Canadian Building Envelope Science and Technology
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Established 1985

TEST REPORT

Performance Evaluation of
Sliding Glass Door
"Amalfi Patio Door"
Performed in Accordance with:
AAMA/WDMA/CSA101/I.S.2/A440-22 (NAFS-22)
& CSA A440S1-19

Report No.: L24-926-6789
Report Date: February 6, 2024

Prepared for:
Vista Patio Doors Inc.
69 Jardin Drive
Concord, ON L4K 1X5
Canada

Overall Performance Rating **Test Completion Date: September 22, 2023**

Class R-PG1440: Size tested 2180 mm x 2000 mm-Type SGD
Class R-PG30: Size tested 85.83 in x 78.74 in-Type SGD
Positive Design Pressure: 1440 Pa (30.00 psf)
Negative Design Pressure: 1440 Pa (30.00 psf)
Water Penetration Resistance: 220 Pa (4.59 psf)
Canadian Air Infiltration/Exfiltration: A3
Forced Entry Resistance: Grade 10

Respectfully submitted by:

CANADIAN BUILDING ENVELOPE
Science and Technology (CAN-BEST)

Tests Performed by:

Sandi Abdelrehim, E.I.T.
Project Manager

Person in Responsible Charge:

Elie Alkhoury, M.Eng. (Building Science), P.Eng.
Director, Research and Testing Services

1. *This report does not constitute certification of the test product. The reported test results refer only to the specimen tested. No representation is made that other samples of similar design will feature like performance.*
2. *This report was prepared for the consideration of the addressee only. It shall not be used by any other party without the written consent of CAN-BEST.*
3. *This report may not be reproduced or quoted in partial form without the approval of CAN-BEST.*

1. INTRODUCTION

Canadian Building Envelope Science and Technology (CAN-BEST) was retained by Vista Patio Doors Inc. to test one Sliding Glass Door. Testing was conducted in accordance with the performance requirements outlined in AAMA/WDMA/CSA101/I.S.2/A440-22 'North American Fenestration Standard / Specification for Windows, Doors, and Skylights' and its Canadian Supplement CSA A440 S1-19. Where applicable, testing was carried out in accordance with the corresponding ASTM standard test method.

This report covers tests carried out on one specimen of specific dimensions. Product performance is affected by variations in its dimensions, assembly details and installation method. The reader is advised to ensure product conformity with all the details of the test sample described in the following section.

No conclusions regarding glass structural performance may be drawn from the reported results.

2. SAMPLE DESCRIPTION

Designation: "Amalfi Patio Door"

Type: Vinyl Sliding Glass Door 2180 mm wide by 2000 mm high (85.83 in by 78.74 in)

Sampling: Sampling of the test specimen was carried out by the Client.

Specimen Details: Details of specimen construction and installation, as provided by the client and verified by CAN-BEST, are provided in the following drawings:

Drawings:

Description Pages:	*2 pages*
Vertical and horizontal sections	*3 pages*
Bill of Materials	*1 page*
Die Drawings	*7 pages*

Copy of the above drawing(s), stamped “Canadian Building Envelope Science and Technology”, is enclosed with this report.

3. TEST RESULTS

Detailed test results are presented in Tables (1.1) and (1.2) for the Gateway and Optional Performance requirements respectively.

Notes:

1. This report does not constitute certification of this product, which may only be granted by an Accredited Certification Agency.

2. The reported results were secured by using the designated test methods and they (DO) indicate compliance with the performance requirements of the referenced publication.

3. The product tested is detailed in drawings, which were supplied by the manufacturer and annexed to this report. Any other descriptions were supplied verbally by the manufacturer. The general descriptions in this report are for reference only.

Table (1.1): Test Results, Gateway Performance Requirements
Test Size: 2180 mm x 2000 mm (85.83 in x 78.74 in)

Test Start Date: September 21, 2023 — Test Finish Date: September 22, 2023

Test	Specifications	Test Results	Rating
Air Leakage Resistance **8.3.2** *ASTM E283*	Rate of air leakage (Infiltration/ Exfiltration) shall be less than or equal to the following: ***l/s/m² (cfm/ft²)*** *Canadian A2:* 1.5 (0.30) *Canadian A3:* 0.5 (0.10) *Canadian Fixed:* 0.2 (0.04) Test Pressure, Pa (psf): 75 (1.57)	Surface Area, m² (ft²): 4.360 (46.93) Measured Air Flow, l/s (cfm): *Infiltration:* 0.65 (1.39) *Exfiltration:* 1.04 (2.20) Rates of Air Flow, l/s/m² (cfm/ft²): *Infiltration:* 0.15 (0.03) *Exfiltration:* 0.24 (0.05)	**PASS** Canadian A3
Water Resistance **8.3.3** *ASTM E 547*	No leakage past innermost plane following four pressure cycles, each five minutes "ON" and one minute "OFF". Test Pressure, Pa (psf): 140 (2.92) *(Equivalent to wind speed of 34 mph)*	No leakage past innermost plane was observed. *Test* — *Result* *With Screen,* *OK 4 cycles* *Without Screen,* *OK, 4 Cycles*	**PASS**
Uniform Load Deflection **8.3.4.2** *ASTM E 330*	Report the net deflections at the following test pressure, Pa (psf): Inward Pressure: 720 (15.03) Outward Pressure: 720 (15.03) *(Equivalent to wind speed of 77 mph)*	Span, mm (in): 1960 (77.17) Measured net deflection of Meeting Stiles: *Deflection, mm (in)* Inward: 1.0 (0.041) Outward: 8.3 (0.325)	**Report Only**
Uniform Load Structural **8.3.4.3** *ASTM E 330*	No glass breakage or permanent damage to window components at the following test pressure, Pa (psf). Net Permanent Deflection to be less than 0.4% of span, or 7.8 mm (0.309 in). Inward Pressure: 1080 (22.55) Outward Pressure: 1080 (22.55) *(Equivalent to wind speed of 94 mph)*	Measured net permanent deflection of Meeting Stiles, mm (in): Span = 1960 (77.17) *Deflection* — *% Span* Inward: 0.78 (0.031) 0.04 Outward: 2.10 (0.083) 0.11	**Report Only**

Table (1.1): Test Results, Gateway Performance Requirements, Continued
Test Size: 2180 mm x 2000 mm (85.83 in x 78.74 in)

Test Start Date: September 21, 2023 Test Finish Date: September 22, 2023

Test	Specifications	Test Results	Rating
Forced Entry Resistance **8.3.5** *ASTM F 842*	No entry shall be gained during the following sequence of disassembly, load tests and hardware and sash manipulation tests: Disassembly T1: 5 minutes Hardware Load: N (lbf) L1: 1334 (300) L2: 778 (175) Manipulation T1: 5 minutes	No entry was gained following the specified sequence of testing. *Test* — *Results* Disassembly T1: OK Hardware Load: L1: OK L2: OK Manipulation T1: OK	**Grade 10**
Thermoplastic Corner Weld Test 9.3.6.2 (NAFS 17)	When frame and sash corners are loaded to failure, the break shall not extend along the entire weld line.	*Sash Corners* 1: OK; 2: OK; 3: OK; 4: OK	**PASS**
Deglazing Test **8.3.6.2** *ASTM E 987*	Sash members shall not move from their original position by more than 90% of the original glazing bite under the following applied loads, N (lbf): Rails: 230 (51.70) Stiles: 320 (71.94)	Measured glazing bite mm (in): 16 (0.61) *Member* — *Deglazing* — *%* Top Rail: 3.40 (0.134) 22% Bottom Rail: 3.00 (0.118) 19% Meeting Stile: 5.50 (0.217) 35% Lock Stile: 4.10 (0.161) 26%	**PASS**

Table (1.2): Test Results, Optional Performance Requirements **Class R-PG30-SGD**
Test Size: 2180 mm x 2000 mm (85.83 in x 78.74 in)

