Technical Specification

Paine Black House

Window And Door Restoration Project
INDEX

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>01100</td>
<td>SUMMARY</td>
<td>2 Pages</td>
</tr>
<tr>
<td>01300</td>
<td>ADMINISTRATIVE REQUIREMENTS</td>
<td>4 Pages</td>
</tr>
<tr>
<td>01500</td>
<td>TEMPORARY FACILITIES AND CONTROLS</td>
<td>2 Pages</td>
</tr>
<tr>
<td>01701</td>
<td>EXECUTION AND CLOSEOUT REQUIREMENTS</td>
<td>4 Pages</td>
</tr>
<tr>
<td>01732</td>
<td>SELECTIVE DEMOLITION</td>
<td>2 Pages</td>
</tr>
<tr>
<td>02090</td>
<td>LEAD PAINT</td>
<td>12 Pages</td>
</tr>
<tr>
<td>06100</td>
<td>CARPENTRY</td>
<td>4 Pages</td>
</tr>
<tr>
<td>07920</td>
<td>JOINT SEALANTS</td>
<td>2 Pages</td>
</tr>
<tr>
<td>081520</td>
<td>WOOD WINDOW AND DOOR RESTORATION</td>
<td>14 Pages</td>
</tr>
<tr>
<td>08212</td>
<td>STILE AND RAIL WOOD DOORS</td>
<td>2 Pages</td>
</tr>
<tr>
<td>08550</td>
<td>WOOD WINDOWS</td>
<td>2 Pages</td>
</tr>
<tr>
<td>08710</td>
<td>DOOR HARDWARE</td>
<td>4 Pages</td>
</tr>
<tr>
<td>09910</td>
<td>PAINTING</td>
<td>6 Pages</td>
</tr>
</tbody>
</table>
SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY OF WORK

A. Project: Paine Black House window and door restoration project, 2135 Meetinghouse Way, West Barnstable, Massachusetts

B. Owner: Town Of Barnstable

C. Architect: Department Of Public Works, Town Of Barnstable

1. The work includes without limiting the generality thereof, lead paint removal, repair, surface preparation, painting of existing historic wood window sash and frame, re-glazing and glass repair, exterior wood door restoration, and installation of a new wood panel door into a modified door opening.

2. Lead paint exists on various elements of the building. It is expected that the contractor will be manipulating elements that contain lead. RRP certification is required for the contractor on this project. See lead based paint survey by Prior Environmental Services dated August 22, 2014.

D. Owner-Furnished Items: None

E. Work Under Other Contracts: None

1.2 WORK RESTRICTIONS

A. Contractor's Use of Premises: The building will not be in use and occupied during construction activities. This contractor shall take necessary precautions to protect the public from all construction, demolition operations. Contractor's use of premises is also limited by Owner's right to perform work or employ other contractors on portions of Project.

1. Owner will not occupy premises during construction. Perform construction only during normal working hours (7 AM to 7 PM Monday thru Friday, other than holidays), unless otherwise agreed to in advance by Owner. Clean up work areas and return to a useable condition at the end of each work period.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01100
SECTION 01300 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

A. Coordinate construction to ensure efficient and orderly installation of each part of the Work.

B. Schedule and conduct progress meetings at Project site at week intervals. Notify The Owner's Project Manager of meeting dates and times. Require attendance of each subcontractor or other entity concerned with current progress or involved with planning or coordination of future activities.

1. Contractor will record minutes and distribute to everyone concerned.

1.2 SUBMITTAL PROCEDURES

A. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

1. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.
2. Submit three copies of each submittal. Owner's Project Manager will return one copy.
3. Owner's Project Manager will discard submittals received from sources other than Contractor.

B. Place a permanent label or title block on each submittal for identification. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Owner's Project Manager. Include the following information on the label:

1. Project name.
2. Date.
3. Name and address of Contractor.
4. Name and address of subcontractor or supplier.
5. Number and title of appropriate Specification Section.

C. Identify deviations from the Contract Documents on submittals.

D. Contractor's Construction Schedule Submittal Procedure: Submit [two] copies of schedule within ten (10) days after notice to proceed.
PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. Product Data: Mark each copy to show applicable products and options. Include the following:

1. Manufacturer's written recommendations, product specifications, and installation instructions.
2. Printed performance curves and operational range diagrams.
3. Testing by recognized testing agency.
4. Compliance with specified standards and requirements.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit on sheets at least 8-1/2 by 11 inches but no larger than 24 by 36 inches. Include the following:

1. Dimensions and identification of products.
2. Fabrication and installation drawings and roughing-in and setting diagrams.
3. Wiring diagrams showing field-installed wiring.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.

C. Samples: Submit Samples for review of kind, color, pattern, and texture and for a comparison of these characteristics between submittal and actual component as delivered and installed. Include name of manufacturer and product name on label.

2.2 INFORMATION SUBMITTALS

A. Qualification Data: Include lists of completed projects with project names and addresses, names and addresses of the Owner's Project Manager, and other information specified.

B. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type schedule within ten (10) days of the notice to proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
PART 3 - EXECUTION

3.1 SUBMITTAL REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to the Owner's Project Manager

B. Owner's Project Manager will review each action submittal, make marks to indicate corrections or modifications required, stamp and mark as appropriate to indicate action taken, and return copies less those retained.

3.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Distribute copies of approved schedule to Owner's Project Manager, subcontractors, testing and inspecting agencies, and parties identified by Contractor with a need-to-know schedule responsibility. When revisions are made, distribute updated schedules to the same parties.

B. Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. As the Work progresses, indicate Actual Completion percentage for each activity.
SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Use Charges: Cost or use charges for temporary facilities shall be included in the Contract Sum.

B. Use water and electric power from Owner's existing system. Contractor will be charged for increased utility bills.

C. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for connecting to existing electric service.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 TEMPORARY UTILITIES

A. General: Electric power is available from Owners existing electric service. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

C. Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

3.2 TEMPORARY SUPPORT FACILITIES

A. The Owner will provide space within the building for use by the Contractor as an office. There is space on the property for contractor supplied site trailer or storage units, Locations as directed by the Owner's Project Manager.

B. Weekly job meetings will be held at the job site and at the S&G conference room, 800 Pitcher's Way, Hyannis, MA.

C. A project trailer is not required for this project.

D. Provide Storage and fabrication sheds, and other support facilities as necessary for construction operations.
E. Provide chain link fencing as required to protect the public from construction activities and to safeguard project equipment and facilities.

F. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Collect waste daily and, when containers are full, legally dispose of waste off-site. Comply with requirements of authorities having jurisdiction.

3.3 TEMPORARY SECURITY AND PROTECTION FACILITIES

A. Provide temporary environmental protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Provide methods to control dust, dirt, fumes and noise.

C. Furnish and install site or building enclosure in a manner that will prevent people and animals from easily entering site except by entrance gates.

3.4 TERMINATION AND REMOVAL

A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, remove temporary utilities.

B. Remove temporary facilities and controls no later than Substantial Completion.

END OF SECTION 01500
SECTION 01701 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

   A. Record Drawings: Maintain a set of prints of the Contract Drawings as Record Drawings. Mark to show actual installation where installation varies from that shown originally.

      1. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

      2. Record drawings to be submitted to the Owner's Project Manager prior to substantial completion in PDF format.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

   A. Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, plumb, smooth, clean, and free of deleterious substances; substrates within installation tolerances; and application conditions within environmental limits. Proceed with installation only after unsatisfactory conditions have been corrected.

   B. Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to property survey and existing benchmarks.

   C. Take field measurements as required to fit the Work properly. Where fabricated products are to be fitted to other construction, verify dimensions by field measurement before fabrication and, when possible, allow for fitting and trimming during installation.

3.2 CUTTING AND PATCHING

   A. Do not cut structural members or operational elements without prior written approval of Owner's Project Manager.

   B. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
3.3 INSTALLATION

A. Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned with other portions of the Work. Clean exposed surfaces and protect from damage.

B. Clean Project site and work areas daily, including common areas.

3.4 FINAL CLEANING

A. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.

3.5 CLOSEOUT PROCEDURES

A. Substantial Completion: Before requesting Substantial Completion inspection, complete the following:

1. Prepare a monetized list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, maintenance service agreements, and similar documents.
4. Submit Record Drawings and Specifications and similar final record information.
5. Remove temporary facilities and controls.
6. Complete final cleaning requirements.
7. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Submit a written request for inspection for Substantial Completion. On receipt of request, Owner's Project Manager will proceed with inspection or advise Contractor of unfulfilled requirements. Owner's Project Manager will prepare the Certificate of Substantial Completion after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

C. Request inspection for Final Completion, once the following are complete:

1. Submit a copy of Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.
2. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

D. Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
E. Submit a written request for final inspection for acceptance. On receipt of request, Owner's Project Manager will proceed with inspection or advise Contractor of unfulfilled requirements. Owner's Project Manager will prepare final Certificate for Payment after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

END OF SECTION 0170
PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Items indicated to be removed and salvaged remain Owner's property. Remove, clean, and deliver to Owner's designated storage area.

