EVERLAST
GROUP OF COMPANIES

SERIES 150 Vinyl

Horizontal Slider and Vertical Single Hung Windows

Technical Specifications and Cross-Sectional Details

Version: S150V_SLDR_HUNG_Tech_Doc_021222_Vev1

Table of Contents

CONSTRUCTIONS SPECIFICATIONS - SECTION 08 54 00

PART 1 GENERAL

1.1. SECTION INCLUDES

A. Series 150 Vinyl Horizontal Slider Window complete with hardware, glazing, mulling options, weather strip, insect screen, grilles-between-the-glass, jamb extension, exterior brickmould trims, exterior sill extension and standard or specified anchors, trim and attachments

B. Series 150 Vinyl Vertical Single Hung Window complete with hardware, glazing, mulling options, weather strip, insect screen, grilles-between-the-glass, jamb extension, exterior brickmould trims, exterior sill extension and standard or specified anchors, trim and attachments

1.2. REFERENCES

A. ASTM International (ASTM):
1. American Society for Testing and Materials (ASTM):
2. C1036: Standard Specification for Flat Glass.
3. E 283: Standard Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors.
4. E 330: Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Door by Uniform Static Air Pressure Difference.
5. E 547: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
6. E 2190: Standard Specification for Insulating Glass Unit Performance Evaluation.
7. F 2090-10: Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.

C. American Architectural Manufacturer’s Association/Window and Door Manufacturer’s Association/Canadian Standards Association (AAMA/WDMA/CSA): (use appropriate specifications depending on certification for each product type).

D. AAMA/WDMA/CSA 101/I.S.2/A440-08/11,S11-09, S1-17: North American Fenestration Standard/Specification for windows, doors, and skylights.

E. AAMA 450-10: Voluntary Performance Rating Method for Mulled Fenestration Assemblies

F. Window and Door Manufacturer’s Association (WDMA): Keystone Certification Program

G. Insulating Glass Manufacturer’s Alliance/Insulating Glass Certification Council (IGMA/IGCC).

H. National Fenestration Rating Council (NFRC):

1. 101: Procedures for Determining Fenestration Product Thermal Properties.
2. 200: Procedure for Determining Solar Heat Gain Coefficients at Normal Incidence

1.3. SUBMITTALS

A. Shop Drawings: Submit shop drawings.
B. Samples: Specified performance and design requirements.
C. Quality Control Submittals: Certificates: Submit manufacturer's certification indicating compliance with specified performance and design requirement

1.4. QUALITY ASSURANCE

A. Requirements: consult local code for NBC [National Building Code] adoption year and pertinent revisions for information on:
B. Egress, emergency escape and rescue requirements.
C. Basement window requirements.
D. Windows fall prevention and/or window opening control device requirements.

1.5. STORAGE AND HANDLING

A. Applicable frames and mulled units will include additional bracing to maintain squareness and rigidity during shipment.
B. Store window units in an upright position in a clean and dry storage area above ground to protect from weather.

1.6. WARRANTY

The following limited warranty is subject to conditions and exclusions. There are certain conditions or applications over which EVERLAST Group of Companies has no control. Defect or problems as a result of such conditions or applications are not the responsibility of EVERLAST Groups of Companies. For a more complete description of the EVERLAST limited warranty, refer to the complete and current warranty information available by request.

Clear insulating glass with stainless steel spacers is warranted against seal failure caused by manufacturing defects and resulting in visible obstruction through the glass for twenty (20) years from the original date of purchase. Glass is warranted against stress cracks caused by manufacturing defects from ten (10) years from the original date of purchase.

Hardware and other non-glass components are warranted to be free from manufacturing defects for two (2) years from the original date of purchase.

PART 2 PRODUCTS

2.1. MANUFACTURED UNITS

A. Description: Altitude Casement / Awning units as manufactured by EVERLAST Group of Companies
    - Calgary, Alberta, Canada

2.2. FRAME DESCRIPTION

A. Frame:
   1. Frame – Vinyl: Members shall be manufactured from 0.079” [2mm] extruded unplasticized polyvinylchloride (uPVC). Frame corners shall be fusion welded and cleaned.
   2. Frame Depth – Vinyl: Frame shall have standard jamb depth of 3-1/4” [83mm] with integral nailing fin and an overall profile thickness of 4-1/4” [108mm].
   3. Interior and exterior frame expander accessory are factory installed.
   4. Interior and exterior fabricated frame expander components, including head-jamb, sill and both jamb components.

B. SASH DESCRIPTION
   1. Sash: Unplasticized polyvinylchloride (uPVC). Sash corners shall be fusion welded and cleaned.
   2. Sash Profile: Shall be 2-3/16” [55mm] in thickness
   3. Sash Exterior Cladding: Manufactured from 0.070” [2mm] extruded aluminum.

C. GLAZING
   1. Select quality complying with ASTM C 1036. Insulating glass SIGMA/IGCC when tested in accordance with ASTM E 2190. STC/OITC ratings are tested to the stated performance level in accordance with ASTM E 90-09.
   2. Glazing Method: 1 3/16” (30mm) insulating glass. Dual and Triple glazing.
   3. Glass Type: LoE Cardinal IG® i89,180, 270, 272 and 366 with Air or Argon Gas.
   4. Glass Type Options: Obscure Glass, Sand Blasted, Rain Glass, Glue Chip, Narrow Reed, Reed, Bronze Tint, Gray Tint, Green Tint.
   5. Glazing Seal: Pressure gasket at exterior; interior has glazing boot inserted.
   6. Perimeter Spacer: Default color is mill finish (stainless).
   7. Glazing Option: STC/OITC upgrade.

D. MULLING
   1. Directional mull limits: 6 wide by 1 unit high; Rough Opening not to exceed 114” x 84” (2896mm x 2134mm).
   2. Directional mull limits: 5 units wide by 5 units high: Rough Opening not to exceed 96” x 84” (2438mm x 2134mm).

E. FINISH
   1. Exterior Vinyl Colour: Standard white.

F. HARDWARE
   1. Lock: Zinc die-cast sash lock and keeper. Two locks are applied to all units with 30” [762mm] rough opening width and wider
   2. Single Hung Balances: Inverted, constant-force stainless steel coil system contained in pivot, locking shoe, housed in a rigid vinyl jamb liner. Balance system must meet AAMA 902-07 Class 3 requirements. Zinc die-cast sash pins disengage sash for easy removal
   3. Horizontal Slider Rollers: Acetal non-marking roller sets.
   4. Colour: Applies to handle and locking hardware:
   5. Standard Color: Matte Black and White; other colours are also available.

