

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 02 41 13 – Selective Site Demolition.
- .2 Section 06 03 40 – Historic - Wood Repair.
- .3 Section 08 03 52.71 – Historic –Wood Window Rehabilitation.
- .4 Section 09 03 91 – Historic - Painting.

1.02 REFERENCES

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
 - .1 Architectural Woodwork Quality Standards Illustrated - 8th Edition, 2003.
- .2 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-O132.5-M1992(R1998), Stile and Rail Wood Doors.
 - .2 CAN/CSA-O141-05, Softwood Lumber.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 National Lumber Grading Authority (NLGA)
 - .1 NLGA Standard Grading Rules for Canadian Lumber 2007.
- .5 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.

1.03 SEQUENCING

- .1 Salvage doors and related components for reuse.
- .2 Restore hardware as indicated and in accordance with Section 08 03 52.71 – Historic – Wood Window Rehabilitation.
- .3 Replace weatherstripping universally.
- .4 Repair salvaged wood doors and frame components as indicated and in accordance with Section 06 03 40 – Historic - Wood Repairs.
- .5 Fabricate new door and frame as indicated.
- .6 Paint doors and frames in accordance with Section 09 03 91 – Historic - Painting.
- .7 Install restored and new hardware.
- .8 Install restored door leafs, related wood components and new weatherstripping. Touch-up affected adjacent interior finishes.

1.04 ACTION AND INFORMATION SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product data:

- .1 Submit manufacturer's instructions, printed product literature and data sheets for doors and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings.
 - .2 Indicate materials and details in large scale for head, jamb and sill, profiles of components, interior and exterior trim, anchorage details, description of related components and exposed finishes, limit of different finishes, weatherstripping, fasteners, and caulking.
 - .3 Prior to preparation of shop drawings, take field measurements as material is removed to confirm dimensions and details.
- .4 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will not be returned for inclusion into work with the exception of full size sample of new frame and door.
 - .3 Submit one complete full size sample of each new frame and door type.
 - .4 Submit 150 mm long samples of each type of weatherstripping.
 - .5 Submit 250 mm long samples of moulding profiles; assume custom profiles requiring the fabrication of custom cutters.
 - .6 Submit samples of each type of hardware.
- .5 Database:
 - .1 Prepare database table to record interventions as follows for each door unit in accordance to with Section 08 03 52.71 – Historic - Wood Window Rehabilitation:
- .6 Photographic Documentation:
 - .1 Submit photographs of existing conditions, prior to commencing work, in accordance with Section 08 03 52.71 – Historic – Wood Window Rehabilitation.

1.05 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals and with Section 08 03 52.71 – Historic - Wood Window Rehabilitation.
- .2 Operation and Maintenance Data: submit operation and maintenance data for doors for incorporation into manual.
- .3 Record Documentation:
 - .1 Submit assembled documentation in the form of a Conservation Report to document every step of the restoration process from examination of exiting conditions to reinstallation.
 - .2 Submit Database to locate interventions by type for each door unit.

1.06 QUALITY ASSURANCE

- .1 Qualifications: in accordance with Section 08 03 52.71 – Historic - Wood Window Rehabilitation supplemented as follows.

- .1 Carry out door fabrication work in this section using skilled tradesperson trained and experienced in rehabilitation, fabrication and installation of wood doors and windows.
- .2 Door and window fabricators: experienced in use of specified materials.
- .2 Inspections: in accordance with Section 08 03 52.71 – Historic - Wood Window Rehabilitation.

1.07 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect doors from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, and packaging materials in accordance with Section 01 00 10 – General Instructions, Waste Management.

1.08 EXTENDED WARRANTY

- .1 For the work of this Section, the 12 month warranty period is extended to 60 months for the new wood doors and related accessories, and to 24 months for workmanship including warping, fit and operation.

PART 2 PRODUCTS

2.01 MATERIALS

- .1 Softwood lumber: to CAN/CSA-O141 and National Lumber Grades Authority (NLGA) requirements, with maximum moisture content of 10%, grade 'C' Select, all quarter cut with edge grain to the weather, Douglas Fir.
- .2 Hardwood lumber: to National Hardwood Lumber Association (NHLA) requirements, moisture content of maximum 10%.
- .3 For dutchman repairs and replacement of individual components, wood for splicing and replications in accordance with Section 06 03 40 – Historic - Wood Repair.
- .4 Fasteners: nails, wood screws, wood pegs, wood pins, wood glues.
- .5 Hardware:
 - .1 Restore salvaged hardware as indicated and in accordance with Section 08 03 52.71 – Historic – Wood Window Rehabilitation.
 - .2 Use one manufacturer's products only for similar items.
 - .3 Locks and latches, for wood doors:
 - .1 Solid brass, type to match the colour and thickness of original hardware.