B. Comply with EPA regulations and hauling and disposal regulations of authorities having jurisdiction.

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

D. See appropriate sections of this specification for information regarding the extent of hazardous materials encountered for this project. Asbestos containing materials (ACM) exist on site at various locations. Work of this contract is not expected to disturb or remove Asbestos Containing Materials. A copy of asbestos testing reports are attached to this document for reference only. Removal of Asbestos Containing Material is NOT included as part of this contract.

E. Components to be removed, stripped of paint, repaired, and painted contain lead. See OSHA Pre-renovation Lead Based Paint Survey by Prior Environmental Services Dated August 22, 2014 attached to this document.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 DEMOLITION

A. Maintain services/systems indicated to remain and protect them against damage during selective demolition operations. Before proceeding with demolition, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of the building.

B. Locate, identify, shut off, disconnect, and cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

C. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

D. 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 or construction being demolished.
E. Provide temporary weather protection to prevent water leakage and damage to structure and interior areas.

F. Protect walls, ceilings, floors, and other existing finish work that are to remain. Seal windows and protect from mortar dust infiltration during mortar cutting and brick removal operations. 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.

G. Promptly remove demolished materials from Owner's property and legally dispose of them. Do not burn demolished materials.

END OF SECTION 01732
SECTION 02090 - LEAD PAINT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including the Conditions of the Contract and Division 1 Specification Sections apply to this section.

B. Carefully examine all of the Contract Documents for requirements which affect the work of this section; the exact scope of work of this section cannot be determined without a thorough review of all Specification Sections and other Contract Documents.

C. Lead Safe Work Practices: Exposure levels for lead in the construction industry are regulated by the Occupational Safety and Health Administration (OSHA) 29 CFR 1926.62. Additionally, the Commonwealth of Massachusetts, Department of Labor Standards (DLS) regulation 453 CMR 22.11 for Renovation shall apply. Note the project is not being performed as a de-leading project pursuant to Commonwealth of Massachusetts Department of Health Regulations. Construction activities disturbing surfaces with lead-containing paint that are likely to be employed, such as demolition, sanding, grinding, welding, cutting and burning, have been known to expose workers to levels of lead in excess of the OSHA Permissible Exposure Limit (PEL). All work specified in the technical sections of the Contract Documents shall also be in conformance with the above regulations and in accordance with Technical Specification Section 02090 for Lead Paint.

D. Related Information:

1. Lead Paint Assessment Summary by Prior Environmental Services
   Dated August 22, 2014

1.2 SUMMARY OF WORK

A. The scope of abatement work is necessary to facilitate renovations to exterior building envelope at the Paine Black House located at 2135 Meetinghouse Way, West Barnstable, Massachusetts. The procedures referenced herein shall be utilized during required renovation work specified elsewhere in the Specifications that will impact lead paint.

B. Worker protection, training, and engineering controls referenced herein shall be strictly adhered to, until completion of an exposure assessment with results indicating exposures below the “Action Level”. This section does not involve lead abatement, but identifies worker protection requirements for trades involved in the renovation and disposal procedures.
C. A limited lead determination was conducted and lead paint was limited to the wood trim and window components. The anticipated work will include surface preparations for painting and selective demolition specified elsewhere in contract documents. Worker protection and waste disposal during these work practices shall be conducted in accordance with this section.

1.3 DEFINITIONS

A. The following definitions relative to lead paint as used in this Section are offered:

1. ACTION LEVEL (AL): The allowable employee exposure, without regard to use of respiratory protection, to an airborne concentration of lead over an eight (8) hour time weighted average (TWA), as defined by OSHA. The current action level is thirty micrograms per cubic meter of air (30 ug/m3).

2. AREA MONITORING: The sampling of lead concentrations, which is representative of the airborne lead concentrations that may reach the breathing zone of personnel potentially exposed to lead.

3. BIOLOGICAL MONITORING: The analysis of a person's blood and/or urine, to determine the level of lead concentration in the body.

4. CHANGE ROOM: An area provided with separate facilities for clean protective work clothing and equipment and for street clothes, which prevents cross-contamination.

5. COMPETENT PERSON: A person employed by the Contractor who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions, and who has authorization to take prompt corrective measures to eliminate them as defined by OSHA.

6. DANGEROUS LEVEL OF LEAD: A level of lead, when present in dried paint or plaster, contains more than 0.50% lead by dry weight as measured by atomic absorption spectrophotometry (AAS) or 1.0 mg/cm2 as measured by on-site testing utilizing an x-ray fluorescence analyzer. (Term is specific to Commonwealth of Massachusetts regulations and HUD guidelines only)

7. EXPOSURE ASSESSMENT: An assessment conducted by an employer to determine if any employee may be exposed to lead at or above the action level.

8. "HIGH EFFICIENCY PARTICULATE AIR" (HEPA): A type of filtering system capable of filtering out particles of 0.3 microns diameter from a body of air at 99.97% efficiency or greater.
9. **LEAD**: Refers to metallic lead, inorganic lead compounds and organic lead soaps. Excluded from this definition are other organic lead compounds.

10. **LEAD WORK AREA**: An area enclosed in a manner to prevent the spread of lead dust, paint chips, or debris resulting from lead-containing paint disturbance.

11. **LEAD PAINT**: Refers to paints, glazes and other surface coverings containing a toxic level of lead.

12. **PERMISSIBLE EXPOSURE LIMIT (PEL)**: The maximum allowable limit of exposure to an airborne concentration of lead over an eight (8) hour time weighted average (TWA), as defined by OSHA. The current PEL is fifty micrograms per cubic meter of air (50 ug/m³). Extended workdays lower the PEL by the formula: PEL equals 400 divided by the number of hours of work.

13. **PERSONAL MONITORING**: Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR 1926.62 and 29 CFR 1910.1025. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a sphere with a radius of 18 inches and centered at the nose or mouth of an employee.

14. **RESOURCE CONSERVATION RECOVERY ACT (RCRA)**: RCRA establishes regulatory levels of hazardous chemicals. There are eight (8) heavy metals of concern for disposal: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Six (6) of the metals are typically found in paints, excluding selenium and silver.

15. **TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (TCLP)**: The U.S. Environmental Protection Agency (USEPA) required sample preparation and analysis for determining the hazard characteristics of a waste material.

1.4 **REGULATIONS AND STANDARDS**

A. The following regulations, standards, and ordinances of federal, state, and local agencies are applicable and made a part of this specification by reference:

1. American National Standards Institute (ANSI)
   a. ANSI 288.2 - 1980 Respiratory Protection

   a. 29 CFR 1910.134 - Respiratory Protection
b. 29 CFR 1910.1025 - Lead

c. 29 CFR 1926.62 - Lead in Construction Interim Final Rule

d. 29 CFR 1910.1200 - Hazard Communication

e. 29 CFR 1926.59 - Hazard Communication in Construction

f. 29 CFR 1926.55 - Gases, Vapors, Fumes, Dusts, and Mists

g. 29 CFR 1926.57 - Ventilation

h. 40 CFR 260 - Hazardous Waste Management Systems: General

i. 40 CFR 261 - Identification and Listing of Hazardous Waste

j. 40 CFR 262 - Generators of Hazardous Waste

k. 40 CFR 263 - Transporters of Hazardous Waste

l. 40 CFR 264 - Owner and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

m. 40 CFR 265 - Interim Statutes for Owner and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

n. 40 CFR 268 - Lead Disposal Restrictions

o. 40 CFR 172 - Hazardous Materials Tables and Communication Regulations

p. 40 CFR 178 - Shipping Container Specifications

q. 40 CFR 270 and 124 - Hazardous Waste Permits


4. Underwriters Laboratories, Inc. (UL)

a. UL586 - 1990 High Efficiency Particulate Air Filter Units

1.5 QUALITY ASSURANCE

A. Hazard Communication Program

1. The Contractor shall establish and implement a Hazard Communication Program as required by 29 CFR 1926.59. B.

Compliance Plan (Site Specific)

The contractor shall establish a written compliance plan, which is specific to the project site, to include the following:
1. A description of work activity involving lead including equipment used, material included, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices.

2. Methods of engineering controls to be used to control lead exposure.

3. The proposed technology the Contractor will implement in meeting the PEL.

4. Air monitoring data documenting the source of lead emissions.

5. A detailed schedule for implementing the program, including documentation of appropriate supply of equipment, etc.

6. Proposed work practice which establishes proper protective work clothing, housekeeping methods, hygiene facilities, and practices.