Test Start Date: September 21, 2023 Test Finish Date: September 22, 2023

Test	Specifications	Test Results	Rating
Water Resistance **8.3.3** *ASTM E 547*	No leakage past innermost plane following four pressure cycles, each five minutes "ON" and one minute "OFF". Test Pressure, Pa (psf): 220 (4.59) *(Equivalent to wind speed of 42 mph)*	No leakage past innermost plane was observed. *Test* — *Result* *With Screen,* — *OK 4 cycles* *Without Screen,* — *OK, 4 Cycles*	**PASS**
Uniform Load Deflection **8.3.4.2** *ASTM E 330*	Report the net deflections at the following test pressures, Pa (psf): Inward Pressure: 1440 (30.07) Outward Pressure: 1440 (30.07) *(Equivalent to wind speed of 108 mph)*	Span, mm (in): 1960 (77.17) Measured net deflection of Meeting Stiles: *Deflection, mm (in)* *Inward:* 1.1 (0.044) *Outward:* 17.0 (0.668)	**Report Only**
Uniform Load Structural **8.3.4.3** *ASTM E 330*	No glass breakage or permanent damage to window components, at Test Pressures, Pa (psf). Net Permanent Deflection to be less than 0.4% of span, or 7.8 mm (0.309 in). Inward Pressure: 2160 (45.10) Outward Pressure: 2160 (45.10) *(Equivalent to wind speed of 163 mph)*	Measured net permanent deflection of Meeting Stiles, mm (in): Span = 1960 (77.17) ***Deflection*** — ***% Span*** *Inward:* 1.03 (0.041) 0.05 *Outward:* 2.43 (0.096) 0.12	**Report Only**

4. Modifications: No modifications were made on the specimen during testing in order to attain the reported results.

Revision Log

Rev. No	Change	Date	Apprv. By
-	Original report issued	February 6, 2024	EA

Item	Type, Material, Part #	Qty*	Size (W x H x D)	Location, Fastening, Seals, Comments
Frame	Sliding door, Extruded PVC	1	2181.225mm x 2044.7mm	One operable and one stationary panel
Panel	Lift-out, Extruded PVC	2	1152.525mm x 2016.125mm	Stationary panel mechanically fastened to the jamb with clips and #8 x 1 ¼" (4.2mm x 31.75mm) screws.
Joinery	Thermally Welded, Mitered corners			Welded corners – temperature 250 Celsius, melt time 30 seconds, weld time 40 seconds
Installation	Wood buck	1	2232.025mm x 2095.5mm	Fastened with #8 x 3 ½" (4.2mm x 88.9mm) screws (10 per jamb), perimeter sealed w/ silicone sealant
Glazing	Double-pane IGU, Tempered glass		Overall thickness: 25.4 mm	Glass thickness: 4 mm
Glazing Method	Laid in glazed			
	Glazing tape, foam	8	60.325mm x 1.5875mm	Exterior perimeter
	Corner Bead, sealant	0		Interior and exterior perimeter
	Glazing stops	8	9.525mm x 19.05mm	Interior perimeter
Thermal Break	None			
Reinforcement	Shape section	8	38.1mm x 38.1mm	Thickness 3.175mm
Weatherstrips				
Panel	Pile with high fin	4	Height: 4.572mm	Meeting stiles
	Pile	4	Height: 4.572 mm	Operable Panel
Frame	Pile	4	Height: 5.588 mm	Jambs
Screen	Pile	1	Height: 15.875 mm	Meeting stiles
Drainage				
Sash	Drain slots/ Holes	4	Diameter: 6.35mm	Glazing cavity
Frame	Drain slots	2	Diameter: 25.4mm	Sill, ends of panel support interior face
Add-Ons				
Panel Support	Extruded PVC	1	Length: 1104.9mm	Sill, exterior channel
Screen track	Snap-On/In, Aluminum	1	Length: 2124.075mm	Sill, Screen channel, full length
Roller track	Snap-On/In, Aluminum	1	Length: 2124.075	Sill, interior channel, full length
Sill Cap	Snap-On/In, Aluminum	0		Sill, exterior channel

The above descriptions were provided by the manufacturer. Items and/or material properties were verified by CAN-BEST for general conformity only.

* Quantity is total unless otherwise specified

Item	Type, Material, Part #	Qty*	Size (W x H x D)	Location, Fastening, Seals, Comments
Interlocks	Snap-On/In, Extruded PVC	2	1952.625mm	snap on no screw
Travel Limiter	Extruded PVC			Ends of stationary jambs
Hardware				
Lock	Three-Point Lock, Metal	1	Length: 1111.25mm	Lock stile, center, mechanically fastened with 4.2mm x 19.05mm screws
Handle	Metal	1	Length: 328.6125	Pull stile, center, fastened with 4.2mm x 53.975mm screws and 4.2mm x 25.4mm
Keepers	3 points engagement system, metal	1	Lenth: 1069.975mm	Lock jamb, interior channel, center, fastened with 4.2mm x 63.5mm screws
Rollers	Nylon	2	Length: 168.275mm	End of bottom rail, operable panel, each fastened with xxx screws
Screen			(1071.5752mm x 1978.025mm)	Half Screen, Exterior, supported on 4 sides, corner key:, Frame: Extruded Aluminum, Mesh: Fiberglass, Spline: Round
Rollers	Plastic	2	Length: 123.825mm	Ends of top and bottom rails
Lock	Plastic	1	Length: 130.175mm	Operable stile, center, fastened with 3.3mm x 19.05mm screws

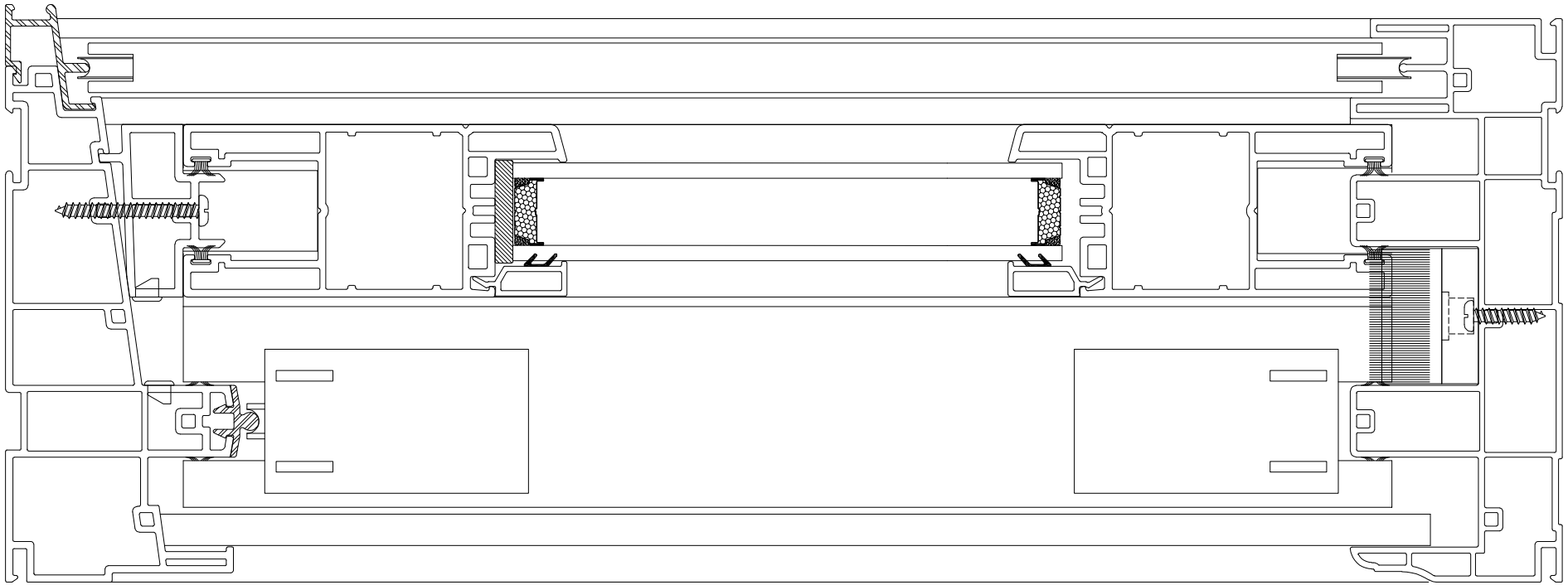
The above descriptions were provided by the manufacturer. Items and/or material properties were verified by CAN-BEST for general conformity only.