2.3. WEATHER STRIP

1. Woven pile weather stripping with mylar fin applied around full perimeter of operating sash and frame.
2. Standard weather strip color: white, tri-fin.

2.4. JAMB EXTENSION

1. Standard: factory-installed jamb extension; various sizes and finishes available.

2.5. INSECT SCREEN

1. Tested to ASTM E-1748-95(09).
2. Factory-installed screen; screen mesh: charcoal fiberglass.
3. Aluminum frame finish: Matches interior colour options.

2.6. GRILLES-BETWEEN-THE–GLASS

1. Manufactured from aluminum profile placed between the two panes of glass.
   a) Interior Colours: Various colours, including split finishes are available.
   b) Exterior Colours: Various colours, including split finishes are available.
   c) Profiles: Various profile shapes are available, contact an Everlast representative.
   d) Pattern: Various patterns are available, contact an Everlast representative. .

2.7. SIMULATED DIVIDED LITES (SDL)

1. Size: 1” (25mm) wide, 2” (50mm) wide with or w/out internal spacer bar; w/out is standard.
2. Colours: Various standard and custom colours available, contact an EVERLAST representative.

2.8. ACCESSORIES AND TRIM

1. Exterior Casing: Offset brickmould available in standard and custom colors.
2. Installation Accessories: Factory-installed aluminum nailing fin at head, sill and side jambs.
3. Installation brackets
4. Mullion kit: standard mullion kit for filed assembly of related units available. Kit includes: Instruction, interior and exterior mull covers and brackets.

PART 3 EXECUTION

3.1. EXAMINATION

A. Verification of Condition: Before installation, verify openings are plumb, square and of proper dimensions. Report frame defects or unsuitable conditions to the General

Contractor and/or Everlast directly before proceeding. Damages or defects must be reported within 72 hours of receipt of finished goods.

B. Acceptance of Condition: Beginning installation or no notification within the 72 hours confirms acceptance of existing conditions.

3.2. INSTALLATION

A. Assemble and install window/door unit(s) according to manufacturer's instruction and reviewed shop drawing.
B. Install sealant and related backing materials at perimeter of unit or assembly in accordance to reviewed shop drawings.
C. Install accessory items as required.

3.3. FIELD QUALITY CONTROL

A. Remove visible labels and adhesive residue according to manufacturers' instruction
B. Unless otherwise specified, water penetration resistance testing shall be conducted per AAMA 502 and ASTM E1105 at 2/3 of the fenestration products design pressure (DP) rating. Water penetration shall be defined in accordance with the test method(s) applied.

3.4. CLEANING

A. Remove visible labels and adhesive residue according to manufacturer's instruction.
B. Leave windows and glass in a clean condition.

3.5. PROTECTING INSTALLED CONSTRUCTION

A. Protecting windows from damage by chemicals, solvents, paint or other construction operations that may cause damage.

END OF SECTION

WINDOW TYPE AND CLASSIFICATIONS

Design Performance Classifications

Product	Air Tested psf	Water Tested Pa	Design Pressure (Uniform Load) Pa / psf		Cert. Rating	Test Size			
						Max Overall Width		Max Overall Height	
						in	mm	in	mm
Horizontal Slider	A3	360	2160/ -2160	45.11	LC-PG45	70 7/8”	1800	55 1/8”	1400
Vertical Single Hung	A3	470	3120/ -3120	65.16	LC-PG65	43	1100	75”	1900

Screen Testing Performance

Product	Canadian Supplement A440-S01-09	
Horizontal Slider	ASTM E1748-95(09)	Passed
Vertical Single Hing	ASTM E1748-95(09	Passed

ENERGY STAR

ENERGY STAR® Program - Canada

This technical specification determines how residential windows, doors, and skylights sold in Canada are certified for the ENERGY

STAR® program. This specification is issued by Natural Resources Canada (NRCan). NRCan has been authorized by the U.S. Environmental Protection Agency (EPA) to promote and administer the ENERGY STAR name and symbol in Canada. A product must meet this specification in order to be promoted as ENERGY STAR certified in Canada by its manufacturer or authorized agent. Manufacturers must also sign a Fenestration Administrative Arrangement with NRCan.

Performance metrics

U-Factor: The heat transfer per time per area and per degree of temperature difference in W/m2·K (Btu/h ft2·˚F). The U-factor multiplied by the interior-exterior temperature difference and by the projected fenestration product area yields the total heat transfer

through the fenestration product due to conduction, convection, and long-wave infra-red radiation. A U-factor in Btu/h ft2·°F multiplied by 5.678263 converts the value to W/m2·K. The U-factor in Btu/h ft2·°F shall conform with Table 1 before the conversion to W/m2·K.

Solar heat gain coefficient (SHGC): The ratio of the solar heat gain entering the space through the fenestration product to the incident solar radiation.

Air leakage: the flow of air that passes through fenestration products in L/s/m2. Air leakage infiltration is the flow of air into the building envelope and exfiltration is the flow of air out of the building envelope. An air leakage in cfm/ft2 multiplied by 5.08 converts the value to L/s/m2. The air leakage value in cfm/ft2 shall conform with Table 1 before the conversion to L/s/m2.

Energy rating (ER): a unitless value derived from a formula that balances heat loss (U-factor), air leakage loss and potential passive solar gain of a fenestration product. The ER is applied to fenestration systems intended to be installed in a vertical orientation in low-rise residential buildings. The simplified ER equation is as follows:

ER = (57.76 × SHGCw) – (21.90 × Uw) – (1.97 × L75) + 40 where

- SHGCw = fenestration system solar heat gain coefficient
- Uw = fenestration system U-factor (W/m2)
- L75 = fenestration system air leakage rate at a pressure difference of 75 Pa, established in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 (North American Fenestration Standard) in L/s•m2. The L75 shall be the average of the infiltration and exfiltration measurements.

A complete explanation of the ER equation may be found in the CSA A440.2 Standard.