- .2 Bored and preassembled locks and latches: to ANSI/BHMA A156.2, grade 1, to match existing configuration and appropriate in design to period doors.
- .3 Knobs: to match existing configuration and appropriate in design to period doors.
- .4 Escutcheons: round.
- .5 Normal strikes: box type, lip projection not beyond jamb.
- .6 Cylinders: key into keying system as directed by the Departmental representative.
- .4 Hinges: Grade 1, with non-removable pins (NRP), to ANSI/BHMA A156.1-2013, designated by letter A and numeral identifiers, followed by size and finish, to match existing. Coordinate location and dimensions with existing holes on existing door and frame.
 - .1 Solid brass for wood doors and 300 series stainless steel for metal door.
- .5 Traditional lever style panic bar, solid brass, polished finish.
- .6 Fasteners: use fasteners provided by hardware manufacturers unless otherwise directed by Departmental Representative.
- .7 Keying:
 - .1 Doors to be keyed alike. Prepare detailed keying schedule in conjunction with Departmental Representative.
 - .2 Supply keys in duplicate for every lock in this Contract.
 - .3 Supply 3 master keys for each master key or grand master key group.
 - .4 Stamp keying code numbers on keys and cylinders.
 - .5 Supply construction cores.
 - .6 Hand over permanent cores and keys to the Departmental Representative.
- .6 Weatherstripping:
 - .1 Wooden doors:
 - .1 Head and jamb seal: V-shaped copper weatherstripping, fastened with solid bronze nails. Custom fabricate as required to match thickness and profile of existing doors and frames.
 - .2 Door bottom seal: Extruded aluminum frame and nylon brush sweep, face mounted on inside face of bottom rail.
 - .2 Metal door:
 - .1 Head and jamb seal:
 - .1 Extruded aluminum frame and solid closed cell neoprene insert, clear anodized finish.
 - .2 Adhesive backed neoprene material.
 - .2 Door bottom seal: Extruded aluminum frame and closed cell neoprene sweep, clear anodized finish.
- .7 Finishes: in accordance with Section 09 03 91 – Historic - Painting.

2.02 FABRICATION

- .1 Stiles, rails and panels to be one piece solid stock.
- .2 Mouldings on frame members specified as solid to be run in solid stock and not simulated with an applied moulding.
- .3 Allow 1 mm clearance around panel edges.
- .4 Cut off excess material from framed and panelled doors; allow 76 mm extra in length of stiles.
- .5 Framed and panelled doors:
 - .1 Type: 4 panels - in 2 horizontal tiers, solid construction.
 - .2 Grade: face to equal in appearance premium grade "C" select.
 - .3 Material: solid doors to be made from Douglas Fir, quarter sawn, with edge grain to the weather. Moisture content not to exceed 10 percent at time of fabrication. Pegs and wedges to be oak 10 mm square or slightly diamond shaped
 - .4 Construction: joinery for door as indicated on drawings, typically through mortise and tenons, wedged and pegged.
- .6 Dry fit and assemble door components before completing fabrication.
- .7 Once stiles and rails are ready for assembly, prime end grain and inside mortise and tenons before assembly in accordance with Section 09 03 91 – Historic - Painting.
- .8 Frame and casing elements woodwork to be back primed with oil and to have one application of paint to "all six sides" before assembly in accordance with Section 09 03 91 – Historic - Painting.
- .9 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.

PART 3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation.
 - .1 Visually inspect substrate.
 - .1 The outside faces of frames, top and sides, to be primed before door installation in accordance with Section 09 03 91 – Historic - Painting.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.

3.02 RESTORATION

- .1 Salvage door components for reuse in accordance with Section 02 41 13 – Selective Site Demolition and Section 08 03 52.71 – Historic – Wood Window Rehabilitation.

- .2 Restore frames in situ and salvaged doors in an off-site facility in accordance with Section 08 03 52.71 – Historic – Wood Window Rehabilitation, and as indicated in the present section.
- .3 Repair frames and salvaged doors in accordance with Section 06 03 40 – Historic - Wood Repair.
- .4 Replace hardware as per door schedule; re-create sets using salvaged parts where possible. Restore salvaged hardware and fasteners in accordance with Section 08 03 52.71 – Historic – Wood Window Rehabilitation.
- .5 Universally replace weatherstripping.
- .6 Finish in accordance with Section 09 03 91 – Historic - Painting.

3.03 INSTALLATION

- .1 Brace shop fabricated door components to maintain squareness and rigidity during shipment and installation.
- .2 Sizing for height: door height to be distance from top of finished floor to underside of head lining or frame less thickness of threshold.
- .3 Sizing for width: door width to be distance between jamb lining or frame members less 3 mm play.
- .4 Lock-edge bevel: bevel lock-edge of door 3 mm.
- .5 Install doors and associated trim. Coordinate with installation of new weatherstripping and with new or replacement hardware.
- .6 Install weatherstripping in accordance with drawings.
- .7 Install hardware in accordance with drawings, and hardware schedule.
- .8 Hinge location as indicated, mortised to depth of leaf thickness.
- .9 Mounting height of hardware as indicated.
- .10 Adjust hardware for correct function.

3.04 ADJUSTING

- .1 Re-adjust doors and hardware just prior to completion of construction to function freely and properly.

END OF SECTION

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 02 41 13 – Selective Site Demolition.
- .2 Section 06 03 40 – Historic - Wood Repair.
- .3 Section 07 92 00 – Joint Sealants.
- .4 Section 08 03 52.81 – Historic - Wood Window Replacement.
- .5 Section 08 03 80 – Historic - Glazing.
- .6 Section 09 03 91 – Historic - Painting.