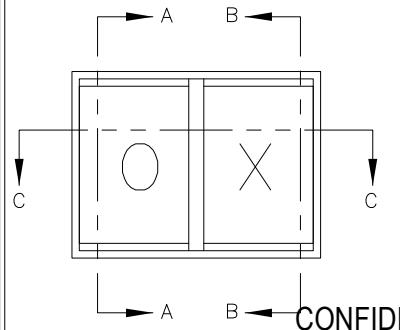
* Quantity is total unless otherwise specified

RevNo	Revision note	Date	Signature	Checked

SILL

HEAD





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CAN-BEST

This document forms part of:

Report No.:	L24-926-6789
Verified By:	
Date:	FEBRUARY 06, 2024

VERTICAL SECTION A–A

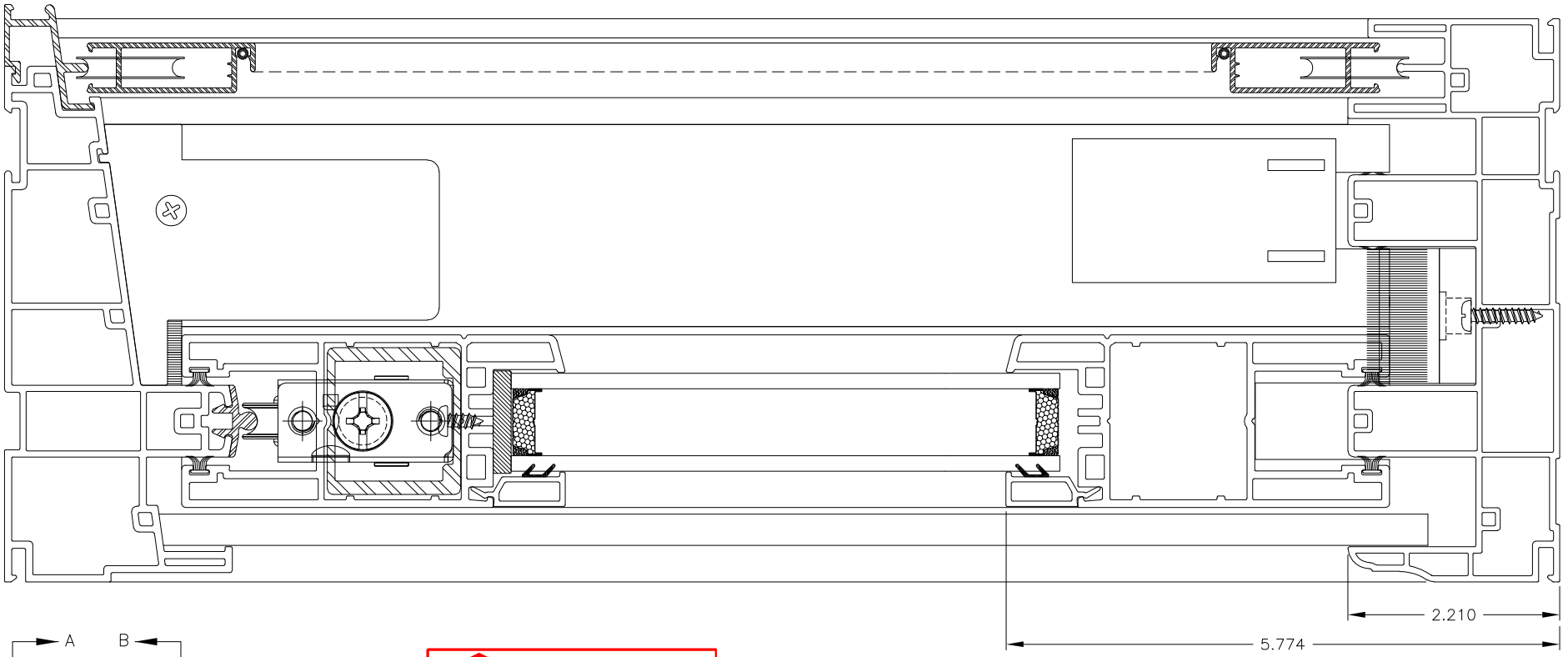
Title:	Scale:	Designed By:	Dwg. No.:	Die No.:
AMALFI PATIO DOOR	FULL			
Customer: VISTA PATIO DOOR	Date: 1-SEPT-23	Drawn By: CDF	Material: PVC	Prog .No.:

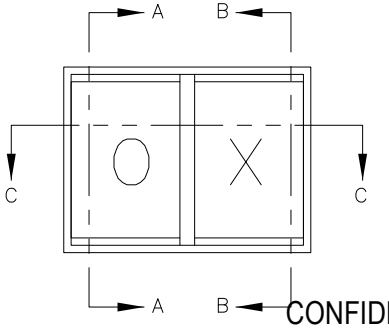
vinylcraft extrusions

RevNo	Revision note	Date	Signature	Checked

SILL

HEAD





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Verified By:	
Date:	FEBRUARY 06, 2024

VERTICAL SECTION B–B

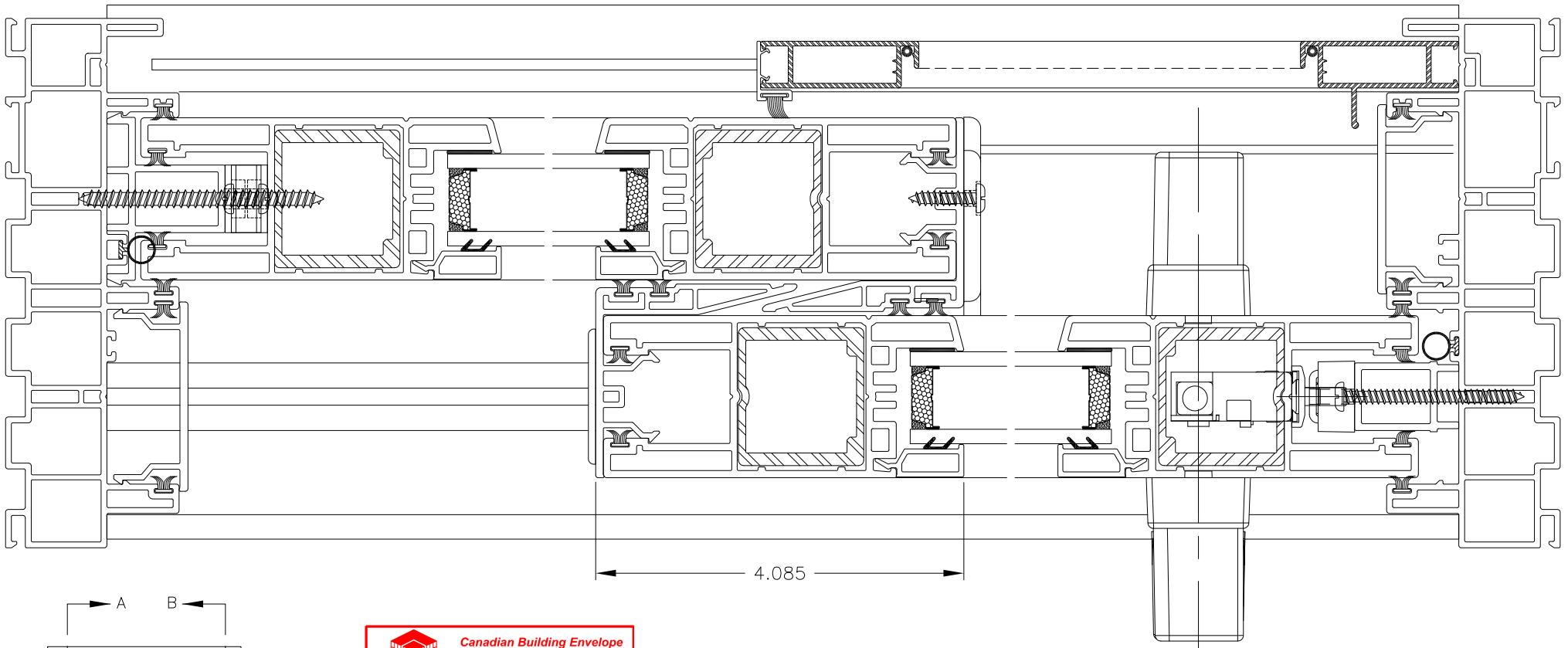
Title: AMALFI PATIO DOOR	Scale: FULL	Designed By:	Dwg. No.:	Die No.:
Customer: VISTA PATIO DOOR	Date: 1–SEPT–23	Drawn By: CDF	Material: PVC	Prog .No.:

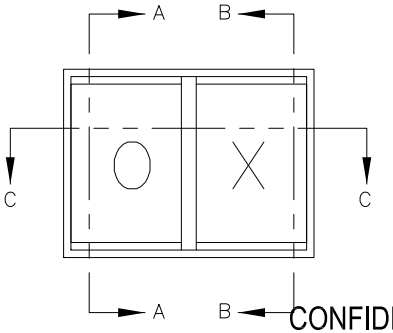
vinylcraft extrusions

RevNo	Revision note	Date	Signature	Checked

LEFT JAMB

RIGHT JAMB





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Report No.:	L24-926-6789
Verified By:	
Date:	FEBRUARY 06, 2024

HORIZONTAL SECTION C–C

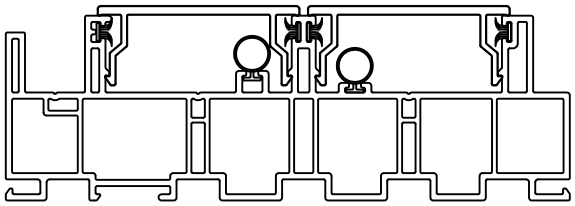
Title: AMALFI PATIO DOOR	Scale: FULL	Designed By:	Dwg. No.:	Die No.:
Customer: VISTA PATIO DOOR	Date: 1-SEPT-23	Drawn By: CDF	Material: PVC	Prog .No.:

vinylcraft extrusions

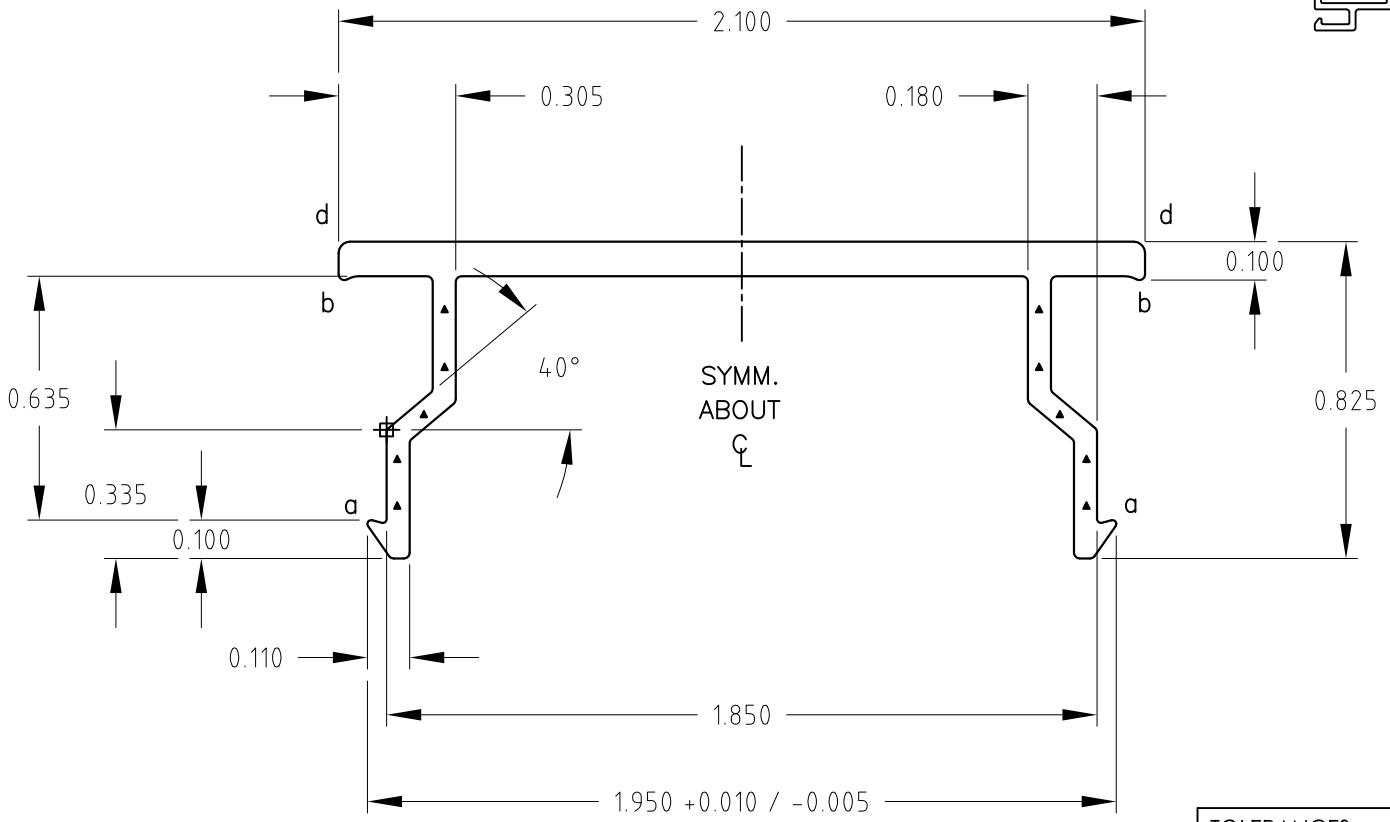
Bill of Material

PART NUMBER	PART NAME
V412	JAMB
V457	HEDAR
V411	SILL
V838	FIX PANEL SUPPORT
V941	Jamb Adaptor
V936	INTERLOCK
V058	SASH
5638,SH	ALUMINUM REINFORCEMENT
D939	JAMB CAP
VC916	Glass stop
SP3	Robosto screen
Jamb Weatherstrip	180 Backing / pile 250
sash weatherstrip	180 backing / 180 pile

RevNo	Revision note	Date	Signature	Checked



CHECK WITH V475
FOR A SNUG FIT



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This document forms part of:

Report No.:	L24-926-6789
Verified By:	
Date:	FEBRUARY 06, 2024

NOTES:

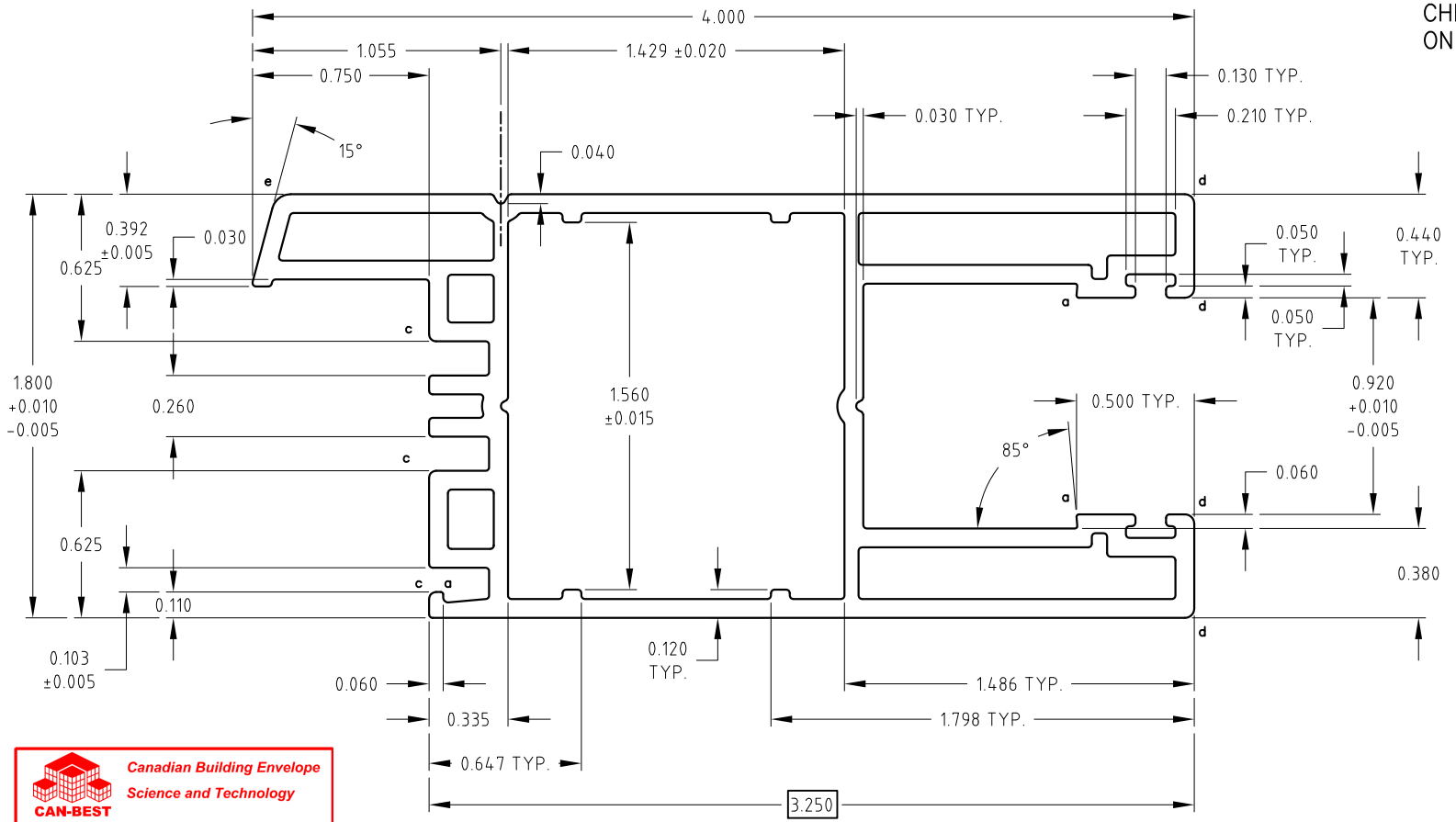
WALL THICKNESS:		RADII: UNMRAKED 0.015	
EXT.	0.090	a 0.010	f FULL
INT.	----	b 0.015	g ----
▲	0.060	c 0.020	h ----
•	----	d 0.030	i ----
		e ----	m MINIMUM RAD

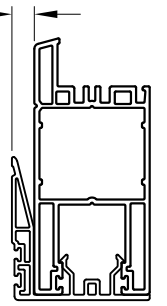
TOLERANCES:		SECTION DETAILS:	
DIMENSIONS:	+/- 0.015 UNLESS SPECIFIED	AREA (RIGID):	----
WALL THICKNESS:	+/- 0.005 UNLESS SPECIFIED	AREA (FLEX):	N/A
COMPONENT WEIGHT:	+/- 5%	WIEGHT (TOTAL):	----
⌖	INTERSECTION	MATERIAL:	
▭	CRITICAL +/- 0.010	HATCHED AREA:	RIGID PVC
		FILLED AREA:	FLEX PVC

Title:	Scale:	Designed By:	Dwg. No.:	Die No.:
JAMB CAP	2:1	CDF		D939
Customer:	**Date:**	**Drawn By:**	**Material:**	**Prog .No.:**
	8-SEPT-20	CDF	PVC	

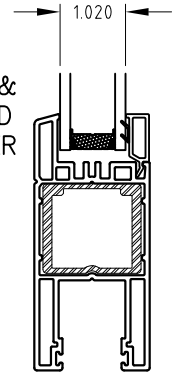
vinylcraft extrusions

RevNo	Revision note	Date	Signature	Checked





CHECK WITH V936
ON BOTH SIDES



CHECK WITH V916 &
CUSTOMER SUPPLIED
ALUMINUM STIFFENER

NOTES:

WALL THICKNESS:	RADII: UNMRAKED 0.015	
EXT. 0.080	a 0.010	f FULL
INT. 0.060	b 0.015	g ----
▲ ----	c 0.030	h ----
	d 0.040	i ----
	e 0.080	m MINIMUM RAD

TOLERANCES:

DIMENSIONS: +/- 0.015 UNLESS SPECIFIED
WALL THICKNESS: +/- 0.005 UNLESS SPECIFIED
COMPONENT WEIGHT: +/- 5%
⌖ INTERSECTION
▭ CRITICAL +/- 0.010

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Report No.:	L24-926-6789
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Date:	FEBRUARY 06, 2024

Title:	Scale:	Designed By:	Dwg. No.:	Die No.:
PATIO DOOR SASH	2:1	CDF		V058
Customer:	Date:	Drawn By:	Material:	Prog .No.:
	22-MAR-21	CDF	PVC	

vinylcraft extrusions

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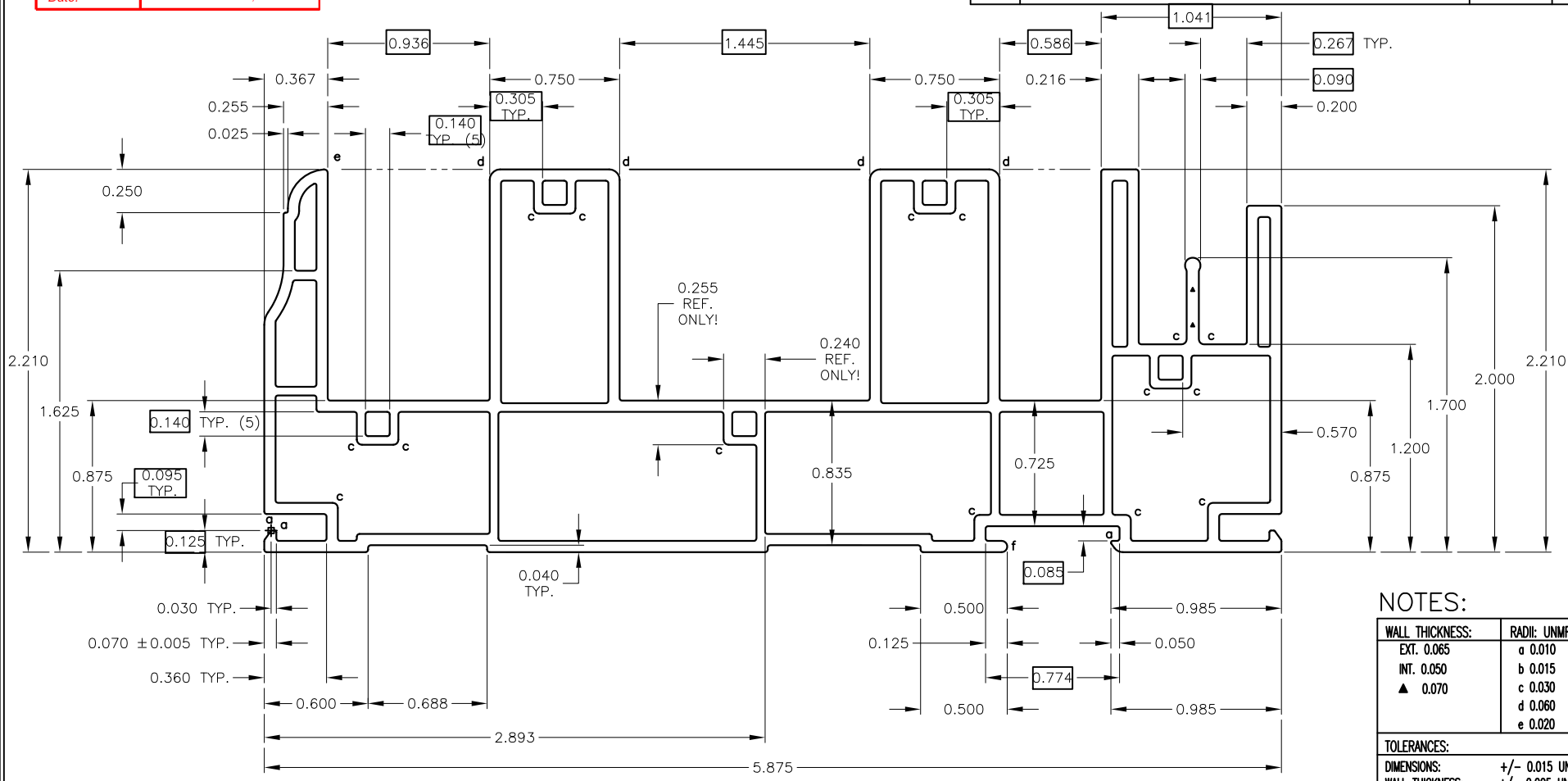
Date:	FEBRUARY 06, 2024

