SECTION 08 01 52.93

HISTORIC TREATMENT OF WOOD WINDOWS

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\*\* NOTE TO SPECIFIER \*\* Chosen Wood Window Maintenance, Inc.; Storm Windows.  
This section is based on the products of Chosen Wood Window Maintenance, Inc., which is located at:18574 Hwy. 99EOregon City, OR 97045Tel: 503-266-3830Email: [request info (office@chosenwwm.com)](https://arcat.com/rfi?action=email&company=Chosen%252BWood%252BWindow%252BMaintenance%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(08015cww)%253A%2520&coid=52894&spec=08015cww&rep=&fax=)  
Web: <https://chosenwwm.com> | <https://windowslip.com>   
 [ [Click Here](https://arcat.com/company/chosen-wood-window-maintenance-inc-52894) ] for additional information.  
Chosen Wood Windows is a premier wood and steel window contractor that can repair, update, restore, and build your windows. We work on modern, vintage, and historical windows. Preserve the look of your building and hold on to your valuable windows.  
We offer a wide variety of services such as:  
 Glass Replacement  
 Wood Damage Repair  
 Dry Rot Repair  
 Inoperable Sash Repair  
 Insulation products and services  
 Window SLIP  
 Vintage Window Restoration and Historical preservation  
 New sash and Complete windows  
 Steel window restoration   
We cater to both residential and commercial clients. Our residential services cater to the Northwest including both Portland, Oregon and Seattle, Washington. Our commercial services cater beyond. More often than not, replacing wood windows is a poor economic and environmental decision. Most wood windows can be restored/repaired and upgraded to rival the performance of a standard replacement window.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Removal of window sashes per Owner's Lead Based Paint (LBP) protocol.
    2. Repair of counterweights and ropes.
    3. Replacement of existing glass as required to repair damage.
    4. Repair of joints in wood assemblies.
    5. Repair of window frame.
    6. Installation of weather stripping at operable sash.
    7. Replacement of missing hardware.
    8. Painting.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 01 35 91 - Special Procedures for Historic Treatment."
    2. Section 08 80 00 - Glazing" for replacement glass.
    3. Section 09 96 50 - Painting" for re-painting of existing wood.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data: For each type of product indicated. Include recommendations for application and use. Include manufacturer's specifications, testing data and certifications substantiating that products comply with requirements.
     3. Written Restoration Program: For each phase of restoration process, including protection of surrounding materials and site during operations. Describe in detail materials, methods, and equipment to be used for each phase of restoration work. Include a sequence of repair and schedule.
        1. Wood Window Restoration Activity Sequence: Includes but not limited to the following methods.
           1. Protecting existing, adjacent historic materials that will not be impacted by the work of this Section.
           2. Accessing work without damage to historic materials (i.e.
           3. Window sash removal.
           4. Protection of removed window sashes and transporting to shop.
           5. Remove existing paint and glazing compound from sash by chemical stripping.

Remove paint from wood surfaces requiring repair and as required to ensure proper closing and function of the window assemblies.