1.02 REFERENCES

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
 - .1 Architectural Woodwork Quality Standards Illustrated - 8th Edition, 2003.
- .2 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-O141-05, Softwood Lumber.
 - .2 CAN/CSA-A440.2-04/A440.3-04, Energy Performance of Windows and Other Fenestration Systems / User Guide to CSA A440.2-04, Energy Performance of Windows and Other Fenestration Systems
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 National Lumber Grading Authority (NLGA)
 - .1 NLGA Standard Grading Rules for Canadian Lumber 2007.

1.03 SEQUENCING

- .1 Remove sashes and related wood window components including parting strips and sash stops.
- .2 Salvage sashes and glazing for reuse.
- .3 Salvage exterior casings for restoration and reuse, or replace as indicated.
- .4 Restore frames, sashes and hardware, or replace as indicated. Replace parting strips, sash stops and weatherstripping universally, and other components as indicated.
- .5 Repair wood window components as indicated and in accordance with Section 06 03 40 – Historic - Wood Repairs.
- .6 Fabricate replica frames, sashes and casings for replacement as indicated and in accordance with Section 08 03 52.81 – Historic – Wood Window Replacement.
- .7 Install salvaged and new glazing in accordance with Section 08 03 80 – Historic - Glazing; replace as indicated.
- .8 Paint wood windows in accordance with Section 09 03 91 – Historic – Painting.
- .9 Install restored and new hardware.

- .10 Install restored and new frames and sashes, related wood window components and new weatherstripping. Touch-up affected adjacent finishes.
- .11 Seal frames and sashes in accordance with Section 07 92 00 – Joint Sealants.

1.04 ACTION AND INFORMATION SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for windows and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings.
 - .2 Indicate materials and details in large scale for head, jamb and sill, profiles of components, interior and exterior trim, junction between combination units, elevations of unit, anchorage details, description of related components and exposed finishes, limit of different finishes, weatherstripping, fasteners, and caulking.
 - .3 Prior to preparation of shop drawings, take field measurements as material is removed to confirm dimensions and details.
- .4 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will not be returned for inclusion into work.
 - .3 Submit 150 mm long samples of parting strips, sash stops and each type of weatherstripping.
 - .4 Submit 250 mm long samples of casing and moulding profiles; assume custom profiles requiring the fabrication of custom cutters.
 - .5 Submit samples of each type of hardware.
- .5 Database:
 - .1 Prepare database table to record interventions as follows for each window unit:
 - .1 Repair type by wood component part of a frame and sash, to locate intervention within individual frame or sash.
 - .2 Replacement of frame or sash.
 - .3 Replacement of glazing by sash.
 - .4 Replacement of hardware components and related parts, by window operation type.
 - .2 Before submitting first progress claim, submit proposed table in PDF format as directed by Departmental Representative.
 - .3 After approval by Departmental Representative, database will serve as the basis of monthly progress claims.
- .6 Photographic Documentation:
 - .1 Submit photographs of existing conditions, prior to commencing work, in accordance with Section 02 41 13 – Selective Site Demolition.

- .2 Submit photographs for each of the following stage of the work, for site and shop work, with separate submittals at each stage:
 - .1 Post disassembly.
 - .2 Post paint removal.
 - .3 During repairs.
 - .4 Post repair but prior to painting.
- .3 Submit photographs for each of the aforementioned stage of the work, for mock-ups, with separate submittals for each mock-up.

1.05 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for windows for incorporation into manual.
- .3 Record Documentation:
 - .1 Submit assembled documentation in the form of a Conservation Report to document every step of the restoration process from examination of existing conditions to reinstallation.
 - .2 Submit Database to locate interventions by type for each window unit.

1.06 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Carry out window restoration work of this section using skilled tradespersons trained and experienced in rehabilitation and installation of wood windows as per Pre-qualification requirements.
 - .2 Competent worker: equipped with tools and equipment necessary to carry out work in a traditional manner.
 - .3 Contractor's Field Supervision and Crew Qualifications: maintain full-time supervisor/foreperson on job site during times work is in progress. Supervisor must have window rehabilitation training and experience in window rehabilitation similar in nature and scope to specified work as per Pre-qualification requirements.
 - .1 Shop crew makeup: trade qualified journeyperson carpenters and registered apprentices in the ratio of no more than one to one (at least one journeyperson to one apprentice).
 - .4 Only workers accepted by Departmental Representative during mock-ups will be authorized to perform Work of this section.
- .2 Mock-ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .2 Construct mock-ups to demonstrate understanding of specified procedures, techniques and formulations for each intervention.
 - .3 Prepare mock-ups for inspection by Departmental Representative before proceeding with further Work.
 - .4 Mock-up:
 - .1 Size: full size for each window type, including storms and screens.

- .2 Surfaces: ready for coatings but not treated with coatings, except for priming of hidden surfaces prior to assembly.
- .3 Install weatherstripping and hardware.
- .5 Mock-up will be used:
 - .1 To judge quality of work, substrate preparation, operation of equipment and material application.
- .6 Locate where directed by Departmental Representative.
- .7 Notify Departmental Representative 5 working days in advance of mock-up preparation.
- .8 When accepted, mock-ups will demonstrate minimum standard for this work. Approved mock-up may remain as part of finished work.
- .3 Inspections:
 - .1 Allow Departmental Representative access to Work in accordance with Section 01 45 00 – Quality Control.
 - .2 Give 5 working days notice requesting inspection of Work by Departmental Representative to confirm interventions.
 - .1 Schedule in situ review of wood window frames.
 - .2 Schedule shop review of sashes and related wood components, post glazing and paint removal, and simultaneously of hardware following cleaning.
 - .3 Layout materials in shop to allow review of all facets with limited manipulation.
 - .4 Group work to minimize the number of reviews.
 - .5 Use Database to record interventions.
 - .6 Inspections during and post repair to occur as part of mock-up reviews and during regular site visits.