7. Worker rotation schedule, if proposed, to reduce TWA.


C. Hazardous Waste Management

The Contractor shall establish a Hazardous Waste Management Plan, which shall comply with applicable regulations and address the following:

1. Identification of hazardous wastes

2. Estimated quantity of waste to be disposed of

3. Names and qualifications of each subcontractor that will be transporting, storing, treating, and disposing of wastes

4. Disposal facility location and 24 hour point of contact

5. Establish EPA state hazardous waste and identification numbers if applicable

6. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes

7. List of waste handling equipment to be used in performing the work to include cleaning, volume reduction, if applicable, and transport equipment

8. Qualifications of laboratory to be utilized for TCLP sampling and analysis

9. Spill prevention, containment, and cleanup contingency measures

10. Work plan and schedule for waste containment, removal, treatment, and disposal
D. Medical Examinations
   2. The examination shall not be required if adequate records show that employees have been examined as required by 29 CFR 1926.62 within the last year.
   3. Medical examination shall include, at a minimum, approval to wear respiratory protection and biological monitoring.

E. Training
   1. The Contractor shall ensure that workers are trained to perform lead-paint disturbing activities and disposal operations prior to the start of work in accordance with 29 CFR 1926.62.

F. Respiratory Protection Program
   1. The Contractor shall furnish each employee required to wear a negative pressure respirator with a respirator fit test at the time of initial fitting and at least once every six (6) months thereafter as required by 29 CFR 1926.62.

1.6 SUBMITTALS
A. The Contractor shall submit to the Owner the following submittals prior to start of work:
   1. Copies of medical records for each employee to be used on the project, including results of biological monitoring and a notarized statement by the examining physician that such an examination took place.
   2. Copies of workers' training certificates.
   3. Submit record of successful respirator fit testing performed by a qualified individual within the previous six (6) months, for each employee to be used on this project with the employee's name and social security number with each record.
   4. The name and address of Contractor's blood lead testing lab, OSHA-CDC listing, and Certification in the Commonwealth of Massachusetts.
   5. The name and address of Contractor's personal air monitoring and waste disposal lead testing laboratory/ies.
6. Name, address, and ID number of the hazardous waste hauler, waste transfer route, and proposed disposal site.

B. The Contractor shall submit to the Owner the following submittals during the job:
   1. Results from personal air samples.
   2. Medicals, certificates, and fit test 24 hours in advance of any new employee starting on the project.

C. The Contractor shall submit to the Owner the following submittals upon completion of the work:
   1. Copies of manifests and receipts acknowledging disposal of all hazardous waste material from the project showing delivery date, quantity, and appropriate signature of landfill's authorized representative.

1.7 PERSONAL PROTECTION A.

Exposure Assessment
   1. The Contractor shall determine if any worker will be exposed to lead at or above the action level.
   2. The exposure assessment shall identify the level of exposure a worker would be subjected to without respiratory protection.
   3. The exposure assessment shall be achieved by obtaining personal monitoring samples representative of a full shift at least (8-hour TWA).
   4. During the period of the exposure assessment, the Contractor shall institute the following procedures for protection of workers.
      a. Protective clothing shall be utilized
      b. Respiratory protection
      c. Change areas shall be provided
      d. Hand-washing facilities and shower
      e. Biological monitoring
      f. Training of workers

B. Respiratory Protection
   1. The Contractor shall furnish appropriate respirators approved by NIOSH/MSHA for use in atmospheres containing lead dust.
   2. Respirators shall comply with the requirements of 29 CFR 1926.62.
   3. Workers shall be instructed in all aspects of respiratory protection.
4. The Contractor shall have an adequate supply of HEPA filter elements and spare parts on site for all types of respirators in use.

5. The following minimum respirator protection for use during paint removal or demolition of components and surfaces with lead paint shall be the 1/2 mask air purifying respirator with high efficiency filters for exposures (not in excess of 500 ug/m3 or 10 x PEL).

C. Protective Clothing

1. Personal protective clothing shall be provided for all workers, supervisors, and authorized visitors entering the work area.

2. Each worker shall be provided with a minimum of two (2) complete disposable coverall suits.

3. Removal workers shall not be limited to two (2) suits, and the Contractor shall supply additional suits as necessary.

4. Under no circumstances shall anyone entering the abatement area be allowed to re-use a contaminated disposable suit.

5. Disposable suits, such as TYVEK suits, and other personal protective equipment (PPE) shall be donned prior to entering the lead control area. A change room shall be provided for workers to put on suits and other personal protective equipment with separate areas to store their street clothes.

6. Eye protection for personnel engaged in lead operations shall be furnished when the use of a full-face respirator is not required.

7. Goggles with side shields shall be worn when working with power tools or a material that may splash or fragment, or if protective eye wear is specified on the Material Safety Data Sheet (MSDS) for a particular product to be used on the project.

1.8 PERSONAL MONITORING

A. General. The Contractor is required to perform the personal air sampling activities during lead paint disturbing work. The results of such sampling shall be posted, provided to individual workers and submitted to the Consultant as described herein.

B. Sampling. Samples shall be taken for the duration of the work shift or for eight hours, whichever is less. Personal samples need not be taken every day after the first day if working conditions remain unchanged, but must be taken every time there is a change in removal operations, either in terms of the location or the type of work. Sampling will be used to determine eight-hour Time-weighted averages (TWA). The Contractor is responsible for personal sampling as outlined in

C. Sampling Results. Air sampling results shall be reported to individual workers in written form no more than forty-eight (48) hours after the completion of a sampling cycle. The reporting document shall list each sample's result, sampling time and date, personnel monitored and their social security numbers, flow rate, sample duration, sample yield, cassette size, and analysts' name and company, and shall include an interpretation of the results. Air sample analysis results will be reported in micrograms/cubic meter (ug/m$^3$).

D. Testing Laboratory. The Contractor's testing lab shall be participating in AIHA's Environmental Lead Laboratory Accreditation Program (ELLAP). The Contractor shall submit to the Consultant for review and acceptance, the name and address of the laboratory, certification(s) of AIHA participation, a listing of relevant experience in air lead analysis, and presentation of a documented Quality Assurance and Quality Control Program.

PART 2 - PRODUCTS

2.1 GENERAL

A. Any substitution in materials, equipment, or methods to those specified shall be approved by the Owner prior to use. Any requests for substitution shall be provided in writing to the Consultant. The request shall clearly state the rationale for the substitution.

B. Submit to the Owner product data of all materials and equipment and samples of all materials to be considered as an alternate.

C. Product data shall consist of manufacturer; catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, material safety data sheets (MSDS), and other standard descriptive data. Submittal data shall be clearly marked to identify pertinent materials, products or equipment and show performance characteristics and capacities.

D. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product or material with integrally related parts and attachment devices.

2.2 MATERIALS AND PRODUCTS

A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.

B. Damaged or deteriorating materials shall not be used and shall be removed from the premises.

C. The Contractor shall have available sufficient inventory or dated purchase orders for materials necessary for the job including protective clothing, respirators, filter
cartridges, polyethylene sheeting of proper size and thickness, tape, and air filters.

D. Materials
1. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating 6 mil.
2. Polyethylene disposable bags shall be six (6) mil. Tie wraps for bags shall be plastic, five (5) inches long (minimum), pointed and looped to secure filled plastic bags.
3. Tape or adhesive spray will be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.
4. Impermeable containers are to be used to receive and retain any lead containing or contaminated materials until disposal at an acceptable disposal site. (The containers shall be labeled in accordance with EPA and DOT standards.)
5. HEPA filtered exhaust systems shall be used during powered dust generating abatement operations. The use of powered equipment without HEPA exhausts is prohibited.

2.3 TOOLS AND EQUIPMENT
A. Provide suitable tools for all lead disturbing operations.
B. The Contractor shall have available power cables or sources such as generators (where required).
C. Vacuum units, of suitable size and capacities for the project, shall have HEPA filter(s) capable of trapping and retaining 99.97% of all mono-dispersed particles of 0.3 micrometers in diameter.

PART 3 - EXECUTION
3.1 WORKER PROTECTION/TRAINING
A. The Contractor shall provide appropriate training, respiratory and other personal protection, and biological monitoring for each worker and ensure proper usage during potential lead exposure and the initial exposure assessment.

3.2 CONTRACTOR’S RESPONSIBILITIES
A. The Contractor is responsible for establishing and maintaining controls referenced herein to prevent dispersal of lead contamination from the lead work area.
B. The Contractor is also responsible for conducting work with applicable federal, state, and local regulations as referenced herein.
3.3 WORKER HYGIENE PRACTICES (Required during initial exposure assessment and if results of air sampling are above OSHA Action Level)

A. **Work Area Entry.** Workers shall don personal protective equipment prior to entering work area, including respiratory protection, disposable coveralls, gloves, headgear, and footwear.

B. **Work Area Departure.** While leaving respirators on, workers shall remove all gross contamination, debris, and dust from disposable coveralls and proceed to change room and remove coveralls and footwear and place in hazardous waste disposal container.

C. **Hand washing Facilities.** All workers must wash their hands and faces upon leaving the work area.

D. **Equipment.** All equipment used by workers inside the work area shall be wet wiped or bagged for later decontamination before removal from the work area.