* + - * 1. Restoring existing frames, sash, and trim.
        2. Installing replacement materials.
        3. Reinstalling repaired windows. Indicate methods of final clean-up.
      1. If alternate methods and materials to those indicated in this specification are proposed for any phase of restoration work, provide written description, including evidence of successful use on other comparable projects and program of testing to demonstrate effectiveness for use on this project.
    1. Sources of Replacement Materials: Obtain materials for patching from a single manufacturer to ensure a match of quality, color, and texture.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
    2. Shop Drawings: For repair and replacement of historic wood windows and components. Show location and extent of replacement work, with enlarged details of replacement parts indicating materials, profiles, joinery, reinforcing, method of splicing into or attaching to existing wood window, accessory items, and finishes. Include field-verified dimensions.
  1. QUALITY ASSURANCE
     1. WI Quality Standard: Comply with WI's "Manual of Millwork" for construction, finishes, grades of wood windows, and other requirements.
     2. Restoration Specialist Qualifications: Engage an experienced window restoration firm to perform the work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience installing standard wood windows is not sufficient experience for restoration work. Firm and worker understanding of limitations and procedures related to work on historic structures is critical.
        1. List of 5 projects completed in the last five years by Restoration Specialist that illustrates firm's expertise in all Work of this Section.
     3. Restoration Worker Qualifications: Persons who are experienced in restoration work of types they will be performing.
     4. Source Limitations for Materials: Obtain primary wood repair materials from single manufacturer. Provide secondary materials as recommended by manufacturer of primary materials.
     5. Mock-Up: Completely restore and repair one of each type of window as prototype windows. After approval, prototype window will be used as a standard for all project window repair work. Complete all specified work, leaving mock-up window ready for field painting. Contracting Officer to review each item below as it is completed prior to the contractor moving to the next item to ensure quality control. Repairs on mock-up windows to include the following:
        1. Strip window of all coatings, caulking, and glazing putty as necessary for repair of damaged wood and as necessary for new coating system. It may be required to remove glazing to perform restoration work. If so, salvage and catalogue for reinstallation in original location and orientation.
        2. Remove, clean, and rehabilitate existing hinges and latching hardware.
        3. Clean all wood components as required by patching and paint coating system.
        4. Perform patch repairs.
        5. Perform Dutchman (infill) repairs based on approved shop drawings.
        6. Perform glazing putty installation.
        7. Prime window.
        8. Paint/stain window.
        9. Install rehabilitated hardware, new hardware, and/or new glazing as necessary.
     6. Finishing and repair testing may be performed on a wood sash that is called out for replacement.
  2. PRE-INSTALLATION CONFERENCE
     1. Preinstallation Conference: Conduct conference at Project site. Review methods and procedures related to window restoration.
  3. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle materials and components in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
  4. PROJECT CONDITIONS
     1. Field Measurements: Field verify dimensions for any required replacement parts or repairs and to verify scope of work noted on the drawings prior to starting work of this section.
     2. Weather Limitations: Proceed with historic treatment of wood windows only when existing and forecasted weather conditions are within the environmental limits set by each manufacturer's written instructions and specified requirements.
        1. Provide temporary infill panels at openings where sash has been removed for repair work. Infill panels to be weather tight and secure. Do not nail infill to window frame.
  5. WARRANTY
     1. Manufacturer's standard limited warranty unless indicated otherwise.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Chosen Wood Window Maintenance, Inc., which is located at:18574 Hwy. 99EOregon City, OR 97045Tel: 503-266-3830Email: [request info (office@chosenwwm.com)](https://arcat.com/rfi?action=email&company=Chosen%252BWood%252BWindow%252BMaintenance%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(08015cww)%253A%2520&coid=52894&spec=08015cww&rep=&fax=);Web: <https://chosenwwm.com> | <https://windowslip.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: As permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. PERFORMANCE REQUIREMENTS
     1. Assume a Lead Based Paint (LBP) protocol as required.
     2. Repair and Restoration of Existing Exterior Wood Windows.
        1. Window Types to be Restored:

\*\* NOTE TO SPECIFIER \*\* Delete add or delete window types as required.

* + - * 1. Double-hung.
        2. Casement.
        3. Doors lites.
        4. Door sidelites.
        5. Transoms.
        6. \_\_\_\_\_\_\_\_.
    1. Repair and restoration procedures are to achieve the following operational standards:

\*\* NOTE TO SPECIFIER \*\* Delete or add to the following list as required.

* + - 1. All wood components, including trim and casings.
      2. All glass, unbroken.
      3. Locking hardware and opening limiter.
      4. Counterweights.
      5. Each window is to be lockable.
      6. Each window is to open and close smoothly, with a maximum of 10 lbs. of force.
      7. Repair and restoration procedures are to achieve the following appearance standards:
         1. Finished wood surfaces (after final painting) are to have a uniform surface appearance as viewed from 5 feet away, as determined by Architect.
         2. Glass is to be clean and free of paint.
         3. Hardware is to be polished to low luster.
  1. REPLACEMENT MATERIALS
     1. Wood: Wood for Interior or Exterior Components: Match existing or approvexd equal.
     2. Glass: Match existing or better, tempered as required.

\*\* NOTE TO SPECIFIER \*\* Delete glass options not required. Add additional necessary requirements.