1.07 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect windows from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, and packaging materials in accordance with Section 01 00 10 – General Instructions, Waste Management.

PART 2 PRODUCTS

2.01 MATERIALS

- .1 Salvaged elements in accordance with Section 02 41 13 – Selective Site Demolition.
- .2 Dimension lumber: to CAN/CSA-O141 and National Lumber Grades Authority (NLGA) requirements.
 - .1 Replacement parting strips, sash blocks and storm vent covers.
 - .1 Douglas fir, grain orientation to match adjacent wood component.
 - .2 Grade: “C” select, quarter cut, free of holes, insect damage and defects.
 - .3 Moisture content: maximum 10%.
 - .2 Replacement sash stops.
 - .1 Easter white pine Grade: clear of knots or other imperfections, with straight grain to match existing, ‘C’ Select.
 - .2 Moisture content: maximum 10%.
- .3 For dutchman repairs and replacement of individual components, wood for splicing and replications in accordance with Section 06 03 40 – Historic - Wood Repair.
- .4 For replacement sashes, frames, casings and mouldings, wood for replications in accordance with Section 08 03 52.81 – Historic - Wood Window Replacement.
- .5 Fasteners:
 - .1 Exposed fasteners to be solid brass, select brass type to match the colour of parent brass components.
 - .2 Replacement screws where missing, for hardware: brass, slotted, round head or flat head to match original, size to suit application.
 - .3 New adjustable grommets with screws, for sash stops: brass, round head slot screws, 38 mm long.
 - .4 Nails: brass or 300 series stainless steel finishing nails, size to suit application.
 - .5 For cast iron hardware use 300 series stainless steel slotted screws.
- .6 Glazing: in accordance with Section 08 03 80 – Historic - Glazing.
- .7 Hardware: solid brass, type to match the colour and thickness of original hardware.
 - .1 Replacement sash lifts, lock sets, pulleys and escutcheon plates, hinges, casement latches; select models to match size and profile of original hardware. Sash lifts to be a custom casting to match the original pattern exactly.
 - .2 Replacement spring balances: block and tackle balance system, concealed from view with reinforced synthetic fibre balance cord.
 - .3 New cremone: select model to match size of existing windows.
 - .4 New meeting rail plates, custom fabricate to suit.
 - .5 Replacement number tag plates.
 - .6 New limiter: ‘L’ bracket, custom fabricate to match size of existing windows.
 - .7 Replacement hooks & eyes: 300 series stainless steel, select type to match original.
 - .8 New top hooks and hangers for storms: 300 series stainless steel.
- .8 Weatherstripping:

- .1 Female (sash) and male (frame) interlocking copper weatherstripping with a bulb-head. Both pieces to be felt lined (held in place with hemmed edge). Custom fabricate as required to match thickness and profile of existing sash and frames.
- .2 Compressible bead, extruded thermoplastic elastomer, kerf mounted barb with 7 mm outside dia. bulb head.
- .3 Thick felt (for meeting rail plates).
- .4 Seamless skin seal: clear anodized aluminium and brown seamless santoprene elastomeric skin seal (for casement windows). 41mm deep by 16mm high including aluminium base 25mm deep by 12mm high.
- .9 Sash cords: waxed cotton sash cords sized to the weight of the sashes.
- .10 Insect screens:
 - .1 Type: black aluminium mesh.
 - .2 Insect screening mesh: count 18 x 16.
 - .3 Tension rope: screen retainer spline, size to match groove..
- .11 Sealants: in accordance with Section 07 92 00 – Joint Sealants.
- .12 Finishes: in accordance with Section 09 03 91 – Historic - Painting.

2.02 FABRICATION

- .1 Strips and mouldings on frame members specified as solid to be run in solid stock and not simulated with an applied moulding.
- .2 Dry fit and assemble window components before completing fabrication.
- .3 Fabricate units square and true.
- .4 Tolerances for weatherstripping, to ensure effective and easy operation, to be determined during mock ups.

2.03 TOOLS

- .1 Paraffin wax.
- .2 Penetrating oil.
- .3 Vinegar.

PART 3 EXECUTION

3.01 EXAMINATION

- .1 Verification of conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation.
 - .1 Visually inspect substrate.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.
- .2 Preparation: remove obstacles directly related to windows work as indicated in the windows schedule. Protect removed items and immovable obstacles as required in

accordance with Section 01 56 00 - Temporary Barriers and Enclosures, and Section 02 41 13 - Selective Site Demolition.