E. **Prohibited Activities.** Under no circumstances shall workers eat, drink, smoke, chew gum, or tobacco, or remove their respirators in the work area.

F. **Shock Hazards.** The Contractor is responsible for using safe procedures to avoid electrical hazards. All temporary electrical wiring will be protected by ground fault circuit interrupters (GFI).

3.4 LEAD WORK AREA (Required during initial exposure assessment and if results of air sampling are above OSHA Action Level)

A. The Contractor shall place warning signs at all entrances and exits from the work area. Signage shall be a minimum of 20” x 14” and shall state the following:

WARNING LEAD
WORK AREA
POISON

NO SMOKING OR EATING OR DRINKING
UNAUTHORIZED ENTRY PROHIBITED

B. The Contractor shall designate a change room as specified in this Section. The change room shall consist of two (2) layers of sheeting on the floor surface adjacent to the lead work area. The change room shall have separate storage facilities for street clothes to avoid cross contamination.

C. The Contractor shall provide potable water for hand and face washing and provide a portable shower unit.

D. The Contractor shall place six-mil polyethylene drop clothes on floor/ground surfaces prior to beginning removal work to facilitate clean-up.

3.5 WORK AREA CLEAN UP

A. The Contractor shall remove all loose chips and debris from floor/ground surfaces and place in hazardous waste disposal bags.
B. The Contractor shall HEPA vacuum adjacent surfaces to remove dust and debris. C. Polyethylene drop cloths shall be properly disposed of.

3.6 WASTE DISPOSAL

A. The Contractor shall segregate all paint chips resulting from surface preparation for painting and for disposal as hazardous waste.

B. Cost for disposal of hazardous lead paint chip debris shall be included in the bid. C. The Contractor's contractual liability shall be the proper disposal of all non-hazardous and hazardous wastes generated at the site in accordance with all applicable federal, state, and local regulations as referenced herein.

END OF SECTION
SECTION 06100 - CARPENTRY

PART 1 - GENERAL

1.1 Rough Carpentry work is limited to replacement of deteriorated material at window replacement locations, modification of one existing new door opening.

1.2 SECTION REQUIREMENTS

A. Submittals: Model code evaluation reports for wood-preservative treated wood.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: Provide dressed lumber, S4S, marked with grade stamp of inspection agency.

B. All lumber in contact with concrete, stone, or roofing to be ACQ treated lumber.

2.2 TREATED MATERIALS

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

B. Securely attach rough carpentry to substrates, complying with the following:

1. ESR-1339 for power-driven fasteners rated for contact with ACQ treated lumber
2. Published requirements of metal framing anchor manufacturer.
3. TABLE 2304.9.1 Fastening Schedule IBC International Building Code

C. Submittals: Model code evaluation reports for wood-preservative treated wood and metal framing anchors.

2. Use treatment containing no arsenic or chromium.
3. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
4. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Provide preservative-treated materials for all rough carpentry, unless otherwise indicated.

1. Wood members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Concealed members in contact with masonry or concrete.
3. Wood framing members that are less than 18 inches above the ground.
4. Wood plates that are installed over stone, brick, concrete block or concrete foundation.
5. Provide separation between ACQ treated lumber and any galvanized material including galvanized hangers and supports.

2.3 LUMBER

A. Dimension Lumber:
   1. Maximum Moisture Content: 19 percent.
   2. Exposed Framing (Including interior exposed framing): Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
      a. Species: As specified for framing other than non-load bearing partitions.
      b. Grade: No. 1

B. Timers 5-Inch Nominal Size and Thicker: No. 1: Southern pine: SPIB.

C. Exposed Boards: Eastern ponderosa pine, Premium: NeLMA, NLGA, WCLIB, or WWPA with 15 percent maximum moisture content.

D. Concealed Boards: Mixed southern pine, No. 2: SPIB with 19 percent maximum moisture content.

E. Miscellaneous Lumber: Construction, or No. 2 grade with 19 percent maximum moisture content of any species. Provide for nailers, blocking, and similar members.

F. Lumber for exterior trim, soffits, fascias, rakes & rake trim: Bodyguard brand, New Zealand radiata pine, primed all sides, white. Seal all cut ends.

2.4 MISCELLANEOUS PRODUCTS

A. Fasteners: Size and type indicated. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, or is ACQ treated lumber, provide fasteners of Type 304 stainless steel or Timberlok screws. Exposed fasteners to be Type 304 stainless steel. All fasteners to be concealed.

PART 3 - EXECUTION

3.1 INSTALLATION

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

B. Securely attach rough carpentry to substrates, complying with the following:
1. ESR-1339 for power-driven fasteners.
2. Published requirements of metal framing anchor manufacturer.
3. TABLE 2304.9.1 Fastening Schedule IBC International Building Code

END OF SECTION 06100
SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and color Samples.

B. Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F.

C. Installation of backing rod and sealant at all existing windows is included in this contract.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.

B. Sealant for Use in Building Expansion Joints:

1. Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses T, M, and O, with the additional capability to withstand 50 percent movement in both extension and compression for a total of 100 percent movement.

C. Sealant for General Exterior Use Where Another Type Is Not Specified, One of the Following:

1. Single-component, nonsag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; and Uses NT, M, A, and O.

2.2 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer.

B. Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint.
PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 1193.

B. Comply with ASTM C 919 for use of joint sealants in acoustical applications.

END OF SECTION 07920
PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect Work of this Section whether or not such Work is specifically mentioned in this Section.

C. Coordinate Work with that of all other trades affecting or affected by Work of this Section. Cooperate with such trades to assure the steady progress of all Work under Contract.

D. It is the intent of the Specifications and the Drawings to require that the equipment to be furnished complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the Work shall be new and of the best grade of their respective kinds.

1.02 SCOPE OF WORK

A. Provide all the Wood Window And Door Restoration Work required to complete the Work of the contract including all the Wood Window And Door Restoration Work shown on the plans, listed in the Specification, and needed to install a complete assembly in every way, with all reinforcing, pinning, and finishes. Coordinate the Wood Window And Door Restoration Work with all the other trades for the project. Provide all demolition and disposal Work to complete the Wood Window And Door Restoration Work. Patch to match all adjacent surfaces that are disturbed, left exposed, or unfinished. All Work of the contract is related. It is the General Contractor’s responsibility to review all the Work of each section, each Subcontractor, and each file sub-bidder for the entire project so that all the Work can be properly and completely performed.

B. Wood Window And Door Restoration Work includes, but is not limited to providing all labor, materials, equipment, and services necessary to complete the restoration of the wood windows, as specified herein..

1. Restore all components of existing wood windows and doors, Including frames, sash, stops, trim, glass and glazing, panels, rails, weather-stripping, and hardware.

2. Restoration of historic windows and doors consists of paint removal, consolidation and filling of deteriorated areas with specified epoxy material, appropriate Dutchman repairs, tightening of joints, priming, painting, weather-stripping, restoring hardware and providing new hardware where necessary to make the
doors and sash operable as required, glazing and replacement of broken glass, and sealing joints at window frame perimeter.

3. All operable upper and lower sash on the building will remain operable. All doors to be operable. Restore operational hardware and ensure that all lower and upper sash operate fully, freely, and smoothly.

4. Salvage, repair, and retain historic hardware where reusable; replace any missing or inoperable hardware to match existing.

5. Install new spring bronze weather-stripping at full perimeter of all operable sash.

6. Chemically strip all paint from wood and prep, prime, and paint wood window sash, including wood stops, muntins in the shop. Paint must be dry before items are shipped.

7. Chemically strip all paint from wood doors, prime, and paint including edges. Paint must be dry before items are shipped.

8. Window and Door frames are to be restored in place. Window and Door Frames are not to be removed from the building.

B. Levels of Window Restoration: At completion of window restoration, restored windows shall include all wood, glass, sealants, hardware, weather-stripping, and paint. All restored windows shall be operable (except as noted). Restoration shall include stripping of paint and coatings, repair and replacement of all damaged and deteriorated wood elements (using consolidation, consolidation and patching, Dutchman repairs, member replacement, and element replacement), surface preparation and painting, restoration of existing hardware and provision of new hardware, glazing, and sealing joints at window frame perimeter.

1.03 RELATED SECTIONS

A. Section 06 10 00 – ROUGH CARPENTRY

B. Section 07 90 05 – JOINT SEALERS

C. Section 09 91 00 – PAINTING

1.04 QUALITY ASSURANCE

A. Maintain a steady work crew consisting of qualified craftspeople and a full time foreman who has acceptable experience in wood window restoration. Confirm that all workers fully understand the requirements of the job. Allow for inspection of all work areas by the Owner's Project Manager.

B. "Skilled Craftsman" is defined as an artisan trained in the conservation, reproduction and restoration of wood windows. The craftsman must have experience in restoration of wood windows.
1. Foreman: Wood window restoration shall be directly supervised by a full-time foreman. Foreman shall be on site daily for duration of work of this Section. Same foremen shall remain on Project throughout work unless his performance is deemed unacceptable.

