bassetti architects

SEATTLE PUBLIC SCHOOLS

PROJECT MANUAL FOR:

VAN ASSELT SCHOOL ADDITION

SEATTLE PUBLIC SCHOOLS

95% CONSTRUCTION DOCUMENTS

BA PROJECT NO. 2001

VOLUME 1 – DIVISIONS 00-14

26 MAY 2021

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SECTION 024119 - SELECTIVE AND STRUCTURE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of the building or structure.
2. Demolition and removal of selected site elements.
3. Removing below-grade construction.
4. Disconnecting, capping or sealing, and abandoning in-place site utilities.
5. Salvage of existing items to be reused or recycled.

1.02 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Consolidate: To strengthen loose or deteriorated materials in place.

C. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.

D. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and store.

E. Remove for Reinstallation: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

F. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

G. Dismantle: To remove by disassembling or detaching an item from a surface by hand, using gentle methods and hand-held equipment to prevent damage to the item and adjacent surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.03 MATERIALS OWNERSHIP

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

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

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

B. Preinstallation Meeting and Field Walk: Prior to start of Work conduct conference and field walk of area to be demolished with all team members including involved trades.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of Work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review and finalize protection requirements.
6. Review procedures for noise control and dust control.
7. Review items to be salvaged and returned to Owner.
8. Review and finalize protection requirements.
9. Review procedures for protection of adjacent buildings.
10. Review Drawings and scope/extent of demolition.

1.05 ACTION SUBMITTALS

A. Storage Facility Qualification Documentation: Submit documentation of licensed storage and/or work location. Submit Value Report verifying pre-established replacement costs of damaged or stolen goods.

1.06 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including Drawings, that indicates measures proposed for protecting individuals and property, for environmental protection, for dust control and , for noise control. Indicate proposed locations and construction of barriers.

B. Adjacent Buildings: Detail special measures proposed to protect adjacent buildings and materials to remain.

C. Schedule of Selective Demolition Activities: Indicate following:

1. Detailed sequence of selective demolition and removal Work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Temporary interruption of utility services and extend of limited utility use.
3. Shutoff and capping or re-routing of utility services.
4. Coordination for shutoff, capping, and continuation of utility services.
5. Use of elevator and stairs.
6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

D. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Submit before Work begins.

E. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.07 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.08 QUALITY ASSURANCE

A. Storage Facility: Facility to be licensed with financial coverage to recreate and/or restore damaged or lost property.

1. Establish valued replacement and/or restoration cost prior to storage to verify coverage sufficient.

1.09 FIELD CONDITIONS

A. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.

1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.

a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

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 or structure demolition.

D. Hazardous Materials: Present in buildings and structures to be demolished. 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.

1. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

E. Storage or sale of removed items or materials on-site is not permitted.

F. 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.

1.10 COORDINATION

A. Arrange demolition schedule so as not to interfere with Owner's on-site operations oroperations of adjacent occupied buildings.

PART 2 - PRODUCTS

2.01 PERFORMANCE CRITERIA

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 ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

C. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Cut off pipe or conduit a minimum of 24 inches below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
d. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductWork material.
e. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductWork material and leave in place.

5. Do not start demolition Work until utility disconnecting and sealing have been completed and verified in writing.

3.03 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.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish Work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 - Temporary Facilities and Controls.
6. Protect building fenestrations against weather, precipitation, insects, animals and damage until opening closed.

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.

1. Strengthen or add new supports when required during progress of selective demolition.

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

D. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.

E. Existing Utilities to Remain: Maintain utility services to remain and protect from damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.

a. Provide at least 72 hours' notice to occupants of affected buildings if shutdown of service is required during changeover.

3.04 SELECTIVE DEMOLITION, GENERAL

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

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until Work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch at Project site during and until 60 minutes after conclusion of day's Work.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
10. 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. Transport items to Owner's storage area designated by Owner.
4. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items: Items scheduled to be removed and repaired and reinstalled need approval of Landmark Coordinator.

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.

E. Do not salvage windows or hazardous materials; dispose of materials containing hazardous materials or/and coatings.

3.05 STRUCTURE DEMOLITION, GENERAL

A. General: Demolish indicated buildings and site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Do not use cutting torches until Work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
2. Maintain fire watch during and for at least 60 minutes after flame-cutting operations.
3. Maintain adequate ventilation when using cutting torches.
4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Explosives: Use of explosives is not permitted.

3.06 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

1. Salvaged Brick: Locations indicated on Drawings, salvage and clean brick for re-installation.

a. Salvage and Store: Remove to pile, move to storage yard, hold until end of Project. Do not clean unless otherwise directed by Architect. At Final Completion, do not return brick to Owner, do not dispose of unused brick.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

D. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See Section 073113 - Asphalt Roofing for new roofing requirements.

1. Remove existing roof membrane, flashings, copings, and roof accessories.
2. Remove existing roofing system down to substrate.

3.07 STRUCTURE DEMOLITION BY MECHANICAL MEANS

A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.

C. Salvage: Items to be removed and salvaged are indicated on Drawings.

D. Below-Grade Construction: Demolish foundation walls and other below-grade construction.

1. Remove below-grade construction, including basements, foundation walls, and footings, to depths indicated on Drawings.

E. Existing Utilities: Demolish existing utilities and below-grade utility structures that are within 5 feet outside footprint indicated for new construction. Abandon utilities outside this area.

1. Fill abandoned utility structures with satisfactory soil materials according to backfill requirements.

F. Hydraulic Elevator Systems: Demolish and remove elevator system, including cylinder, plunger, well assembly, steel well casing and liner, oil supply lines, and tanks.

3.08 SITE RESTORATION

A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials according to backfill requirements in Section 312000 "Earth Moving."

B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.09 REPAIRS

A. Promptly repair damage to adjacent buildings caused by demolition operations.

3.10 DISPOSAL OF DEMOLISHED MATERIALS

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.

B. Do not burn demolished materials.

3.11 CLEANING

A. 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 060312 - WOOD REPAIR

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes treatment of wood in the form of repairing wood features as follows:

1. Repairing wood railings, treads, existing interior and exterior trim in Building 2.

1.02 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

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

a. Specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
b. Materials, material application, sequencing, tolerances, and required clearances.
c. Fire-protection plan.
d. Wood treatment program.
e. Coordination with building occupants.

1.03 SEQUENCING AND SCHEDULING

A. Perform wood repair in the following sequence, which includes work specified in this and other Sections:

1. Before removing wood components for on-site or off-site repair, tag each component with location-identification numbers. Indicate on tags and building plans the locations of each component, such as "Baseboard on North Side of Room 101."
2. Dismantle hardware and tag with location-identification numbers.
3. In the shop, label each repaired component and whole or partial replacement with permanent location-identification number in inconspicuous location and remove site-applied tags.
4. Sort units by condition, separating those that need extensive repair.
5. Clean surfaces.
6. General Wood-Repair Sequence:

a. Repair wood by consolidation, replacement, partial replacement, and patching.
b. Sand, prime, fill, sand again, and prime surfaces again for refinishing.

7. Repair, refinish, and replace hardware if required. Reinstall operating hardware.
8. Reinstall components.
9. Apply finish coats.
10. Install remaining hardware.

1.04 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.

B. Shop Drawings:

1. Include plans, elevations, and sections showing locations and extent of repair and replacement work, with enlarged details of replacement parts indicating materials, profiles, joinery, reinforcing, method of splicing or attaching wood members to other surfaces, accessory items, and finishes.
2. Include field-verified dimensions and the following:

a. Full-size shapes and profiles with complete dimensions for replacement components and their jointing, showing relationship of existing components to new components.
b. Templates and directions for installing hardware and anchorages.
c. Identification of each new unit and its corresponding location in the building on annotated plans and elevations.

C. Samples for Initial Selection: For each type of exposed wood and finish.

1. Identify wood species, cut, and other features.
2. Include Samples of hardware and accessories involving color selection.

D. Samples for Verification: For the following products in manufacturer's standard sizes unless otherwise indicated, finished as required for use in the Work:

1. Replacement Wood: 12 inch long, full-size molding sections with applied finish.

a. Additional Samples of replacement members that show fabrication techniques, materials, and finishes as requested by Architect.

2. Repaired Wood: Prepare Samples using existing wood removed from site, repaired, and prepared for refinishing.
3. Refinished Wood: Prepare Samples using existing wood removed from site, repaired, and refinished.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For workers and wood-repair-material manufacturer.

B. Preconstruction Test Reports: For wood repair.

1.06 QUALITY ASSURANCE

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

B. Wood Treatment Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for treatment work, including protection of surrounding materials and Project site.

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

C. Mockups: Prepare Partial Mockups, as specified in Section 014339 - Mockups, of treatment repair processes to demonstrate aesthetic effects and to set quality standards for materials and execution, and for fabrication and installation. Prepare mockups so they are as inconspicuous as practicable.

1. Locate mockups on existing surfaces where directed by Architect.
2. Wood Trim Repair: Prepare an approximately 72 inch length of baseboard to serve as mockup to demonstrate samples of each type of wood repair.

1.07 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified treatment specialist to perform preconstruction testing on wood materials as follows:

1. Provide test specimens representative of proposed materials and existing construction.
2. Test treatment products and methods for effectiveness and compliance with specified requirements.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Pack, deliver, and store products in suitable packs, heavy-duty cartons, or wooden crates; surround with sufficient packing material to ensure that products will not be deformed, broken, or otherwise damaged.

B. Until installed, store products inside a well-ventilated area and protect from weather, moisture, soiling, abrasion, extreme temperatures, and humidity, and where environmental conditions comply with manufacturer's requirements.

1.09 FIELD CONDITIONS

A. Weather Limitations: Proceed with wood repair only when existing and forecasted weather conditions are within the environmental limits set by each manufacturer's written instructions and specified requirements.

