
**EVALUATION OF
WINDOW WALL MOCK-UP – “500 RS SERIES THERMALLY BROKEN
ALUMINUM WINDOWS”
For ZENITH ALUMINUM SYSTEMS LTD.**

**IN ACCORDANCE WITH:
ASTM E283, E331, E547, & E330/330M**

Report to: Zenith Aluminum Systems Ltd.
66 Rivalda Road
Toronto, Ontario
M9M 2M3

Attention: Isaac Walter

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Cc: kira@proactivefenestration.com

Revised Report No.: 23-06-B0008-2B
Original Report No.: 23-06-B0008-2A
6 Pages, 1 Appendix

Proposal No.: 22-006-362729

Revised Report Date: September 27, 2023
Original Report Date: September 21, 2023

1.0 INTRODUCTION

At the request of Zenith Aluminum Systems Ltd., Element Materials Technology Inc. was retained to evaluate the Air Leakage Rate, Water Penetration Resistance, and Uniform Load performance of a Window Wall system, “500 RS Series Thermally Broken Aluminum Windows”, as outlined in proposal No.: 22-006-382151.

Note: This report is re-issued in the name of Zenith Aluminum Systems Ltd., through written authorization from Falbo Aluminum Systems Ltd., to whom the original report was released. Element Original Report No.: 23-06-B0008-2A (Dated: September 21, 2023).

2.0 SAMPLE DESCRIPTION

Sample No:	23-06-B0008-2
Series/Model Name:	500 RS Series Thermally Broken Aluminum Windows
Product Type:	Window Wall Mock-up, 1765 mm x 5345 mm (69.49” x 210.43”), two louvre type spandrels over two spandrels over bypass over spandrel by awning over fixed unit
Fixed Unit:	One, extruded aluminum, 900 mm x 1040 mm x 124 mm (35.43” x 40.94” x 4.88”)
Awning Window	One, extruded aluminum frame and sash members, 900 mm x 1000 mm x 76 mm (35.43” x 39.37” x 2.99”), operator at sill center, two single point locks one per jamb/stile
Spandrels:	Extruded Aluminum, insulated with steel backpan Two, louvre type, 900 mm x 800 mm x 124 mm (35.43” x 31.50” x 4.88”) Two, 900 mm x 2080 mm x 124 mm (35.43” x 81.89” x 4.88”), 6 mm tempered glass front face One, 890 mm x 2080 mm x 124 mm (35.04” x 81.89” x 4.88”), aluminum 3 mm (0.12”) thick aluminum front face Two, 890 mm x 178 mm x 124 mm (35.04” x 7.01” x 4.88”), aluminum 3 mm (0.12”) thick aluminum front face
Bypass:	Extruded Aluminum, 1830 mm x 178 mm x 124 mm (42.53” x 7.01” x 4.88”)
Installation:	
Test Buck:	Aluminum buck
Simulated Floor:	Wood construction, 200 mm (7.87”) high, positioned behind bypass
Clips:	Sample fastened to aluminium buck with 75 mm (2.95”) aluminium clips, one clip every 300 mm (11.81”) each clip snaps into sample frame and fastened to aluminium buck with one #12x1” self-tapping pan head screw.
Sealant:	Interior and exterior perimeter sealed with flexible sealant
Glazing Type:	Dual glazed, tempered, glass thickness, 6 mm (0.24”), overall thickness 25.4 mm (1.00”), gap thickness, 13.4 mm (0.52”), argon gas fill
Glazing Method:	Laid in, dry glazed
Glazing Stop:	PVC, interior perimeter
Heel Bead:	Flexible sealant, interior perimeter full perimeter
Setting Block:	Plastic, eight, 100 mm x 25 mm x 6 mm (3.94” x 0.98” x 0.24”), two per glazing cavity, 200 mm (7.87”) from the ends
Tape:	Butyl tape, exterior perimeter
Reinforcement:	None
Thermal Break:	Extruded PVC, one per aluminum frame and sash member



Photo 1: Window Wall Mock-Up

3.0 TEST METHODS

Test performed in accordance to the following standard test method, specific test criteria taken as reference from AAMA/WDMA/CSA 101/1.S.2/A440-17 as directed by the client

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

ASTM E331-00(2016) “Standard Test Method for Water Penetration of Exterior Windows, Window Walls, and Doors by Uniform Static Air Pressure Difference”