2. Mechanics: Wood window restoration shall be carried out by a steady crew of skilled mechanics who are thoroughly experienced with materials and methods specified and have a minimum of three years’ experience with work on historic buildings similar to that required by this Section. In acceptance or rejection of work of this Section, no allowance will be made for workers’ incompetence or lack of skill.

C. Standards: Work of this Section shall comply with requirements and recommendations of the following standards, with requirements of this Section, and with applicable laws, codes, and regulations: In each case in which there is a conflict between the requirements, the most stringent and restrictive requirement shall govern.

1. Reference standards for restoration work to be established by quality control panels which have been approved by the Project Architect or Project Manager and which shall serve as standards during the entire restoration process.

2. All materials shall conform to the latest edition of reference specifications applicable and specified herein and to applicable codes and requirements of local authorities having jurisdiction.

1.05 SUBMITTALS

A. General: Submit each Item in this Article. Revise and resubmit each item as required to obtain approval of Project Architect.

B. Product Data: Manufacturer’s technical data for each product to be used in work of this Section. Include test reports and certificates substantiating that products comply with specified requirements, recommendations for application and use, and Materiel Safety Data Sheets (MSDS).

C. Schedule: A schedule of work showing all windows and including finishes, wood types, locations, dimensions, and types of repair or replacement of each window assembly.

D. Samples

1. Wood for Repair and Replacement: 6-Inch x 12-Inch x 1-Inch samples of each type to be used.

2. Wood Member Profiles: 12-Inch-long pieces of each profile required for repair, replacement, or alteration.

3. Spring Bronze Weather-stripping: 12-inch-long samples of each type.

4. Restored Existing Hardware: Each type required.

5. New Hardware: Each type required.
Quality Control Panels: Perform quality control panels as specified in Article “Quality Control Panels” below.

1.06 QUALITY CONTROL PANELS

A. General: Before beginning general wood window restoration, prepare quality control panels to provide standards for work of this Section. Do not proceed with wood window restoration until the Owner's Project Manager has approved quality control panels.

1. Locate quality control panels as directed by the Owner's Project Manager.

2. Notify the Owner's Project Manager Project Manager 48 hours prior to start of each quality control panel.

3. Owner's Project Manager will monitor quality control panels.

4. Use crew that will execute the work and follow requirements of this Section.

5. Repeat quality control panels as necessary to obtain Owner's approval.

6. Protect approved quality control panels to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.

7. Approved quality control panels in undamaged condition at time of Substantial Completion maybe incorporated into the Work.

8. Approved quality control panels will represent minimum standards for wood window and door restoration. Subsequent wood window restoration work that does not meet standards of approved quality control panels will be rejected.

B. Prepare the following Quality Control Panels

1. Dutchman Repairs: Two (2) repairs.

2. Wood Consolidation: Two (2) locations.

3. Wood Consolidation and Patching: Two (2) locations.

4. Fixed Sash: One (1) complete unit, including preparation and repainting; sealing of the window sash to frame; replacement of glass stops, all lights; replacing broken lights; providing new weather-stripping; blocking; replacing all broken and missing hardware; providing new hardware as indicated; installation of perimeter sealant.

5. Operational Sash: One (1) complete unit; including preparation and repainting; Installation of new stops, all lights; replacing broken lights; providing new weather-stripping; blocking; replacing all broken and missing hardware; providing new hardware as indicated; installation with new ropes attached to existing weights.
1.07 DELIVERY, STORAGE, AND HANDLING

A. General: Deliver, store, and handle all materials to protect them from damage, moisture, dirt, and introduction of foreign matter. Store materials on raised platforms and under ventilated, waterproof cover. Store packaged materials in manufacturer’s unopened containers, marked with manufacturer's name and product brand name. Immediately reseal containers after partial use. Remove damaged and deteriorated materials and replace with fresh materials.

B. Do not deliver or install kiln-dried materials unless spaces in which they will be stored and in which they will be installed are sufficiently dry. Obtain Project Architect or Project Manager approval before delivering such materials.

1.08 PROJECT CONDITIONS

A. Safety: Take all necessary precautions to protect all persons, whether engaged in work of this Section or not, from all hazards of any kind associated with the work of this Section.

B. Protection of Building: Protect building elements and finishes from damage or deterioration caused by work of this Section. Repair any damage to materials or finishes to Project Architect or Project Manager's satisfaction at no additional cost to Owner.

1. Take all necessary precautions to prevent fire and spread of fire.

1.09 ENVIRONMENTAL CONDITIONS

A. General: Perform work only when temperature of products being used, temperatures of existing and new materials, and air temperature and humidity comply with product manufacturers’ requirements and requirements of this Section. In case of conflict, the most stringent requirements shall govern.

B. Use of Epoxy Resins: Mix and apply epoxy resins only when temperatures are between 50 degrees Fahrenheit and 80 degrees Fahrenheit.

1.10 LEAD-CONTAINING PAINT (LCP)

A. See Section 02 90 00 - LEAD PAINT

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

A. Grades of all wood materials under this Section shall be as defined by the rules of the recognized association of lumber manufacturers producing materials specified. Materials for millwork shall meet or exceed the requirements for "Premium Grade, Class 1" work as established by Project Architectural Woodwork Institute's Project Architectural Woodwork Quality Standards. Where conflicts occur between these standards and requirements of this Section, the more stringent or restrictive requirement shall govern in each case.
B. Lumber shall bear grade and trademark of association under whose rules it is produced and a mark of mill identification.

C. Lumber shall be of sound stock, thoroughly seasoned, and kiln-dried to a moisture content not exceeding twelve (12) percent.

D. Work that is to be finished or painted shall be free from defects and blemishes on surfaces exposed to view that will show after finish coat of paint is applied.

1. Materials that are in any way defective and not up to specifications for quality and grade, or otherwise not in proper condition, shall be rejected.

2.02 WOOD FOR WINDOWS AND TRIM

A. Wood for Window Sash, Frame Members, end trim and door repairs: Match existing wood species, Class 1.

2.03 ADHESIVES AND FASTENERS

A. Adhesive for Dutchman Repairs, Member Replacement, and New Sash Fabrication: Epoxy resin glue, designed for use with wood. Provide West System as manufactured by Gougeon Brothers, Inc., 706 Martin Street, Bay City, Michigan 48708, Abatron, Inc. Kenosha, WI (800)445-1754, Advanced Repair Technology, Cherry Valley, NY (607)264-9040, or approved equal. Provide the following materials by Gougeon: 105 Resin and 206 Slow Hardener.

B. Wood Consolidation and Patching System: System of epoxy resins and fillers designed for consolidating and patching deteriorated wood. Provide West System as manufactured by Gougeon Brothers, Inc., 706 Martin Street, Bay City, Michigan 48706, Abatron, Inc. Kenosha, WI (800)445-1754, Advanced Repair Technology, Cherry Valley, NY (607)264-9040, or approved equal. Provide the following materials as appropriate to each condition requiring consolidation and patching: 105 Resin; 205 Fast Hardener; 206 Slow Hardener; 403 Filler. Microfibers; 406 Filler: Coloidal Silica; 407 Filler: Microballoons; and 409 Filler; Microspheres.

1. General: Prepare epoxy resins using accurate measuring containers, calibrated pumps, or other means approved by the Project Manager to ensure proper proportioning of resins and hardeners. Mix each batch in clean container without traces of cured resins. Mix components thoroughly following manufacturer’s instructions. Do not mix more epoxy resin then can be applied before it thickens sufficiently to affect its use.

2. Wood Consolidant: Mix resin and hardener as recommended by manufacturer to provide material of a viscosity that will thoroughly penetrate deteriorated wood.

3. Wood Filler: Mix resin, hardener, and fillers as recommended by manufacturer and as determined by testing to provide appropriate properties for filling in each case. Composition of filler may vary depending on surface area of patch, depth of patch, whether patch Is on vertical or horizontal surface, temperature of wood and surrounding air at time of application, and other conditions affecting action of ep-
oxy resin and fillers. Adjust ingredients and proportions within limits recommended by manufacturer to provide optimum filler for each condition.

C. Screws for Attaching, Hardware: Provide all new solid brass screws to match existing brass screws. All other screws shall be stainless steel.

2.04 GLASS AND GLAZING SEALANTS

A. Primer: Provide primer to ensure adhesion to wood surfaces unless specifically recommended otherwise by sealant manufacturer.

B. Color: Provide color indicated or, if not otherwise indicated as selected by the Project Manager from manufacturer's standard colors.

C. Glazing Accessories: Provide setting blocks, edge blocks, glazing tapes, spacer tapes, and other accessories.

D. Glass: Salvage and reuse existing glass. Where units are broken, replace with new period glass to match color, type, texture, and thickness of original.