PART 2 - PRODUCTS

2.01 WOOD REPAIR, 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, grade rules, and other requirements unless otherwise indicated.

1. Exception: Industry practices cited in Section 12, Article 1.5, "Industry Practices," of the Architectural Woodwork Standards do not apply to the work of this Section.

2.02 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 incheswide.

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

B. Paneling: Match existing species .

C. Interior Trim: Match existing species.

D. Stair Treads and Railing: Match existing species.

2.03 WOOD-REPAIR MATERIALS

A. Wood-Patching Compound with Consolidant: 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 featheredge.

1. Products: Provide one of the following:

a. Abatron, Inc.: LiquidWood with WoodEpox.
b. Advanced Repair Technology, Inc.: Primatrate with Flex-Tec HV.
c. ConServ Epoxy LLC: Flexible Epoxy Consolidant 100 with Flexible Epoxy Patch 200.
d. Accepted substitution.

2.04 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.

1. Manufacturers: Provide products by one of the following:

a. Abatron, Inc.
b. Nisus Corporation.
c. System Three Resins, Inc.
d. Accepted substitution.

B. Cleaning Materials:

1. Detergent Solution: Solution prepared by mixing 2 cupsof tetrasodium pyrophosphate, 1/2 cupof laundry detergent that contains no ammonia, 5 quarts of 5 percent sodium hypochlorite bleach, and 15 quartsof warm water for each 5 gallon of solution required.
2. Mildewcide: Commercial, proprietary mildewcide or a solution prepared by mixing 1/3 cup of household detergent that contains no ammonia, 1 quartof 5 percent sodium hypochlorite bleach, and 3 quartsof warm water.

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

D. 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. Use concealed fasteners for interconnecting wood components.
3. Use concealed fasteners for attaching items to other work unless exposed fasteners are the existing fastening method.
4. For fastening metals, use fasteners of same basic metal as fastened metal unless otherwise indicated.
5. For exposed fasteners, use Phillips-type machine screws of head profile flush with metal surface unless otherwise indicated.
6. Finish exposed fasteners to match finish of metal fastened unless otherwise indicated.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect adjacent materials from damage by wood repair.

B. Clean wood 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.

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

3.02 WOOD REPAIR, GENERAL

A. Historic Treatment Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from 5 feet away for interior work and from 20 feet away for exterior work.

B. 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 according to Section 099000 - Painting and Coating.
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 wood according to Section 099000 - Painting and Coating.

C. 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 indicated as part of the treatment program and as approved by Architect.

D. 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.

E. 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.

F. 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.

1. Do not use substitute materials unless otherwise indicated.
2. Compatible substitute materials may be used.

G. Identify removed items with numbering system corresponding to item locations, to ensure reinstallation in same location. Key items to Drawings showing location of each removed unit. Permanently label units in a location that will be concealed after reinstallation.

3.03 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. Verify that surfaces are sufficiently clean and free of paint residue prior to patching.
2. Treat wood with wood consolidant prior to application of patching compound. Coat wood surfaces by brushing, applying multiple coats until wood is saturated and refuses to absorb more. Allow treatment to harden before filling void with patching compound.

B. Apply borate preservative treatment to accessible surfaces either before applying wood consolidant or after removing rotted or decayed wood. Apply treatment liberally by brush to joints, edges, and ends; top, sides, and bottom. Allow treatment to dry.

C. Apply wood-patching compound to fill depressions, nicks, cracks, and other voids created by removed or missing wood.

1. Prime patch area with application of wood consolidant or manufacturer's recommended primer.
2. Mix only as much patching compound as can be applied according to manufacturer's written instructions.
3. Apply patching compound in layers as recommended in writing by manufacturer until the void is completely filled.
4. Sand patch surface smooth and flush with adjacent wood, without voids in patch material, and matching contour of wood member.
5. Clean spilled compound from adjacent materials immediately.

3.04 WOOD-REPLACEMENT REPAIR

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

1. Remove surface-attached items from wood surface before performing wood-replacement repairs unless otherwise indicated.
2. Verify that surfaces are sufficiently clean and free of paint residue prior to repair.
3. Remove broken, rotted, and decayed wood down to sound wood.
4. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member.
5. 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. Clean spilled materials from adjacent surfaces immediately.

E. Reinstall items removed for repair into original locations.

3.05 ADJUSTMENT

A. Adjust existing and replacement operating items, hardware, and accessories for a tight fit at contact points and for smooth operation and tight closure. Lubricate hardware and moving parts.

3.06 CLEANING AND PROTECTION

A. Protect wood surfaces from contact with contaminating substances resulting from construction operations. Monitor wood surfaces adjacent to and below exterior concrete and masonry during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances contact wood surfaces, remove contaminants immediately.

B. Clean exposed surfaces immediately after wood repair. Avoid damage to coatings and finishes. Remove excess sealants, patching materials, dirt, and other substances.

END OF SECTION

SECTION 080152.91 - WOOD WINDOW RESTORATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Wood window repair material.

1.02 REFERENCES

A. National Park Service - Technical Preservation Services for Historic Buildings.

1. Preservation Briefs 9 - The Repair of Historic Wooden Windows.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct meeting at Project.

1. Attendance: Owner, Architect, Contractor, and Installers and other entities directly affecting Work of this Section.
2. Time: Minimum of 2 weeks prior to starting Work of this Section.
3. Review restoration requirements including surface preparation, substrate condition and pretreatment, forecasted weather conditions, special details, installation procedures, testing and inspection procedures.

1.04 ACTION SUBMITTALS

A. Product Data:

1. Clear epoxy resin.
2. Glazing compound.

B. Samples for Initial Selection: For each type of exposed wood and finish.

1. Identify wood species, cut, and other features.
2. Include Samples of hardware and accessories involving color selection.
3. Submit 6 inch sample of weatherstripping.

C. Samples for Verification: For the following products in manufacturer's standard sizes unless otherwise indicated, finished as required for use in the Work:

1. Replacement Units: 12 inch long, full-size frame and sash sections with applied finish.
2. Replacement Members: 12 inches long for each replacement member, including parts of frame, sash, trim, and interior trim.

3. Repaired Wood Window Members: Prepare Samples using existing wood window members removed from site, repaired, and prepared for refinishing.
4. Refinished Wood Window Members: Prepare Samples using existing wood window members removed from site, repaired, and refinished.
5. Hardware: Full-size units with each factory-applied or restored finish.
6. Glass: Full-size units of each type and appearance.

D. Certification:

1. Submit letter from window Restoration Specialist documenting qualifications.

a. List of similar projects completed within the past 3 years.
b. List contact information for building owner and design team.

1.05 QUALITY ASSURANCE

A. Window Restoration Specialist:

1. Specialist company or painting and glazing contractor employing workers with experienced in work of this Section.
2. Able to document 3 years or 3 successful window restoration projects of similar or greater size and complexity.

B. Mockups: Before restoring wood windows, build Partial Mockup to verify selections made under Sample submittals and to demonstrate typical joints, surface finish, tolerances, and standard of workmanship. Build Partial Mockups to comply with the following requirements, using materials indicated for completed Work and as specified in Section 014339 - Mockups:

1. Location: Build Partial Mockups in location as directed by Architect.
2. Provide at least 2 linear feet of restoration for Partial Mockups for each finish type.

PART 2 - PRODUCTS

2.01 RESTORATION SPECIALISTS

A. Restoration Specialists: Provide services from one of the following or accepted equal:

1. Double-Hung Window Restoration.
2. J.R. Redding Co.
3. Legacy Renovation Products and Services.
4. Window King.

2.02 WOOD-REPAIR MATERIALS

A. Source Limitations: Obtain wood consolidant and wood-patching compound from single source from single manufacturer.

B. Wood Decay Treatment: Borate liquid fungicide solution and borate rods:

1. Board Defense and Bor8 rods by System Three.
2. BORA-Care or PenaShield and Impel Rods by PRG, Inc.
3. Repair Technologists.
4. Accepted substitution.

C. Wood Consolidant: Clear Penetrating Epoxy Resin. Two-part formulation,compatible with wood decay treatment, designed to penetrate, seal, and consolidate wood after severely decayed and unsound wood has been removed.

1. RotFix, manufactured by System Three.
2. LiquidWood, manufactured by Abatron.
3. Accepted substitution.

D. Wood Replacement Compound: Lightweight, 100 percent solids, non-shrink, adhesive, weather and heat-resistant, sandable and paintable 2-part epoxy wood replacement compound, containing no VOC's. Greenguard certified for non-toxic emissions. Shore D hardness 53-55; compressive strength 5,500 psi, tensile strength 2,500 psi.

1. ScuptWood by System Three.
2. WoodEpox by Abatron.
3. Accepted substitution.

E. Clear Penetrating Epoxy Resin: Two-part formulation designed to penetrate, seal, and restore rotten wood.

1. The Rot Doctor, CPES.
2. BoatLIFE, Git-Rot.

F. Joint Sealant: As specified Section 079200 - Joint Sealants.

G. Primer and Paint: See Section 099000 - Painting and Coating.

2.03 WOOD

A. Wood for Rot Repair: Douglas Fir, clear VG, meeting WWPA Prime Finish or B&BTR Select or WCLB C&BTR Finish grade standard, or otherwise matching the existing original window grain characteristics. Milling of salvaged material in sound condition and meeting grade standard is acceptable and preferred.

2.04 GLAZING

A. Heat-Strengthened Float Glass: As specified in Section 088000 - Glazing and as indicated on Drawings.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify conditions ready to receive work of this Section:

1. Refer to asbestos survey and remove asbestos material prior to wood window restoration. Comply with state and federal guidelines, statutes and codes.
2. Do no work until unsatisfactory conditions are corrected.