3.02 DISMANTLING

- .1 Salvage window components for reuse in accordance with Section 02 41 13 – Selective Site Demolition. Protect and transport to an off-site facility for shop work.
- .2 Label salvaged components with gasket paper, mark with a waterproof marker, and securely attach to the component on a hidden surface. For smaller components such as hardware, place in a sealable plastic bag with label visible within the bag. Mark “Property of Government of Canada” on hidden surface of salvaged components removed from site.
- .3 Once the sashes are removed for shop repair, fit the openings with weather tight closures in accordance with Section 01 56 00- Temporary Barriers and Enclosures.
- .4 Remove sashes, hardware, number tags and salvage for reuse. Use salvaged storm buttons for elliptical storm; remit balance to the Departmental Representative.
- .5 Remove and discard weatherstripping, sash cords, barrel bolts, pole catches, drips, steel hinges, aluminum storm buttons, spring balances, hooks and eyes as per the window schedule. Fill holes left by removed hardware.
- .6 Remove exterior casings; salvage for reuse or discard as indicated on drawings.
- .7 Remove glazing and salvage for reuse in accordance with Section 08 03 80 – Historic - Glazing.
- .8 Cut out parting strips, to facilitate sash removal, and universally replace in sequence with sash installation.
- .9 Where components are let into a groove or mortise, such as strips and the leaves of butt hinges, neatly cut adjacent paint using a sharp chisel or knife to avoid tear out.
- .10 Unfasten stops and hardware, and clean fasteners in sequence with hardware restoration.
- .11 Clean the screw heads for removal. Apply penetrating oil 24 hours in advance of removal. Use screw drivers that fit the heads.
- .12 Remove existing obsolete equipment, including air conditioning units and associated woodwork, and metal bolted bracket, and place in storage as directed by Department Representative.

3.03 RESTORATION OF FRAMES, SASHES, STORMS AND SCREENS

- .1 Repair frame and salvaged sashes, storms and screens with epoxy and/or dutchman repairs in accordance with Section 06 03 40 – Historic - Wood Repair.
- .2 Stabilize joinery of salvaged sashes, storms and screens; assume 50% of joints require stabilization. Remove existing wedges, reset with small amount of adhesive, and fill gaps with epoxy patch in accordance with Section 06 03 40 – Historic - Wood Repair.
- .3 Plug holes or grooves in frames and salvaged sashes, storms and screens from discarded hardware, weatherstripping and insect screens, and from obsolete fasteners with wood filler matching wood in colour. Apply to indentations, sand smooth and leave ready to receive finish.

- .4 Splice in dutchman repairs in double hung window sashes where spring balances are discarded. Prepare new grooves in lower sashes to accommodate new spring balances and weatherstripping.
- .5 Prepare kerfs for weatherstripping and hardware.
- .6 Detach weight pocket covers and remove debris from the bottom of weight pockets to clean weight pocket cavities. Vacuum thoroughly.
- .7 Add or remove weight from pair of sash weights to achieve weight differential. Reinstall upper sash with counter weight and chains without adjustment.
 - .1 Weigh pair of sash weights, and weigh lower sashes.
 - .2 Ensure pair of sash weights is 0.9 kg lighter than each supported sash.
- .8 Replace insect screens; insert tension rope into new groove as per drawings and manufacturer's instructions.
- .9 Restoration of salvaged hardware and fasteners.
 - .1 Cleaning: boil in vinegar with a double boiler to remove paint. Use wire brush and scraper to remove loosened paint and debris.
 - .2 Polish hardware.
 - .3 Following paint removal, adjust hardware for correct function.
 - .4 Lubricate pulleys and rollers prior to re-installation.
- .10 Finish wood windows in accordance with Section 09 03 91 – Historic - Painting.
 - .1 Prime the outside faces of frames, and top and sides of weight pocket covers, parting strips, mouldings and sash stops.

3.04 REPLACEMENT

- .1 Universally replace parting strips and sash stops.
- .2 Replace casings as indicated in the window schedule.
- .3 Replace individual stile or rail as indicated in window schedule in accordance with Section 06 03 40 – Historic - Wood Repair.
- .4 Replace frames, sashes, storms including vent covers, and screens as indicated in window schedule in accordance with Section 08 03 52.81 – Historic - Wood Window Replacement.
- .5 Replace glazing as indicated in window schedule in accordance with Section 08 03 80 – Historic - Glazing.
- .6 Replace hardware as indicated in window schedule; re-create sets using salvaged parts where possible. Additionally, assume 5% of pulleys, and 5% of escutcheon plates require replacement.
- .7 Universally replace spring balances, and hooks & eyes.
- .8 Replace number tags, assume 50% replacement.
- .9 Universally replace weatherstripping, sash cords and insect screens.

3.05 INSTALLATION OF SASHES, STORMS AND SCREENS

- .1 Brace shop fabricated window components to maintain squareness and rigidity during shipment and installation.