2.05 HARDWARE

A. General: Provide each restored, unaltered window with full complement of hardware and fasteners matching that on original windows, except where hardware is specifically indicated to be modified. Provide salvaged, restored existing hardware insofar as possible and new hardware to match existing hardware where hardware is missing or existing hardware is damaged or deteriorated so as to be unsalvageable. Provide each altered window with full complement of hardware and fasteners as indicated on the plans.

B. Window Handles: Restore existing elements. Where existing interior lifts are missing or unsalvageable, provide new cast brass, flush pull type window lifts to match existing.

C. Weather-stripping: Provide solid continuous spring brass weather-stripping for operable sash in shapes indicated.

1. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
   a. Accurate Metal Weather-strip Co., Inc.
   b. Zero Weather-stripping Co., Inc.
   c. Reese Enterprises, Inc.
   d. National Guard Products, Inc.

2.06 MISCELLANEOUS MATERIALS

A. Clear Wood Preservative: WDMA tested and accepted preservative and water-repellent formulation containing 3-lado-2-propynyl butyl carbamate (IPBC) as its active ingredient. Use chemical formulation that does not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.
B. Miscellaneous Screws for repair and sash anchoring: Provide stainless steel screws.

2.07 WOOD PRESERVATIVE TREATMENT

A. Wood Required to as Preservative Treated: Brush applied or dip treatment of specified wood preservative to conformance with standards of the American Wood Preservers Association and with WDMA I.S.A. Treat all new wood members for replacement and new elements.

2.08 SHOP PAINTING

A. All restored sash shall be shop painted by the General Bidder as per the requirements of SECTION 09 91 00.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Contractor shall inspect each window with the Owner's Project Manager.

3.02 WOOD WINDOW RESTORATION - GENERAL

A. General: Repair all frames, sills, sash, and trim as shown and scheduled using methods specified in this Section. Restoration work includes all work necessary to provide restored windows complying with intent of this Section.

B. All Wood Components: Replace all missing, rotted, or otherwise defective trim, stops, and frames of all windows. Finished windows shall be fully intact, structurally sound, weather tight windows. Patch holes, indentations, gouges, etc. using epoxy wood filler for holes less than 1 Inch x 1 inch x 1/2 inch deep and wood Dutchmen for holes equal to or greater than 1 inch x 1 inch x 1/2 inch deep.

C. Preservative Treatment: Preservative treat carpentry and millwork materials exposed to weather or in contact with Masonry or other dissimilar materials as specified herein, including all field outs and fittings.

3.03 GENERAL RESTORATION SEQUENCE - EACH WINDOW TO BE RESTORED

A. Label all sashes.

B. Label and remove existing stops and glass panels for reinstallation at completion of window restoration and installation of weather-stripping.

C. Inspect each window unit with the Owner's Project Manager, whose decisions on repair or replacement measures will be final.

D. Remove sash for repair and alteration on bench at shop.

E. Provide temporary protection at window openings as specified herein.

F. Remove glazing stops. Salvage glass.
G. Strip paint from glass and sash, and repair sash, as required for new operation.

H. Prime and paint sash.

I. Strip paint and repair exterior frame, sill, and trim in place. Alter frame, where relevant.

J. Prime and paint frame, sill and trim.

K. Install restored existing hardware, new hardware, and weather-stripping.

L. Re-install existing inside stops.

N. Make final adjustments to weather-stripping and hardware to achieve optimum operation.

O. Seal around window frames.

3.04 WINDOW REMOVAL AND PROTECTION

A. Sash: Remove sash for off-site restoration and alteration, as required.

B. Temporary Protection: Provide temporary closure of window openings.

1. Seal windows openings with plywood.

2. Size temporary panels to exact dimensions of openings and fasten to wood frame with screws. Temporarily seal perimeter with latex sealant.

3.05 FRAME RESTORATION

A. Preparation

1. Remove dirt and debris from frame, including loose dirt inside window frames accessible from jamb access panels.

2. Remove extraneous nails, staples, bolts, hooks, etc., from window frame and wood trim.

3. Protect frame and opening from weather. Dry all wood to moisture content below 1.7 percent.

4. Strip paint from exterior frame members and sills. Use care to avoid damage to wood.

B. Frame Repair Procedure: Inspect all frame components for condition. Test wood using an ice pick and moderate hand pressure to determine extent and depth of deterioration. Repair and replace wood elements as required to provide sound frame with all members having original planes and profiles.

1. Member Replacement: Disassemble frame as required to remove severely deteriorated components. Provide new wood members matching original members as specified in Article "Member Replacement" below.
a. Partial Sill Replacement: Where more than fifty (50) percent of wood in sill is deteriorated, remove accessible portion of sill, consolidate remaining portion, and provide Dutchman to replace removed portion of sill. Install Dutchman using wood dowels (three per sill) and specified adhesive.

2. Member Repair: Consolidate areas of members where wood is deteriorated; consolidate and patch areas where wood is missing, and fill small holes (less than 1 inch x 1 inch x 1/2 inch deep), cracks, and open joints using epoxy fillers. Provide dutchman repairs for holes equal to or greater than 1 inch x 1 inch x 1/2 inch deep. Follow requirements of Article "Wood Element Restoration," below.

3. Joint repair: Tighten loose and open joints in frame using specified adhesive and finishing nails properly countersunk. Fill all joints that cannot be closed without dismantling the window frame with epoxy wood filler.

C. Finishing

1. Sanding and Cleaning: Chemically strip wood frame elements to wood surfaces. Dispose of chemical stripper as required by law for lead containing material.

2. Wood Preservative Treatment: Treat all unpainted exterior and concealed wood surfaces with wood preservative. Liberally apply two coats to all surfaces. Spray treat ad head and jamb members. Allow twenty four (24) hours between coats and three (3) days final coat and priming once between Prime paint frame. Brush apply primer following requirements of Section 09910 - PAINTING.

3.06 INSTALLATION OF NEW AND RESTORED SASH

A. General: Install restored existing sash and new replacement sash in restored, primed original frames. Ensure that existing sash are returned to their original locations.

B. Fitting: Fit properly in frame.

C. Weather-stripping: Install weather-stripping following weather-stripping manufacturer's recommendations and adjust for proper operation.

D. Hardware: Install sash using restored existing hardware and new hardware matching existing hardware. Accurately fit and adjust hardware as required for proper operation,

E. Interior Stops: Install new or repaired interior stops, adjusting for proper fit.

F. Adjustment: Adjust weather-stripping, hardware, and Interior stops for proper window operation,

3.07 PAINTING

A. All exterior wood that is restored on site including trim and mullions, shall be stripped, primed and painted on site during acceptable environmental conditions for the application of paint.

3.08 WOOD ELEMENT RESTORATION
A. General: Repair wood elements using epoxy consolidation, epoxy consolidation and patching, Dutchman repairs, and/or member replacement as appropriate to each individual member to ensure that sound existing material is saved and that at completion of work, all wood elements are free of rotted and deteriorated wood and solid and true to original profiles with all arises sharp and true.

B. Protection: Where wood elements are restored in situ, protect surrounding building elements and surfaces from contact with epoxy resins using polyethylene sheets and tape or other approved methods. Contractor shall restore or replace building elements and surfaces damaged or deteriorated by epoxy resins to Project Architect's or Project Manager's satisfaction at no additional cost to Owner.

C. Epoxy Consolidation and Patching

1. Preparation: Following paint removal to bare wood, remove dirt, dust, and other contaminants that might interfere with effectiveness of epoxy consolidation and patching using soft bristle brushes and clean oil-free compressed air.

2. Manufacturer’s Recommendations: Follow epoxy resin manufacturer’s Instructions for’ mixing of components, application temperatures, and material handling and manufacturer's recommendations for selection of resins, hardeners, and Oilers for each type of consolidation and patching required.

3. Consolidation and Patching of Wood with Deterioration Less Than 3 1/4-Inch Deep: Consolidate deteriorated wood, fill surface to restore profile, and send to provide surface matching adjacent wood surface.

   a. Brush apply a heavy coat of epoxy wood consolidant onto clean wood surfaces and allow it to soak into wood. Apply an additional coat while previous coat is uncured to completely saturate deteriorated areas of wood.

   b. Fill depressions, voids, gouges, and cracks with epoxy wood filler to restore original planes and profiles. Apply wood filler before consolidant has completely cured:

   c. Thoroughly sand cured epoxy resin to provide proper surface for bond of paint without altering wood profile. (Curing time varies with ambient temperature and product used.) Sand surfaces smooth. No scratches from sanding shall be visible after wood element has been painted.

   d. Protect epoxy resin from prolonged exposure to ultraviolet light. Apply primer within forty-eight (48) hours after resin has cured.