B. Verify construction schedule and sequencing ready for work of this Section.

C. Existing Conditions:

1. It is anticipated that the existing paint contains lead and the existing window glazing putty contains asbestos. Coordinate with Division 2 for abatement procedures.

D. Hazardous Material: If hazardous materials suspected, refer to 011110 - Summary of Hazardous Materials for requirements.

3.02 WOOD REPAIR

A. Conduct removal of damaged and rotting casing and trim to inflict least damage to in-place casing, trim, and other adjacent work. Where damaged, restore to almost new condition.

B. Testing: Test for rotten wood using ice pick or similar penetrating device and identify portions needing reconstruction. Patch probe marks with wood replacement compound.

3.03 RESTORATION PRODUCTS

A. Comply with manufacturer's instructions and provisions of Contract Documents. Where in conflict, verify with Architect before beginning work.

3.04 WOOD RESTORATION

A. General Approach to Restoration: Conform to the Secretary of the Interior's Standards and Guidelines for Preservation.

1. Preserve existing historic woodwork and glass to maximum extent feasible.
2. Total replacement is not acceptable.
3. Stripping Coatings: Chemically dip to remove coatings; sandblasting not accepted.
4. Restoration measures in order of priority include:

a. Removal of soft, decayed wood.
b. Fungicide treatment of remaining wood in areas with rot and decay.
c. Consolidation of deteriorated wood that does not exhibit rot.
d. Dutchman patching with wood of same species and characteristics.

e. Patching and buildup using wood replacement compound.
f. Replacement of part or pieces with wood of same species, characteristics and shapes.

B. Window Frames: Restore window frames in place, unless otherwise indicated on Drawings.

1. Do not salvage windows or hazardous materials; dispose of materials containing hazardous materials or/and coatings.

C. Strip paint as needed to complete repair, repair damaged surfaces, fill holes, clean, and sand smooth sash, jamb, head and sill.

D. Repair dents and gouges more than 1/8 inch deep with wood replacement compound.

E. Repair separations larger than 1/32 inch with wood replacement materials.

F. Repair deteriorated wood by removing rotten portions and reconstructing using new wood or penetrating epoxy resin to turn rot into hard durable plastic material.

1. Wood Replacement: Match existing historic material, dimensions, species, and configuration. Make invisible joinery between new and original material.
2. Penetrating Epoxy Resin Repair:

a. Inject deep rot to completely absorb into rotten portions of wood.
b. Apply coating over thin surface layer of deteriorated wood to absorb into and seal, solidify, and protect wood.
c. Coat to absorb into and seal remaining portions of wood where portion of wood member contains rotten wood

G. Apply primer and paint as specified Section 099000 - Painting and Coating prior to reinstallation of windows.

H. Apply final finish coat in the field in accordance with Section 099000 - Painting and Coating.

I. Strip existing sealant from frames and openings. Reseal with new sealant as specified in Section 079200 - Joint Sealants.

3.05 GLAZING RESTORATION

A. Glass:

1. Replace cracked or broken glazing panels as shown in the Glazing Assesment.
2. Leave undamaged glass in-place.
3. Remove glass as needed for access to provide complete restoration of wood sash.
4. Clean in-place glass without removing from windows, except as necessary for restoration.

B. Glazing Compound:

1. Replace existing damaged glazing compound and any putty that deteriorates in the restoration process as needed to put into new condition.

END OF SECTION

SECTION 081416 - WOOD DOORS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Factory finishing flush wood doors.
2. Rated factory finishing flush wood doors.
3. Custom stile and rail exterior wood doors.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate installation of anchorages for hollow metal frames in aluminum framed storefront system. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
2. Coordinate requirements for installation of door hardware, electrified door hardware and strike box placement and depth.
3. Doors to arrive on-site without door hardware installed.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product, including the following:

1. Door core materials and construction.
2. Door edge construction.
3. Door face type and characteristics.
4. Door trim for openings.
5. Door frame construction.
6. Factory-machining criteria.
7. Factory-finishing specifications.

B. WSSP Submittals: Refer to Section 013415 for WSSP Submittals.

1. Credit MW2.3 - Certified Wood.

a. Product Data: Provide current certification documentation for wood products.

C. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:

1. Door schedule indicating door location, type, size, fire protection rating, and swing.
2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.

3. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
4. Dimensions and locations of blocking for hardware attachment.
5. Dimensions and locations of mortises and holes for hardware.
6. Clearances and undercuts.
7. Requirements for veneer matching.
8. Doors to be factory-finished and application requirements.
9. Apply WDMA Hallmark Certification Program label to Shop Drawings.
10. Wind load zones.

D. Samples for Color Selection:

1. Stain color for exterior and interior veneer doors.

1.04 INFORMATIONAL SUBMITTALS

A. Sample Warranty: For special warranty.

B. Delegated Design Submittal: For steel reinforcement, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Structural loads indicated on Structural Drawings.

1.05 CLOSEOUT SUBMITTALS

A. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

1.06 QUALITY ASSURANCE

A. Vendor Qualifications: A vendorthat is certified for chain of custody by an FSC-accredited, or SFI-accredited certification body.

B. Manufacturer Qualifications: A manufacturerthat is certified for chain of custody by an FSC-accredited, or SFI-accredited certification body.

C. Mockups: Build in-place Partial Mockups per Section 014339 - Mockups to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Location: As selected by Architect and Building Envelope Consultant.
2. Size: As determined by Building Envelope Consultant.
3. Do not begin Work of Section prior to acceptance of in-place Partial Mockup.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in cardboard cartons, and wrap bundles of doors in plastic sheeting.

1. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than 1 week. Break seal on site to permit ventilation.

C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.08 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet-Work in spaces is complete and dry, and HVAC system is operating and maintaining temperature and relative humidity at levels designed for building occupants for remainder of construction period.

1.09 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

1. Failures include the following:

a. Delamination of veneer.
b. Warping (bow, cup, or twist) more than 1/4 inch in a 42 by 84 inch section.
c. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3 inch span.

2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Certified Wood: Wood products shall be certified by one of the following methods; Contractor's choice, percentage based on total cost or wood products on Project:

1. 50 percent FSC Chain-of-Custody Standard STD-40-004 (V3-0) certified.
2. 100 percent SFI 2015-2019 Chain-of-Custody Standard under Section 4 of the Sustainable Forest Initiative certified

B. Fire-Rated Wood Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated on Drawings, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.

2.02 MANUFACTURERS

A. Manufacturers: Provide products by one of the following:

1. ASSA ABLOY Wood Doors.
2. Eggers Industries.
3. Lambton Doors.
4. Masonite Architectural.
5. Oshkosh Door Company.
6. Vancouver Architectural Doors.
7. VT Industries, Inc.

B. Source Limitations: Obtain flush wood doors from single manufacturer.

2.03 WOOD DOORS, GENERAL

A. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, - Architectural Wood Flush Doors. •

1. Contract Documents contain requirements that are more stringent than referenced quality standard. Comply with Contract Documents in addition to those of referenced quality standard.

2.04 CUSTOM STILE AND RAIL EXTERIOR WOOD DOORS

A. Exterior Stile and Rail Wood Doors: Custom solid wood doors complying with AWI, AWMAC, and WI's Architectural Woodwork Standards and with other requirements specified.

1. Performance Grade: WDMA I.S. 6A Extra Heavy Duty.
2. Architectural Woodwork Standards Grade: Custom.
3. Panel Designs: Indicated on Drawings. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
4. Panel Thickness: Minimum 1 3/4 inch.
5. Fire Rating: Not rated.
6. U-Factor: ASTM C1363, maximum 0.60.
7. Solar Heat Gain Coefficient: 0.35.

8. Wind-Loads: Comply with wind loads as indicated on Drawings.

    a. Corner and Field Zones: As indicated on Drawings.

9. Finish: Transparent.

    a. Stain: To match Minwax 273 Wood Stain, Espresso.

10. Wood Species and Cut for Transparent Finish: As selected by Architect from manufacturer's full product line.
11. Door Construction for Transparent Finish:

a. Raised-Panel Construction: Clear lumber; overlapping edges with dowel, daddo, mortise and tenon joint, or comparable joinery condition. Select lumber for similarity of grain and color, and arrange for optimum match between adjacent pieces.

12. Stile and Rail Widths: As indicated on Drawings.

2.05 5-PLY FLUSH WOOD VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Doors:

1. Performance Grade:

a. WDMA I.S. 1A Standard Duty: Offices, Closet, Storage Rooms.
b. WDMA I.S. 1A Extra Heavy Duty: Classrooms, Kitchen, Public toilet rooms.

2. WDMA I.S. 1A Grade: Custom.
3. Faces: Single-ply wood veneer not less than 1/50 inch thick.

a. Species: White Maple.

1) Grade: A and AA.

b. Cut: Plain sliced (flat sliced).
c. Match Between Veneer Leaves: Book match.
d. Assembly of Veneer Leaves on Door Faces: Running match.
e. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.

4. Exposed Vertical and Top Edges: Applied wood edges of same species as faces and covering edges of crossbands "Architectural Woodwork Standards" edge Type D.

a. Fire-Rated Single Doors: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed vertical edges.
b. Fire Rated Doors: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

1) Screw-Holding Capability: As required for Performance Grades specified, and in accordance with WDMA T.M. 10.

5. Core for Non-Fire-Rated Doors: WDMA I.S. 10 structural composite lumber.

a. Screw Withdrawal, Face: 700 lbf.
b. Screw Withdrawal, Edge: 400 lbf.

6. Core for Fire-Rated Doors: Mineral core.

a. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated on Drawings as needed to eliminate through-bolting hardware.

7. Construction: 5 plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.

2.06 LIGHT FRAMES AND LOUVERS

A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads unless otherwise indicated.