U-factor Criteria for Residential Windows and Doors

Product	Maximum U-factor W/m2·K	Maximum U-factor Btu/h·ft2◦F
Windows and Doors	1.22	0.21

Alternate ER Criteria for Residential Windows and Doors

Product	Minimum ER (unitless)
Windows and Doors	34

U-factor Criteria for Unit Skylights

Product	Maximum U-factor W/m2·K	Maximum U-factor Btu/h·ft2◦F
Skylights	2.29	0.4

THERMAL RESULTS

HORIZONTAL SLIDER WINDOW

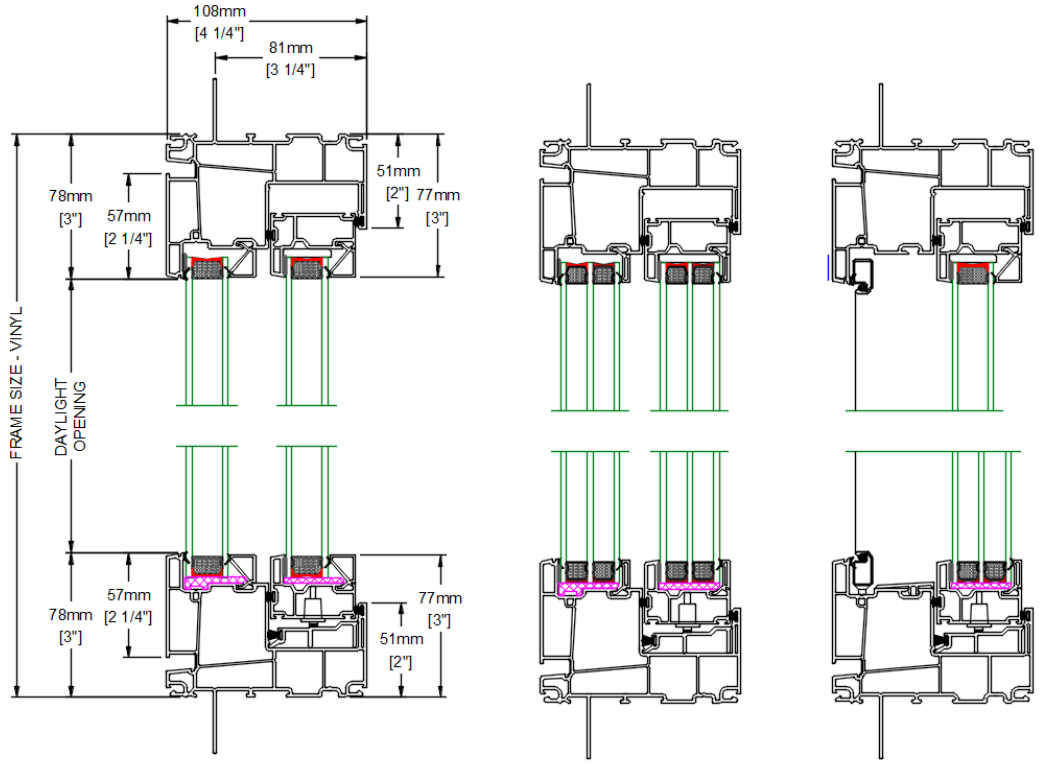
Mfr Product Code	Product Number	Gap 1 (in)	Gap 2 (in)	Gap Fill 1	Gap Fill 2	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Tint	Spacer	Grid Type	Grid Size	U-Factor (Btu/h*ft²F)	SHGC	VT	*CR
CCl-arg97-180 3-3, ga	0001	0.65		ARG			0.068				CL	SP-D	N		0.29	0.51	0.59	60
CCl-arg97-180 3-3, ga, Rectangular		0.65		ARG			0.068				CL	SP-D	G	0.75	0.29	0.46	0.52	60
CCl-arg97-180 4-4, ga	0002	0.57		ARG			0.068				CL	SP-D	N		0.29	0.50	0.58	59
CCl-arg97-180 4-4, ga, Rectangular		0.57		ARG			0.068				CL	SP-D	G	0.75	0.29	0.45	0.52	59
CCl-arg97-180 5-5, ga	0003	0.49		ARG			0.068				CL	SP-D	N		0.29	0.49	0.58	58
CCl-arg97-180 5-5, ga, Rectangular		0.49		ARG			0.068				CL	SP-D	G	0.75	0.29	0.44	0.51	58
270-arg97-CCl 3-3, ga	0004	0.65		ARG		0.035					CL	SP-D	N		0.28	0.27	0.52	60
270-arg97-CCl 3-3, ga, Rectangular		0.65		ARG		0.035					CL	SP-D	G	0.75	0.28	0.25	0.46	60
270-arg97-CCl 4-4, ga	0005	0.57		ARG		0.035					CL	SP-D	N		0.28	0.27	0.51	59
270-arg97-CCl 4-4, ga, Rectangular		0.57		ARG		0.035					CL	SP-D	G	0.75	0.28	0.24	0.46	59
270-arg97-CCl 5-5, ga	0006	0.49		ARG		0.035					CL	SP-D	N		0.28	0.27	0.51	58
270-arg97-CCl 5-5, ga, Rectangular		0.49		ARG		0.035					CL	SP-D	G	0.75	0.28	0.24	0.45	58
366-arg97-CCl 3-3, ga	0007	0.65		ARG		0.020					CL	SP-D	N		0.28	0.20	0.48	61
366-arg97-CCl 3-3, ga, Rectangular		0.65		ARG		0.020					CL	SP-D	G	0.75	0.28	0.18	0.43	61
366-arg97-CCl 4-4, ga	0008	0.57		ARG		0.020					CL	SP-D	N		0.28	0.20	0.48	60
366-arg97-CCl 4-4, ga, Rectangular		0.57		ARG		0.020					CL	SP-D	G	0.75	0.28	0.19	0.42	60
366-arg97-CCl 5-5, ga	0009	0.49		ARG		0.020					CL	SP-D	N		0.27	0.21	0.47	59
366-arg97-CCl 5-5, ga, Rectangular		0.49		ARG		0.020					CL	SP-D	G	0.75	0.27	0.19	0.42	59