4. Consolidation and Patching of Wood with Deterioration 3/4-Inch or Greater In Depth: Prepare wood to receive consolidant, consolidate deteriorated wood fill surface to restore profile, and sand to provide surface matching adjacent wood surface.

   a. Drill 3/8-inch-diameter holes from surface of deteriorated wood member through deteriorated wood and into sound wood on approximately 3-inch centers. Stagger holes.
1. On sills, drill from top of sill through approximately ninety (90) percent of sill thickness.

b. Pour low modulus, low viscosity epoxy wood consolidant into each hole until hole has been filled. As epoxy is absorbed into wood, top off holes with epoxy until no hole will accept additional consolidant (if the wood being treated contains water, the water will be forced out by the epoxy without affecting the procedures).

c. Brush apply a heavy coat of epoxy wood consolidant on remaining weathered portions of wood element. Repeat brush application until all surfaces being treated are saturated with epoxy wood consolidant and are flush and smooth.

d. Fill depressions, voids, gouges, and cracks with spotty wood filler to restore original planes and profiles. Apply wood filler before consolidant has completely cured.

e. Thoroughly sand cured epoxy resin to provide proper surface for bond of paint without altering wood profile. (Curing time varies with ambient temperature and product used.) Sand surfaces smooth. No scratches from sanding shall be visible after wood element has been painted.

f. Protect epoxy resin from prolonged exposure to ultraviolet light. Apply primer within forty-eight (48) hours after resin has cured.

5. Patching Holes, Cracks, Depressions, and Gouges: Apply epoxy wood consolidant, fill depressed areas of surface with epoxy wood filler to restore profile, and sand to provide surface matching adjacent wood surface.

a. If area to be patched has been consolidated, apply epoxy wood filler before consolidant has completely cured.

b. If area to be patched has not been consolidated, brush-apply generous coat of wood consolidant to clean sound surface.

c. Before consolidant has cured, fill holes and other irregularities with epoxy wood filler flush with surface of wood, matching profile of original wood surface.

d. Thoroughly sand cured epoxy resin to provide proper surface for bond of paint without altering wood profile. (Curing time varies with ambient temperature and product used.) Sand surfaces smooth. No scratches from sanding shall be visible after wood element has been painted.

e. Protect epoxy resin from prolonged exposure to ultraviolet light. Apply primer within forty-eight (48) hours after resin has cured.

D. Dutchman Repairs: Prepare substrate and provide Dutchman to fill hole or replace deteriorated portion of member matching plane and profile of adjacent surface.
1. **Substrate:** Neatly cut defective wood and enough sound wood to ensure that Dutchman will bond to sound substrate end to form a prismatic void. Mortise for Dutchman shall have square corners and edges. End joints shall be scarf joints.
   a. Where end of a component is to be replaced by Dutchman, use interlocking diagonal scarf joint or interlocking joint (such as open mortise and tenon joint) or both for end-to-end joint between Dutchman and existing wood member to provide maximum bonding surface at the joint and increase the structural strength of completed assembly.

2. **Dutchman:** Cut Dutchman to exactly fit void with exposed portion slightly proud of adjacent original wood surface. Grain of Dutchman shall run parallel to grain of existing wood member.

3. **Installation:** Secure Dutchman with specified adhesive and clamp (or for frames, nail) in place until adhesive is set.

4. **Finishing:** Plane or scrape top of Dutchman to match plane and profile of adjacent surface. Sand to provide uniformly smooth surface without sandpaper marks or other imperfections. Dutchman shall not be detectable to the naked eye at a distance of three (3) feet after surface has been painted.

3.09 **ADJUST AND CLEAN**

A. **General:** Within one (1) week of date set for inspection to establish Substantial Completion, examine windows and adjust for optimum operation.

B. **Adjust and check each window and each operating item of hardware to ensure proper operation and function of every unit.**

C. **Lubricate moving parts including existing pulleys with machine oil. Replace elements that cannot be adjusted and lubricated to operate freely and smoothly for the application made. All ropes to be new.**

D. **Clean new and existing finish hardware.**

E. **Clean glass.**

END OF SECTION
SECTION 08212 - STILE AND RAIL WOOD DOORS

PART 4 - GENERAL

4.1 SECTION REQUIREMENTS

A. Submittals: Shop Drawings including product data, including details of construction, and finish Samples for factory-finished doors.

B. Quality Standard: WDMA I.S.6, "Industry Standard for Wood Stile and Rail Doors"

C. Safety Glass: Comply with testing requirements in 16 CFR 1201.

D. Forest Certification: Provide doors produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria."

PART 5 - PRODUCTS

5.1 STILE AND RAIL DOORS

A. Exterior Doors and Sidelights: WDMA Standard grade assembled with wet-use adhesives and made from Douglas fir or western hemlock with raised panels.

1. Entrance Door: Custom Built Door To Match Existing Door Style.

5.2 FABRICATION AND FINISHING

A. Factory fit doors to suit frame-opening sizes and to comply with referenced quality standard.

1. Provide 1/8-inch clearance at jambs, heads, and meeting stiles and 1/2 inch at bottom. At thresholds, provide 3/8-inch clearance.

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

C. Glaze doors at factory.

D. Factory treat exterior doors after fabrication with water repellent to comply with WDMA I.S.4.

E. Factory finish wood doors with manufacturer's standard stain and two-coat conversion varnish finish in color selected.
PART 6 - EXECUTION

6.1 INSTALLATION

A. Install wood door frames level, plumb, true, and aligned with adjacent materials. Countersink fasteners, fill surface flush, and sand smooth.

B. Install doors to comply with NFPA 80.

C. Align and fit doors in frames with uniform clearances and bevels indicated below. Machine doors for hardware. Seal cut surfaces after fitting and machining.

   1. Provide 1/8-inch clearance at jambs, heads, and meeting stiles and 1/8 inch at bottom. At thresholds, provide 1/4-inch clearance from bottom of door.

D. Align factory fitted doors in frames for uniform clearances.

E. Repair, refinish, or replace factory-finished doors damaged during installation as directed by Architect.

END OF SECTION 08212
SECTION 08550 - WOOD WINDOWS

PART 7 - GENERAL

7.1 SECTION REQUIREMENTS

A. Submittals: Product Data, Field Window Measurements, Shop Drawings, Exterior Flashing Details, and Color Samples.

B. Quality Standard: Comply with AAMA/NWWDA 101/I.S.2/NAFS.

PART 8 - PRODUCTS

8.1 WOOD WINDOWS

A. Products: Custom wood double hung window to match existing historic windows.
   1. New wood window to match existing historic windows.

B. Provide historic wood window replica.

C. Manufacturer
   1. Kolbe Windows And Doors
   2. Parrett Windows And Doors
   3. Approved Equal

D. Window Type:
   1. Double hung with continuous spring brass weather stripping.

E. Trim: Provide interior and exterior trim, matching material and finish of adjacent historic windows.

F. Hardware to match existing historic hardware.

G. Exterior Color: Match existing.

H. Glaze units with single pane period wavy glass to match existing historic windows.

PART 9 - EXECUTION

9.1 INSTALLATION

A. Set units level, plumb, and true to line, without warp or rack of frames and panels. Provide proper support and anchor securely in place.
B. Set sill members in bed of sealant or with gaskets, as indicated, to provide weathertight construction.

C. Adjust operating panels, screens, and hardware to provide a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

D. Clean glass surfaces immediately after installing windows. Remove nonpermanent labels from glass surfaces.

END OF SECTION 08550
SECTION 08710 - DOOR HARDWARE

PART 10 - GENERAL

10.1 SECTION REQUIREMENTS

A. Submittals: Hardware schedule and keying schedule, Templates for proper machining for the required templated hardware

B. Deliver keys to Owner.

C. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

D. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

E. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

F. It is the intent of the Specifications and the Drawings to require that the equipment to be furnished complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

G. All locksets to be compatible with Schlage Everest Primus with interchangeable core.

PART 11 - PRODUCTS

11.1 HARDWARE

A. Ball-bearing Hinges, Full Mortise

B. Weatherstripping

C. Night Latch Trim with Mortise Locksets

D. Rim Exit Devices

E. Door Closers

F. Re-connect doors to Existing Alarm System

G. Security Fasteners: All exposed fasteners used in work of this Section shall be tamper-proof, stainless steel, non-removable, type approved by the Authority.
11.2 Available Manufacturers: Manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following

A. Locks and cylinders to be keyed to the Owner’s existing Master Key (M/K) Schlage Everest Primus Interchangeable Core (IC) System. Copy all Grand Master, Sub-Master and master key system

B. Ball Bearing Hinges:
   1. Stanley

C. Mortise Locksets:
   1. Sargent 8200 Series Mortise lock (no equals) with Sargent V-10 (to match existing Master Key System) Entryfunction or approved equal. 20D Finish with Escutcheon Trim and Yarmouth Lever Handle.

D. Rim Exit Device
   1. Von Duprin 98/99 series

E. Door Closers
   1. LCN 1460 with designer series cover, closers to be through-bolted, or approved equal.

F. Weatherstripping
   1. Continuous neoprene bulb gaskets at jambs and heads and continuous nylon brush at the sill by Hagar, National Guard Products, Pemko, or approved equal.