1. Wood Species: Same species as door faces.
2. Profile: Flush rectangular beads.

2.07 GLAZING

A. Glass in Steel Doors and Frames: Comply with Section 088000 - Glazing.

1. Exterior Glazing: Insulating glass units.
2. Outboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.

a. Tint and Coating: Clear, Guardian SunGuard SNX 62/27 on #2 surface.

3. Inboard Lite: Fully tempered float glass, 1/4 inch thick.

a. Tint: Clear.

4. Between-lite space filled with argon.
5. Total Thickness: 3/4 inch.
6. Glass molding and stops: Fixed molding stop formed as integral of door skin to secure glazing in accordance with glass sizes and thickness.
7. Removable Glazing Stops: Located on the secure side. 14 gauge steel, concealed corrosion-resistant steel sheet metal screws. Exposed fasteners are not accepted.

2.08 HARDWARE

A. Door Hardware: Refer to Section 087100 - Door Hardware.

1. Use hardware templates furnished by hardware manufacturer.
2. Factory reinforce, drill and tap doors and frames to receive mortised hinges, locks, latches, flush bolts, and concealed door closers.

2.09 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated.

1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
2. Comply with NFPA 80 requirements for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied.

1. Locate hardware to comply with DHI-WDHS-3.
2. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
3. Coordinate with hardware mortises in metal frames, to verify dimensions and alignment before factory machining.
4. For doors scheduled to receive electrified locksets, provide factory-installed raceway and wiring to accommodate specified hardware.

C. Openings: Factory cut and trim openings through doors.

1. Light Openings: Trim openings with moldings of material and profile indicated.
2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 - Glazing and as indicated on Drawings.

    a. Factory glazing doors.

3. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.

2.10 FACTORY FINISHING

A. Comply with referenced quality standard for factory finishing:

1. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
2. Finish faces, all 4 edges, edges of cutouts, and mortises.
3. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.

B. Factory finish doors unless indicated otherwise.

C. Transparent Finish:

1. WDMA I.S. 1A Grade: Custom.
2. Finish: WDMA I.S. 1A TR-6 Catalyzed Polyurethane.
3. Staining: None required unless otherwise indicated.
4. Sheen: Satin.

2.11 REGULATORY REQUIREMENTS

A. Fenestration Product Rating:

1. Provide U-factors for each fenestration product in accordance with NFRC 100 and accredited, by an independent laboratory.
2. Provide labeling and certification by the manufacturer for SHGC, VT and leakage rating.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine doors and installed door frames, with Installer present, before hanging doors.

1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
2. Reject doors with defects.

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

3.02 INSTALLATION

A. Hardware: For installation, see Section 087100 - Door Hardware.

B. Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

C. Install frames level, plumb, true, and straight.

1. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
2. Anchor frames to anchors or blocking built in or directly attached to substrates.

a. Secure with countersunk, concealed fasteners and blind nailing.
b. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork.

1) For factory-finished items, use filler matching finish of items being installed.

D. Factory-Fitted Doors:

1. Align and fit doors in frames with uniform clearances and bevels as indicated below.

a. Do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors.

2. Clearances:

a. Provide 1/8 inch at heads, jambs, and between pairs of doors.
b. Provide 1/8 inch from bottom of door to top of floor finish unless otherwise indicated on Drawings.
c. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.

3. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.

E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.03 FIELD QUALITY CONTROL

A. Inspection Agency: Owner will engage a qualified inspector to perform inspections and to furnish reports to Architect.

B. Egress Door Inspections: Inspect each door equipped with panic hardware, each door equipped with fire exit hardware, each door located in an exit enclosure, each electrically controlled egress door, and each door equipped with special locking arrangements according to NFPA 101, section 7.2.1.15.

C. Inspections:

1. Provide inspection of installed Work through WDMA Hallmark Certification Program, certifying that wood doors and frames, including installation, comply with requirements of WDMA's for specified grade.

D. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.

E. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.

F. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80.

3.04 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

3.05 PROTECTION

A. Protect doors as recommended by door manufacturer to ensure that wood doors are without damage or deterioration at time of Substantial Completion.

1. Remove doors damaged during installation and install new doors.

END OF SECTION

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Glass for:

a. Windows.
b. Doors.
c. Interior windows.
d. Glazed curtain walls.
e. Fire-rated assemblies.
f. Storefront framing.
g. Glazing film.

2. Sealants and accessories.

B. Related Sections:

1. Section 081113 - Hollow Metal Doors and Frames.
2. Section 081416 - Wood Doors.
3. Section 084113 - Aluminum Framed Entrances and Storefronts.
4. Section 085113 - Aluminum Windows.
5. Section 086200 - Skylights.

1.02 REFERENCES

A. Comply with the following industry standards for Work of Section:

1. ASTM C1036 - Standard Specification for Flat Glass.
2. ASTM C1048 - Standard Specification for Heat Treated Flat Glass, Kind HS, Kind FT.
3. ASTM E773 - Test Method for Seal Durability of Sealed Insulating Glass Units.
4. ASTM E774 - Specifications for Sealed Insulating Glass Units.
5. ASTM E 1996 - Standard Specifications for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris and Hurricanes.
6. ASTM E2188 - Standard Test Method for Insulating Glass Unit Performance.
7. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.
8. ASTM E2010 - Standard Test Method for Positive Pressure Fire Tests of Window Assemblies.
9. ASTM C1249 - Standard Guide for Secondary Seal for Sealed Insulating Glass Units for Structural Sealant Glazing Applications.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

B. Preinstallation Meetings: Conduct meeting at Project.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review temporary protection requirements for glazing during and after installation.

1.04 ACTION SUBMITTALS

A. Submit submittals as specified in Section 013300 - Submittals.

B. Product Data: Submit for each product.

1. Include Safety Data Sheet (SDS).

C. Glazing Schedule: List glazing types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

D. Delegated Design Submittal: For glazing indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by qualified professional engineer licensed in the project state responsible for their preparation.

E. Mockups: Build Partial Mckups per Section 014339 - Mockups of each type of glazing type to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Install glazing in mockups to match glazing systems required for Project, including glazing methods.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installers and manufacturers of insulated glazing units units with sputter-coated, low-e coatings.

B. Installation Instructions: Provide manufacturer's published installation instructions for each product. Include requirements for cleaning, priming, joint size ratios, adhesion testing and perimeter conditions requiring special attention. Include information for accessories.

C. Product Test Reports: For coated glass and insulated glazing units for tests performed by a qualified testing agency.

D. Sample Warranties: For special warranties.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications for Insulating Glazing Units with Sputter-Coated, Low-E Coatings: Insulating glazing manufacturer who is approved and certified by coated glass manufacturer.

B. Installer Qualifications: Installer to have at least 5 years experiance of successful installations of similiar.

C. Provide complete, watertight, and weatherproof building envelope systems and assemblies. Establish and follow best practices for trade and impliment quality control and quality assurance to ensure successful completion of building envelope systems.

D. Notify Architect, Building Envelope Consultant and Owner's Project Manager at least 14 days prior to commencement of Work.

E. On-Site Observation and Testing:

1. Owner reserves right to have Building Envelope Consultant perform observation or monitoring of installation.
2. Observations do not relieve Contractor of responsibility for proper execution and thorough completion of Work.
3. Owner reserves right to have Building Envelope Consultant perform tests deemed necessary to determine compliance with Section requirements. Building Envelope Consultant and Owner's Project Manager.

F. No modifications to the Specification, Drawings, or substitutions of specified products shall be made without direct approval of Architect, Building Envelope Consultant and Owner's Project Manager.

G. Glass Testing Agency Qualifications: Qualified independent testing agency accredited per NFRC CAP 1 Certification Agency Program.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials per manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with insulated glazing manufacturer's written recommendations for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.08 FIELD CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1.09 WARRANTY

A. Manufacturer's Special Warranty on Laminated Glass: Manufacturer agrees to replace laminated glazing units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glazing contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated glazing standard.

1. Warranty Period: 20 years from date of Final Completion.

B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer agrees to replace insulated glazing units that deteriorate within specified warranty period. Deterioration of insulated glazing is defined as failure of hermetic seal under normal use that is not attributed to glazing breakage or to maintaining and cleaning insulated glazing contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glazing.

1. Warranty Period: 10 years from date of Final Completion.

C. Manufacturer's Warranty on Fire Rated Door Assemblies: Manufacturer agrees to replace laminated glazing units that deteriorate within specified warranty period. Deterioration of laminated glazing is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glazing contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated glazing standard.

1. Warranty Period: 10 years from date of Final Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers:

1. Cardinal Glass Industries.
2. Guardian Glass LLC.
3. Pilkington North America Inc.
4. PPG Industries, Inc.
5. Viracon, Inc.

B. Fabricators:

1. Northwestern Industries.
2. Viracon, Inc.

C. Fire Protection and Resistive Glass Manufacturers:

1. SAFTI FIRST.
2. Technical Glass Products: Firelite.
3. Vetrotech: Fire-Rated Glass & Systems.

D. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.

E. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

2.02 PERFORMANCE CRITERIA

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads without failure, including loss or glass breakage attributable to the following:

1. Defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 - Quality Requirements, to design glazing.

C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E1300:

1. Design Wind Pressures: As indicated on Structural Drawings.
2. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass windows.

D. Thermal and Optical Performance Properties: Provide glazing with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
1. U-Factors: Center-of-glazing values, per NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/square feet by height by degree F.
2. Solar Heat Gain Coefficient and Visible Transmittance: Center of glazing values, per NFRC 200 and based on LBL's WINDOW 5.2 computer program.
3. Visible Reflectance: Center of glazing values, per NFRC 300.