RevNo	Revision note	Date	Signature	Checked
1	REDUCED LEG BY 0.037"	27-JUNE-17		
2	LEG REMOVED COMPLETELY	14-OCT-20		
3	INTERIOR STEP REMOVED	3-MAY-21		



NOTES:

WALL THICKNESS:	RADII: UNMRAKED 0.015	
EXT. 0.065	a 0.010	f FULL
INT. 0.050	b 0.015	g ----
▲ 0.070	c 0.030	h ----
	d 0.060	i ----
	e 0.020	m MINIMUM RAD

TOLERANCES:

DIMENSIONS: +/- 0.015 UNLESS SPECIFIED
WALL THICKNESS: +/- 0.005 UNLESS SPECIFIED
COMPONENT WEIGHT: +/- 5%
⌖ INTERSECTION
▭ CRITICAL +/- 0.005

Title: PATIO DOOR HEADER	Scale: FULL	Designed By:	Dwg. No.: XXXX	Die No.: V457
Customer:	Date: 4-SEPT-13	Drawn By: CDF	Material: PVC	Prog .No.: XXXXX

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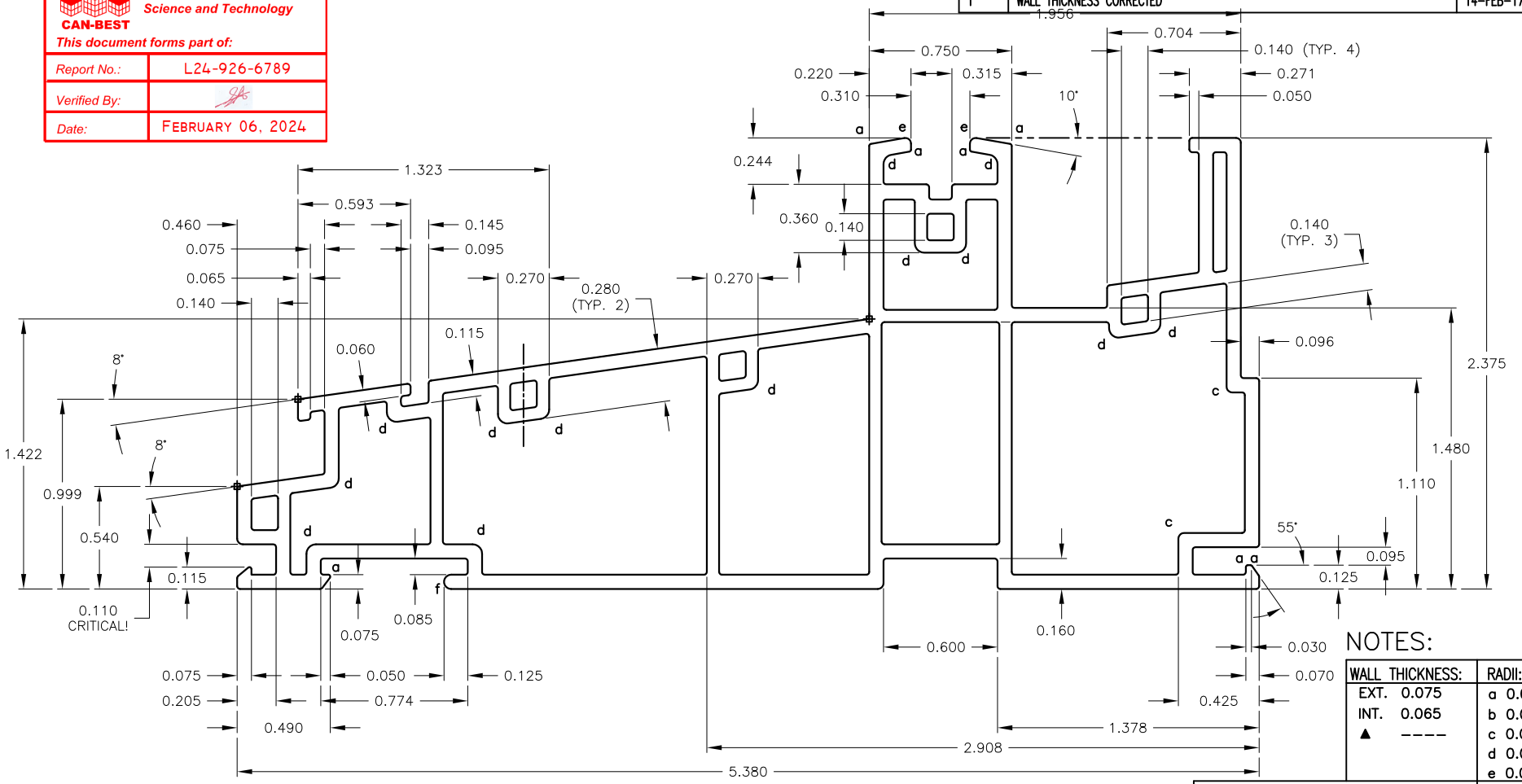
Date:	FEBRUARY 06, 2024

RevNo	Revision note	Date	Signature	Checked
1	WALL THICKNESS CORRECTED	14-FEB-17		



NOTES:

WALL THICKNESS:	
EXT.	0.075
INT.	0.065
▲	----

RADII: UNMRAKED 0.015			
a	0.010	f	FULL
b	0.015	g	----
c	0.030	h	----
d	0.050	i	----
e	0.020	m	MINIMUM RAD

TOLERANCES:		SECTION DETAILS:	
DIMENSIONS:	+/- 0.015 UNLESS SPECIFIED	AREA (RIGID):	----
WALL THICKNESS:	+/- 0.005 UNLESS SPECIFIED	AREA (FLEX):	----
COMPONENT WEIGHT:	+/- 5%	WIEGHT (TOTAL):	----
⌖	INTERSECTION	MATERIAL:	
▭	CRITICAL +/- 0.005	HATECHED AREA:	RIGID PVC
		FILLED AREA:	FLEX PVC

Title: PATIO DOOR SILL	Scale: 2:1	Designed By: CDF	Dwg. No.:	Die No.: V476
Customer:	Date: 16-AUG-16	Drawn By: CDF	Material: PVC	Prog .No.:

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RevNo	Revision note	Date	Signature	Checked
1	DIMENSION ADDED FOR CHECKING CLEARANCE WITH PUNCH TOOL	13-MAY-19		

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Verified By:	
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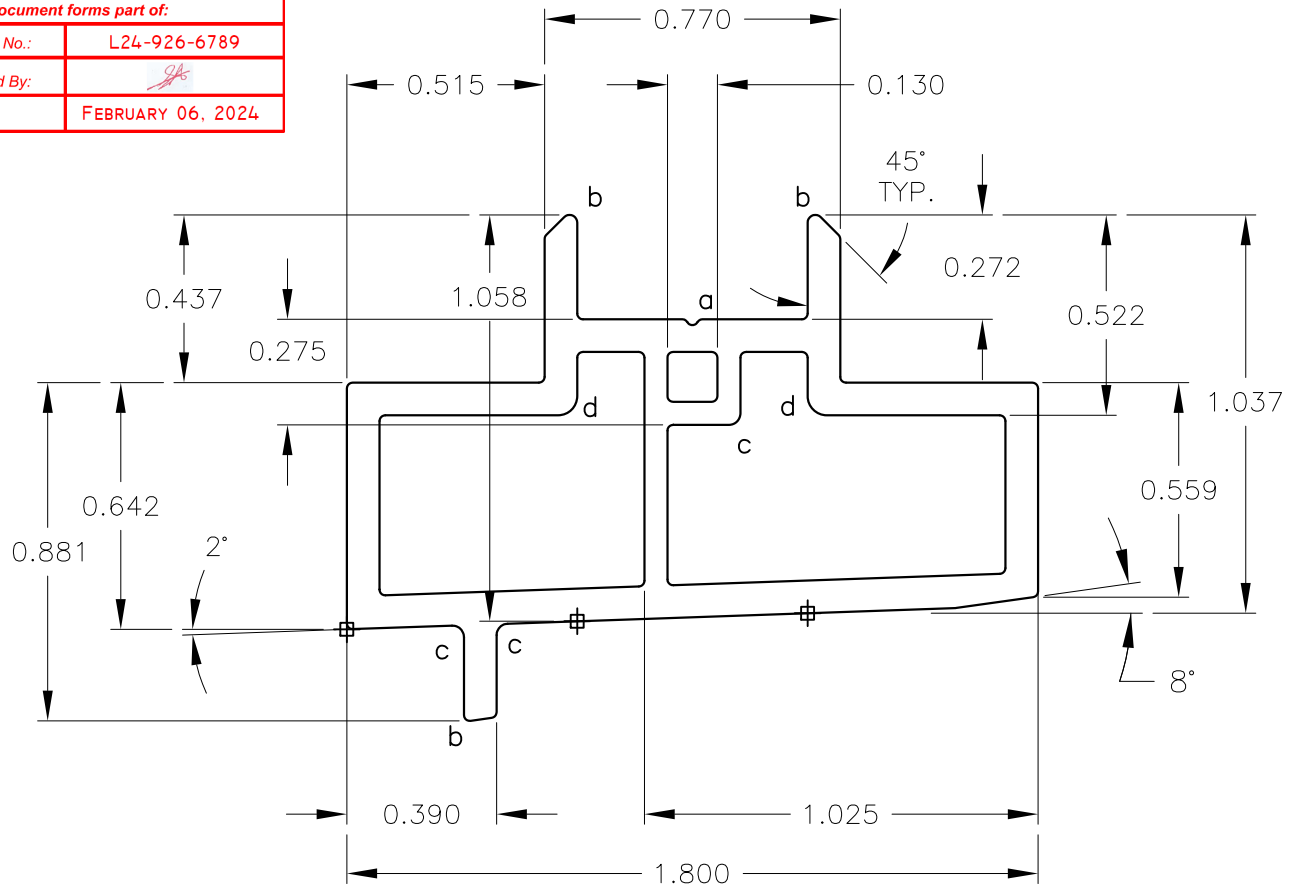
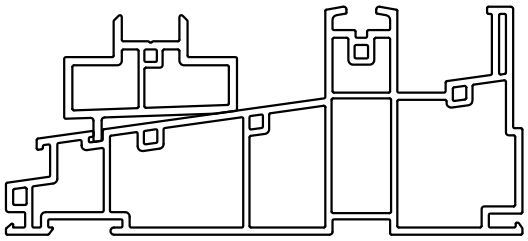




CHECK FIT WITH V476

NOTES:

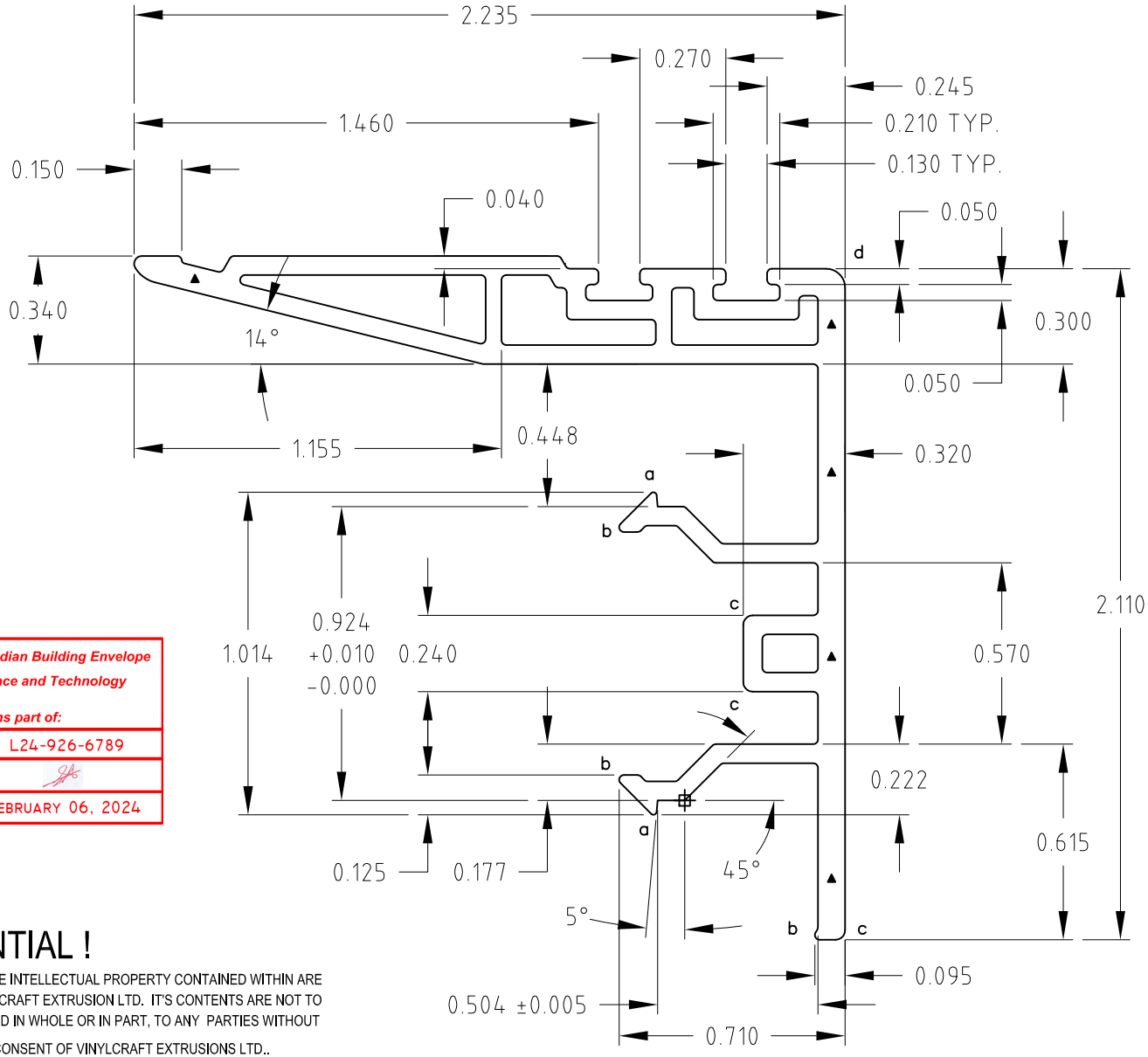
WALL THICKNESS:		RADII: UNMRAKED 0.015	
EXT.	0.085	a 0.015	f FULL
INT.	0.060	b 0.020	g ----
▲	----	c 0.030	h ----
		d 0.050	i ----
		e ----	m MINIMUM RAD