G. Chain to restrict blow open to be of case hardened steel and covered with a nylon and rubber sheath.

H. Provide hardware finishes as follows:
   2. Locksets, Latchsets, and Exit Devices: Dark Statuary Bronze Lacquered
   4. Other Hardware: Matching finish of lockset/latchset.

PART 12 - EXECUTION

12.1 INSTALLATION

A. Mount hardware in locations recommended by the Door and Hardware Institute and Massachusetts Architectural Access Board unless otherwise indicated.
   1. Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.

B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in Section 09910, Painting. Do not install surface-mounted items until finishes have been completed on the substrates involved.
12.2 HARDWARE SCHEDULE

A. Hardware Set No. 1:

1. 1 Pair Hinges.
2. Interconnected panic hardware and locking entry lever handle.
3. Closer.
4. ADA compliant threshold and weather stripping.

END OF SECTION 08710
SECTION 099100  PAINTING

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect Work of this Section whether or not such Work is specifically mentioned in this Section.

C. Coordinate Work with that of all other trades affecting or affected by Work of this Section. Cooperate with such trades to assure the steady progress of all Work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the Work shall be new and of the best grade of their respective kinds.

1.02 WORK TO BE PERFORMED

A. Provide all the Painting Work required to complete the Work of the contract including all the Painting Work shown on the plans, listed in the specification, and needed to install a complete assembly in every way. Coordinate the Painting Work with all the other trades for the project. Provide all demolition and disposal Work to complete the Painting Work. Patch to match all adjacent surfaces that are disturbed left exposed, or unfinished. All Work of the contract is related. It is the General Contractor’s responsibility to review all the Work of each section, each Subcontractor, and each file sub-bidder for the entire project so that all the Work can be properly and completely performed.

1. The Contractor shall furnish a Historic Paint Chip Analysis with sample matches of the existing paint, by a qualified firm specializing in paint analysis at the following locations:

   a. Existing wood window sash (interior and exterior).

   b. Existing wood window frames and sills (exterior only).

   e. Existing entry door frame and transom (exterior and interior).

B. Site Painting Work includes, but is not limited to:

1. Wood Surfaces – ON SITE

   a. Surface preparation of all wood surfaces to be painted including all exterior window frames, sills, mullions, and trim. Chemically strip and neutralize wood surfaces to remove all existing paint.
C. Shop Painting Work by General Contractor includes, but is not limited to:

1. Wood Surfaces – OFF SITE – IN SHOP BY GENERAL CONTRACTOR
   a. Surface preparation of all wood surfaces to be painted. Chemically strip all wood surfaces to remove all existing paint.
   b. Painting of all wood sash components and as noted on the drawings.

1.03 SUBMITTALS

A. Submit the following shop drawings in accordance with the provisions of SECTION 01300 - SUBMITTALS in the general requirements.
   1. Manufacturer’s literature on each product used.

B. Submit the following samples in accordance with the provisions of SECTION 01300 - SUBMITTALS in the general requirements.
   1. Paint finish chip of each paint specified.
   2. Paint stripping sample at each stage including neutralization.

1.04 QUALITY ASSURANCE

A. Provide at all times during the Work of this Section adequate supervisory personnel who shall be thoroughly familiar with the type of construction involved and with the requirements of the Contract Documents pertinent to this Work. Provide adequate numbers of skilled craftsmen and other personnel to ensure the orderly and proper progress of the Work in accordance with the approved Progress Schedule.

B. Comply with the Codes and Standards of the Steel Structures Painting Council.

PART 2 – PRODUCTS

2.01 PAINT

A. All paints to be Sherwin Williams brand or approved equal. Specification is based on the Sherwin Williams brand but may be by an approved equal.

B. Wood - Paint
   1. Primer for wood surfaces to be two (2) coats of long-oil based primer.
   2. Finish (2 coats) for interior surfaces to be (Impervo Alkyd High Gloss Metal and Wood Enamel (133)) latex acrylic paint.
C. Metal

1. ZINC-RICH PRIMER shall be “SeaGuard Universal Primer” by Sherwin Williams which is a high solids, low V.O.C., heavy-metal free, rust inhibitive, universal metal primer for Marine and offshore applications.

   Provide five (5) dry mil thickness, minimum.

2. EPOXY INTERMEDIATE COAT shall be “Dura-Plate 235 Multi-Purpose Epoxy” by Sherwin Williams which is a modified epoxy phenalkamine, formulated specifically for immersion and atmospheric service in marine and industrial environments.

   Provide eight (8) dry mil thickness, minimum.

3. POLYURETHANE FINISH COAT shall be “ACROLON ULTRA” by Sherwin Williams which is a high performance, high gloss acrylic polyurethane. It is specifically designed to provide long term UV protection for high visibility structures.

   Provide five (5) dry mil thickness, minimum.

2.02 PAINT STRIPPER

A. Provide low VOC paint stripper, formulated without methylene chloride or flammable solvents, such as Peel Away 1 by Dumond Chemicals, 212-869-6350, or approved equal.

B. Paint stripper shall be an environmentally safe method for removing multiple coats of paint with a single application. The system is a paste that is spread or sprayed over the surface to be stripped. The paste is then covered with fibrous laminated Peel Away Paper, which controls evaporation and is left on until all of the paint is dissolved. The paste and paint adhere to the paper during removal. The stripped surface is then washed with clean water, and finally, neutralized.

PART 3 – EXECUTION

3.01 SURFACE PREPARATION

A. Install all paint as per the manufacture's written recommendations.

B. Unfinished New Wood.

   1. Remove surface dirt and grit with a detergent solution followed by a thorough rinsing with clear water. Allow surface to dry completely before coating.

   2. Prime and back prime all bare wood.
C. Painted Surfaces.

1. On existing finished surfaces to be repainted, remove all existing paint finish to bare substrate.

2. To remove coatings use methods such as chemical strippers.

3. Sand smooth or feather all rough edges.

4. Where new work joins existing work, prepare all existing surfaces to nearest break in the plane.

5. Wash surfaces with detergent and water or other solution as required to remove any accumulated dirt, oil, grease, or other foreign matter which would impair bond or bleed through new finishes.

6. After washing rinse with water and allow to dry thoroughly.

7. Prime all bare surfaces.

3.02 APPLICATION TO WOOD AND MASONRY

A. Apply paint by methods generally accepted by the trade to achieve approved results.

B. Do not apply finishes on surfaces that are not sufficiently dry. Make sure each coat of finish is dry and hard before following coat is applied unless manufacturer's direction states otherwise.

C. Prime all surfaces before installation by other trades.

D. Brush on oil-based paints with a high quality natural bristle brush.

E. Apply two (2) finish coats.

3.04 PAINT STRIPPER APPLICATION

A. Always prepare a test area on each type of surface and paint coating prior to full application.

B. Cover and protect areas where stripping is not desired, including adjoining surfaces where overspray may travel.

C. Using a trowel, or specialized spray equipment, apply paste 1/8” to 1/4” (refer to patch test results) according to age and thickness of paint. When applying by trowel to irregular surfaces, use a nylon brush to force paste into crevices. Use fibrous laminated Peel Away Paper to cover paste, applying paper with printed side facing out. Smooth out air pockets; pierce remaining air bubbles. Leave paper-covered paste in place for dwell time determined during patch testing.

D. Remove by sliding plastic Peel Away tool or putty/taping knife beneath paper, paste, and paint; ease away from surface in one piece.
E. Exterior Clean Up: Before beginning, use polyethylene to protect plant life and adjacent surfaces from splash back and run down. Use a power washer or garden hose to mist surface with clean water. Use a nylon bristle scrub brush to loosen remaining residue, paying particular attention to crevices, grooves and cracks. Rinse thoroughly to remove all remaining residue. (For optimal results, low pressure power washing is recommended for final rinse.) Let dry for a minimum of twenty-four (24) hours before neutralizing. Collect material removed and dispose of in compliance with local regulations.

F. Interior Clean Up: Before beginning, use polyethylene and masking tape to cover and protect adjacent surfaces, including flooring. Use a spray bottle, or pail and sponge, to rinse surface with clean water. Use a nylon bristle scrub brush to loosen remaining residue, paying particular attention to crevices, grooves, and cracks. Rinse thoroughly to remove all remaining residue. Let dry for minimum of twenty-four (24) hours before neutralizing. Collect material removed and dispose of in compliance with local regulations.

G. Use Peel Away Neutralizer for neutralization process; follow product instructions. Failure to properly clean and neutralize the surface as directed results in alkaline residue that may cause hazing and/or subsequent coating failure.

3.05 PROTECTION

A. The contractor is responsible for protecting the finish of items after coating during storage, delivery and installation.

B. Touch-up scrapes, scratches and any other mar in the finish as required after installation as per this specification.

C. If Owner determines that the paint finish has been damaged by the contractor, beyond repair by touch-up, the entire rail section shall be taken back to the shop and shall be re-finished as per this specification and at no additional cost to the Owner.

END OF SECTION