2.03 GLASS PRODUCTS, GENERAL

A. Glazing Publications: Comply with published recommendations of glazing product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications: Glazing Manual and Laminated Glazing Reference Manual.
2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

B. Insulating Glass Certification Program: Permanently marked either on spacers or on at least 1 component lite of units with appropriate certification label of IgCC.

C. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated in Specifications and in Drawings.

1. Minimum Glass Thickness for Exterior Lites: Not less than 6.0 mm.

a. Historic Glass: 3.18 mm.

D. Products should be fabricated to be installed with continuous glazing tape or other approved continuous high performance spacer and continuous sealant.

2.04 SAFETY GLAZING, GENERAL

A. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of CPSC 16 CFR 1201, Category II or another certification agency acceptable to authorities having jurisdiction, or manufacturer.

1. Label shall indicate manufacturer's name, type of glazing, thickness, and safety glazing standard with which glazing complies.
2. Label may be acid etched, sandblasted, ceramic fired laser etched, or embossed.
3. Locate label in upper right hand corner as viewable from exterior.

B. Thermal and Optical Performance Properties: Provide security glazing with performance properties specified, as indicated in manufacturer's published test data, based on products of construction indicated and on procedures indicated below:
1. Solar-Heat-Gain Coefficient and Visible Transmittance: Center of glazing values, per NFRC 200 and based on LBL's WINDOW 5.2 computer program.
2. Visible Reflectance: Center of glazing values, per NFRC 300.

C. Products should be fabricated to be installed with continuous glazing tape.

D. Safety glazing shall be in accordance with Seattle Building Code Section 2406 and as shown on Drawings.

2.05 GLASS PRODUCTS

A. Heat-Strengthened Float Glass: ASTM C1048, Kind HS (heat strengthened), Type I, Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear)as indicated, Quality-Q3.

B. Fully-Tempered, Float Glass: ASTM C1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear), Quality-Q3.

C. Fully-Tempered, Safety Glass (GL-1): ASTM C1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear), Quality-Q3 that meets CPSC 16 CFR 1201 or ANSI Z97.1

2.06 LAMINATED GLASS

A. Laminated Glass (GL-3): ASTM C1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.

1. Construction: Laminate glazing with [polyvinyl butyral interlayer][ionoplast] to comply with interlayer manufacturer's written recommendations.

a. Manufacturers: Provide products from one of the following:

1) Aegis Films.
2) 3M Commercial Solutions.
3) DuPont Glass Laminating Solutions, DuPont Company.
4) Viracon, Inc.

2. Interlayer Color: Clear.
3. Glass type: Annealed.
4. Interlayer Thickness: 0.060 inch, but not less than that indicated and as needed to comply with requirements.

2.07 INSULATING GLASS UNIT

A. Insulating Glass Units (IGU-1): Factory-assembled units consisting of sealed windows of glass separated by a dehydrated air interspace filled with argon, qualifed per ASTM E2190.

1. Basis of Design: Provide SunGuard by Guardian Glass or accepted equal:

a. Low-E:

1) No. 2 Surface:SunGuard SN 68.
2) No. 4 Surface: SunGuard IS-20.

b. Winter U-Value: 0.20 maximum.
c. SHGC: 0.22 maximum.
d. Total Visible Light Transmittance: 66 percent, minimum.
e. Tinting:

1) Outboard lite: Clear.
2) Inboard lite: Clear.

f. Glazing Type:

1) Type 1: Heat strengthened.
2) Type 2: Fully-tempered safety glazing.

g. Thickness:

1) Outboard Lite: 0.25 inch.
2) Air Space: 0.50 inch.
3) Inboard Lite: 0.25 inch.

h. Interlayer:

1) Type 1: None.
2) Type 2: Ionoplast, 0.030 inch.

i. Safety Labeling:

1) Type 1: No labeling required.
2) Type 2: Provide safety labeling.

j. Sealing System: Dual seal, with manufacturer's standard primary and silicone secondary polyisobutylene or as recommended by manufacturer for application.
k. Perimeter Spacer Material: Manufacturer's standard non-conductive, warm edge spacer system; aluminum not accepted.
l. Location: Typical; as indicated on Drawings.

B. Insulating Glass Units (IGU-2): Factory-assembled units consisting of sealed windows of glass separated by a dehydrated air interspace filled with argon, qualifed per ASTM E2190.

1. Low-E: Surface No. 2.
2. Winter U-Value: 0.20 maximum.
3. SHGC: 0.22 maximum.
4. Total Visible Light Transmittance: 45 percent, minimum.
5. Tinting:

a. Outboard lite: Clear.
b. Inboard lite: Clear.

6. Glazing Type:

a. Type 1: Heat strengthened.
b. Type 2: Fully-tempered safety glazing.

7. Thickness:

a. Outboard Lite: 0.25 inch.
b. Air Space: 0.50 inch.
c. Inboard Lite: 0.25 inch.

8. Interlayer:

a. Type 1: None.
b. Type 2: Ionoplast, 0.030 inch.

9. Safety Labeling:

a. Type 1: No labeling required.
b. Type 2: Provide safety labeling.

10. Sealing System: Dual seal, with manufacturer's standard primary and silicone secondary polyisobutylene or as recommended by manufacturer for application.

11. Perimeter Spacer Material: Manufacturer's standard non-conductive, warm edge spacer system; aluminum not accepted.
12. Location: South and West facing and as noted on Drawings.

C. Insulating Glass Units (IGU-3): Factory-assembled units consisting of sealed windows of glass separated by a dehydrated air interspace filled with argon, qualifed per ASTM E2190.

1. Low-E: Surface No. 2.
2. Winter U-Value: 0.20 maximum.
3. SHGC: 0.22 maximum.
4. Total Visible Light Transmittance: 30 percent, minimum.
5. Tinting: Clear.
6. Glazing Type:

    a. Type 1: Heat strengthened.
    b. Type 2: Fully-tempered safety glazing.

7. Thickness:

    a. Outboard Lite: 0.25 inch.
    b. Air Space: 0.50 inch.
    c. Inboard Lite: 0.25 inch.

8. Interlayer:

    a. Type 1: None.
    b. Type 2: Ionoplast, 0.030 inch.

9. Safety Labeling:

    a. Type 1: No labeling required.
    b. Type 2: Provide safety labeling.

10. Sealing System: Dual seal, with manufacturer's standard primary and silicone secondary polyisobutylene or as recommended by manufacturer for application.
11. Perimeter Spacer Material: Manufacturer's standard non-conductive, warm edge spacer system; aluminum not accepted.
12. Location: South clerestory facing and as noted on Drawings.

D. Insulated Skylight Glazing: (IGU-4): Factory-assembled units consisting of sealed windows of glass separated by a dehydrated air interspace, qualified per ASTM E2190.

1. Basis of Design: Provide Solarban by Vitro Architectural Glass or accepted equal:

    a. U-value: 0.20 maximum.
    b. SHGC: 0.22 maximum.

        1) Interlayer Color: Cool White.

    c. Total Visible Light Transmittance: 29 PERCENT, MINIMUM
    d. Safety Interlayer: Trosifol Nature UV Ultraclear Interlayer; 0.030 inch thickness.
    e. Thickness:

1) Outboard Lite: 0.25 inch.
2) Air Space: 0.50 inch.
3) Inboard Lite: 0.25 inch.

f. Glass Type:

1) Outboard Lite: Fully-tempered, low-e vacuum deposit coat no. 2 surface.
2) Inboard Lite: Laminated, annealed glass, clear with ceramic fit on no. 3 surface.

2. Sealing System: Dual silicone seal, with manufacturer's standard primary and silicone secondary polyisobutylene.
3. Perimeter Spacer Material: Manufacturer's standard non-conductive, warm edge spacer system; aluminum not accepted.

2.08 FIRE RESISTIVE GLASS (GL-2)

A. Multi-layer glazing Underwriters Laboratory or Intertek Warnock Hersey listed as fire resistive glass and complying with16 CFR 1201 test requirements for Category II without using a surface-applied film.

1. Fire Rating: As indicated on Drawings. Tested as an assembly and not as opening protection to the following standards: ASTM E-119, NFPA 251, UL 263

2.09 GLAZING FILM

A. Type 1:

1. Basis of Design: Provide Fasara by 3M or accepted equal:

a. Model: SH2MACRX2, Mat Crystal 2.
b. Filter: Frost/Mat.
c. Thickness: 3.3 mils.
d. Weight: Maximum 35 pounds.
e. Tensile Strength: 45 to 90 pounds.
f. UV Blocking: Blocks at least 98 percent.
g. Light Transmittance: 85 percent maximum.
h.

B. Type 2:

1. Basis of Design: Provide Safety Series by 3M or accepted equal:

a. Model: Safety 140 (S140).
b. Thickness: 8 mils.
c. Tensile Strength: 25,000 psi.

2.10 GLAZING GASKETS

A. Soft Compression Gaskets: Manufacturer's extruded or molded, closed-cell, marine vinyl gaskets complying with ASTM C509, Type II, black; of profile and hardness required to maintain watertight seal.

1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

2.11 GLAZING SEALANTS

A. General:

1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulated glazing units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. Sealant shall comply with testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 100/50, Use NT.

1. Products: Provide one of the following:

a. Dow Chemical Company: Dowsil 790 Silicone Building Sealant.
b. Momentive Performance Materials, Inc.: GE SCS2700 SilPruf LM.
c. Pecora Corporation: 890NST or 890FTS.
d. Sika Corporation: Sikasil WS-290.Tremco Incorporated: Spectrem 1.

2. Applications: Interior for glazing cap beads with aluminum framing systems; dry seal installation.

C. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 25, Use NT.