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

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

*For Uniform Load testing the sample was broken into an upper and lower portion to better simulate a rigid slab between floors. The Upper portion included the bypass

4.0 TEST RESULTS

Table 1 – Window Wall Mock-Up Element Specimen No.: 23-06-B0008-2 Test Specimen Size: 1765 mm x 5345 mm (69.49” x 210.43”)				
Test	Client Requirements		Results	
Air Leakage Resistance <i>ASTM E283</i> Test Date: January 30, 2023	Allowable rate of air leakage shall be less than or equal to the following, L/s.m ² (cfm/ft ²), at the subsequent test pressure:		Test area, m ² (ft ²): 9.4 (101.55)	
	Test Pressure, Pa (psf):	300 (6.27)	Measured Air Leakage Rate, L/s.m ² (cfm/ft ²):	
	Canadian A3 Level:	0.5 (0.10)	Infiltration:	0.2 (0.04)
			Exfiltration:	0.2 (0.05)
Static Water Penetration Resistance <i>ASTM E331</i> Test Date: January 30, 2023	No water leakage shall be observed at the following specified static pressure differential, Pa (psf):		No water leakage was observed at the following specified pressure differential, Pa (psf):	
			Test Pressure	720 (15.04)
Cyclic Water Penetration Resistance <i>ASTM E547</i> Test Date: January 30, 2023	No water leakage shall be observed at the following specified cyclic static pressure differential, Pa (psf):		No water leakage was observed at the following specified pressure differential, Pa (psf):	
			Test Pressure	720 (15.04)

Table 2 – Window Wall Mock-Up – Lower Portion Element Specimen No.: 23-06-B0008-2L Test Specimen Size: 1765 mm x 2245 mm (69.49” x 88.39”)			
Test	Test Criteria		Result
Uniform Load Deflection Per <i>ASTM E330</i> Test Date: February 9, 2023	The deflection of the longest unsupported span must be measured and reported at the following specified test pressure, Pa(psf):	Measured net deflection of vertical mullion, mm (in):	
	Allowable deflection, mm (in): Report Only	Span: 2245 (88.39)	
	Test Pressure: ±2880 (60.15)	Positive:	7.1 (0.28)
		Negative:	-7.1 (-0.28)
Uniform Load Structural (Clause 9.3.4.3) Per <i>ASTM E330</i> Test Date: February 9, 2023	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 net deflection of vertical mullion, mm (in):	
	Allowable permanent deflection, mm (in): 9.0 (0.35)	Span: 2245 (88.39)	
	Test pressure: ±4320 (90.23)	Positive:	3.8 (0.15)
		Negative:	-8.8 (-0.35)

Table 3 – Window Wall Mock-Up – Upper Portion Element Specimen No.: 23-06-B0008-2U Test Specimen Size: 1765 mm x 3100 mm (69.49” x 122.05”)			
Test	Test Criteria		Result
Uniform Load Deflection Per <i>ASTM E330</i> Test Date: February 9, 2023	The deflection of the longest unsupported span must be measured and reported at the following specified test pressure, Pa(psf):	Measured net deflection of vertical mullion, mm (in):	
	Allowable deflection, mm (in): Report Only	Span: 3100 (122.05)	
	Test Pressure: ±1920 (40.10)	Positive:	15.8 (0.62)
		Negative:	-16.1 (-0.64)
Uniform Load Structural Per <i>ASTM E330</i> Test Date: February 9, 2023	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 vertical mullion, mm (in):	
	Allowable permanent deflection, mm (in): 12.4 (0.49)	Span: 3100 (122.05)	
	Test pressure: ±2880 (60.15)	Positive:	0.1 (0.04)
		Negative:	-0.1 (-0.04)

5.0 CONCLUSION

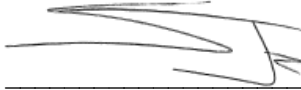
Element has conducted Air Leakage Rate, Water Penetration Resistance, and Uniform Load testing of a Window Wall system, "500 RS Series Thermally Broken Aluminum Windows", in reference to the listed standards and results are contained herein.

Note: This report is re-issued in the name of Zenith Aluminum Systems Ltd., through written authorization from Falbo Aluminum Systems Ltd., to whom the original report was released. Element Original Report No.: 23-06-B0008-2A (Dated: September 21, 2023).

