

FIBERGLASS WINDOWS

Specifier Notes: This section covers SILEX Fiberglass Windows and Doors LTD. ® stick build fiberglass curtain wall. Frames are manufactured from pultruded fiberglass material.

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fiberglass Curtain Wall.

1.2 RELATED SECTIONS

A. Section 07 27 00 - Air Barriers: Water-resistant barrier.
B. Section 07 92 00 - Joint Sealants: Sealants and caulking.

1.3 REFERENCES

- . 1 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process .
- . 2 ASTM D5796-1 0, Standard Test Method for Measurement of Dry Film Thickness of Thin Film Coil-Coated Systems by Destructive Means Using a Boring Device .
- . 3 ASTM E283-04, Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen .
- . 4 ASTM E330-02(2010), Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference .
- . 5 ASTM E547-00(2009), Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference .
- . 6 ASTM F588-07, Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact.
- . 2 Canadian Standards Association (CSA) .
- . 1 AAMA/WDMA/CSA 1 01/I.S.2/A440-11, NAFS North American Fenestration Standard /Specification for Windows, Doors, and Skylights .
- . 2 CAN/CSA A440.2-09/A440.3-09, Fenestration Energy Performance/User Guide to CSA A440.2-09, Fenestration Energy Performance .
- . 3 CAN/CSA A440.4-07, Window, Door and Skylight Installation .
- . 3 National Building Code of Canada, 2010 (NBCC).

1.4 PERFORMANCE REQUIREMENTS

Specifier Notes: Performance ratings for SILEX Fiberglass Windows vary by product and size.

- . 1 Design and size components to withstand dead and live loads caused by pressure and suction of wind acting normal to plane of aluminum window glazing system as calculated in accordance with 201 0 National Building Code of Canada, Climatic Information for Building Design for at the Place of the Work, but not less than specified thickness and dimension

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2 Performance Requirements.

Building Envelope Program which offers financial incentives for installing energy efficient windows based on U-value (conductivity)

of ____ W/m²·K or less, proof of energy performance must be submitted from either:

- .1 Energy Star Canada, or
 - .2 National Fenestration Building Council (NFRC), or
 - .3 Window Test report in accordance with CAN/GSA A440.2 .
- . 2 Windows to meet or exceed AAMA/WDMA/CSA 101/I.S.2/A440 classifications for Air Tightness, Water Tightness, and Wind Load Resistance as follows:

- .1 Air Tightness: 0.2 L/S/M²
- .2 Water Tightness: 720 Pa (15.25 psf)

1.5 SUBMITTALS

- A. Submit in accordance with Division 1 requirements.
 - B. Product Data: Submit manufacturer's product data, including installation instructions.
 - C. Shop Drawings: Submit manufacturer's shop drawings, indicating dimensions, construction, component connections and locations, anchorage methods and locations, hardware locations, and installation details.
 - D. Samples: Submit full-size or partial full-size sample of window illustrating glazing system, quality of construction, and color of finish.
- Specifier Notes: In accordance with the manufacturer's limited warranty, stainable interior wood laminate windows must be finished upon receipt and before installation. Variations in wood grain, color, texture, and natural characteristics are not covered under the limited warranty.
- E. Warranty: Submit manufacturer's standard warranty.

1.6 QUALITY ASSURANCE

- A. Mock-up:
 - 1. Provide sample installation for field testing window performance requirements and to determine acceptability of window installation methods.
 - 2. Approved mock-up shall represent minimum quality required for the Work.
 - 3. Approved mock-up shall remain in place within the Work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site undamaged in manufacturers or sales branch's original, unopened containers and packaging, with labels clearly identifying manufacturer and product name. Include installation instructions.

- B. Storage:
 - a. Store materials in accordance with manufacturer's instructions.
 - b. Store materials in an upright position, off ground, and under cover.
 - c. Protect materials from weather, direct sunlight, and construction activities.

C. Handling: Protect materials and finish during handling and installation to prevent damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. SILEX Fiberglass Windows & Doors Ltd.

Address: 1450 Wall Street Winnipeg, Manitoba Canada R3E 3H8

T. 204 788 0648

F. 204 788 0649

www.silexfiberglass.com

2.2 FIBERGLASS Curtain Wall

A. Fiberglass Curtain Wall: Site-assembled fiberglass curtain wall system.

B. Frame:

1. Pultruded Fiberglass
2. Exterior Finish: Painted
3. Interior Finish: Painted.
4. Overall Frame Depth: 8 1/2 inches
5. Nominal Wall Thickness or Fiberglass Members: 5mm.