180-arg97-i89 3-3, ga	0010	0.65		ARG		0.068		0.149			CL	SP-D	N		0.25	0.47	0.58	48
180-arg97-i89 3-3, ga, Rectangular		0.65		ARG		0.068		0.149			CL	SP-D	G	0.75	0.25	0.42	0.51	48
180-arg97-i89 4-4, ga	0011	0.57		ARG		0.068		0.149			CL	SP-D	N		0.25	0.45	0.57	47
180-arg97-i89 4-4, ga, Rectangular		0.57		ARG		0.068		0.149			CL	SP-D	G	0.75	0.25	0.41	0.51	47
180-arg97-CCl-arg97-CCl 3-3-3, ga	0012	0.45	0.45	ARG	ARG	0.068					CL	SP-D	N		0.24	0.44	0.54	67
180-arg97-CCl-arg97-CCl 3-3-3, ga, Rectangular	0013	0.45	0.45	ARG	ARG	0.068					CL	SP-D	G	0.75	0.24	0.40	0.48	67
270-arg97-CCl-arg97-180 3-3-3, ga	0014	0.45	0.45	ARG	ARG	0.035			0.068		CL	SP-D	N		0.19	0.25	0.46	71
270-arg97-CCl-arg97-180 3-3-3, ga, Rectangular	0015	0.45	0.45	ARG	ARG	0.035			0.068		CL	SP-D	G	0.75	0.19	0.22	0.41	71
270-arg97-CCl-arg97-CCl 3-3-3, ga	0016	0.45	0.45	ARG	ARG	0.035					CL	SP-D	N		0.23	0.26	0.48	68
270-arg97-CCl-arg97-CCl 3-3-3, ga, Rectangular	0017	0.45	0.45	ARG	ARG	0.035					CL	SP-D	G	0.75	0.24	0.23	0.42	68
270-arg97-CCl-arg97-270 3-3-3, ga	0018	0.45	0.45	ARG	ARG	0.035			0.035		CL	SP-D	N		0.19	0.23	0.40	71
270-arg97-CCl-arg97-270 3-3-3, ga, Rectangular	0019	0.45	0.45	ARG	ARG	0.035			0.035		CL	SP-D	G	0.75	0.19	0.21	0.36	71
366-arg97-CCl-arg97-CCl 3-3-3, ga	0020	0.45	0.45	ARG	ARG	0.020					CL	SP-D	N		0.23	0.19	0.44	68
366-arg97-CCl-arg97-CCl 3-3-3, ga, Rectangular	0021	0.45	0.45	ARG	ARG	0.020					CL	SP-D	G	0.75	0.23	0.17	0.39	68
366-arg97-CCl-arg97-366 3-3-3, ga	0022	0.45	0.45	ARG	ARG	0.020			0.020		CL	SP-D	N		0.18	0.18	0.35	71
366-arg97-CCl-arg97-366 3-3-3, ga, Rectangular	0023	0.45	0.45	ARG	ARG	0.020			0.020		CL	SP-D	G	0.75	0.19	0.16	0.31	71
VCl-arg97-SG400 3-3, ga	0024	0.65		ARG			0.113				CL	SP-D	N		0.30	0.51	0.58	59
VCl-arg97-SG400 3-3, ga, Rectangular		0.65		ARG			0.113				CL	SP-D	G	0.75	0.30	0.46	0.52	59
VCl-arg97-SG400 4-4, ga	0025	0.57		ARG			0.113				CL	SP-D	N		0.30	0.50	0.58	58
VCl-arg97-SG400 4-4, ga, Rectangular		0.57		ARG			0.113				CL	SP-D	G	0.75	0.30	0.45	0.51	58
VCl-arg97-SG400 5-5, ga	0026	0.49		ARG			0.113				CL	SP-D	N		0.30	0.49	0.57	57
VCl-arg97-SG400 5-5, ga, Rectangular		0.49		ARG			0.113				CL	SP-D	G	0.75	0.30	0.44	0.51	57

