

**SECTION 08530
VINYL WINDOWS**

PART 1 - GENERAL

1.1 SUMMARY

- .1 Provide reinforced casement and awning vinyl windows as indicated, scheduled and specified.

1.2 RELATED SECTIONS

- .1 06100 Rough Carpentry.
- .2 07290 Weather Resistive Barrier.
- .3 07620 Sheet Metal Flashing and Trim.
- .4 07900 Joint Sealers.
- .5 08810 Glass and Glazing.

1.3 REFERENCES

- .1 ASTM E1105-00 Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference, by using AAMA 502-02 Voluntary Specification for Field Testing of Windows and Sliding Glass Doors.
- .2 CAN/CSA-A440-00, Windows, including A440.1-00, User Selection Guide to CSA Standard A440-00, Windows.
- .3 CSA-A440.2-98, Energy Performance of Windows and Other Fenestration Systems; CSA A440.3-98 User Guide to CSA Standards A440.2-98.

1.4 SYSTEM DESCRIPTION

- .1 Design and Performance Requirements:
 - .1 Windows shall conform to CSA A440-98 with minimum ratings as follows:
 - .1 Air tightness: A-3
 - .2 Water tightness: B-3
 - .3 Wind load resistance: C-3
 - .2 Design operable windows that, when tested in accordance with CAN/CSA A440, will meet or exceed the requirements for sash strength and stiffness and ease of operation.
 - .3 Vinyl windows shall be provided, labeled by BC Hydro as Power Smart Energy Rated Windows for the appropriate BC climate zone.

1.5 SUBMITTALS

- .1 Submit in accordance with Division 1 Submittal Procedures.
- .2 Product data:
 - .1 Provide product data on units specified. Include delivery, storage and handling requirements and installation instructions.
 - .2 Maintenance data: Provide maintenance data for cleaning, re-glazing and maintenance of vinyl windows for incorporation into maintenance manual specified in Division 1.
- .3 Shop drawings:
 - .1 Shop drawings and calculations shall be prepared under the supervision of a professional engineer registered in British Columbia.
 - .2 Provide shop drawings clearly indicating materials with large scale details for head, jamb and sill, profiles of components, elevations of unit, anchorage details, location of isolation coating, description of related components and exposed finishes and fasteners.
 - .3 Show frame, sash, sill, muntin bars, glazing and weatherproofing method, insect screens, surface finish and hardware.

- .4 Submit signed and sealed shop drawings for review. Shop drawings shall include confirmation of compliance with the CSA A440 minimum specified A, B, C ratings.
 - .5 The profession engineer sealing the drawings shall review installation requirements and structural requirements for framing members and glass to ensure compliance with code requirements.
 - .4 Samples:
 - .1 Submit one combination model representative of each type window.
 - .2 Include 150 mm (6") long samples of head, jamb, sill meeting rail and mullions and muntins to indicate profile.
 - .5 Test Reports:
 - .1 Pre-installation Lab Test reports: Submit certified copies of test results from an approved independent testing agency to confirm compliance with the CSA A440 minimum specified A, B, C ratings.
 - .2 In situ water penetration Test Reports.
- 1.6 QUALITY ASSURANCE**
- .1 Laboratory tests shall be conducted on at least one full size sample of a representative window type from the project, including operable components. Additional windows may be specified for testing at Consultant's discretion. Submit test data to Consultant for review and approval prior to installation. Include cost of testing in contract price.
 - .2 Use installers with a minimum 3 years experience.
 - .3 Work of this section shall be fabricated, installed, glazed and adjusted by experienced installers in accordance with manufacturer's written instructions, approved shop drawings and referenced standards.
 - .4 Mock-Up: Erect a window mock-up, complete with tie-ins to adjacent materials and assemblies to demonstrate required sequence of installation for Consultant's approval. Refer to detailed drawing for sequencing with Related Sections.
 - .5 Refer also to Section Division 1 Quality Control.
 - .6 If the window test fails initially the manufacturer shall notify the consultant for the consultant's approval of what is required to make it pass and how that modification will be applied to the project windows.
- 1.7 DELIVERY, STORAGE AND HANDLING**
- .1 Deliver, store and handle units in accordance with manufacturer's instructions and with Insulating Glass Manufacturers of Canada (IGMAC) Guidelines to CAN/CBSG 12.8-97 Guidelines.
 - .2 Securely tie or fasten operating parts to prevent movement during transport or handling.
 - .3 Store units on site on raised wood blocking, protected from elements, physical damage or corrosive materials. Store upright, in accordance with final installation.
- 1.8 PROJECT CONDITIONS**
- .1 Confirm rough openings for windows and doors by site measurement prior to site delivery.
- 1.9 SEQUENCING AND SCHEDULING**
- .1 Install units in accordance with approved construction schedule.
- 1.10 WARRANTY**
- .1 Warrant windows in accordance with General Conditions, except as follows:
 - .1 Warrant parts and labour for a period of two (2) years, water penetration for a period of five (5) years, and PVC frame and sash materials and sealed units for a period of ten (10) years against failure of glazing unit seals and deposits on interior glass faces detrimental to vision.

PART 2 - PRODUCTS

2.1 VINYL WINDOW ASSEMBLIES

- .1 Acceptable Manufacturer's Windows: Type 1; 1400 Series by Euroline Windows Ltd. or 6000 Series by Vinyltek Windows Ltd.

- .2 Vinyl Window Assemblies: To comply with the provisions outlined in Section 5.4 and 8.5 of CAN/CSA A440.
 - .1 Window Operation: Awning or casement, as indicated.
 - .2 Operable windows: Designed to resist forced entry to CAN/CSA A440.
 - .3 Provide screens on operable windows in accordance with Section 7.3 of CAN/CSA A440. Screen: Glass fibre mesh in aluminum frame, finished to match window frame and when tested shall meet clause 10.10 of CAN/CSA A440. Screens must not interfere with operation of window hardware.
 - .4 Window designs shall provide a flange around frame perimeter to accept an air seal membrane.
 - .5 Machine joints, corners, mitres accurately to flush hairline joints. Corner of sash and window frames to be welded for vinyl frames.

2.2 GLASS AND GLAZING

- .1 Conforming to CAN/CGSB 12.20- M89 Structural Design of Glass for Buildings. Heat strengthened and tempered glass to conform to CAN/CGSB 12.1-M90.
- .2 Provide a 3 mm (1/8") face clearance between the frame and the glass. Glazing units over 190 cm (75 united inches) must be shimmed.
- .3 Glazing shall be accomplished by dry glazing methods from interior by use of applied mitered extruded PVC glazing beads with co-extruded gasket.
- .4 Size of bead shall accommodate glazing as specified.
- .5 Glass:
 - .1 Thickness of Glass: conform to B.C. Building Code wind load requirements where applicable and according to maximum glass sizes.
 - .2 Float Glass: Glazing quality, conforming to CAN/CGSB-12.3-M91.
 - .3 Safety (Tempered) Glass: type 2, tempered, Class B, float or plate glass, conforming to CAN/CGSB-12.1-M90.
 - .4 Laminated Glass: Type 1, Class B, conforming to CAN/CGSB-12.1-M90, with 0.015" (.4mm) thick clear vinyl interlayer. Laminate glass thickness: ¼".
 - .5 Sealed Glazing Units: Conform to CAN/CGSB-12.8-M90, tempered where required by the B.C. Building Code, and where indicated.
- .6 Hardware: Manufacturer's standard complete with restricting device.

2.3 SEALED UNITS

- .1 Sealed Units: To CAN2-12.8. Manufacture sealed units using dual seal. Provide minimum 12.7 mm (1/2") air space, 2 layers 3 mm float glass. All sealed units to have one surface Low 'E'-172 by Cardinal or approved alternative.

2.4 ACCESSORIES

- .1 Sealants: Refer to Section 07900 Joint Sealants; use 2 part urethane to exterior and 1 part urethane to interior.
- .2 Air Barrier: Maintain continuity to of air barrier at junction with entrances.

2.5 FABRICATION

- .1 Manufacture, handle and install sealed units in accordance with Insulating Glass Manufacturers of Canada (IGMAC) guidelines to CAN/CGSB 12.8-97 guidelines.
- .2 Mitre cut and fusion weld corners of the frame and sash. Dress welds and finish to match surrounding surfaces.
- .3 Provide slot holes in glazing rebates and rebates in frames to ensure baffled internal weepage, drainage and pressure equalization.
- .4 Reinforcement:

- .1 Reinforce as required to comply with referenced standards.
- .2 Reinforcing shall be hot-dipped galvanized steel profiles designed to fit the particular profile shape of the frame, sash or door and shall be concealed and fastened in the center chambers of the profile.
- .5 Weather-strip and Weather-seal:
 - .1 Double weather strip operating sash with extruded EPDM, resistant to deterioration by weathering and aging, and secure in position. Weather stripping shall be easily replaceable without special tools.
 - .2 Weather strips shall be continuous and not penetrated by weepage system.

2.6 FINISHES

- .1 Finish: Windows shall have an integral colour throughout the profile.
- .2 Colour: White.

PART 3 - EXECUTION

3.1 EXAMINATION

- .1 Examine substrate and conditions, under which work under this section is to be performed, with Installer present. Correct unsatisfactory conditions.
- .2 Start of work indicates acceptance of conditions.

3.2 PREPARATION

- .1 Ensure proper surface preparation. Ensure flexible membrane flashings, metal flashings and sealants are installed where indicated.
- .2 Correctly locate and install flashings, deflectors and weep holes to ensure proper drainage of moisture to exterior.

3.3 INSTALLATION OF GLASS

- .1 Carry out glazing in accordance with code requirements, reviewed shop drawings, and manufacturer's written specifications and Insulating Glass Manufacturers of Canada Guidelines to CAN/CGSB 12.8-97.
- .2 Ensure perimeter clearance is sufficient to avoid point loading and provide for sufficient clearance of glass to metal.
- .3 Clean contact surfaces prior to installation.
- .4 Apply stops in accordance with manufacturer's printed instructions to achieve maximum performance and provide maximum security.

3.4 INSTALLATION OF WINDOWS

- .1 Install windows in accordance with reviewed shop drawings, manufacturer's recommendations, referenced standards, BE window sequencing details, and approved mock up.
 - .1 Adjust operable parts for correct function.
 - .2 Leave protective window markings in place until final cleaning of building.

3.5 SEALANTS

- .1 Seal anchor penetrations in glazing channels with sealant.
- .2 Do not block or seal weep holes.
- .3 Ensure sealants are appropriate for particular application. Avoid discontinuity in sealant application.
- .4 Ensure proper fit, sizing and continuity of gaskets and glazing tapes.
- .5 Seal joints between frame members and other non-operating components with sealant to provide weather-tight and air-tight seal at outside and inside.
- .6 Seal joints between windows and window sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstaged and window/door frame. Caulk butt joints in continuous sills.

- .7 Apply sealant in accordance with Section 07900. Conceal sealant within sill work except where exposed use is permitted by Consultant.

3.6 FIELD QUALITY CONTROL

- .1 Provide window testing for water penetration in accordance with ASTM E1105 to confirm the specified CSA A440 water tightness rating.
- .2 The minimum number of windows specified for field testing shall comply with the BPG: Wood Frame, Table 7.9, Number of Recommended Field Tests. For example, for a building with 100 — 200 windows, a minimum of two windows shall be tested before 5% of windows are installed and one more window when 50% of the windows are installed.
- .3 Where modifications are necessary to window assembly or wall interfaces to achieve required performance, undertake required modifications to manufacturing or installation process to Consultant's satisfaction.
- .4 Include cost of testing in the Contract Price.
- .5 If windows fail tests they are to be repaired/replaced and retested to the satisfaction of the Owner and Consultants. The costs for repair/replacement and additional tests to be the responsibility of the window manufacturer.

3.7 ADJUSTING CLEANING AND PROTECTION

- .1 Adjust hardware for proper functioning and ease of operation.
- .2 Wash down exterior vinyl surfaces with water, applied with clean wiping-cloths.
- .3 Clean non-metallic surfaces as recommended by the manufacturer of the material.
- .4 After installation and prior to occupancy, mark glass with non-alkaline whiting or similar non-abrasive material.
- .5 Protect windows from damage before, during and after installation.

END OF SECTION