- .2 Install hardware in accordance with drawings and manufacturer's recommendations.
- .3 Double hung windows:
 - .1 Install sashes and associated trim namely restored weight pocket covers, new parting strips and sash stops.
 - .2 Coordinate installation of lower sash with installation of new weatherstripping and meeting rail plates with felt.
 - .1 Install interlocking type weatherstripping at lower sash. Fasten with nails provided by manufacturer. Install compressible strip weatherstripping at meeting rail.
 - .3 Once the lower sashes are fitted against the weatherstripping, rub the edges of the stiles generously with paraffin wax. Do not paint edges of stiles.
 - .4 Insure that lower sashes are operable their full height, then install limiter in lower sash track immediately below roller.
 - .5 Restore upper sashes to operable condition, then hold in place with sash blocks in the sash track below. Seal interior perimeter of upper sashes with caulking in accordance with Section 07 92 00 – Joint Sealants.
- .4 Casement, awning, and fixed windows:
 - .1 Install sashes and associated trim.
 - .2 Coordinate sash installation with installation of new weatherstripping and with new or replacement hardware.
 - .3 Insure that casement and awning sashes are fully operable.
- .5 Storms and screens:
 - .1 Custom fit to each window opening.
 - .2 Once primary sashes are installed, trial fit in place without glazing or screen. Adjust fit by planing prior to glass or screen installation and to painting.
 - .1 For existing storms and screens, assume need for full length tapered dutchman to add to edges of stiles or rails as necessary to achieve fit.
 - .3 Install completed storms and screens for review of Departmental Representative. Upon final approval, install restored and new number tags. Store screens as directed by Departmental representative and leave storms in place in frames.
- .6 Re-adjust windows and hardware just prior to completion of the work to function freely and properly.

3.06 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 – Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 00 10 – General Instructions, Waste Management.

3.07 PROTECTION

- .1 Protect installed products and components from damage during construction.

- .2 Repair damage to adjacent materials caused by window installation.

END OF SECTION

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 07 21 10 – Thermal Insulation.
- .2 Section 07 92 00 – Joint Sealants.
- .3 Section 08 03 80 – Historic - Glazing.
- .4 Section 09 03 91 – Historic - Painting.

1.02 REFERENCES

- .1 ASTM International
 - .1 ASTM A 53/A 53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
- .2 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-O141-05 (2009), Softwood Lumber.
 - .2 CAN/CSA-A440.2-04/A440.3-04, Energy Performance of Windows and Other Fenestration Systems / User Guide to CSA A440.2-04, Energy Performance of Windows and Other Fenestration Systems
 - .3 CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .3 National Lumber Grading Authority (NLGA)
 - .1 NLGA Standard Grading Rules for Canadian Lumber 2007.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop drawings:
 - .1 Submit drawings.
 - .2 Indicate materials and details, including assemblies, in large-scale for each replicated frame, sash, storm window or screen type, full-size profiles of components, elevations of unit, description of related components and exposed finishes, weatherstripping, and fasteners.
 - .3 Indicate materials and details for security bars of components, elevations, exposed finishes, and fasteners.
 - .4 Prior to preparation of shop drawings, take field measurements as material is removed to confirm dimensions and details.
 - .5 Do not prepare shop drawings for Type J window until the size of rough opening and new wall thickness are determined.
- .3 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit one complete full size sample of each replicated frame, sash, storm window or screen type.

- .4 Include glazing, weatherstripping, surface finish and hardware.
- .4 Photographic Documentation:
 - .1 Submit photographs of existing conditions, prior to commencing work, in accordance with Section 08 03 52.71 – Historic – Wood Window Rehabilitation.

1.04 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for windows for incorporation into manual.
- .3 Record Documentation:
 - .1 Submit assembled documentation in the form of a Conservation Report to document every step of the restoration process from examination of existing conditions to reinstallation.
 - .2 Submit Database to locate interventions by type for each window unit.

1.05 QUALITY ASSURANCE

- .1 Qualifications: in accordance with Section 08 03 52.71 – Historic - Wood Window Rehabilitation supplemented as follows.
 - .1 Carry out window fabrication work in this section using skilled tradesperson trained and experienced in fabrication and installation of wood windows.
 - .2 Window fabricators: experienced in use of specified materials.

1.06 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect windows from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, and packaging materials in accordance with Section 01 00 10 – General Instructions, Waste Management.

1.07 EXTENDED WARRANTY

- .1 For the work of this Section, the 12 month warranty period is extended to 60 months for the new wood sashes and related accessories, and to 24 months for workmanship including warping, fit and operation.

PART 2 PRODUCTS

2.01 MATERIALS

- .1 Softwood lumber: to CAN/CSA-O141 and National Lumber Grades Authority (NLGA) requirements, with maximum moisture content of 10%.
- .2 Hardwood lumber: to National Hardwood Lumber Association (NHLA) requirements, moisture content of maximum 10%.
- .3 Glazing: in accordance with Section 08 03 80 – Historic - Glazing.
- .4 Hardware: in accordance with Section 08 03 52.71 – Historic - Wood Window Rehabilitation.
- .5 Weatherstripping: in accordance with Section 08 03 52.71 – Historic - Wood Window Rehabilitation.
- .6 Mild steel with a carbon content between 0,150% à 0,300%.
 - .1 Solid 13mm x 13mm bars.
- .7 Exposed fasteners for mild steel elements: stainless steel, 300 series, of sufficient size and quantity to suit their intended purpose. Finished to match the item being fastened.
- .8 Finishes: in accordance with Section 09 03 91 – Historic - Painting.

