

PART 1 GENEREAL

1.1 RELATED REQUIREMENTS

- .1 Section 01 00 10 General Instructions.
- .2 Section 01 35 29.06 Health and Safety Requirements.
- .3 Section 09 91 00.08 Painting for Minor Works.

1.2 REFERENCE STANDARDS

- .1 CSA Group
 - .1 CAN/CSA-A440-00 (R2005) Windows.
- .2 Health Canada/Workplace Hazardous Materials Information System WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .3 The Society for Protective Coatings (SSPC).
 - .1 SSPC-SP2 Hand Tool Cleaning.

1.3 SEQUENCING

- .1 Repair steel windows in accordance with Work of this section. Repairs include glazing replacement, cleaning, sealing of gap at undersized glass panes, treating corroded areas with rust converter and fixing ventilators in closed position where hardware is inadequate.
- .2 Before starting work, verify existing conditions and variations from original contract documents.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 00 10 - General Instructions – Submittal Procedures.
- .2 Product Data.
 - .1 Provide product data in accordance with Section 01 00 10 – General Instructions.
 - .1 Material Safety Data Sheets (MSDS).
- .3 Samples.
 - .1 Submit for review and acceptance samples for the following:
 - .1 Glazing tape.
 - .2 Sealant colour charts.
 - .3 Coated stainless-steel wire.
 - .4 4mm replacement plate glass.
 - .5 Penetrating oil.
 - .6 Rust converter.
 - .7 White oak shims, painted
 - .8 Non-ionic detergent.

1.5 CLOSEOUT SUBMITTALS

- .1 Record Documentation.

- .1 Submit as built drawings to locate and indicate all interventions and any variations from the original drawings and specifications.
- .2 Submit record photography of ongoing work.

1.6 QUALITY ASSURANCE

- .1 Qualifications.
 - .1 Work of this Section: only undertaken by Contractor experienced in conservation of ferrous metal and bronze architectural work.
- .2 Mock ups.
 - .1 Construct mock up in accordance with Section 01 00 10 General Instructions – Quality Control – Mock ups.
 - .1 Prepare mock up to demonstrate understanding of each specified repair type.
 - .1 Prepare mock up of surface preparation prior to rust converter application.
 - .2 Prepare mock up for inspection by Departmental Representative before proceeding with further work.
 - .3 Adjust techniques as directed by Departmental Representative until desired result are achieved.
 - .4 Mock-up will be used to judge quality of work and efficacy of repair.
 - .5 Notify Departmental Representative 5 working days in advance of mock up preparation.
 - .6 Mock-up may remain as part of finished work.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 00 10 General Instructions, Construction Facilities, Common Product Requirements.
- .2 Packaging Waste Management.
 - .1 Separate and recycle packaging materials in accordance with Section 01 00 10 – General Instructions, Waste Management.

1.8 LEAD AND ASBESTOS

- .1 Note that existing paint contains lead and the glazing putty contains both lead and asbestos.
- .2 Follow all health and safety disposal procedures in accordance with those having jurisdiction.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 Replacement glazing: clear plate glass 4 mm thick, sized to suit.
- .2 Fasteners: Retain and reinstall existing fasteners where possible.
- .3 Rust converter: tinted to match adjacent surfaces. Section 09 91 00.08 Painting for Minor Works.

- .4 Glazing tape for under 75 UI: 100% Solid polyisobutylene cross-linked butyl, preformed sealant. By same manufacturer as sealant for wet seals.
- .5 Glazing tape for over 75 UI: 100% solid, highly adhesive and elastic, cross-linked butyl preformed tape with a continuous integral EPDM shim.
- .6 Sealant: High performance, Single-component, Non-staining, Neutral-Curing Silicone: *ASTM C, Type S, Grade NS, Class 50*, Black. For wet seals inside and out. By same manufacturer as glazing tape. Colour to match frames.
- .7 Neoprene setting blocks by same manufacturer as glazing tape and silicone wet seals.
- .8 Penetrating oil.
- .9 Clear acid cure silicone sealant for filling gaps where glass is undersized.
- .10 Coated stainless steel wire. To fix ventilators latches in closed position. Colour: To match windows.
- .11 White oak wedges, painted to match window colour.
- .12 Clear, lubricant: non-staining, dry silicone-based lubricant that contains no oil, grease, wax, petroleum or detergent.
- .13 Brass brush: head sized 8mm x 35mm for small constricted areas.
- .14 Straight razor.
- .15 Mineral wool insulation.

Part 3 EXECUTION

3.1 PREPARATION AND PROTECTION

- .1 Install overhead protection and temporary enclosures in accordance with Section 01 00 10 General Instructions.
- .2 Protect adjacent surfaces from damage prior to undertaking in-situ repairs.
- .3 Protect existing and installed components from damage during repair work.
- .4 Protect adjacent materials during window work.
 - .1 Any damage incurred during the repair work to be repaired by a qualified trades person at no cost to the client.