VERTICAL SINGLE HUNG WINDOW

Mfr Product Code	Product Number	Gap 1 (in)	Gap 2 (in)	Gap Fill 1	Gap FIll 2	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Tint	Spacer	Grid Type	Grid Size	U-Factor (Btu/h*ft²F)	SHGC	VT	*CR
CCl-arg97-180 3-3, ga	0001	0.65		ARG			0.068				CL	SP-D	N		0.29	0.51	0.59	57
CCl-arg97-180 3-3, ga, Rectangular		0.65		ARG			0.068				CL	SP-D	G	0.75	0.29	0.46	0.52	57
CCl-arg97-180 4-4, ga	0002	0.57		ARG			0.068				CL	SP-D	N		0.29	0.50	0.58	58
CCl-arg97-180 4-4, ga, Rectangular		0.57		ARG			0.068				CL	SP-D	G	0.75	0.29	0.45	0.52	58
CCl-arg97-180 5-5, ga	0003	0.49		ARG			0.068				CL	SP-D	N		0.29	0.49	0.58	57
CCl-arg97-180 5-5, ga, Rectangular		0.49		ARG			0.068				CL	SP-D	G	0.75	0.29	0.44	0.51	57
270-arg97-CCl 3-3, ga	0004	0.65		ARG		0.035					CL	SP-D	N		0.28	0.28	0.52	57
270-arg97-CCl 3-3, ga, Rectangular		0.65		ARG		0.035					CL	SP-D	G	0.75	0.28	0.25	0.46	57
270-arg97-CCl 4-4, ga	0005	0.57		ARG		0.035					CL	SP-D	N		0.28	0.27	0.51	59
270-arg97-CCl 4-4, ga, Rectangular		0.57		ARG		0.035					CL	SP-D	G	0.75	0.28	0.24	0.46	59
270-arg97-CCl 5-5, ga	0006	0.49		ARG		0.035					CL	SP-D	N		0.28	0.27	0.51	58
270-arg97-CCl 5-5, ga, Rectangular		0.49		ARG		0.035					CL	SP-D	G	0.75	0.28	0.24	0.45	58
366-arg97-CCl 3-3, ga	0007	0.65		ARG		0.020					CL	SP-D	N		0.28	0.20	0.48	58
366-arg97-CCl 3-3, ga, Rectangular		0.65		ARG		0.020					CL	SP-D	G	0.75	0.28	0.18	0.43	58
366-arg97-CCl 4-4, ga	0008	0.57		ARG		0.020					CL	SP-D	N		0.28	0.20	0.48	59
366-arg97-CCl 4-4, ga, Rectangular		0.57		ARG		0.020					CL	SP-D	G	0.75	0.28	0.19	0.42	59
366-arg97-CCl 5-5, ga	0009	0.49		ARG		0.020					CL	SP-D	N		0.27	0.21	0.47	58
366-arg97-CCl 5-5, ga, Rectangular		0.49		ARG		0.020					CL	SP-D	G	0.75	0.27	0.19	0.42	58
180-arg97-i89 3-3, ga	0010	0.65		ARG		0.068		0.149			CL	SP-D	N		0.25	0.47	0.58	48
180-arg97-i89 3-3, ga, Rectangular		0.65		ARG		0.068		0.149			CL	SP-D	G	0.75	0.25	0.42	0.51	48
180-arg97-i89 4-4, ga	0011	0.57		ARG		0.068		0.149			CL	SP-D	N		0.25	0.45	0.57	46
180-arg97-i89 4-4, ga, Rectangular		0.57		ARG		0.068		0.149			CL	SP-D	G	0.75	0.25	0.41	0.51	46
180-arg97-CCl-arg97-CCl 3-3-3, ga	0012	0.45	0.45	ARG	ARG	0.068					CL	SP-D	N		0.23	0.44	0.54	68
180-arg97-CCl-arg97-CCl 3-3-3, ga, Rectangular	0013	0.45	0.45	ARG	ARG	0.068					CL	SP-D	G	0.75	0.24	0.40	0.48	68
270-arg97-CCl-arg97-180 3-3-3, ga	0014	0.45	0.45	ARG	ARG	0.035			0.068		CL	SP-D	N		0.19	0.25	0.46	71
270-arg97-CCl-arg97-180 3-3-3, ga, Rectangular	0015	0.45	0.45	ARG	ARG	0.035			0.068		CL	SP-D	G	0.75	0.19	0.23	0.41	71
270-arg97-CCl-arg97-CCl 3-3-3, ga	0016	0.45	0.45	ARG	ARG	0.035					CL	SP-D	N		0.23	0.26	0.48	69
270-arg97-CCl-arg97-CCl 3-3-3, ga, Rectangular	0017	0.45	0.45	ARG	ARG	0.035					CL	SP-D	G	0.75	0.23	0.23	0.42	69
270-arg97-CCl-arg97-270 3-3-3, ga	0018	0.45	0.45	ARG	ARG	0.035			0.035		CL	SP-D	N		0.19	0.23	0.40	71
270-arg97-CCl-arg97-270 3-3-3, ga, Rectangular	0019	0.45	0.45	ARG	ARG	0.035			0.035		CL	SP-D	G	0.75	0.19	0.21	0.36	71
366-arg97-CCl-arg97-CCl 3-3-3, ga	0020	0.45	0.45	ARG	ARG	0.020					CL	SP-D	N		0.23	0.19	0.44	69
366-arg97-CCl-arg97-CCl 3-3-3, ga, Rectangular	0021	0.45	0.45	ARG	ARG	0.020					CL	SP-D	G	0.75	0.23	0.17	0.39	69
366-arg97-CCl-arg97-366 3-3-3, ga	0022	0.45	0.45	ARG	ARG	0.020			0.020		CL	SP-D	N		0.18	0.18	0.35	71
366-arg97-CCl-arg97-366 3-3-3, ga, Rectangular	0023	0.45	0.45	ARG	ARG	0.020			0.020		CL	SP-D	G	0.75	0.19	0.16	0.31	71
VCl-arg97-SG400 3-3, ga	0024	0.65		ARG			0.113				CL	SP-D	N		0.30	0.51	0.58	56
VCl-arg97-SG400 3-3, ga, Rectangular		0.65		ARG			0.113				CL	SP-D	G	0.75	0.30	0.46	0.52	56
VCl-arg97-SG400 4-4, ga	0025	0.57		ARG			0.113				CL	SP-D	N		0.30	0.50	0.58	57
VCl-arg97-SG400 4-4, ga, Rectangular		0.57		ARG			0.113				CL	SP-D	G	0.75	0.30	0.45	0.51	57
VCl-arg97-SG400 5-5, ga	0026	0.49		ARG			0.113				CL	SP-D	N		0.30	0.49	0.57	56
VCl-arg97-SG400 5-5, ga, Rectangular		0.49		ARG			0.113				CL	SP-D	G	0.75	0.30	0.44	0.51	56