2.02 WOOD WINDOW FABRICATION

- .1 Stiles and rails to be one piece solid stock.
- .2 Replicated sashes, frames, casing, and interior stool and trim to replace existing as indicated in the Window Schedule:
 - .1 Grade: face to equal in appearance premium grade “C” select.
 - .2 Material: stiles and rails to be made from Douglas fir, quarter sawn. Moisture content of components not to exceed 10 percent at time of fabrication. Pegs and wedges to be oak 10 mm square or slightly diamond shaped.
- .3 Construction:
 - .1 Mortise and Tenon:
 - .1 Top rail and stile through mortise and tenon wedged and draw-bore pegged.
 - .2 Meeting rail and stile through dovetailed mortise and tenon and pegged.
 - .3 Bottom rail and stile through mortise and tenon wedged and draw-bore pegged.
- .4 Dry fit and assemble window components before completing fabrication.
- .5 Once stiles and rails are ready for assembly, prime end grain and inside mortice and tenons before assembly in accordance with Section 09 03 91 – Historic - Painting.
- .6 All frame and casing elements wood work to be back primed with oil and to have one application of paint to “all six sides” before assembly in accordance with Section 09 03 91 – Historic - Painting.

- .7 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.
- .8 Create jigs as required to cut curves and curved profiles to achieve a smooth, regular, consistent curve.

2.03 FORGED MILD STEEL ELEMENTS FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Where possible, fit and shop assemble work, ready for erection.
- .3 Fabricate all components strong, rigid, and neat in appearance, straight, square, true, and free of defects, warp, or buckle.
- .4 Countersink exposed fastenings. Make exposed connections of same material, colour and finish as base material on which they occur.
- .5 In working the mild steel, all work is to be done by hand and the material is to be appropriately heated in a coal fire.
- .6 Unless indicated otherwise, all forging work shall use the traditional techniques of drawing out, splitting and drifting, etc.
- .7 The Departmental Representative will reject the blacksmithing work if a high level quality of work cannot be demonstrated.
- .8 The quality of work will be judged by the finish texture of the work, which is the absence of hammer marks, and consistency in appearance.
- .9 Shop paint elements in accordance with Section 09 03 91 – Historic - Painting.

PART 3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation.
 - .1 Visually inspect substrate.
 - .1 The outside faces of frames, top and sides, to be primed in accordance with Section 09 03 91 – Historic - Painting before sash installation.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.

3.02 INSTALLATION

- .1 Install glazing in accordance with Section 08 03 80 – Historic - Glazing.
- .2 Paint in accordance with Section 09 03 91 – Historic - Painting.
- .3 Install weatherstripping, hardware, sashes and related wood window components in accordance with Section 08 03 52.71 – Historic - Wood Window Rehabilitation.

3.03 MILD STEEL ELEMENTS INSTALLATION

- .1 Verify openings and substrates are prepared to receive products of this section. Notify Departmental Representative of unsuitable conditions.
- .2 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- .3 Install level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to other adjacent construction. Maintain dimensional tolerances and alignment with adjacent work.
- .4 Touch up paint/finish as required or as directed by Departmental Representative, and as follows: prior to on-site reassembly, inspect all work for damage to primer, base coats and finish coats, and touch up as required. Once installed and anchored into final position on building, make final inspection and provide last touch up. Always allow adequate drying/curing of paint prior to applying pressure or impact from moving, installation, hardware, reassembly, or anchoring processes. Touch-up to reinstate primer, base coats and final coats as required.
- .5 Fasten metal elements in place by using stainless hardware as indicated.

3.04 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 00 10 – General Instructions, Waste Management.

3.05 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by window installation.

END OF SECTION

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 02 41 13 – Selective Site Demolition.
- .2 Section 08 03 52.81 – Historic - Wood Window Replacement.
- .3 Section 08 03 52.71 – Historic – Wood Window Rehabilitation.
- .4 Section 09 03 91 – Historic - Painting.

1.02 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.
 - .2 CAN/CGSB-12.13-M91, Patterned Glass.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for glass and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit 150 x 150 mm size samples of each type and thickness of glass.
- .4 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .5 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .6 Photographic Documentation:
 - .1 Submit photographs for each stage of work and each mock-up in accordance with Section 06 03 40 – Historic - Wood Repairs.

1.04 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for glazing for incorporation into manual.
- .3 Record Documentation:
 - .1 Submit assembled documentation in the form of a Conservation Report to document every step of the restoration process from examination of existing conditions to reinstallation.

- .2 Submit Database to locate interventions by type for each window unit.

1.05 QUALITY ASSURANCE

- .1 Qualifications: in accordance with Section 08 03 52.71 – Historic - Wood Window Rehabilitation supplemented as follows.
 - .1 Carry out glazing work in this section using skilled tradespersons trained and experienced in removal and installation of glazing putty.
 - .2 Glazer and personnel shall be specializing in the area of work.
- .2 Mock-Ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .2 Construct mock-up to include glass removal and setting for each glazing type.
 - .3 Mock-up will be used:
 - .1 To judge quality of work, substrate preparation, operation of equipment and material application.
 - .4 Locate where directed by the Departmental Representative.
 - .5 Notify Departmental Representative 5 working days in advance of mock-up preparation.
 - .6 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may remain as part of finished work.

1.06 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials glazing off ground and glazing compounds indoors between 18 degrees C and 23 degrees C and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect glazing and accessories from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, and packaging materials in accordance with Section 01 00 10 – General Instructions, Waste Management.

