

## **1 General**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 06 08 99 - Rough Carpentry for Minor Works.
- .2 Section 06 20 00 - Finish Carpentry.
- .3 Section 07 27 00 - Air Barriers.
- .4 Section 07 62 00 - Sheet Metal and Trim.
- .5 Section 07 92 00 - Joint Sealants.
- .6 Section 09 91 00.08 - Painting for Minor Works.
- .7 Section 12 24 13 - Roller Window Shades.

### **1.2 REFERENCES**

- .1 Aluminum Association (AA), Designation System for Aluminum Finishes.
- .2 NAFS North American Fenestration standard Specification for Windows, Doors and Skylights.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-79.1-M91, Insect Screens.
- .4 Canadian Standards Association (CSA) International
  - .1 CSA-A440.S1, Canadian Supplement.
  - .2 AAMA/WDMA/CSA 101/I.S.2/A-440-08.
  - .3 CAN/CSA-Z91-M90, Safety Code for Window Cleaning Operations.

### **1.3 SHOP DRAWINGS**

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate materials and details in full size scale for head, jamb and sill, profiles of components, interior and exterior trim elevations of unit, anchorage details, location of isolation coating, description of related components and exposed finishes fasteners, and caulking. Indicate location of manufacturer's nameplates.
- .3 Indicate tie-in of air barrier and vapor barrier to window frame and sealing of air barrier at frame.

### **1.4 TEST REPORTS**

- .1 Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for:
  - .1 Windows classifications.
  - .2 Insect screens.
  - .3 Air tightness.
  - .4 Water tightness.
  - .5 Wind load resistance.
  - .6 Condensation resistance.
  - .7 Sash strength and stiffness - Operable Casement.
  - .8 Ease of operation - windows with operable lights.
  - .9 Sash pull-off - vinyl windows.
  - .10 Forced entry resistance.
  - .11 Mullion deflection - combination and composite windows.

### **1.5 QUALITY ASSURANCE MOCK-UP**

- .1 Fabricate a mock-up that will demonstrate the various aspects of the air barrier / window connection / cladding (brick, steel, wood, EIFS and/or vinyl) installation and detailing.
- .2 The installation is to reflect the intent to have a full tie in of the air barrier to the entire perimeter of all wall openings, including windows, doors and louvers, providing a tight

- air and water seal and the relationship of the cladding installation to the openings.
- .3 The mock-up is to be reviewed by the Contractor, Membrane Installer, Window Installer, Departmental Representative prior to the Contractor moving forward with the installation of all other windows.
- .4 Allow 24 hours to convene the review on site.
- .5 Mock-up to be approved prior to fabrication of additional openings.
- .6 Openings installed prior to review and approval will be removed at the Contractors expense and rebuilt.
- .7 The approved mock-up may remain on site as part of the work and it will form the standard of acceptance for the remainder of the work.

## **1.6 CLOSEOUT SUBMITTALS**

- .1 Provide operation and maintenance data for windows for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

## **1.7 WASTE MANAGEMENT AND DISPOSAL**

- .1 Collect and separate for disposal waste material generated by this Section.
- .2 Place in appropriate on-site bins in accordance with Waste Management Plan.
- .3 A clean worksite is mandatory at all times. Failure to maintain the site in a clean, safe condition shall result in the Departmental Representative initiating a clean-up and related costs being deducted from progress claims.

## **2 Products**

### **2.1 MATERIALS**

- .1 Materials: to CSA-A440/A440.08 supplemented as follows:
- .2 Sash: extruded vinyl, minimum wall thickness 1.65mm, white color.
- .3 Main frame: extruded vinyl, minimum wall thickness 1.65mm, white color.
- .4 Glass: sealed insulated glass units, standard 12mm spacer, glass thickness as required to meet wind load resistance.
- .5 Screens: to CAN/CGSB-79.1, plastic-coated fiberglass screen cloth in prefinished aluminum frame with integrated lift rail at all opening lites, on all ventilator units.
  - .1 Insect screening mesh: count 18 x 14.
  - .2 Fasteners: tamper proof.
  - .3 Screen frames: steel color to match window frames.
  - .4 Mount screen frames for interior replacement.
- .6 Accessories:
  - .1 Provide fins at top and sides of frame for securing frame in opening.

### **2.2 WINDOW TYPE AND CLASSIFICATION**

- .1 All exterior windows:
  - .1 Casement: operating with sealed triple insulating glass and screen over operating sash only.
    - .1 U-Factor: 1.0 w/mk.
    - .2 SHGC: 0.40
    - .3 Canadian Energy Star Zone: 3
- .2 Classification rating: to CSA-A440/A440.08.
  - .1 Air tightness: A3.
  - .2 Water tightness: B3.
  - .3 Wind load resistance: C3.
  - .4 Condensation resistance: Temperature Index, I 55.7 (ventilators).

- .5 Forced Entry: F1.
- .6 Insect Screens: S1.
- .7 Glazing: G1.

## **2.3 FABRICATION**

- .1 Fabricate in accordance with CSA-A440/A440.08 supplemented as follows:
  - .1 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.
  - .2 Face dimensions detailed are maximum permissible sizes.
  - .3 Brace frames to maintain squareness and rigidity during shipment and installation.
  - .4 Finish steel clips and reinforcement with shop coat primer to CAN/CGSB-1.40 g/m<sup>2</sup> zinc coating to CAN/CSA-G164.

## **2.4 VINYL FINISHES**

- .1 Vinyl finishes: in accordance with CSA-A440/A440.08, including appendices, supplemented as follows:
  - .1 White color.

## **2.5 GLAZING**

- .1 Glaze windows in accordance with CSA-A440/A440.08.
- .2 Factory glaze windows with sealed, triple glazed units, with Low E glass, argon filled to manufacturer's standard glazing procedure.

## **2.6 HARDWARE**

- .1 Casement Windows:
  - .1 Operating mechanism: corrosion resistant, crank type designed to permit easy operating while allowing sash to remain in any open position.

## **2.7 AIR BARRIER AND VAPOUR RETARDER**

- .1 Equip window frames with factory installed air barrier material for sealing to building air barrier as follows:
  - .1 Material: identical to, or compatible with, building air barrier and vapour retarder materials to provide required air tightness and vapour diffusion control throughout exterior envelope assembly.
  - .2 Material width: adequate to provide required air tightness and vapour diffusion control to building air barrier from interior.

# **3 Execution**

## **3.1 WINDOW INSTALLATION**

- .1 Install in accordance with CSA-A440/A440.08 and in accordance with manufacturers written instructions.

## **3.2 CAULKING**

- .1 Seal joints between windows and window sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and window-frame. Caulk butt joints in continuous sills.
  - .2 Apply sealant in accordance with Section 07 92 00 - Joint Sealants. Conceal sealant within window units except where exposed use is permitted by Departmental Representative.
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**3.3 CLEANING**

- .1 Clean window frames and glass.
- .2 Remove labels and visible markings.

**END OF SECTION**