CROSS SECTION DETAILS

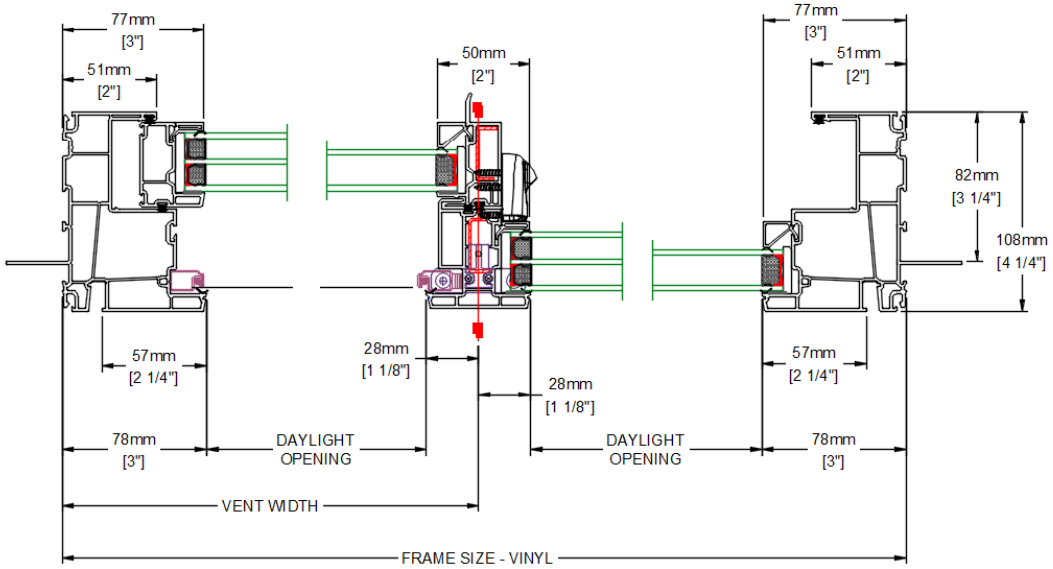
HORIZONTAL SLIDER WINDOW



22mm (⅞") DUAL PANE GLASS

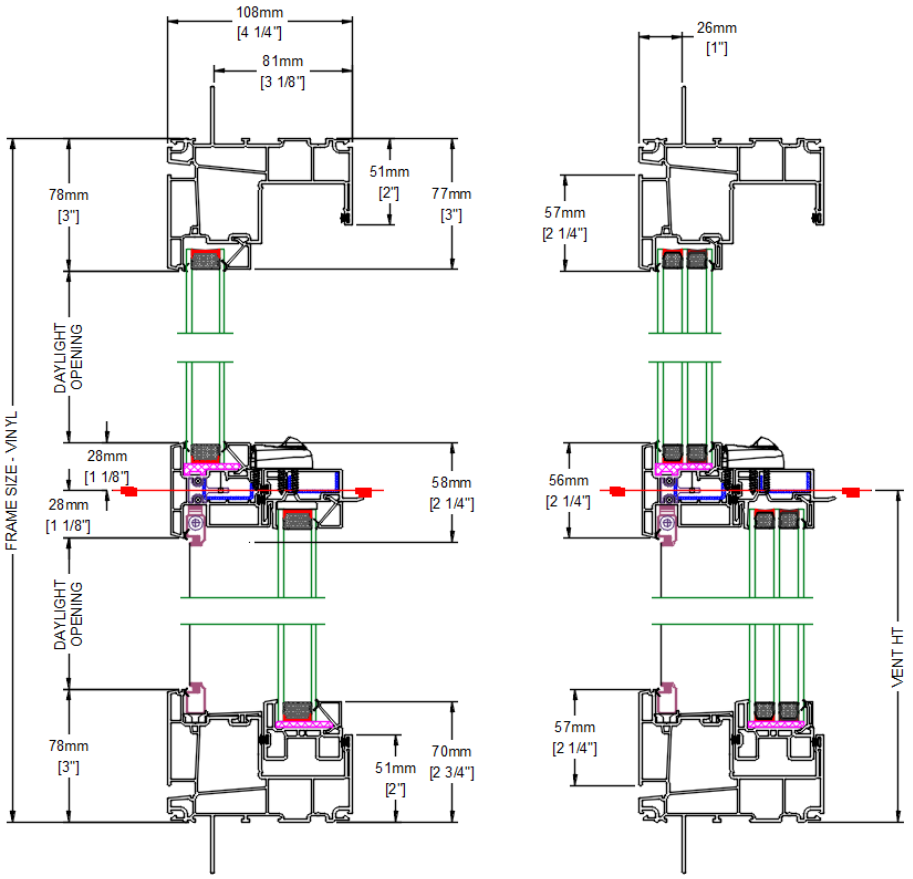
31.75mm (1 ¼ ") TRIPLE PANE GLASS

SCREEN APPLICATION



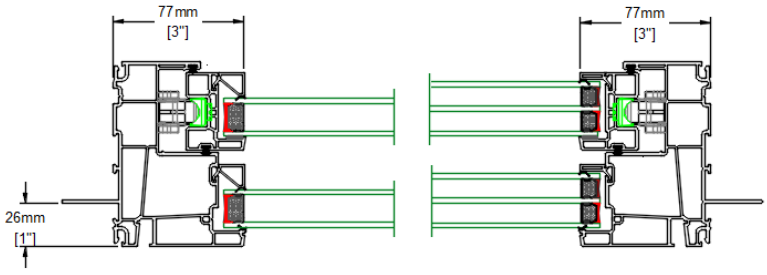
DUAL + TRIPLE PANE GLASS

VERTICAL SINGLE HUNG WINDOW

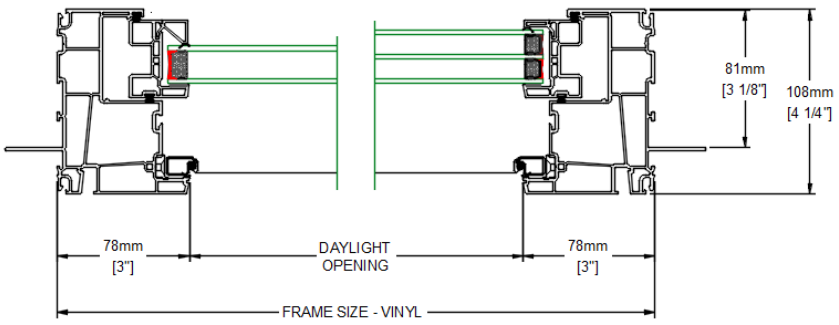


22mm (⅞") DUAL PANE GLASS

31.75mm (1 ¼ ") TRIPLE PANE GLASS

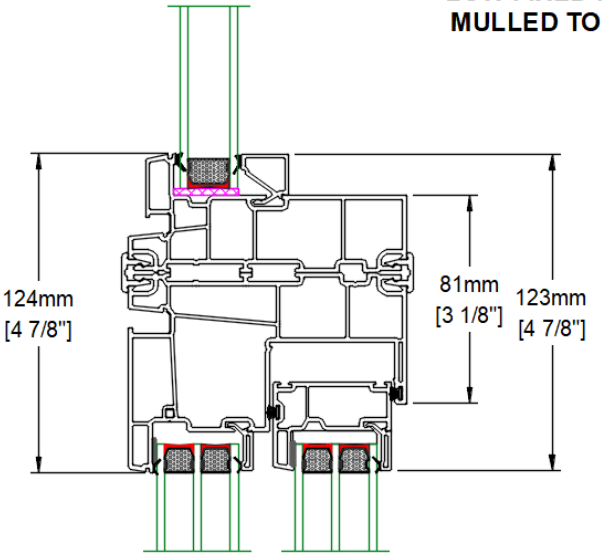


DUAL + TRIPLE PANE GLASS

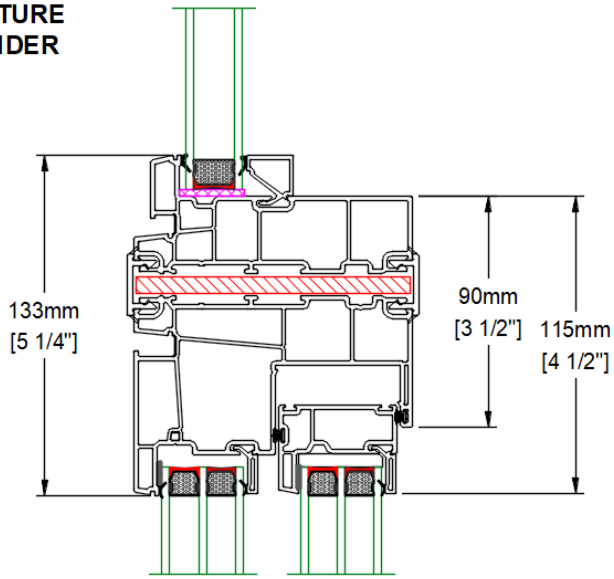


MULLING ASSEMBLY – HORIZONTAL SLIDER

LOW FIXED PICTURE MULLED TO SLIDER

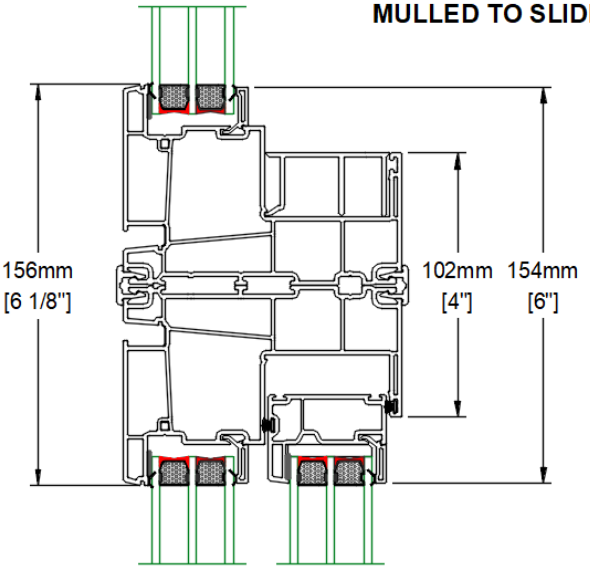


STANDARD MULL

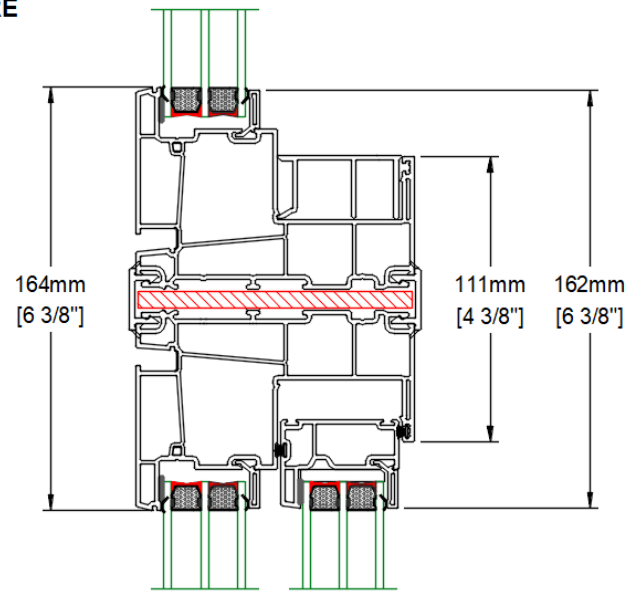


FLAT PLATE STEEL MULL

SLIDER FRAME PICTURE MULLED TO SLIDER



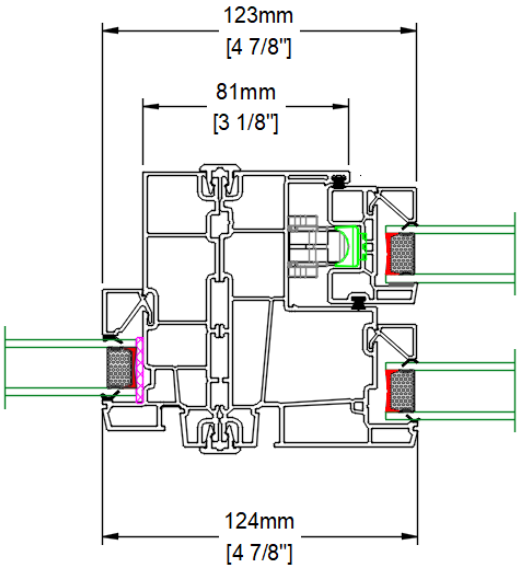
STANDARD MULL



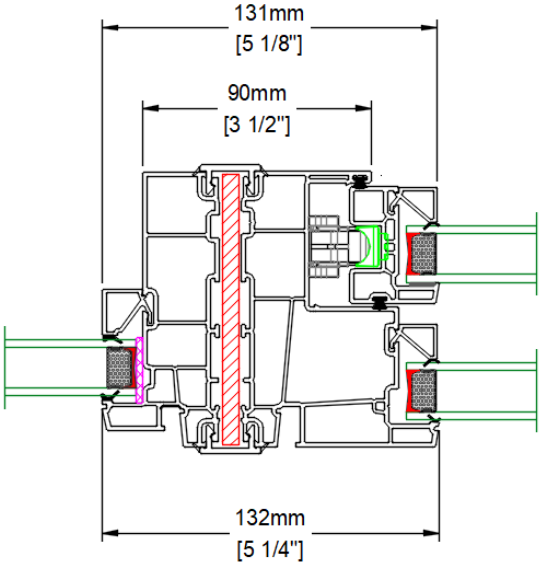
FLAT PLATE STEEL MULL

MULLING ASSEMBLY – VERTICAL SINGLE HUNG

LOW FIXED PICTURE
MULLED TO SINGLE HUNG

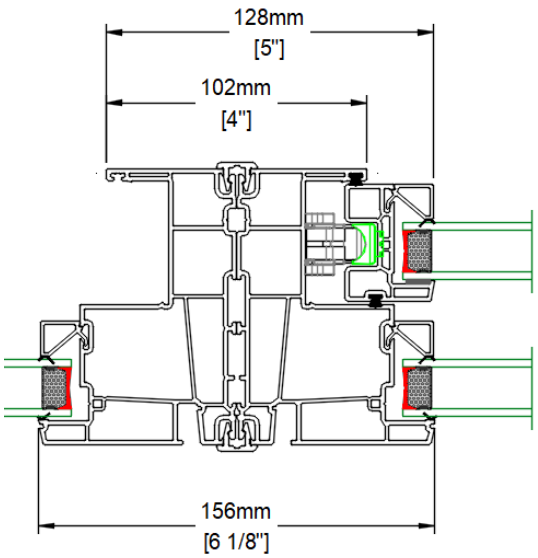


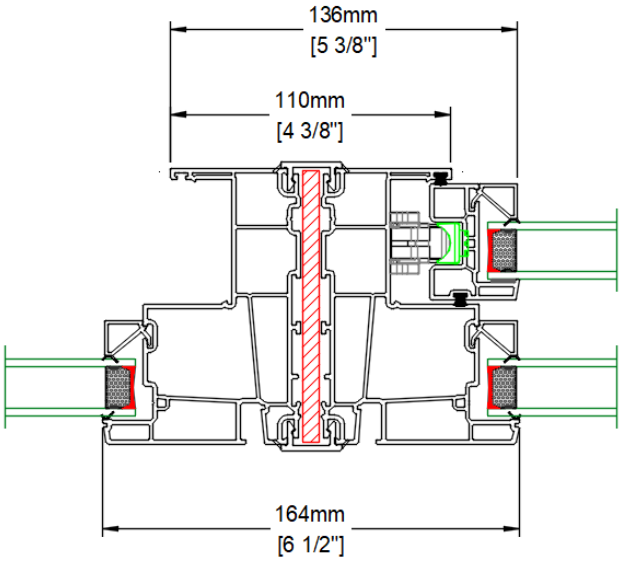
STANDARD MULL



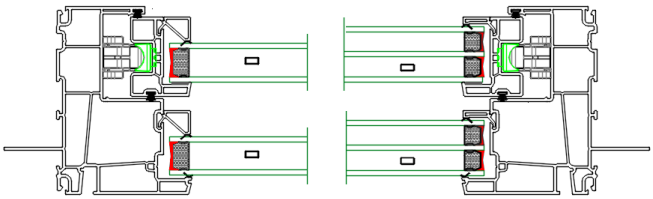
FLAT PLATE STEEL MULL

SLIDER FRAME PICTURE
MULLED TO SINGLE HUNG

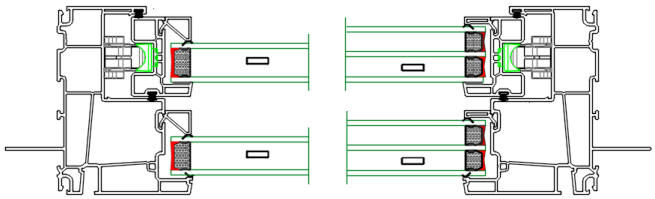




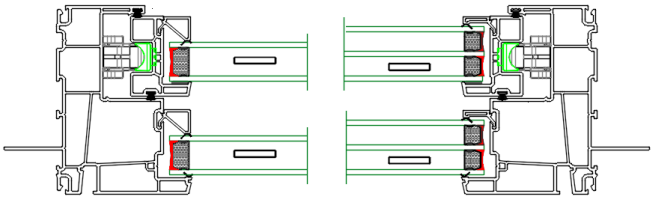
GRILL + SDL OPTIONS



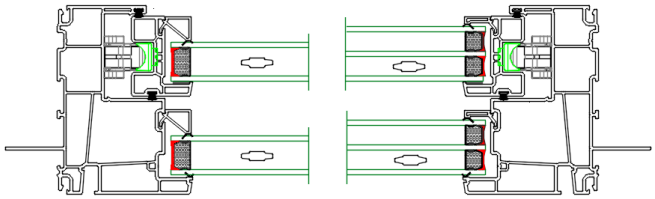
5/16" In-Glass Grill



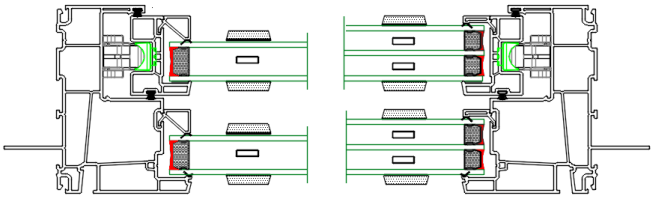
5/8" In-Glass Grill



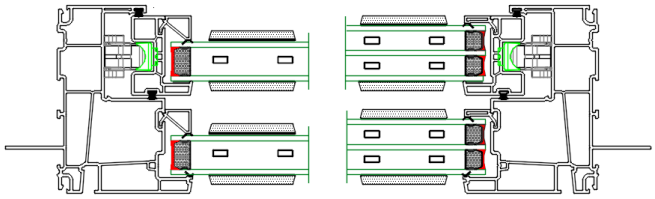
1" In-Glass Grill



23/32" Contour In-Glass Grill



1" SDL PROFILE



2" SDL PROFILE

TEST REPORTS

intertek
Total Quality. Assured.

356 Saulteaux Crescent
Winnipeg, MB Canada R3J 3T2