* + - 1. Replace broken glazing matching existing in type.
      2. Glass: Uncoated clear float glass units according to Section 08 83 13 - Mirrored Glass Glazing0 "Glazing."
      3. Safety Glass: Laminated glass or safety glazing film according to Section 08 83 13 - Mirrored Glass Glazing0 "Glazing."
      4. Glazing compound: Sarco Dual Glaze elastic glazing compound by Abatron.
      5. Glazing stops: To match existing original.
      6. Glazing points: Triangle stainless steel glazier points by Fletcher, available at Aubuchon Hardware, Westminster, Massachusetts or approved equal.
    1. Hardware: Missing or irreparable hardware shall be replaced with new hardware.

\*\* NOTE TO SPECIFIER \*\* Modify the following hardware components to match project requirements.

* + - 1. Handle-Type Sash Lifts:
         1. Model: LFD30 or LFD31, to match size of historic, as manufactured by Phelps Company, Battleboro, Vermont (802-257-4314).
         2. Finish: Oil Rubbed Bronze.
      2. Sash Locks:
         1. Model: LFK18 as manufactured by Phelps Company, Battleboro, Vermont (802-257- 4314).
         2. Finish: Oil Rubbed Bronze.
         3. Confirm appropriate size for each sash type.
      3. Secondary Sash Locks:
         1. Model: WSB75 as manufactured by Phelps Company.
         2. Finish: Oil Rubbed Bronze.
      4. Lock: Match existing or Ives 07A10, finish TBD.
      5. Pull: Match existing or Ives 026MB10B, finish TBD.
    1. Sash Counterweight Rope: Sampson "Red Spot" sash cord, braided cotton over nylon core.
    2. Sash Counterweights: Cast iron, weight as required to balance operating sash with new or added glass.
    3. Sash Pulleys: Replace original with like as required.
    4. Window Opening Control Device (WOCD): Install sash limiter that prevents the window opening more than 4 inch (1023 mm) vertically. ASTM F2090-17 System consists of single action device that allows for egress (when applied to an egress size window) by bypassing the 4" stop feature.
  1. FINISHING MATERIALS
     1. Water Resistant Glue: PVA, ANSI/HPVA Type 1 water resistant.
     2. Wood Filler: Abatron; WoodEpox. Two part, shrink free, adhesive wood filler compound or approved Substitution. Do not use polyester based products,
     3. Wood Repair: Abatron; LiquidWood. Two part, penetrating wood impregnator or approved Substitution.
     4. Wood Preservative: All new and exposed bare wood elements to be treated with preservative. Jasco Clear Wood Preservative by Jasco or approved equal.
     5. Wood Termite and Fungus Protection.
        1. Nisus Corporation; Bora-Care.
     6. Dutchman (infill) and trim repairs: All new elements to match original elements in wood species, quality, cut, grain direction, size, shape, surface finish, joinery, and profile. Original sash, frames, and sill may be western red cedar, white pine, or Douglas fir. All new wood elements are to be treated with preservative. Parting beads and window stops will sometimes require replacement due to their vulnerable location on the window sash and frame.
     7. Fasteners: Select material, type, size, and finish required for each use. Comply with FS FF-N-105 for applicable requirements.
        1. Type 316 Stainless-steel
     8. Weatherstripping:
        1. Accurate Metal Weatherstrip Co, Inc., 800-536-6043; Color TBD, Series No. 10Up (size as required) double hung sash. Provide all components as required by sash size and location or approved Substitution.
        2. New interlocking weatherstripping at jambs, head, sill, and meeting rail, completely concealed when sash is closed, and designed for permanent resilient seal under bumper or wiper action as manufactured by Pemko Manufacturing Inc., Ventura, California (800-283-9988) or Advanced Repair Technology, Cherry Valley, New York (607-264-9040).
     9. The final two coats of finish paint to be field painted under 099000.
     10. Window Sash Lubricant:

\*\* NOTE TO SPECIFIER \*\* Delete lubricant options not required.

