Element Materials Technology
2475 Speers Road,
Oakville, ON
Canada, L6L 2X9

P: 1 905 822 4111
info.toronto.industrials@element.com
element.com

PERFORMANCE EVALUATION OF
AWNING WINDOW "3-¼" AWNING"
FOR A&R SHERK MFG INC.
IN ACCORDANCE WITH: AAMA/WDMA/CSA 101/I.S.2/A440-22 AND A440S1-25

Report to:	A&R Sherk Mfg Inc. 347061 4th Concession B Maxwell, ON N0C 1J0 Canada
Attention:	Alvin Sherk
Telephone: Email:	+1 519-270-1735 arsherkmfg23@gmail.com
New Report No.: Original Report No.:	26-06-B0017-9N 24-06-B0159-15N 8 Pages, 1 Appendix
Re-Issue Proposal No.: Original Proposal No.:	26-006-789288 RV1 26-006-789288 RV1
Re-Issue Date: Date:	February 27, 2026 October 1, 2025

Product Manufacturer:	A&R Sherk Mfg Inc.
Product Type:	Awning Window
Product Series/Model:	3-¼" Awning
Primary Product Designator:	**Class LC– PG2400 – Size tested 800 x 1200 mm – Awning Window** **Class LC– PG50 – Size tested 31.50 x 47.24 in– AP**
Secondary Product Designator:	
Positive Design Pressure:	2400 Pa (50.13 psf)
Negative Design Pressure:	2400 Pa (50.13 psf)
Water Penetration Resistance:	720 Pa (15.04 psf)
Air Infiltration/Exfiltration:	Pass
Test Completion Date:	September 8, 2025
Report Number:	26-06-B0017-9N

1.0 INTRODUCTION

At the request of A&R Sherk Mfg Inc., Element Materials Technology Inc. was retained to evaluate the physical performance of an Awning Window identified as "3-¼" Awning" in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-22 Standard, "NAFS – North American Fenestration Standard/Specification for windows, doors, and skylights" and A440S1-25 Canadian Supplement, as outlined in proposal number 26-006-789288 RV1.

Note 1: These test methods are included in the Element ISO 17025 Scope of Accreditation under A2LA Certificate. No. 6524.01

Note 2: This report is re-issued in the name of A&R Sherk Mfg Inc., through written authorization from Gracious Living Innovations, to whom the original report was released. Element Original Report No.: 24-06-B0159-15N (Dated: October 1, 2025).

Note 3: The results reported herein also meet or exceed the requirements of the AAMA/WDMA/CSA 101/I.S.2/A440-17 standard and A440S1-19.

Element Specimen No.:	26-06-B0017-9N
Type:	Awning Window
Model:	3-¼" Awning
Overall Window Size:	800 mm x 1200 mm (31.50" x 47.24")
Sampling:	NA

2.0 SAMPLE DESCRIPTION

The following sample description has been verified by Element. Details and drawings of the described test specimen, as provided by the manufacturer, have been included in Appendix A.

Product Type:	Awning window
Frame:	Awning, extruded PVC, 800 mm x 1200 mm x 83 mm (31.50" x 47.24" x 3.27")
Sash:	Open out, extruded PVC, 760 mm x 1160 mm x 60.4 mm (29.92" x 45.67" x 2.38")
Joinery:	
Frame:	Welded, Mitred Corners
Sash:	Welded, Mitred Corners
Installation:	
Test Buck:	Wood Buck
Adhesive:	Frame, adhered in buck with expanding structural adhesive
Interior Blind Stops:	Wood, four, one per frame member, cut 150 mm (5.91") short at each end, fastened to buck with 18 ga 1 ½" wood staples, 63.5 mm (2.5") spacing c/c
Exterior Blind Stops:	Wood, four, one per frame member, full length, fastened to buck with 18 ga 1 ½" wood staples, 63.5 mm (2.5") spacing c/c
Sealant:	Exterior frame perimeter blind stops sealed with flexible sealant

Glazing Type:	Dual glazed, annealed, overall thickness 22 mm (0.87"), glass thickness 3 mm (0.12"), gas cavity size 16 mm (0.63"), GED intercept ultra u-channel metal spacer, dual sealed, argon filled gas cavity
Glazing Method:	Laid-in, wet glazed
Glazing Stop:	Extruded PVC, interior perimeter, top rail and stile stops sealed to glass with flexible sealant
Setting Block:	Rubber, eight, 20 mm x 32.2 mm x 3.7 mm (0.79" x 1.27" x 0.15") Four, interior glazing cavity, two per stile, 60 mm (2.36") from ends Four, interior glazing cavity, two per head/sill, 100 mm (3.94") from ends
Back Bead:	Flexible sealant, exterior perimeter
Drainage/Ventilation:	
Frame:	None
Sash	
Drain hole	Two, 4.5 mm (0.18") diameter, bottom rail, exterior edge, 86 mm (3.39") from ends Two, 4.5 mm (0.18") diameter, bottom rail, glazing cavity, 114.3 mm (4.5") from ends
Weather-Stripping:	
Frame:	
Bulb:	Flexible PVC, one row, 9.5 mm (0.37") diameter, upstanding leg, exterior facing, full perimeter, kerf mounted Flexible PVC, one row, 9.5 mm (0.37") diameter, bottom step, exterior facing, full perimeter, kerf mounted
Sash:	
Pile with High Fin	One row, 4 mm (0.16") high pile, 5 mm (0.20") high fin, full perimeter, exterior face, kerf mounted
Hardware:	
Operator:	Cast metal, one, 380 mm (14.96"), scissor type, sill, centre, fastened to sill with six #8 x 3/4" flat head screws, sealed at exterior face with flexible sealant, sealed Interior face with foam gasket Operator track, cast metal, 405 mm (15.94") long, fastened to bottom rail with four #8 x 1" flat head screws
Lock Handle:	Cast metal, two, single-point, one per jamb, 140 mm (5.51") from the sill, each fastened with two #10 x 1/2" pan head screws
Keeper:	Metal, two, one per stile, paired with locking points, 180 mm (7.09") from bottom rail fastened with two #10 x 1/2" pan head screws
Snubbers:	Metal, one pair, header/top rail, centred, each fastened with two #8 x 1/2" flat head screws
Hinge:	Metal, two, 200 mm (7.87"), lock jambs/stiles, at hinge jambs, fastened to lock jambs with five #8 x ½" flat head screws, fastened to lock stiles with four #8 x 3/4" flat head screws
Screen:	1085 mm x 685 mm x 14 mm (42.72" x 26.97" x 0.55"), roll-formed, external plastic corner keys with integrated sprung retainers, fibreglass mesh, T-spline, supported on all four sides at the interior

3.0 TEST EQUIPMENT

Table 1 – Element Test Equipment

Equipment Description:	Asset No. (MII):	Calibration Due Date:
Pressure Transducer	P00029	2026-01-06
Pressure Transducer	P00208	2026-01-13
String Gauge Window Wall	P00031	2025-10-31
String Gauge Window Wall	P00034	2025-10-31
String Gauge Window Wall	P00040	2025-10-31
AWS System	P00042	2025-11-25
Spray Rack	B16727	2026-05-20
Digital Caliper	P00212	2026-03-03
Force Gauge	B17457	2026-05-23
Load Cell	B12007	2025-11-19
Load Cell	P00203	2025-12-16
Stopwatch	P00153	2026-03-07

4.0 TEST RESULTS:

Table 1 – Summarized Testing Results in Accordance with AAMA/WDMA/CSA 101/I.S.2/A440-22 and A440S1-25 Canadian Supplement

Test	Requirements		Results		Rating
Operating Force (Clause 8.3.1) *Per ASTM E2068* **Test Date:** September 8, 2025	**Operating Device:** The maximum force to initiate and maintain the sash shall be less than the following, N (lbf):		Operating Device, measured force, N (lbf):		**PASS**
	Force:	60 (13.49)	Force:	8.6 (1.94)	
	Latching Device: The maximum force required to open and close the latch shall be less than the following, N (lbf):		Latching Device, measured force N (lbf):		**PASS**
			Open:	46.8 (10.52)	
	Maximum Force:	100 (22.50)	Close:	46.2 (10.38)	
Air Leakage Resistance (Clause 8.3.2) *Per ASTM E283* **Test Date:** July 22, 2025	Allowable rate of air leakage shall be less than or equal to the following, L/s.m² (cfm/ft²), at the subsequent test pressure:		Test area, m² (ft²): 0.96 (10.33)		**PASS**
			Measured Air Leakage Rate, L/s.m² (cfm/ft²):		
	Test Pressure, Pa (psf):	75 (1.57)	Infiltration:	0.11 (0.02)	
	Maximum Allowable:	1.5 (0.30)	Exfiltration:	-0.15 (-0.03)	
Water Penetration Resistance (Clause 8.3.3) *Per ASTM E547* **Test Date:** July 22, 2025	No water leakage shall be observed at the following specified pressure differential, Pa (psf):		No water leakage was observed at the following specified cyclic pressure differential, Pa (psf):		**PASS** Gateway **(LC25-AP)** Optional Performance **(LC100-AP)**
	Gateway Performance:		**Gateway Performance:**		
	Test Pressure:	180 (3.76)	Test Pressure:	180 (3.76)	
	Optional Performance:		**Optional Performance:**		
	Test Pressure:	720 (15.04)	Test Pressure:	720 (15.04)	

Table 1, Continued – Summarized Testing Results in Accordance with AAMA/WDMA/CSA 101/I.S.2/A440-22 and A440S1-25 Canadian Supplement

Test	Requirements		Results		Rating
Uniform Load Deflection (Clause 8.3.4.2) *Per ASTM E330* **Test Date:** July 22, 2025	The deflection of the unsupported span must be reported at the specified test pressure, Pa (psf):		Measured net deflection of lock stile, mm (in):		**PASS** Gateway **(LC25-AP)** Optional Performance **(LC50-AP)**
	Allowable deflection, mm (in): Report Only		Span: 1160 (45.67)		
	Gateway Performance:		Positive:	1.57 (0.06)	
	Test Pressure:	±1200 (25.06)	Negative:	-9.03 (-0.36)	
	Optional Performance:		*Left Blank Intentionally*		
	Test Pressure:	±2400 (50.13)			
Uniform Load Structural (Clause 8.3.4.3) *Per ASTM E330* **Test Date:** July 25, 2025	There shall be no permanent damage to the window components after the following specified test pressures, Pa (psf). No member shall have permanent deflect more that 0.4% of span.		Measured permanent deflection of Lock Stile, mm (in):		**PASS** Gateway **(LC25-AP)** Optional Performance **(LC50-AP)**
	Allowable permanent set, mm (in): 4.64 (0.18)		Span: 1160 (45.67)		
	Gateway Performance:		Positive:	0.16 (0.006)	
	Test pressure:	±1800 (37.59)	Negative:	0.21 (0.008)	
	Optional Performance:		*Left Blank Intentionally*		
	Test pressure:	±3600 (75.19)			

Table 1, Continued – Summarized Testing Results in Accordance with AAMA/WDMA/CSA 101/I.S.2/A440-22 and A440S1-25 Canadian Supplement

Test	Requirements					Results		Rating
Forced-Entry Resistance (Clause 8.3.5) *Per ASTM F588* **Test Date:** September 8, 2025	No entry shall be gained during the following test sequence:					For Type B Window no entry was gained during the following specified test sequence:		**PASS** Grade 20
	Load Identification	Grade Loads, N (lbf)						
		10	20	30	40	Disassembly T1:	No Entry	
	Disassembly T1:	5 min		10 min				
	L1:	667 (150)	890 (200)	1112 (250)	1334 (300)	L2 + L2:	No Entry	
	L2:	333 (75)	445 (100)	556 (125)	667 (150)	L1 + L2 + L2:	No Entry	
	L3:	111 (25)	155 (35)	222 (50)	267 (60)	L1 + L2 + L2:	No Entry	
	Manipulation T1:	5 min		10 min		Manipulation T1:	No Entry	
Awning Projected Load Test (Clause 8.3.6.6) **Test Date:** September8, 2025	There shall be no operational malfunction and no hardware permanent deformation following the application of following test load, N (lbf):					Recorded Deflection of sash, mm (in):		**PASS**
	Test Load:	70 (15.74)				Result	0.2 (0.008)	
Insect Screen Serviceability (Canadian Supplement Section 5.1) *Per ASTM E1748* **Test Date:** September 8, 2025	There shall be no disengagement or deformation of screen members after the application of the following test load, N (lbf):					No disengagement or deformation of screen members was observed after the application of test load		**PASS**
	Test Load:	60 (13.49)						

5.0 MODIFICATIONS

No modifications were made to the A&R Sherk Mfg Inc., Awning Window "3-¼" Awning", Element Specimen No.: 24-06-B0159-15, during testing to achieve the results stated in this report.

6.0 CONCLUSION

Based on the results of the testing summarised in Table 1, the A&R Sherk Mfg Inc. Awning Window "3-¼" Awning" Element Specimen No.: 24-06-B0159-15 met the following requirements as outlined in the AAMA/WDMA/CSA 101/I.S.2/A440-22 and A440S1-25.

Note: This report is re-issued in the name of A&R Sherk Mfg Inc., through written authorization from Gracious Living Innovations, to whom the original report was released. Element Original Report No.: 24-06-B0159-15N (Dated: October 1, 2025).

Performance Rating

• Operating Force	Pass
• Air Leakage Resistance	Pass
• Water Penetration Resistance	720 Pa (15.04 psf)
• Uniform Load Deflection	±2400 Pa (50.13 psf)
• Uniform Load Structural	±3600 (75.19)
• Forced Entry Resistance	Grade 20
• Awning Hardware Load	Pass
• Insect Screen Serviceability	Pass

Product Manufacturer:	A&R Sherk Mfg Inc.
Product Type:	Awning Window
Product Series/Model:	3-¼" Awning
Primary Product Designator:	**Class LC– PG2400 – Size tested 800 x 1200 mm – Awning Window** **Class LC– PG50 – Size tested 31.50 x 47.24 in– AP**
Secondary Product Designator:	
Positive Design Pressure:	2400 Pa (50.13 psf)
Negative Design Pressure:	2400 Pa (50.13 psf)
Water Penetration Resistance:	720 Pa (15.04 psf)
Air Infiltration/Exfiltration:	Pass
Test Completion Date:	September 8, 2025
Report Number:	26-06-B0017-9N

7.0 REPORT REVISION SUMMARY

Revision No:	**Date:**	**Description of Revisions:**
24-06-B0159-15N	October 1, 2025	Original Document
26-06-B0017-9N	February 27, 2026	Report re-issued to **A&R Sherk Mfg Inc.**

Reported by:

Emmanuel Siapno, 289-888-4880
Senior Testing Technician, Building Systems
Building Science Division

Reviewed by:

Scott Hallam, B.Eng., 289-633-6601
Manager, Building Systems
Building Science Division

ACCREDITATION: (A2LA 6524-01, 02, 03)

APPENDIX A

Manufacturer's Detail Drawings

(5 Pages)