Telephone: 204-885-9300
Facsimile: 204-885-9339
www.intertek.com/building

TEST REPORT FOR VISION EXTRUSIONS LIMITED
Report No.: l4163.01-750-44 R0
Date: 02/16/21

SECTION 2
SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-17	Class LC – PG45: Size tested 1800 x 1400 mm (~71 x 55 in) – Type HS
Design Pressure	±2160 Pa (±45.11 psf)
Air Infiltration	0.22 L/s/m^2 (0.04 cfm/ft^2)
Air Exfiltration	0.15 L/s/m^2 (0.03 cfm/ft^2)
Canadian Air Infiltration/Exfiltration Level	A3
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)

Reference must be made to Intertek B&C Report No. L4163.01-750-44, dated 02/16/21 for complete test specimen description and detailed test results.

SECTION 3
TEST SPECIFICATIONS/METHODS

The specimens were evaluated in accordance with the following:

AAMA/WDMA/CSA 101/I.S.2/A440-17- *North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011- North American Fenestration Standard /Specification for Windows, Doors, and Skylights*

CSA A440S1-17, Canadian Supplement to **AAMA/WDMA/CSA 101/I.S.2/A440**, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

The following test methods were used during testing:

ASTM E283-04(2012), *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*

ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM E547-00(2016), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference*

ASTM E987-88(2017), *Standard Test Methods for Deglazing Force of Fenestration Products*

ASTM E2068-00(2016), *Standard Test Method for Determination of Operating Force of Sliding Windows and Doors*

intertek
Total Quality. Assured.

356 Saulteaux Crescent
Winnipeg, MB Canada R3J 3T2

Telephone: 204-885-9300