* + - 1. Apply bees wax to lubricate track for lower sash.
      2. Clear penetrating sealer for Sash Tracks: TWP 500, Clear Total Wood Preservative, as manufactured by Gemini Coatings, Inc., 2300 Holloway Drive, El Reno, Oklahoma 73036 (800-262-5710); or approved equal.
      3. Wax for Sash Tracks: Microcrystalline wax, such as Renaissance Wax/Polish as available at Dennis Blaine - Cutlery Specialties, Stuart, Florida (800-229-5530) or Wood Finish Supply, http://www.woodfinishsupply.com/RenWax.html, or approved equal.
    1. Slim Line Insulating Pane (SLIP), www.windowslip.com, for exterior/interior face of all sashes to upgrade glazing for efficiency.
    2. Sealant: Joint fillers and other related materials at window frame perimeters that are compatible with one another and with joint substrates and finishes under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience. Use non-sag sealants for all other areas except as shown or specified.
    3. Paint Removal:
       1. Remove paint from all wood surfaces requiring repair and as required to ensure proper closing and function of the window assemblies. Submit proposed process as part of restoration program.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until the substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
      3. Protection:
         1. Erect temporary protective covers over walkways and at points of pedestrian entrance and exit that must remain in service during course of exterior restoration work.
   3. INSTALLATION
      1. Install in accordance with Restorer's instructions, approved submittals, and in proper relationship with adjacent construction.
      2. Scope of Restoration Work is as Follows:
         1. Remove sash and panels.
         2. Catalog parts as required for their return to their original opening.
         3. Provide exterior opening covers on building for weather protection. Openings are to be weathertight.
         4. Strip windows of paint, putty, and glass; salvage glass to be reused in openings.
            1. Remove paint from wood surfaces requiring repair and as required to ensure proper closing and function of the window assemblies.
         5. Sash: Components to be repaired, restored, and reproduced as needed through dutchman, reinforcing and component replacement.
            1. Replace sash if it cannot be restored.

Lower sash to be operable. Upper sash to be fixed.

* + - 1. Frame Components (jamb, sill, weight pocket, sash stops, brickmolds): To be restored in place or reproduced as needed through dutchman, reinforcing and component replacement.
      2. For Deteriorated Wood: At frames, sash, sill or trim.
         1. Cut out areas of deteriorated wood back to solid, sound material.

If more than 30 percent of the members is determined to be deteriorated, replace entire member with new material conforming to project standards.

* + - 1. Deteriorated Sash Cords and Pulleys: Replace as required by window condition.
         1. Weights: Replace as required for windows to function properly. Reinstall salvaged sash weights at original locations unless missing or requiring otherwise. Adjust as necessary for proper weighting and operation of all window sash.
      2. Install Window Opening Control Device (WOCD).
      3. Sand Surfaces and profiles smooth.
         1. Kerf operable sash and apply bronze perimeter weatherstripping.
      4. Prep, back prime and prime sash for finish paint.
      5. Glazing: Install into cleaned and primed wood surfaces.
         1. Apply a thin setting bead of glazing compound to muntin/sash surface, press in glazing.
         2. Install glazing points, minimum of two points of each side of glass pane, approximately 2 inches (51 mm) away from the corners. Install every 8 inch (203 mm) in field.
         3. Roll out a rope of glazing compound, approximately 3/8 inch (9.5 mm) in diameter.

Press into glass around the entire perimeter.

Finish compound with a long, smooth stroke over surface.

Scrape off excess compound.

The dimension of glazing compound to be consistent throughout project.

Allow compound to dry for a minimum of two days.

Paint glazing compound concurrently with painting of sash.

All surfaces of glazing compound to be thoroughly coated with paint.

Paint to be lapped at least 1/16 inch (1.6 mm) onto glazing to provide a seal between glazing surface and glazing compound.