2.3 DESIGN CRITERIA

1. Design curtain wall to equalize both positive and negative pressure between outside air cavities surrounding insulating glass units.
2. Design curtain wall to provide drainage from spaces around insulating glass units to exterior.
3. Design windows to protect drainage openings from direct entrance of winddriven rain by use of baffles or other protection.
4. Design components to minimize and accommodate thermally induced movement.
5. Curtain wall system constructed so that glazing unit can be removed and replaced from outside of building.

2.4 GLAZING

See Glazing Section

2.5 TOLERANCES

A. Windows shall accommodate the following opening tolerances:

1. Vertical Dimensions Between High and Low Points: Plus 1/4 inch, minus 0 inch.
2. Width Dimensions: Plus 1/4 inch, minus 0 inch.
3. Building Columns or Masonry Openings: Plus or minus 1/4 inch from plumb.

2.6 FINISH

A. Exterior and Interior: Factory-applied two part urethane paint, complies with AAMA 623.

2.7 INSTALLATION, General

1. Erection Tolerances: Erect all component parts within the following tolerances:

1. Variations from plumb or angle shown:
 1. 3 mm maximum variation in storey height or 3050 mm run, non-cumulative.
2. Variations from level or slopes shown:
 1. 3 mm maximum variation in any column-to-column space or 6100 mm run, non-cumulative.
3. Variations from theoretical calculated position as located in plan or elevation in relation to established floor lines, column lines and other fixed elements of the structure, including variations from plumb and level:
 1. 6 mm maximum variation in any column-to-column space, floor-to-floor height or 6100 mm run.
4. Offsets in end-to-end or edge-to-edge alignment of consecutive members:
 1. 1.5 mm maximum offset in any alignment.
5. Attach and seal building air-vapour barrier to curtain wall frame as detailed on drawings to maintain continuity of building envelope air-vapour barrier.
2. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
3. Provide alignment attachments and shims to permanently fasten system to building structure. Clean weld surfaces; apply protective primer to field welds and adjacent surfaces.
4. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances and align with adjacent work.
5. Provide thermal isolation where components penetrate or disrupt building insulation.
6. Install sill flashings.
7. Coordinate attachment and seal of perimeter air barrier and vapour retarder materials.
8. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
9. Install operating sash in accordance with Section 08 80 00 - Glazing, to interior wet/dry method of glazing.
10. Install glass and infill panels in accordance with Section 08 80 00 - Glazing, to exterior wet/dry method of glazing.

2.8 INSTALLATION, Glazing

1. Clean sealing surfaces at perimeter of glass and sealing surfaces of rabbets and stop beads before applying splines or gaskets. Use solvents and cleaning agents recommended by manufacturer of sealing materials.
2. Install glazing gaskets uniformly with accurately formed corners and bevels. Ensure that proper contact is made with glass and rabbet interfaces.
3. Support both lites of glass thermal units on leveled setting blocks, 4 or 6 mm minimum, spaced as recommended by glass manufacturer. Provide at least one setting block at quarter points from each corner. For casement windows, locate setting blocks closer to corners as recommended by manufacturer.
4. Center glass thermal units in glazing rabbet to maintain 6 mm minimum clearance between edges of glazing and plastic framing at sill or 4 mm minimum clearance between edges of glazing and plastic framing at sill if glazing bite incorporates a drainage channel with a depth of 3 mm minimum.
5. Size glass thermal units to ensure exposed face of spacer is in line with glazing stops.
6. Use spacers and shims in accordance with glass manufacturer's recommendations.
7. ***IF USING TWO-SIDED SSG (STRUCTURAL SILICONE GLAZING) SYSTEM***
SEALANT GLAZING (WET)
 1. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure.
 2. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
 3. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
 4. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

2.9 SOURCE QUALITY CONTROL

1. Curtain wall product manufacturer to provide field review of the installation of their Products.
2. Monitor and report installation procedures – report any installation under unacceptable conditions to Owner
ASTM E 283, to ensure compliance with this specification.

PART 3 EXECUTION**3.1 EXAMINATION**

- A. Examine areas to receive windows. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 CLEANING

1. Remove all excess and scrap material and equipment involved in this installation
2. Remove protective material from prefinished aluminum surfaces and painted fiberglass surfaces
3. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
4. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.