Facsimile: 204-885-9339
www.intertek.com/building

TEST REPORT FOR CUSTOMER NAME OR SIMPLE NAME
Report No.: L4162.01-750-44 R0
Date: 04/07/21

SECTION 2
SUMMARY OF TEST RESULTS

TITLE	DESIGN OPTION #1	DESIGN OPTION #2
AAMA/WDMA/CSA 101/I.S.2/A440-17	Class LC – PG 40: Size tested 1100 x 1900 mm (~43 x 75 in) – Type H	Class LC – PG 65: Size tested 1100 x 1900 mm (~43 x 75 in) – Type H
Design Pressure	±1920 Pa (±40.10 psf)	±3120 Pa (±65.16 psf)
Air Infiltration	0.21 L/s/m^2 (0.04 cfm/ft^2)	0.21 L/s/m^2 (0.04 cfm/ft^2)
Air Exfiltration	0.15 L/s/m^2 (0.03 cfm/ft^2)	0.15 L/s/m^2 (0.03 cfm/ft^2)
Canadian Air Infiltration/Exfiltration Level	A3	A3
Water Penetration Resistance Test Pressure	470 Pa (9.82 psf)	470 Pa (9.82 psf)

Reference must be made to Intertek B&C Report No. L4162.01-750-44, dated 04/07/21 for complete test specimen description and detailed test results.

Design Option #1 utilized a 22 mm (7/8") IG unit with dual pane 3 mm (1/8") annealed glass.
Design Option #2 utilized a 22 mm (7/8") IG unit with dual pane 4 mm (5/32") annealed glass.

SECTION 3
TEST SPECIFICATIONS/METHODS

The specimens were evaluated in accordance with the following:

AAMA/WDMA/CSA 101/I.S.2/A440-17- *North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011- North American Fenestration Standard /Specification for Windows, Doors, and Skylights*

CSA A440S1-17, Canadian Supplement to **AAMA/WDMA/CSA 101/I.S.2/A440**, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

The following test methods were used during testing:

ASTM E283-04(2012), *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*

ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*