* + - 1. Mask sash and finish paint. Assume opaque paint for interior and exterior surfaces.
      2. Reinstall sash into original, cataloged, openings.
      3. Clean, and polish existing sash hardware. Install new matching hardware where needed. Install glide pads to reduce friction.
      4. Hardware:
         1. Hardware will be reinstalled in original locations. Coordinate salvaged and restored hardware to complete missing sets per room/window.
         2. Remove paint.
         3. Rehabilitate original historic hardware and reinstall whenever possible.
         4. Replace missing/damaged original historic elements and all non-historic hardware with new components.
         5. Replace pin springs with new stainless steel springs, size and type as required for proper operation.
      5. Secondary Glazing Pane Installation:
         1. Install Slim Line Insulating Pane (SLIP) on the interior face of all sashes to upgrade glazing for efficiency. Adjust window balances for weight addition. Mock-up of procedure/materials and final finished will be required. The Architect and Historic Consultant will work with the Contractor to achieve an agreed upon results; Prefinish frame and fasteners to match the finish of window sash.
      6. Repair of Open Joint: Clean out joints. Fill joint with adhesive, allow to cure. Sand smooth to match level and/or profile of adjacent surface.
      7. Fastener Replacement: Remove existing fasteners where corroded. Install new fasteners and countersink. Fill void over fastener with wood fill, sand smooth, finish to match.
      8. Dutchman Repair:
         1. Remove paint/stain from area of Dutchman repair.
         2. Use a saw to remove the decayed area and cut back to sound wood. Use an angle cut to shed water.
         3. Cut wood infill patch to fill void. The seam between the wood and the repair should be 1/32 (0.8 mm), or less.
         4. Apply adhesive in accordance with manufacturer's instructions.
         5. Apply adhesive to infill patch and surfaces of voids and insert patch. All joints shall be tight with only hairline glue lines. The infill patch shall extend a minimum of 1/16 inch (1.6 mm) above surface of repaired member.
         6. After adhesive has cured, carve, or sand the entire area smooth to match profile and texture of adjoining surfaces. Transitions and irregularities between wood and epoxy should not be visible after sanding. Prepare surface, prime and paint.
      9. Sealant:
         1. Install sealant per specification section 07 91 23 - Backer Rods0 - Joint Sealants at the completion of wood repair activities. Areas to receive sealant include:

Perimeter joint between exterior casing proud of siding and adjacent siding.

All joints at wood sill and siding.

* + - 1. Large Voids:
         1. Repair of Decayed Wood and Filling of Cracks:

Remove all paint and other coatings from area to be repaired.

Treat decayed fibers with fungicide.

Treat bare and sanded wood thoroughly with wood consolidant per manufacturer's directions. For larger or profiled repairs, acrylic strips matching the shape of the wood can be placed on the member to assist in modeling the compound.

Fill the repair area completely with wood filler, making the surface even and smooth. Transitions and irregularities between wood and epoxy shall not be visible after sanding.

Remove sanding dust thoroughly.

* + 1. Repair of Existing Hardware:
       1. Remove and rehabilitate hardware as required and necessary. Salvage all hardware not being reinstalled in the same location for potential reuse at other locations. Coordinate repairs with new hardware as necessary.
    2. Cleaning of Existing Hardware:
       1. Remove paint using chemical stripper.
       2. Wipe clean using mineral spirits.
       3. Wipe dry with a clean rag or towel.
       4. Lubricate moving parts.
       5. Remove rust.
       6. Restore hardware to original finish.
  1. SURFACE PREPARATION AND PAINTING
     1. Ensure paint is removed from all window sash and frame surfaces down to bare wood.
     2. Sand smooth, removing raised grain and all weathered wood.
     3. Ensure that wood is sufficiently dry prior to any application of finish.
     4. Apply wood preservative and one coat of primer to any new or bare wood surface, including the backside of each element.
     5. Prime all wood elements at completion of surface preparation. Mil thickness shall be as recommended by the manufacturer.
     6. Apply two coats of finish paint to all sash, sill, and exterior frame elements. Apply one coat of paint to the interior wood frame and sill elements. Colors to be as scheduled.
     7. Back prime and prime each piece of frame, sash, sill, and trim prior to installation. Sash tracks shall not be painted.
        1. Sash Tracks: Brush apply one coat - clear, penetrating sealant to coat sash tracks. Submit to Contracting Officer for approval. Finish with application of microcrystalline wax to allow sash to move freely.
  2. FIELD QUALITY CONTROL
     1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.
        1. Repaired sash, frames and sills shall be consistent in detail and visual appearance and be weathertight. Where windows operate, windows shall open and close smoothly, and latch securely.
     2. Restorer's Services: Coordinate services in accordance with appropriate sections in Division 01.
  3. CLEANING AND PROTECTION
     1. Clean both sides of all glazing at completion of project.
     2. Remove and legally dispose of all materials, tools, equipment, and debris generated from work of this section.
     3. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION