

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 Canada Green Building Council (CaGBC)
    - .1 LEED Canada 2009 for Design and Construction-2010, LEED Canada 2009 for Design and Construction Leadership in Energy and Environmental Design Green Building Rating System Reference Guide.
  - .2 CSA Group
    - .1 AAMA/WDMA/CSA 101/I.S.2/A440-11, NAFS - North American Fenestration Standard for Windows, Doors, and Skylights.
    - .2 CSA A440S1-17, Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS - North American Fenestration Standard for Windows, Doors, and Skylights.
    - .3 CAN/CSA-A440.4-07, Window, Door, and Skylight Installation
    - .4 CAN/CSA-A440.2/A440.3-14, Fenestration energy performance/User guide to CSA A440.2, Fenestration energy performance.
    - .5 CAN/CSA-Z91-02 (R2013), Health and Safety Code for Suspended Equipment Operations.
  - .3 South Coast Air Quality Management District (SCAQMD)
    - .1 SCAQMD Rule 1168-05, Adhesives and Sealants.
  - .4 Screen Manufacturers Association (SMA)
    - .1 SMA 1201R-2013 Specification for Insect Screens for Windows, Sliding Doors and Swinging Doors.
- 1.2 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 windows and include product characteristics, performance criteria, physical size, finish and limitations.
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1.2 ACTION AND  
INFORMATIONAL  
SUBMITTALS  
(Cont'd)

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- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Newfoundland and Labrador, Canada.
  - .2 Indicate materials and details in full size scale for head, jamb and sill, profiles of components, interior and exterior trim, junction between combination units, 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.
- .4 Samples:
  - .1 Submit for review and acceptance of each unit.
  - .2 Samples will be returned for inclusion into work.
  - .3 Submit one representative model complete full size window sample of each type window.
  - .4 Include frame, sash, sill, glazing and weatherproofing method, insect screens, surface finish and hardware. Show location of manufacturer's nameplates.
  - .5 Include 150 mm long samples of head, jamb, sill, meeting rail mullions to indicate profile.
- .5 Test and Evaluation Reports:
  - .1 Submit test reports from approved independent testing laboratories, certifying compliance with specifications.
  - .2 All test reports that reference the NAFS must include, on the first page, a summary of the results including, at minimum:
    - .1 The product manufacturer.
    - .2 The type of product.
    - .3 The model number/series number.
    - .4 The primary product designation.
    - .5 The secondary product designation.
      - .1 Positive design pressure.
      - .2 Negative design pressure.
      - .3 Water penetration resistance test pressure.
      - .4 Canadian air infiltration and exfiltration levels.
    - .6 The test completion date.

1.2 ACTION AND  
INFORMATIONAL  
SUBMITTALS  
(Cont'd)

- .5 Test and Evaluation Reports: (Cont'd)
  - .3 The report will also contain the following information:
    - .1 Test dates.
    - .2 Report preparation dates.
    - .3 Test information retention period.
    - .4 Location of testing facilities.
    - .5 Full description of test samples, including:
      - .1 Finish, weathering characteristics.
      - .2 Condensation resistance.
      - .3 Safety drop - vertical sliding windows only.
      - .4 Block operation - sliding windows only.
      - .5 Sash strength and stiffness - projecting.
      - .6 Sash pull-off - vinyl windows.
      - .7 Forced entry resistance.
      - .8 Mullion deflection - combination and composite windows.
    - .6 Complete description of amendments, as applicable.
    - .7 Conclusion.
    - .8 Drawings signed by the testing laboratory, if provided.
  - .6 Sustainable Design Submittals:
    - .1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.

1.3 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.

1.4 QUALITY  
ASSURANCE

- .1 Certifications: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
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- 1.5 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 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements.
  - .5 Packaging Waste Management: remove for reuse or return of pallets, crates, padding, banding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.

## PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Materials: to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS-North American Fenestration Standard/Specification for windows, doors and skylights.
  - .2 All windows by same manufacturer.
  - .3 Sash: pultruded fiberglass, nominal wall thickness 2.3 mm.
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2.1 MATERIALS  
(Cont'd)

- .4 Main frame: pultruded fiberglass, nominal wall thickness 2.3 mm.
- .5 Glass: in accordance with Section 08 80 50 - Glazing.
- .6 Screens: to SMA 1201:2013 on the ventilating portion of the according to instructions.
  - .1 Insect screening mesh: count 18 x 14.
  - .2 Fasteners: tamper proof.
  - .3 Screen frames: aluminum colour to match window frames.
  - .4 Mount screen frames for interior replacement.
- .7 Isolation coating: alkali resistant bituminous paint.
- .8 Sealants:
  - .1 VOC limit 250 g/L maximum to SCAQMD Rule 1168.
- .9 Aluminum sill 1.2 mm thickness. Colour to match windows and trim.

2.2 WINDOW TYPE AND  
CLASSIFICATION

- .1 Product types:
  - .1 AP - Awning hopper projected windows.
  - .2 FW- Fixed window.
- .2 Classification rating: to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS-North American Fenestration Standard/Specification for windows, doors and skylights.
  - .1 Primary designation:
    - .1 Performance classes: LC.
    - .2 Performance categories: 25.
  - .2 Secondary designation:
    - .1 Windows shall conform to:
      - .1 Air tightness: A3.
      - .2 Water tightness: B5.
      - .3 Wind Load Resistance: C4.
      - .4 Condensation Resistance: I41.
      - .5 Forced Entry Resistance: F10.
      - .6 Insect Screens: S1.

- 2.3 FABRICATION .1 Fabricate in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, NAFS-North American Fenestration Standard/Specification for windows, doors and skylights 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.
- 2.4 ENAMEL COATING .1 Enamel coating: in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, NAFS-North American Fenestration Standard/Specification for windows, doors and skylights, including appendices, supplemented as follows:
- .1 Standard colour to match fibreglass doors and frames colour to match Departmental Representative's sample.
- 2.5 GLAZING .1 Glaze windows in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, NAFS-North American Fenestration Standard/Specification for windows, doors and skylights.
- .1 Section 08 80 50 - Glazing.
- 2.6 HARDWARE .1 Hardware: stainless steel or white bronze sash locks and aluminum handles to provide security and permit easy operation of units.
- .2 Locks: provide operating sash with spring loading locking device, to provide automatic locking in closed position.
  - .3 Include special keyed opening device for windows normally locked.
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- 2.7 AIR BARRIER AND VAPOUR RETARDER .1 Equip window frames with site installed air barrier and vapour retarder material for sealing to building air barrier and vapour retarder 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 and vapour retarder from interior.

PART 3 - EXECUTION

- 3.1 EXAMINATION .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

- 3.2 INSTALLATION .1 Window installation:
- .1 Install in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, NAFS-North American Fenestration Standard/Specification for windows, doors and skylights.
  - .2 Arrange components to prevent abrupt variation in colour.
  - .3 Install shims between windows and building frame at each installation screw location.
- .2 Sill installation:
- .1 Install metal sills with uniform wash to exterior, level in length, straight in
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- 3.2 INSTALLATION (Cont'd)
- .2 Sill installation: (Cont'd)
- .1 (Cont'd)
- alignment with plumb upstands and faces. Use one piece lengths at each location.
- .2 Cut sills to fit window opening.
- .3 Secure sills in place with anchoring devices located at ends joints of continuous sills and evenly spaced 600 mm on centre in between.
- .4 Fasten expansion joint cover plates and drip deflectors with self tapping stainless steel screws.
- .5 Maintain 6 to 9 mm space between butt ends of continuous sills. For sills over 1200 mm in length, maintain 3 to 6 mm space at each end.
- .3 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.
- 3.3 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 recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
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- 3.4 PROTECTION .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by window installation.