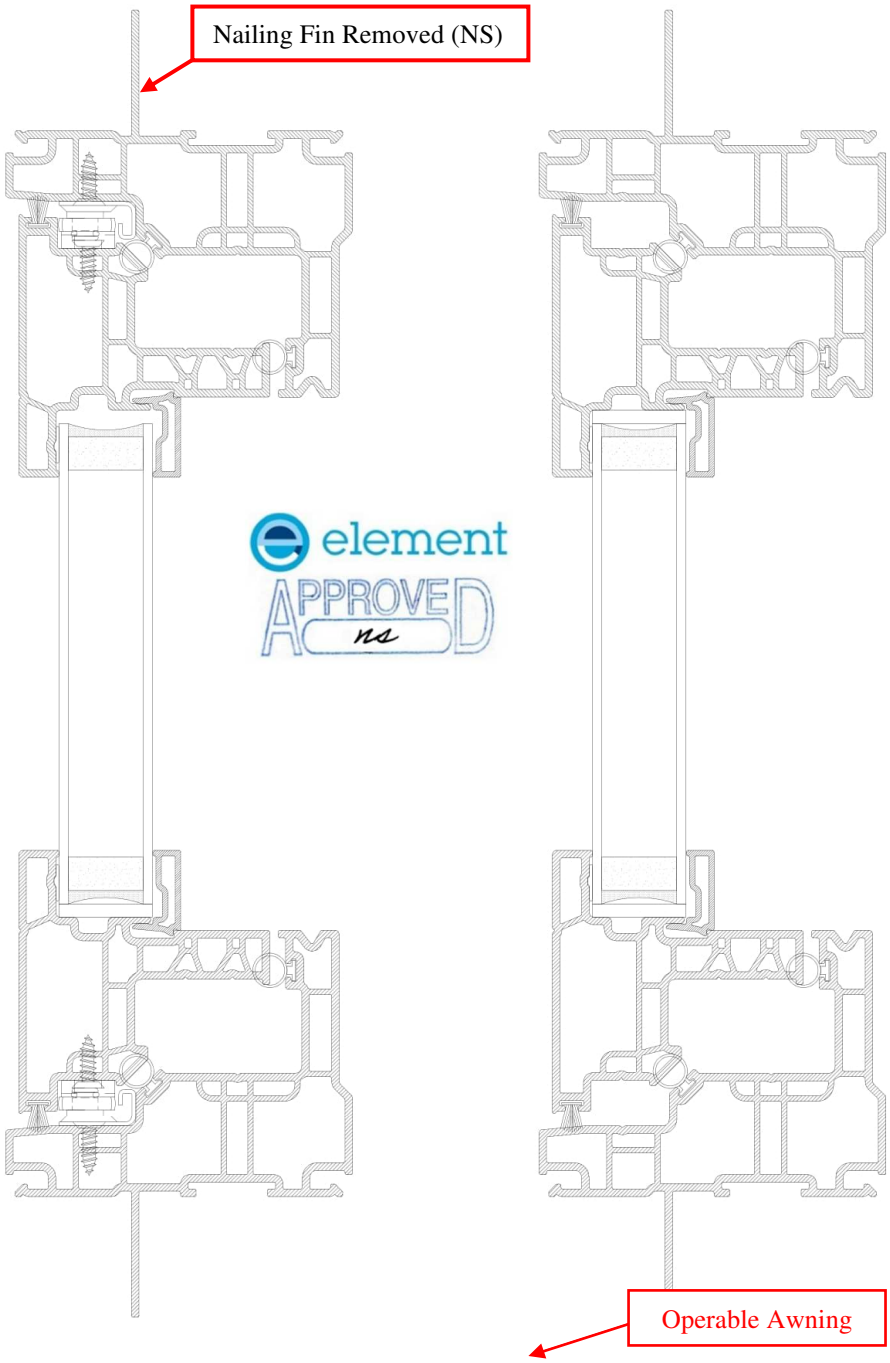
ITEM NO.	DESCRIPTION	QUANTITY	PART NO.	SOURCE
1	HEAD Rigid Vinyl (PVC)	1	2100N-2100F (FINLESS/FIN)	GLI
2	SILL Rigid Vinyl (PVC)	1	2100N-2100F (FINLESS/FIN)	GLI
3	JAMB Rigid Vinyl (PVC)	2	2100N-2100F (FINLESS/FIN)	GLI
4	TOP & BOTTOM RAIL Rigid Vinyl (PVC)	2	31001	GLI
5	STILES SASH Rigid Vinyl (PVC)	2	31001	GLI
6	GLAZING BEAD Rigid Vinyl (PVC)	4	50002	GLI
7	OPERATOR	1	51.10.00.211	AMESBURRY / TRUTH
8	OPERATOR GASKET	1	31882	AMESBURRY / TRUTH
9	SASH LOCK	2	24.32.32.008	AMESBURRY / TRUTH
10	SUPPORT PLATE	1	21600.92	AMESBURRY / TRUTH
11	HINGE LEFT	1	13.13.00.236/243	AMESBURRY / TRUTH
12	HINGE RIGHT	1	13.13.00.237/244	AMESBURRY / TRUTH
13	OPERATOR TRACK	1	11577.93	AMESBURRY / TRUTH
14	KEEPER	2	33738	RADISSON INDUSTRIES
15	HANDLE W/COVER	1	12614.32	AMESBURRY / TRUTH
16	WEATHERSTRIP	AS REQ.	250-187	ULTRAFAB
17	BULB SEAL	1	E21818KN3020	ULTRAFAB
18	ROUND SCREW PLUGS	4	L-150	LAWRANCE INDUST.

element APPROVED ns

APPROVED BY:

DATE:

GRACIOUS LIVING Innovations



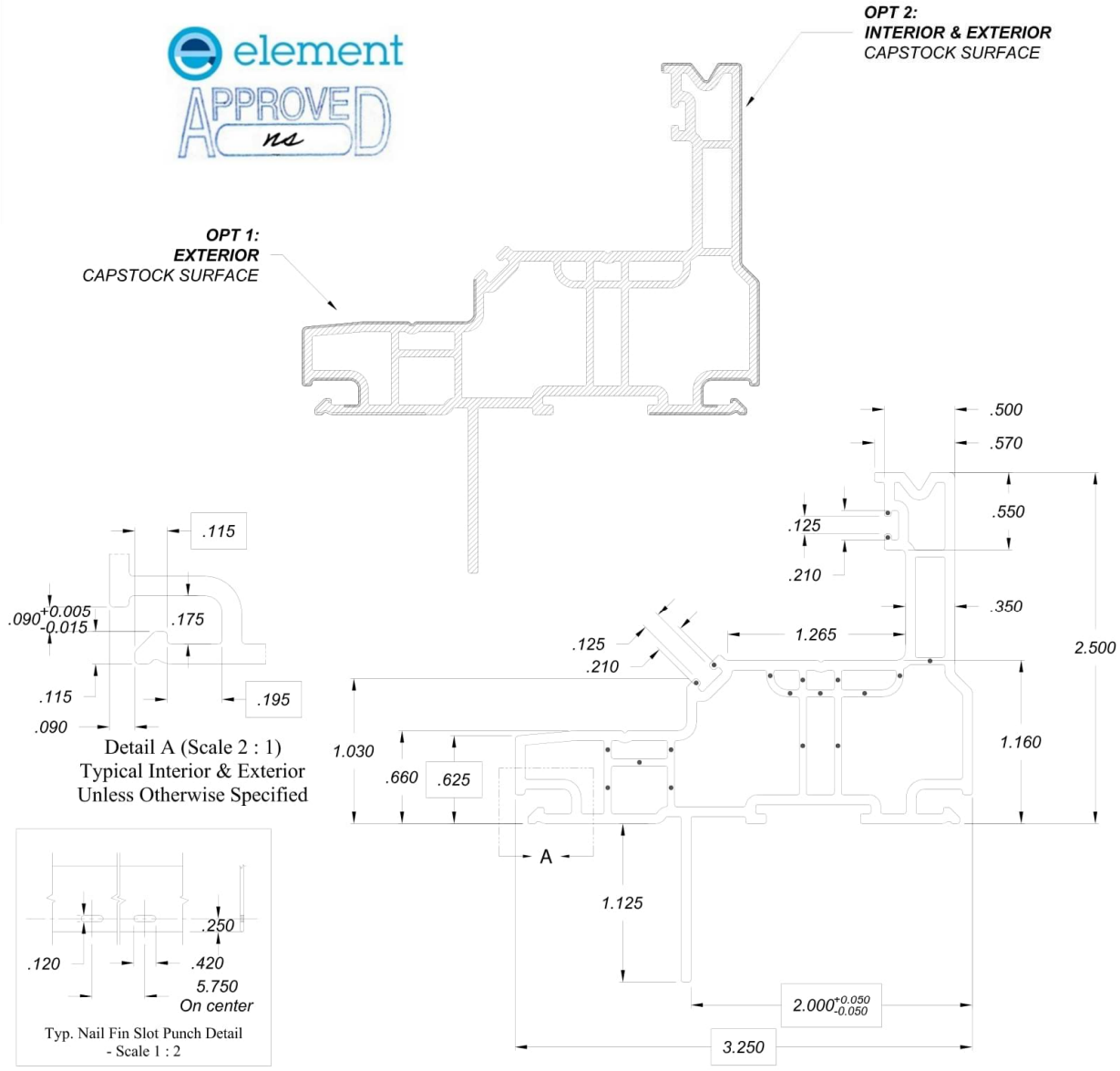
TOLERANCES: UNLESS SPECIFIED X.XX = PLUS/MINUS 0.015" X.XXX = PLUS/MINUS 0.010" X.XXXX = PLUS/MINUS 0.005"	3 1/4" Operable Casement 7/8" Dual I.G. - Assembly Cross Sections			
COLOUR: As specified	REVISION: Current		DIE NUMBER:	DWG NO.: VCDGASS-01
MATERIAL: As specified	SCALE: 1 : 1	DRAWN BY:	CUSTOMER PART NUMBER:	DATE: 07-03-2025

