform mixture once again.

When you apply FPL log oil, wear appropriate PPE that prevents skin and eye contact; the solvents are toxic.

Start by applying a light coat of FPL log oil with a pump sprayer or brush. Apply the FPL log oil the full length of each log in a continuous application. If you stop in the middle of a log and come back later, you will create a visible line where the two applications meet, as occurs with most paints and stains. Unlike with paints and stains, the FPL log oil line fades as the log returns toits normal color. If the FPL log oil doesn't absorb evenly right away, use a brush to spread the coating evenly over the surface to prevent a splotchy appearance.

If you use a pump sprayer to apply FPL log oil, use a disposable one, the sprayer will gum ip within a day and you will have to discard them whenever they get too sticky.

Properly discard all brushes, containers, pumps, and rags that you use to apply or clean up FPL log oil mix. Rags soaked with FPL log oil mix can spontaneously combust because the oil releases heat as it oxidizes. Either lay the rags flat in a single layer until they cure (become dry and hard) and then throw them in the trash, or store them in an airtight metal container until you can remove them from the sire and dispose of them or have them commercially cleaned.

2.3 SOURCE QUALITY CONTROL

A. Testing of Materials: Owner reserves the right to invoke the following procedure:

1. Owner may direct Contractor to stop applying wood finishes if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying materials from Project site, pay for testing, and refinish surfaces finished with rejected materials. Contractor will be required to remove rejected materials from previously finished surfaces before refinishing with complying materials if the two finishes are incompatable or produce results that, in the opinion of the Project Representative, are aesthetically unacceptable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Maximum Moisture Content of Exterior Wood Substrates: 15 percent, when measured with an electronic moisture meter.

B. Verify suitablility of substrates, including surface conditions and compatability with existing finishes and primers.

C. Proceed with finish application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

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

B. Remove hardware, covers, plates, and similar items already in place that are removable. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.

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

C. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each substrate condition and as specified.

1. Remove dust, dirt, oil, and grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.
2. Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer.

3.3 APPLICATION

A. Apply finishes according to manufacturer's written instructions and recommendations in USDA publication 0E02A43 FPL wood treatment.

1. Use applicators and techniques suited for finish and substate indicated.
2. After the replacement logs are installed, apply to every log on the structures.

B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

3.4 ACCESSORIES

A. Coating Application Accessories: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required, per manufacturer's specifications.

3.5 CLEANING AND PROTECTION

A. At the end of the workday, remove rubbish, empty cans, rags, and other discarded materials from Project Site.

B. After completing finish application, clean splattered surfaces. Remove splattered materials by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces. Do NOT dispose of ingredients onto the ground or in waterways.

C. Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

END OF SECTION