3.2 REPAIR TYPE A – BROKEN/CRACKED GLASS REPAIR

- .1 Carefully remove stops and broken or cracked glazing glass panes from sash/ventilators.
 - .1 Label stops to identify proper location.
 - .2 Clean screw heads. Apply penetrating oil to screw heads 24 hours in advance of removal.
 - .3 Use only screwdrivers that exactly fit screw heads. Do not strip or damage fasteners.
 - .4 Fasteners.
 - .1 Retain existing fasteners for reuse.
 - .2 Where fasteners are missing replace with stainless steel fasteners that match the existing in profile, size and head.
- .2 Remove old caulking, putty, paint and dirt from rebate by scraping with hand tools and sandpaper to SSSP-2.
 - .1 Vacuum thoroughly to remove dust.

- .2 Apply rust converter to all areas of corrosion.
- .3 Install new 4mm glass pane.
- .4 Size glass : minimum of 2 mm gap around perimeter and a maximum of 3mm gap.
- .1 Where glazing stops are being reinstalled.
 - .1 Set glazing on adequately sized setting blocks to provide sufficient clearance from frame.
 - .2 Apply glazing tape on both sides. Ensure drainage at base is not impeded by tape installation.
 - .3 Secure with aluminum glazing stop.
 - .4 Cut back glazing tape flush with metal frame/stop on interior and exterior.
 - .5 Apply small bead of silicone caulking as wet seal over exposed edge of glazing tape inside and out.
- .2 Where glazing stops are missing.
 - .1 Set glazing on adequately sized setting blocks to provide sufficient clearance from frame.
 - .2 Apply glazing tape at rebate. Ensure drainage at base is not impeded by tape installation.
 - .3 Secure glass with neatly tooled bead of acid cure silicone.
 - .4 Cut back glazing tape flush with steel ventilator at interior.
 - .5 Apply small bead of silicone caulking as wet seal over exposed edge of glazing tape at inside.

3.3 REPAIR TYPE B – HARDWARE REPAIR AND CLEANING

- .1 Carefully clean hardware surfaces with an application of non-ionic detergent. Neutralize the hardware detergent by flushing with damp sponges. Wipe dry with a clean cloth and lubricate with a clear, non-staining film that does not stick or make a mess, in order to lubricate the hardware without attracting dirt (i.e. graphite or silicone).

3.4 REPAIR TYPE C – CORROSION REMOVAL AND PAINTING

- .1 Treat corroded areas where visible and where exposed in glazing rebates by re-glazing repair.
- .2 Vacuum all loose friable material.
- .3 Use a brass brush to loosen and remove all unbonded corrosion debris.
- .4 Wipe surface down with a damp lint free cloth.
- .5 Apply a rust converter to areas of corrosion.

3.5 REPAIR TYPE D – CLEANING A (SUPERFICIAL CLEANING)

- .1 For each window and interstitial space between storm and primary window (all 4 sides), use vacuum for bulk removal and a small amount of non-ionic detergent applied to all glass surfaces with a lint free cloth to wash surfaces. Repeat process as many times as necessary until cloth shows no dirt. Rinse with potable water and dry frames and adjacent surfaces.
 - .1 Glass debris: use straight razor to carefully remove sealant and debris from glass.
 - .2 Glass cleaner: mix one-part hot water to one-part distilled vinegar.

- .3 Clean only when there is no direct sun on the window.
- .2 For each window where accretions adhere use a brass brush and plastic wood scrapers to remove.
- .3 Clean all glass surfaces with non-ionic detergent and wipe dry.

3.6 REPAIR TYPE E – CLEANING B (THOROUGH CLEANING AND TOUCH-UP PAINTING)

- .1 For each window and interstitial space between storm and primary window (all 4 sides), use vacuum for bulk removal and a small amount of non-ionic detergent applied to all glass surfaces with a lint free cloth to wash surfaces. Repeat process as many times as necessary until cloth shows no dirt. Rinse with potable water and dry frames and adjacent surfaces.
 - .1 Glass debris: use straight razor to carefully remove sealant and debris from glass.
 - .2 Glass cleaner: mix one-part hot water to one-part distilled vinegar.
 - .3 Clean only when there is no direct sun on the window.
- .2 Where accretions adhere, use a brass brush and plastic wood scrapers to remove.
- .3 Clean all glass surfaces with non-ionic detergent and wipe dry.
- .4 Remove corrosion and apply rust converter as per **Repair Type C**, items 2 to 5 inclusive.

3.7 REPAIR TYPE F – WINDOW IMMOBILIZATION

- .1 To be undertaken after cleaning.
- .2 To be undertaken where hardware will not keep ventilator closed.
- .3 Use coated wire to encircle both of the ventilator handles minimum 6 times.
- .4 Push two wedges, one from top and one from bottom. Between handles and in between wire and face of vent in such a way that the vent is closed tightly.
- .5 For window W323, refer to detail 8/A500.

3.8 REPAIR TYPE G – GLAZING (RE)SEALING

- .1 Cut away the glazing putty and remove the remnants of putty. Wipe area clean with a cloth dampened with a non-ionic detergent. If needed, use slightly damp plastic bristle brush to ensure there are no particles left in the glazing channel.
- .2 Wipe area dry with a clean cloth and apply a neatly tooled acid cured silicone caulking inside and out.

3.9 WINDOW W063 (REFER TO 12/A400)

- .1 Remove duct tape and fibreglass chinking
- .2 Rechink perimeter with mineral wool insulation and neatly apply foil faced tape to seal.

END OF SECTION