1. Products: Provide one of the following:

a. Dow Chemical Company: Dowsil 1199 Silicone Glazing Sealant.
b. ITW Polymers Sealants North America, Inc.: Permathane SM5731.
c. Momentive Performance Materials, Inc.: SSG4000 UltraGlaze or SSG4000AC UltraGlaze.
d. Pecora Corporation: 896 or 896FC.
e. Polymeric Systems, Inc.: PSI-631.
f. Sika Corporation: Sikasil-N Plus US.

g. Tremco Incorporated: Proglaze SSG.

2. Applications: Used on exterior for glazing cap beads with aluminum framing systems; dry seal installation.

2.12 GLAZING TAPES

A. Mastic Glazing Tapes: Preformed, pre-shimmed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C1281 and AAMA 800.

2.13 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Silicone-compatible material with a Shore A durometer hardness of 85, plus or minus 5.

1. Type recommended by sealant or glazing manufacturer.

D. Spacers: Blocks or continuous extrusions of silicone-compatible material, of hardness required by glazing manufacturer to maintain glass windows in place for installation indicated.

E. Edge Blocks: Silicone-compatible material with a Shore A durometer hardness required by glazing manufacturer to maintain glass windows in place for installation indicated.

1. Type recommended by sealant or glazing manufacturer.

2.14 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

1. Allow for thermal movements from ambient and surface temperature changes acting on glazing framing members and glazing components.

a. Temperature Change: 120 degrees F, ambient; 180 degrees F, material surfaces.

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic windows to produce square edges with slight chamfers at junctions of edges and faces.

1. Location: Butt-glazed windows.

C. Grind smooth and polish exposed glass edges and corners.

2.15 REGULATORY REQUIREMENTS

A. Fenestration Product Rating:

1. Provide U-factors for each fenestration product in accordance with NFRC 100 and accredited, by an independent laboratory.
2. Provide labeling and certification by the manufacturer for SHGC, VT and air and water leakage rating.
3. Provide labeling on each piece giving the IBC Fire Protection Rating and other information required by the applicable code.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. Effective sealing between joints of glazing framing members.

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

3.02 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

1. Prime cut and prepared surfaces.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in completed Work.

3.03 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glazing, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Protect glazing edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

E. Do not exceed edge pressures stipulated by glazing manufacturers for installing glass windows.

F. Provide continuous spacers and desiccant for insulated glazing units (IGUs).

1. Install to comply with system performance requirements.
2. Provide 1/8 inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

G. Provide approved edge blocking where indicated or needed to prevent glazing windows from moving sideways in glazing channel, as recommended in writing by glazing manufacturer.

H. Set glazing windows in each series with uniform pattern, draw, bow, and similar characteristics.

I. Set glazing windows with proper orientation so that coatings face exterior as specified.

J. Square cut wedge shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.04 TAPE GLAZING FOR INSULATED GLAZING UNITS

A. Position tapes on fixed stops so that, when compressed by glazing, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until right before each glazing unit is installed.

F. Apply heel bead of elastomeric sealant.

G. Center glazing windows in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.05 GASKET GLAZING (DRY)

A. Prior to commencement of Work, confirm locations of glazing sealant with Architect and Building Envelope Consultant.

B. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings for air and water-tight performance with allowance for stretch during installation and compression for long-term service.

C. Insert soft compression gasket between glazing and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

D. Installation with Drive-in Wedge Gaskets: Center glass windows in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Install wedge gaskets continuously through corners. Terminate ends of gasskets at upper corner of unit assembly. Compress gaskets to produce a weathertight seal without developing bending stresses in glazing. Seal gasket joints with sealant recommended by gasket manufacturer.

E. Installation with Pressure Glazing Stops: Center glazing windows in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glazing. Seal gasket joints with sealant recommended by gasket manufacturer.

F. Install gaskets air and water-tight so they protrude past face of glazing stops.

3.06 GLAZING FILM INSTALLATION

A. Install per manufacturer's written instructions.

B. Install on interior side of glazing in temperatures as recommended in writing by manufacturer.

3.07 FIELD QUALITY CONTROL

A. Contractors Responsibilities: Contractor shall be responsible for the quality control of all of their own Work as well as Work performed by sub-contractors working under them per Specification and related Sections.

B. Installers and fabricators shall employ workers who are trained and approved by material manufacturer.

C. Notify Architect and Building Envelope Consultant of conflicts that may result in deviation from specifications, industry standards, code compliance, job safety or as a function as a result of Project's Work, Specifications and/or Drawings.

D. Quality of Work Corrections: Correct deficiencies and present remediation plan to address deficiencies if Architect, Building Envelope Consultant, Consultant's Monitor, Owner's Project Manager or Manufacturer determine that the quality of Work does not align with Specifications, Drawings, and/or Manufacturer's published requirements, industry standards.

E. Demonstrate ability to perform Work in quality and timely manner with minimal noise and disruption or impact on facility, students, public and property.

F. Testing and Inspections:

1. Owner may engage special inspectors and/or Building Envelope Consultant to perform tests and inspections and prepare reports. Observational work does not relieve Contractor of responsibility for complete execution, completion and quality control.
2. Allow inspectors access to scaffolding and Work areas as needed to perform tests, monitoring and inspections.
3. Retesting of material and Work that falls to comply with specified requirements shall be done at Contractor's expense.

3.08 CLEANING AND PROTECTION

A. Immediately after installation remove nonpermanent labels and clean surfaces.

B. Protect exterior glazing from damage immediately after installation by attaching crossed streamers to framing held away from glazing. Do not apply markers to glazing surface.

C. Protect glazing from contact with contaminating substances resulting from construction operations. Examine glazing surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.

1. If contaminating substances do come into contact with glazing, remove substances immediately as recommended in writing by glazing manufacturer. Remove and replace glazing that cannot be cleaned without damage to coatings.

D. Remove and replace glazing that is damaged during construction period.

E. Wash glazing on both exposed surfaces not more than 4 days before date scheduled for inspections that establish date ofFinal Completion. Wash glazing as recommended in writing by glazing manufacturer.

3.09 GLAZING SCHEDULE

A. Interior Glazing Schedule:

1. GL-1: Fully-tempered, safety glazing.
2. GL-2: Fire-resistive, safety glazing.

3. GL-3: Laminated annealed glazing.

B. Exterior Glazing Schedule:

1. IGU-1, Type 1: Insulated glazing unit, heat strengthened glazing.
2. IGU-1, Type 2: Insulated glazing unit, fully-tempered safety glazing.
3. IGU-2, Type 1: Insulated glazing unit, heat strengthened glazing.
4. IGU-2, Type 2: Insulated glazing unit, fully-tempered glazing.
5. IGU-3: Insulated glazing unit, heat strengthened.
6. IGU-4: Skylight glazing.

END OF SECTION

SECTION 090320 - PLASTER RESTORATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Repair and replacement of interior gypsum plaster.

1.02 ALLOWANCES

A. Allowance No. 2: Treatment of plaster as specified in Section 012100 - Allowances.

1. Perform treatment of plaster under quantity allowances and only as authorized. Authorized work includes work required by Drawings and Specifications and work as directed in writing by Architect.
2. Notify Architect weekly of extent of work performed that is attributable to quantity allowances.
3. Perform work that exceeds quantity allowances only as authorized by Change Orders.

B. Plaster repair and replacement is part of plaster repair allowance unless otherwise indicated.

1.03 PREINSTALLATION MEETINGS

A. Preinstallation Meeting: Conduct conference at Project site.

1. Meeting Time: Schedule meeting a minimum of 2 weeks prior to beginning Work of this Section and related Work.
2. Require attendance by Architect, Contractor, Installers, and other parties directly affecting Work of this Section.
3. Review methods and procedures related to treatment of plaster including, but not limited to, the following:

a. Verify treatment personnel, equipment, and facilities needed to make progress and avoid delays.
b. Materials, material application, colors, patterns, and sequencing.
c. Fire-protection plan.
d. Plasterwork treatment program.
e. Coordination with building occupants.
f. Review of Plaster Survey findings.

1.04 SEQUENCING AND SCHEDULING

A. Plaster Survey: Complete comprehensive plaster survey at least 2 weeks prior to preinstallation meeting. Include visual inspection and sounding.

1. Share issues that arise from survey with Architect as soon as discovered.

B. Perform treatment of plaster in the following sequence, which includes work specified in this and other Sections:

1. Dismantle existing surface-mounted objects and hardware that overlie plaster surfaces except items indicated to remain in place. Tag items with location identification and protect.
2. Verify that temporary protections have been installed.
3. Examine condition of plaster surfaces.
4. Clean plaster surface and remove paint and other finishes to the extent required.
5. Repair and replace existing plaster and supports to the degree required for a uniform, tightly adhered surface on which to paint or apply other finishes.
6. Cure repaired surfaces and allow them to dry for proper finishing.
7. Reinstall dismantled surface-mounted objects and hardware unless otherwise indicated.

1.05 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include recommendations for product application and use.

1.06 QUALITY ASSURANCE

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

1. Plaster contractor shall have a minimum of 5 years successful experience in historic rehabilitation and restoration projects which include repair of plaster similar in scale and scope to this Project.

B. Mockups: Prepare Partial Mockup as specified in Section 014339 - Mockups of treatment processes for each type of plaster repair and reconstruction work to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.

1. Locate mockups on existing surfaces where directed by Architect.
2. Number and Size: Two wall surfaces to represent surfaces and conditions for application of each type of plaster repair and reconstruction under same conditions as the completed Work. Include at least the following:

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.

B. Store materials on elevated platforms, under cover, and in a dry location with ambient temperatures continuously maintained at not less than 45 degree F.

C. Store materials not in use in tightly covered containers.

D. Store sand where grading and other required characteristics can be maintained and contamination avoided.

1.08 FIELD CONDITIONS

A. Comply with plaster-material manufacturers' written instructions. For gypsum plaster, also comply with ASTM C 842 requirements.