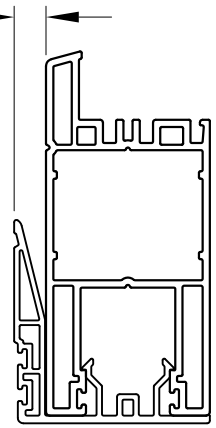
TOLERANCES:		SECTION DETAILS:	
DIMENSIONS:	+/- 0.015 UNLESS SPECIFIED	AREA (RIGID):	----
WALL THICKNESS:	+/- 0.005 UNLESS SPECIFIED	AREA (FLEX):	----
COMPONENT WEIGHT:	+/- 5%	WIEGHT (TOTAL):	----
⌖	INTERSECTION	MATERIAL:	
▭	CRITICAL +/- 0.005	HATECHED AREA:	RIGID PVC
		FILLED AREA:	FLEX PVC

Title: FIXED PANEL SUPPORT	Scale: 2:1	Designed By: CDF	Dwg. No.:	Die No.: V838
Customer:	Date: 16-NOV-16	Drawn By: CDF	Material: PVC	Prog .No.:

vinylcraft extrusions

RevNo	Revision note	Date	Signature	Checked





CHECK WITH V058
ON BOTH SIDES

CAN-BEST Canadian Building Envelope Science and Technology

This document forms part of:

Report No.:	L24-926-6789
Verified By:	
Date:	FEBRUARY 06, 2024

NOTES:

WALL THICKNESS:	RADII: UNMRAKED O.015	
EXT. 0.060	a 0.010	f FULL
INT. 0.050	b 0.015	g ----
▲ 0.080	c 0.030	h ----
	d 0.060	i ----
	e ----	m MINIMUM RAD

TOLERANCES:

DIMENSIONS: +/- 0.015 UNLESS SPECIFIED
WALL THICKNESS: +/- 0.005 UNLESS SPECIFIED
COMPONENT WEIGHT: +/- 5%
⌖ INTERSECTION
▭ CRITICAL +/- 0.010

CONFIDENTIAL !

Title:	Scale:	Designed By:	Dwg. No.:	Die No.:
INTERLOCK	2:1	CDF		V936
Customer:	Date:	Drawn By:	Material:	Prog .No.:
	23-MAR-21	CDF	PVC	

vinylcraft extrusions

RevNo	Revision note	Date	Signature	Checked
1	HEIGHT INCREASED TO SUIT TRUTH HARDWARE 3 PT. LOCK	31-AUG-22		
2	SCREW BOSS LEGS REMOVED	9-NOV-22		
3	SNAP HOOK WIDTH REDUCED	28-APR-23		

Canadian Building Envelope Science and Technology
CAN-BEST
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Report No.:	L24-926-6789
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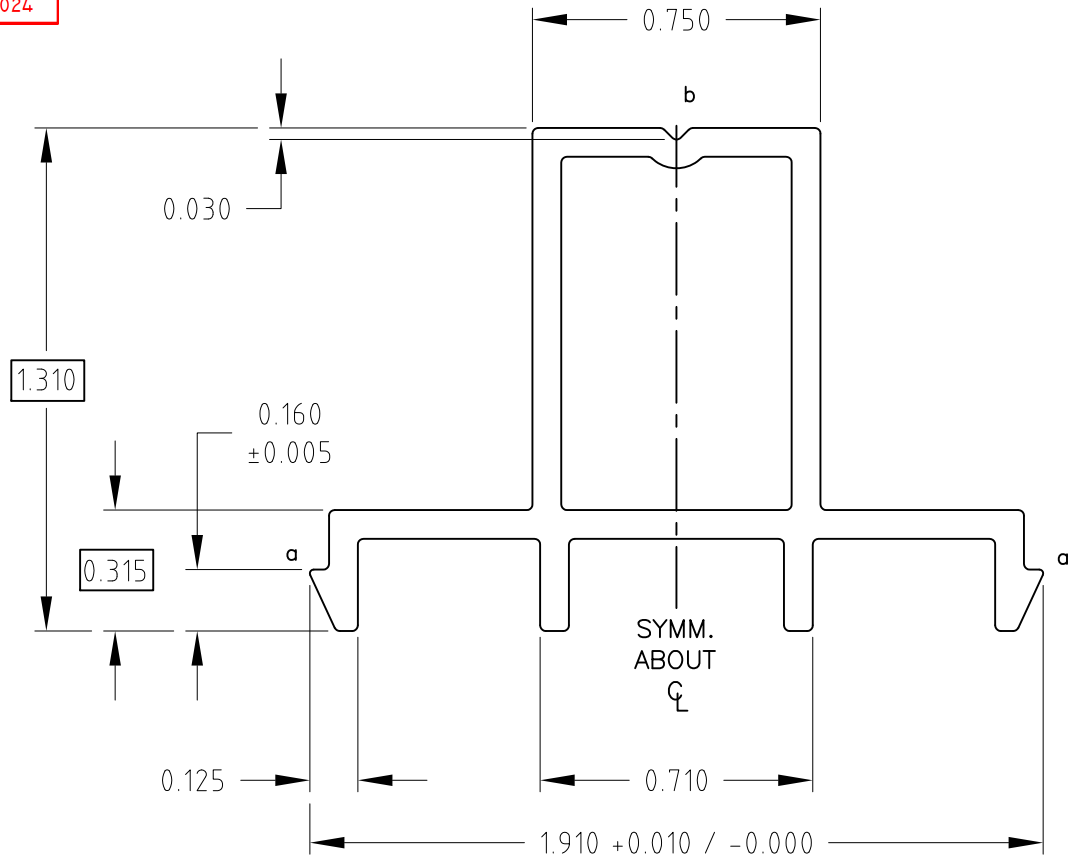

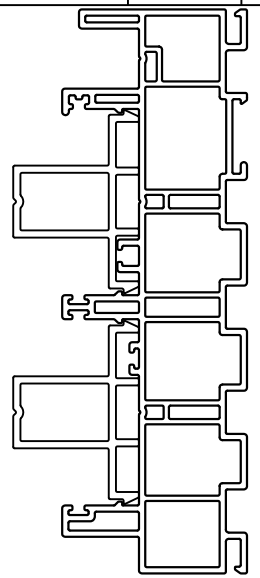

CHECK WITH V475 & V483
ON ALL TRACKS – EASY FIT

NOTES:

WALL THICKNESS:	RADII: UNMRAKED 0.015	
EXT. 0.075	a 0.010	f FULL
INT. ----	b 0.020	g ----
▲ ----	c 0.030	h ----
	d 0.060	i ----
	e ----	m MINIMUM RAD

TOLERANCES:

DIMENSIONS: +/- 0.015 UNLESS SPECIFIED
WALL THICKNESS: +/- 0.005 UNLESS SPECIFIED
COMPONENT WEIGHT: +/- 5%
⌖ INTERSECTION
▭ CRITICAL +/- 0.010

Title: JAMB ADAPTOR	Scale: 2:1	Designed By: CDF	Dwg. No.:	Die No.: V941
Customer:	Date: 23-MAR-21	Drawn By: CDF	Material: PVC	Prog .No.:

vinylcraft extrusions