1.07 AMBIENT CONDITIONS

- .1 Ambient Requirements:
 - .1 Install glazing compounds when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.
 - .2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

PART 2 PRODUCTS

2.01 MATERIALS

- .1 Single glazing:
 - .1 Mouth blown cylinder glass, clear with very light waves and occasional bubbles, thickness as per existing, assume about 3 mm thick, to be confirmed upon removal.
 - .2 Float glass, to CAN/CGSB-12.3, clear, thickness as per existing, assume about 3 mm thick, to be confirmed upon removal.
- .2 Cathedral glazing: Patterned glass: to CAN/CGSB-12.13, thickness as per existing, assume about 3 mm thick, to be confirmed upon removal.
 - .1 Styles A-figured one surface, facing interior.
 - .2 Color: to match existing.
 - .3 Surface treatment: etching or sandblasting as required to match existing.

2.02 ACCESSORIES

- .1 Setting blocks: Eastern white pine, minimum 40 mm x width of glazing x 2-3 mm height.
- .2 Glazing compounds:
 - .1 Linseed oil putty, by same manufacturer as paint system, putty components:
 - .1 Linseed oil, raw: concentration 35-55%
 - .2 Calcium carbonate: concentration 45-65%
- .3 Wood Sealer: Shellac.
 - .1 Shellac flakes, de-waxed.
 - .2 Denatured alcohol (methyl hydrate).
- .4 Glazing points: non-ferrous metal.

2.03 TOOLS

- .1 Clear glass jar with lid.
- .2 Portable steamer with hose.
- .3 Pumice.
- .4 Soft brush.

PART 3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for glazing installation in accordance with manufacturer's written instructions.
 - .1 Verify that openings for glazing are correctly sized and within tolerance.
 - .2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

- .3 Visually inspect substrate.
- .4 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .5 Proceed with installation only after unacceptable conditions have been remedied.

3.02 PREPARATION

- .1 Remove existing glazing and salvage for reuse in accordance with Section 02 41 13 - Selective Site Demolition.
- .2 Soften putty using steam, with a box as required, to avoid breaking glass from heat shock, remove glazing points, and carefully remove glass particularly where lower sash glazing is set into a groove. In some cases, sealant was previously applied on top of existing putty; remove sealant in conjunction with putty.
- .3 Label each pane of glass for re-installation in its original location. Salvage broken panes for reuse in smaller lights.
- .4 Proceed with re-glazing following sash restoration and surface preparation respectively in accordance with Section 08 03 52.71 – Historic - Wood Window Rehabilitation and Section 09 03 91 – Historic - Painting.
- .5 Sand and clean glazing rebates.
- .6 Before applying glazing, prime the glazing rebate with a mixture of shellac flakes and alcohol.
- .7 Pour shellac flakes to a depth of 13 mm in the bottom of a small clear glass jar and add enough alcohol to just cover the flakes. Mix with a stick to the consistency of motor oil.
- .8 Brush shellac mixture into all rebates.
- .9 Seal any remaining mixture in a glass container and store in a dark, cool location for up to 2 weeks. Appropriately discard all unused mixture thereafter.
- .10 Allow 2 hours to dry before applying putty.
- .11 Above and beyond the glass stated for replacement assume the need to additionally replace 20% of pieces due to breakage.

3.03 INSTALLATION

- .1 Cut replacement glass to suit size of existing lights and to clearances recommended by glass manufacturer. Each pane of glass is to be undersized about 1.5 mm around the perimeter.
- .2 Set glazing lights in traditional manner, using glazing putty.
 - .1 Empty the entire container of putty on a non-absorbent surface and knead until soft before use. This will be easier if the putty is warmed in microwave.
 - .2 Use putty at a temperature between 15 degrees C and 25 degrees C. If the putty is too sticky, knead on a piece of cardboard to remove some of the oils. Do not add chalk to the putty, as this will cause separation.
 - .3 If the putty is too hard, re-warm the putty.
 - .4 Use warmer softer putty for back puttying and harder putty for bevel putty.
- .3 Apply back putty to the rebates about 1-2 mm thick but with enough putty so that the glass is well seated and there are no gaps between the glass and the rebates.

- .4 Set replacement or salvaged glass on full bed of putty to proper sash frame tolerances. Ensure it is evenly seated.
- .5 Install glazing points at 300 mm on centre, with edge point maximum 75 mm from corners.
- .6 Neatly apply exterior putty bevel in line with edges of stiles and rails.
- .7 Allow putty to set up for 24 hours before striking off excess.
- .8 Tool putty to true, even lines, and free of creases, cavities, bubbles and other defects which will mar its appearance and performance.
- .9 Apply ground pumice to each pane of glass sequentially. Spread liberally with a soft brush, allowing the pumice to absorb any oil residue. Sweep the pumice off the glass. The glass should take on a nice shine, free of oily prints. The discarded pumice may be reused for subsequent panes.
- .10 Allow putty to cure for minimum 72 hours before painting.
- .11 Paint cured putty in accordance with Section 09 03 91 – Historic - Painting.
 - .1 Lap paint onto glass by 2 mm with application of the exterior and interior finishing paint coats.

3.04 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 – Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .1 Remove traces of primer, caulking.
 - .2 Remove glazing materials from finish surfaces.
 - .3 Remove labels.
 - .4 Clean glass using approved non-abrasive cleaner in accordance with manufacturer's instructions.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 00 10 – General Instructions, Waste Management.

3.05 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 After installation, mark each light with an "X" by using removable plastic tape or paste.
- .3 Repair damage to adjacent materials caused by glazing installation.

END OF SECTION