B. Room Temperatures: Maintain temperatures in work areas at not less than 55 degree F or greater than 80 degree F for at least seven days before application of plaster, continuously during application, and for seven days after plaster has set or until plaster has dried.

C. Field Measurements: Where plaster fabrications are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

D. Avoid conditions that result in plaster drying out too quickly.

1. Distribute heat evenly; prevent concentrated or uneven heat on plaster.
2. Maintain relative humidity levels for prevailing ambient temperature that produce normal drying conditions.
3. Ventilate work areas in a manner that prevents drafts of air from contacting surfaces during plaster application and until plaster is dry.

PART 2 - PRODUCTS

2.01 GYPSUM PLASTER MATERIALS

A. Gypsum Materials:

1. Gypsum Ready-Mixed Finish Plaster: ASTM C 28/C 28M; manufacturer's standard, mill-mixed, gaged, interior finish.

B. Aggregates:

1. Aggregate for Float Finishes: ASTM C 35, sand; graded per ASTM C 842 to match existing.

2.02 LATH MATERIALS

A. Wood Lath: 1/4 inch by 1 1/4 inchsound, straight-grained, wood strips.

2.03 TRIM ACCESSORIES

A. General: According to ASTM C 841 for gypsum plaster; coordinate depth of trim and accessories with thicknesses and number of plaster coats required.

2.04 PLASTER STABILIZATION MATERIALS

A. Acrylic emulsion(s) and related installation products shall have proven effectiveness in reattaching delaminated plaster and shall have been used previously by treatment specialist with successful results.

1. Acrylic Emulsion(s), General: Aqueous emulsion(s) of acrylic polymer, adhesive to plaster and plaster substrates, nontoxic, and non-reemulsifiable after curing.
2. Prewet Solution: Low-viscosity acrylic emulsion.
3. Adhesive: Thickened acrylic emulsion; thickener as recommended in writing by resin manufacturer and treatment specialist.

2.05 MISCELLANEOUS MATERIALS

A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Bonding Compound: ASTM C 631.

C. Fasteners for Attaching Lath to Substrates:

1. For Gypsum Plaster: ASTM C 841.
2. For Wood Lath: ASTM C 841 requirements for wood-floor-runner or wood-furring fasteners unless otherwise indicated on Drawings.

D. Wire Ties: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, not less than 0.0475-inch diameter, unless otherwise indicated.

E. Sealant: As specified in Section 079200 - Joint Sealants.

PART 3 - EXECUTION

3.01 TREATMENT OF PLASTER, GENERAL

A. Treatment Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from building interior at 5 feetaway from surface and from building exterior at 20 feetaway from surface.

B. General: In treating plaster, disturb it as minimally as possible and as follows unless otherwise indicated:

1. Dismantle loose, damaged, or deteriorated plaster and support systems that cannot be repaired.
2. Verify extent of plaster deterioration against that indicated on Drawings. Consult Architect on types and extent of required work.
3. Verify that substrate surface conditions are suitable for repairs.
4. Provide lath, furring, and support systems for plaster included in the work of this Section.
5. Replace lost details in new, wet-applied that replicate existing or indicated plaster configurations.
6. Leave repaired plasterwork in proper condition for painting or applying other finishes as indicated.
7. Install temporary protective measures to protect surfaces that shall be treated later.

C. Illumination: Perform plastering work with adequate, uniform illumination that does not distort the flatness or curvature of surfaces.

D. Hazardous Material: If hazardous materials suspected, refer to 011110 - Summary of Hazardous Materials for requirements.

3.02 EXAMINATION

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

1. If existing substrates cannot be prepared to an acceptable condition for plastering work, notify Architect in writing.
2. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

B. Begin plastering work only after unsatisfactory conditions have been corrected.

3.03 PREPARATION FOR PLASTERING

A. Substrates: Prepare according to plaster manufacturer's written instructions and as follows:

1. Clean surfaces to remove dust, loose particles, grease, oil, incompatible curing compounds, form-release agents, and other foreign matter and deposits that could impair bond with plaster.
2. Remove ridges and protrusions greater than 1/8 inchand fill depressions greater than 1/4 inch with patching material. Allow to set and dry.

3.04 PLASTER REMOVAL AND REPLACEMENT, GENERAL

A. Dismantle plaster that is damaged or deteriorated to the limits indicated. Carefully dismantle areas along straight edges that lie over supports, without damaging surrounding plasterwork.

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

C. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

D. Do not deviate more than plus or minus 1/8 inch in 10 feetfrom a true plane in finished plaster surfaces, as measured by a 10 footstraightedge placed on surface.

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

F. Wet wood lath bases before plaster application. Keep substrate damp to the touch but without visible water droplets.

G. Wet remaining plaster abutting the replacement plaster before installing new plasterwork.

H. Finish plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.

I. Provide plaster surfaces that are ready to receive field-applied finishes indicated.

3.05 FLAT GYPSUM-PLASTER REMOVAL AND REPLACEMENT

A. General: Dismantle deteriorated plaster to existing sound plaster. Use replacement plaster mixes of gypsum, lime, and aggregate; and application according to ASTM C 842 unless otherwise indicated.

1. Sand bonding surfaces of repair area and clean the surface with a nonmetallic bristle brush.
2. Wet substrate to damp condition, but without visible water droplets, then install new plaster to original profiles.

B. Gypsum-Plaster Base Coats:

1. Base Coats over Wood Lath: Gypsum neat plaster with job-mixed sand and fiber.
2. Base Coats over Expanded-Metal Lath: Gypsum neat plaster with job-mixed sand for scratch and brown coats.

C. Gypsum-Plaster Finishes: Match finish of design reference sample.

1. Provide finish that matches existing.

3.06 REMOVING AND INSTALLING LATH AND ACCESSORIES

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

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

2. Cut out existing base-coat plaster beyond the edges of the new lath to permit new plaster to extend onto the old lath. Then step subsequent plaster coats to permit new plaster to extend over the old material.
3. Fasten new lath to support system and to good existing lath. Wire tie at least every 6 inches.
4. Install new lath according to [ASTM C 1063 for lime plaster] [and] [ASTM C 841 for gypsum plaster].

B. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

C. Wood Lath: Install wood lath in same orientation and spacing as remaining wood lath and with lath ends supported by furring or framing. Stagger ends of adjacent laths over different supports, not aligned, and secure with fasteners at each end and spaced a maximum of 24 incheson center into supports.

3.07 PATCH-TYPE REPAIR

A. General: Patch voids, fractured surfaces, and crushed areas in otherwise sound plaster that are larger than cracks.

1. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
2. Inspect for deterioration of supporting plaster and lath, and repair or replace deteriorated material as required for a sound substrate.
3. Rake perimeter of hole to sound plaster, and slightly undercut existing plaster to enable replacement plaster to tuck behind existing plaster.
4. Replace missing lath in kind. Bridge gaps in wood lath with expanded-metal lath, overlapping wood by 6 inchesand fastening them together.
5. Clean hole to remove loose materials and other foreign matter and deposits that could impair bond with repair material. Where grease, waxes, oils, waterborne staining, or other foreign matter and deposits that could impair bond with repair material have penetrated into the plaster, enlarge the hole to remove these deposits.
6. Wet substrate to damp condition, but without visible water droplets, then install patch material to original profiles.
7. Maintain adjacent plasterwork in an undamaged condition so far as practicable.

B. Gypsum-Plaster Mix: Gypsum gaging plaster.

C. Finishing: Finish flat surfaces flush and with same texture as adjacent existing plaster. For molded plaster shapes, tool surface to restore the sharp edges and the shape of the molded shape to original contours.

D. Hairline cracking within the plaster or plaster separation at edge of a patch is unacceptable. Completely dismantle such work and reinstall or repair.

3.08 HAIRLINE CRACK REPAIR

A. General: Repair cracks 1/32 inch in width or narrower in otherwise sound plaster.

1. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
2. Maintain adjacent plasterwork in an undamaged condition so far as practicable.

B. Existing Topcoat: Open crack in existing topcoat to at least 1/8 inch in width and check for broken fiber reinforcement in base coats.

C. Existing Base Coats: Do not open crack wider in existing base coats unless inspection or other indication shows that the fiber reinforcement has broken. Where inspections indicate failure of fiber reinforcement, proceed as for a large crack repair, but only for length of crack with broken fiber reinforcement.

D. Clean out crack to remove loose materials and other foreign matter and deposits that could impair bond with repair material. Where grease, waxes, oils, waterborne staining, or other foreign matter and deposits that could impair bond with repair material have penetrated into the topcoat plaster, widen the crack and sand surface of the exposed basecoat to remove these deposits.

E. Wet substrate to damp condition, but without visible water droplets.

F. Force repair material demonstrated in mockup into crack, filling crack to original plaster profile.

G. Finishing: Finish flat surfaces flush and with same texture as adjacent existing plaster. For molded plaster shapes, tool surface to restore the sharp edges and the shape of the molded shape to original contours.

3.09 LARGE CRACK REPAIR

A. General: Repair cracks over 1/32 inch in width in otherwise sound plaster.

1. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
2. Maintain adjacent plasterwork in an undamaged condition so far as practicable.

B. Open crack to at least 1/8 inch in width and full depth with V-groove tool, and check for bond separation or lath deterioration.

C. Abrade side surfaces of crack and remove inner crack debris by gouging (keying) the inside area of the crack.

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

E. Wet substrate to damp condition, but without visible water droplets.

F. Install repair material demonstrated in mockup to fill crack to original plaster profile.

G. Finishing: Finish flat surfaces flush and with same texture as adjacent existing plaster. For molded plaster shapes, tool surface to restore the sharp edges and the shape of the molded shape to original contours.