APPROVED BY:

DATE:

GRACIOUS LIVING Innovations

element APPROVED ns



Detail A (Scale 2 : 1)
Typical Interior & Exterior
Unless Otherwise Specified

Typ. Nail Fin Slot Punch Detail
- Scale 1 : 2

WALL THICKNESS: UNLESS SPECIFIED
NOMINAL = 0.070"
● = 0.050"

RADIUS NOTES: unmarked = 0.015" / a = 0.010" / b = 0.020" / c = 0.030"/ d = 0.060" / f = full /

Operable Awning

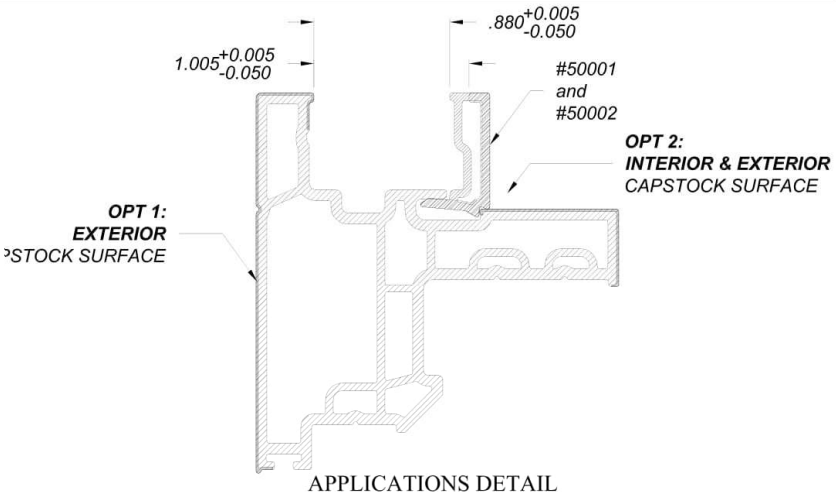
TOLERANCES: UNLESS SPECIFIED X.XX = PLUS/MINUS 0.015" X.XXX = PLUS/MINUS 0.010" X.XXXX = PLUS/MINUS 0.005"	*Operable Casement Frame w/ Nail Fin* *Part Drawing*			
COLOUR: As specified	REVISION: A1 - Current		DIE NUMBER: 21001F	DWG NO.: CVF21001
MATERIAL: Rigid P.V.C.	SCALE: 1 : 1	DRAWN BY:	CUSTOMER PART NUMBER:	DATE: 07-11-2024

APPROVED BY:

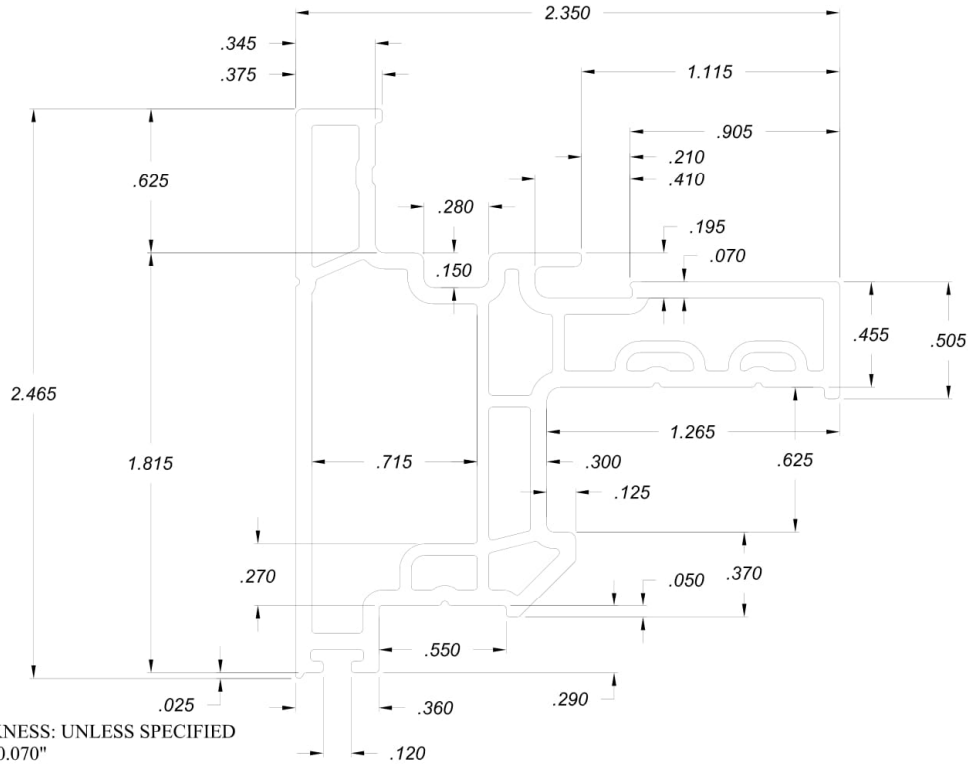
DATE:

GRACIOUS LIVING Innovations

element APPROVED ns



APPLICATIONS DETAIL
SCALE 1 : 1

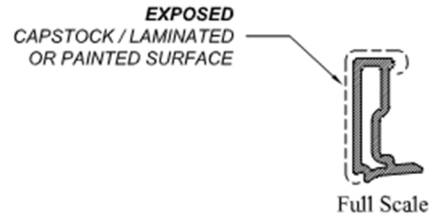


WALL THICKNESS: UNLESS SPECIFIED
NOMINAL = 0.070"
INTERIOR = 0.050"

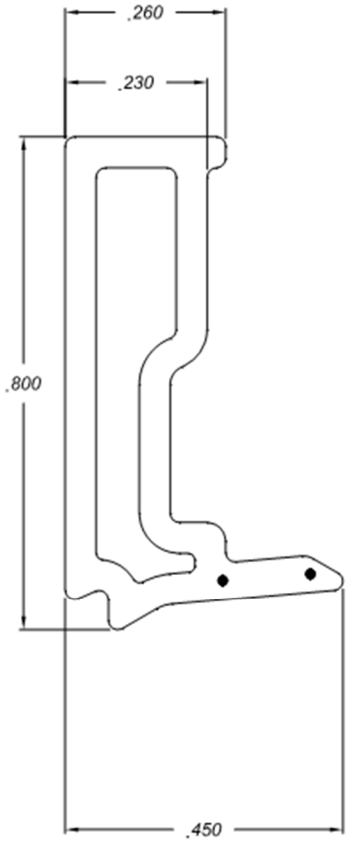
RADIUS NOTES: unmarked = 0.015" / a = 0.010" / b = 0.020" / c = 0.030"/ d = 0.060" / f = full

Operable Awning

TOLERANCES: UNLESS SPECIFIED X.XX = PLUS/MINUS 0.015" X.XXX = PLUS/MINUS 0.010" X.XXXX = PLUS/MINUS 0.005"	*Operable Casement Sash Part Drawing*			
COLOUR: *As specified*	REVISION: *Current*		DIE NUMBER: *31001*	DWG NO.: *CVS31001*
MATERIAL: *Rigid P.V.C.*	SCALE: *3 : 2*	DRAWN BY:	CUSTOMER PART NUMBER:	DATE: *11-18-2026*



Full Scale



element APPROVED ns

WALL THICKNESS: UNLESS SPECIFIED
NOMINAL = 0,050"
● = 0,060"

RADIUS NOTES: unmarked = 0,015" / a = 0,010" / b = 0,020" / c = 0,030"/ d = 0,060" / f = full / s = Sharp

TOLERANCES: UNLESS SPECIFIED X.XX = PLUS/MINUS 0,015" X.XXX = PLUS/MINUS 0,010" X.XXXX = PLUS/MINUS 0,005"	7/8" (B) Glass Stop Part Drawing			
COLOUR: As specified	REVISION: A1 - Current		DIE NUMBER: 50002	DWG NO.: CG101G03
MATERIAL: As specified	SCALE: 4 : 1	DRAWN BY:	CUSTOMER PART NUMBER:	DATE: 12-05-2023