H. Offset Cracks: If the crack is offset in surface plane by more than 1/8 inch, dismantle the plaster on each side of the crack, a minimum width of 6 inchesand down to the lath or other substrate. Then, repair as specified for flat-plaster removal and replacement.

3.10 INSTALLATION TOLERANCES

A. Completed plaster installation shall not deviate from a true plane by more than 1/8 inchas measured by a 5 foot straightedge placed at any location on a surface, except where existing plaster is retained as a substrate for new plasterwork.

3.11 CLEANING AND PROTECTION

A. Protect work of other trades against damage. Promptly remove plaster from surfaces not indicated to be repaired or plastered. Do not scratch or damage finished surfaces.

B. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.

C. Correct damage to other surfaces and to new work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. Remove temporary protection and enclosure of other work.

END OF SECTION

SECTION 092613 - GYPSUM VENEER PLASTERING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Gypsum veneer plaster over monolithic concrete surfaces.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Show locations, fabrication, and installation of control joints, reveals, and trim; include plans, elevations, sections, details of components, and attachments to other work.

C. Samples: For the following products:

1. Trim Accessories: Full-size sample in 10 inch length for each trim accessory.
2. Textured Finishes: Manufacturer's standard size for each textured finish and on rigid backing.

1.03 QUALITY ASSURANCE

A. Integral Color Plaster Design and Detailing:

1. No expansion joints are required for finish.
2. Apply base coat smooth, and lightly sand to ensure no telegraphing of taped joints and provide uniform suction for Venetian base coat.
3. Allow minimum 24 hours drying time between application of base coat and finish.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages, containers, and bundles bearing brand name and identification of manufacturer or supplier.

B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.

C. Stack panels flat on leveled supports off floor or slab to prevent sagging.

1.05 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 843 requirements or gypsum veneer plaster manufacturer's written recommendations, whichever are more stringent.

B. Room Temperatures: Maintain not less than 55 degrees F or more than 80 degrees Ffor 7 days before application of gypsum base and gypsum veneer plaster, continuously during application, and after application until veneer plaster is dry.

C. Avoid conditions that result in gypsum veneer plaster drying too rapidly.

1. Distribute heat evenly; prevent concentrated or uneven heat on veneer plaster.
2. Maintain relative humidity levels, for prevailing ambient temperature, that produce normal drying conditions.
3. Ventilate building spaces in a manner that prevents drafts of air from contacting surfaces during veneer plaster application until it is dry.

D. Do not install panels that are wet, moisture damaged, or mold damaged.

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

1.06 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of gypsum veneer plastering system that fail in materials or workmanship within specified warranty period.

1. Failures include the following:

a. Defects in manufacture of materials, peeling, flaking, delaminating, or fading.

2. Warranty Period: [10] years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

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

2.02 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated per ASTM E119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated per ASTM E 90 and classified per ASTM E413 by an independent testing agency.

2.03 GYPSUM VENEER PLASTER

A. 2-Component Gypsum Veneer Plaster: ASTM C587, with separate formulations; one for base-coat application and one for finish-coat application over substrates.

1. Base Coat:

a. Products: Provide one of the following:

1) National Gypsum Company: Kal-Kote Plaster Base.
2) United States Gypsum Company: Structo-Base Gypsum Plaster.

2. Smooth Finish Coat:

a. Products: Provide one of the following:

1) National Gypsum Company: Kal-Kote Smooth Finish.
2) United States Gypsum Company: Diamond Interior Finish Plaster.

3. Textured Finish Coat:

a. Products: Provide one of the following:

1) National Gypsum Company: Kal-Kote Texture Finish.
2) United States Gypsum Company: Job-Aggregated Diamond Interior Finish.

2.04 BASE PANEL PRODUCTS

A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

B. Abuse-Resistant Gypsum Base for Veneer Plaster: With specially reinforced core for greater resistance to surface abrasion, indentation, soft-body impact, and hard-body impact.

1. Products: Provide one of the following:

a. National Gypsum Company: Hi-Abuse Kal-Core Plaster Base.
b. United States Gypsum Company: Imperial Abuse Resistant Gypsum Base.

2. Core: 1/2 inch, regular type.
3. Long Edges: Tapered.
4. Mold Resistance: ASTM D3273, score of 10 as rated per ASTM D3274.
5. Abuse Resistance: ASTM C1629, Level 1.

2.05 JOINT REINFORCING MATERIALS

A. General: Comply with joint strength requirements in ASTM C587 and with gypsum veneer plaster manufacturer's written recommendations for each application indicated.

B. Joint Tape:

1. Gypsum Base for Veneer Plaster: As recommended by gypsum veneer plaster manufacturer for applications indicated.

C. Embedding Material for Joint Tape:

1. Gypsum Base for Veneer Plaster: As recommended by gypsum veneer plaster manufacturer for use with joint-tape material and gypsum veneer plaster applications indicated.

2.06 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced product standards and manufacturer's written recommendations.

B. Bonding Agent: ASTM C631, polyvinyl acetate.

1. Products: Provide one of the following:

a. Larsen Products Corp.: Plaster-Weld.
b. United States Gypsum Company: Plaster Bonder.
c. Approved substitution.

C. Laminating Adhesive: Adhesive or joint compound recommended by manufacturer for directly adhering gypsum-base, face-layer panels to backing-layer panels in multilayer construction.

1. Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

D. Patching Mortar: Dry-pack patching mortar, consisting of 1 part portland cement to 2 1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

PART 3 - EXECUTION

3.01 EXAMINATION

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

B. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.

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

3.02 PREPARATION

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

1. Clean surfaces to remove dust, loose particles, grease, oil, incompatible curing compounds, form-release agents, and other foreign matter and deposits that could impair bond with gypsum veneer plaster.
2. Remove ridges and protrusions greater than 1/8 inchand fill depressions greater than 1/4 inchwith patching mortar. Allow to set and dry.
3. Apply bonding agent on dry and cured concrete substrates.

3.03 INSTALLING PANELS, GENERAL

A. Gypsum Base for Veneer Plaster: Apply per ASTM C844 unless manufacturer's written recommendations are more stringent.

1. Do not allow gypsum base to degrade from exposure to sunlight, as evidenced by fading of paper facing.
2. Erection Tolerance: No more than 1/16 inchoffsets between planes of gypsum base panels, and 1/8 inch in 8 feetnoncumulative, for level, plumb, warp, and bow.

B. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inchof open space between panels. Do not force into place.

C. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not locate joints, other than control joints, at corners of framed openings.

D. Form control joints with space between edges of adjoining panels.

E. Cover both sides of partition framing with panels in concealed spaces, including above ceilings, except in internally braced chases.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 square feetin area.
2. Fit panels around ducts, pipes, and conduits.
3. Where partitions intersect open concrete coffers, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut panels to fit profile formed by coffers, joists, and other structural members; allow 1/4 to 3/8 inchwide joints; seal joints with acoustical sealant.

F. Fastener Spacing: Comply with ASTM C844, manufacturer's written recommendations, and fire-resistance-rating requirements.

1. Space screws a maximum of 12 incheson center along framing members for wall or ceiling application.

3.04 INSTALLING PANELS

A. Install panels for veneer plaster in locations indicated on Drawings.

B. Single-Layer Application:

1. On walls, apply gypsum base panels horizontally and perpendicular to framing unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.

C. Fasteners: Drive fasteners flush with gypsum base surface. Do not overdrive fasteners or cause surface depressions.

D. Single-Layer Fastening Methods: Apply gypsum base panels to supports with steel drill screws.

3.05 INSTALLING JOINT REINFORCEMENT

A. Abuse-Resistant Base: Reinforce joints between abuse-resistant panels with joint tape and embedding material per panel manufacturer's written recommendations.

3.06 GYPSUM VENEER PLASTERING

A. Bonding Agent:

1. Apply bonding compound to monolyithic concrete per gypsum veneer plaster manufacturer's written recommendations.
2. Allow bonding compound to dry a minimum of 1 hour or until surface is dry to the touch. Plastering may begin once bonding compound has dried.

B. Gypsum Veneer Plaster Mixing: Mechanically mix gypsum veneer plaster materials to comply with ASTM C843 and with gypsum veneer plaster manufacturer's written recommendations.

C. Gypsum Veneer Plaster Application: Comply with ASTM C843 and with veneer plaster manufacturer's written recommendations.

1. 2-Component Gypsum Veneer Plaster:

    a. Base Coat: Hand trowel or machine apply base coat over substrate to a uniform thickness of 1/16 to 3/32 inch. Fill all voids and imperfections.
    b. Finish Coat: Trowel apply finish-coat plaster over base-coat plaster to a uniform thickness of 1/16 to 3/32 inch.

2. Where gypsum veneer plaster abuts only metal door frames, windows, and other units, groove finish coat to eliminate spalling.

3. Do not apply veneer plaster to gypsum base if paper facing has degraded from exposure to sunlight. Before applying veneer plaster, use remedial methods to restore bonding capability to degraded paper facing per manufacturer's written recommendations and as approved by Architect.

D. Concealed Surfaces: Do not omit gypsum veneer plaster behind cabinets, furniture, furnishings, and similar removable items. Omit veneer plaster in the following areas where it will be concealed from view in completed Work unless otherwise indicated or required to maintain fire-resistance and STC ratings:

1. Above suspended ceilings.
2. Behind wood paneling.

E. Gypsum Veneer Plaster Finish: Smooth-troweled finish unless otherwise indicated Textured finish matching Architect's sample.

3.07 PROTECTION

A. Protect installed gypsum veneer plaster from damage from weather, condensation, construction, and other causes during remainder of construction period until Substantial Completion.

B. Remove and replace gypsum veneer plaster and gypsum base panels that are wet, moisture damaged, or mold damaged.

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

END OF SECTION