6.0 REPORT REVISION SUMMARY

<u>Revision No:</u>	<u>Date:</u>	<u>Description of Revisions:</u>
23-06-B0008-2A	September 21, 2023	Original Document
23-06-B0008-2B	September 27, 2023	Report reissued to: Zenith Aluminum Systems Ltd.

Reported by:



Emmanuel Siapno, Ext. 10292
Testing Technician, Building Systems
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Reviewed by:



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Appendix A

Manufacturers Detail Drawings

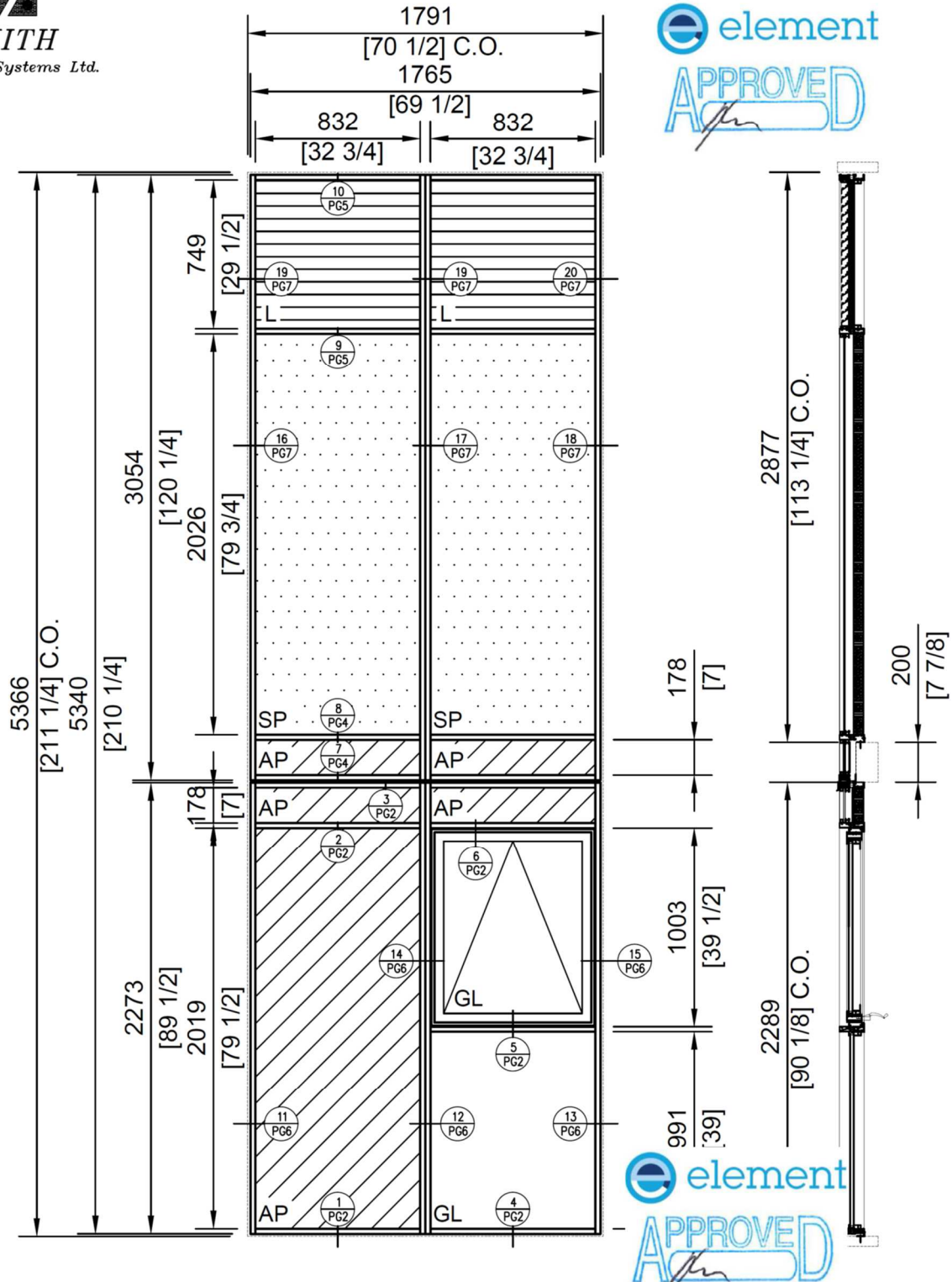
31 Pages



ZENITH
 Aluminum Systems Ltd.

WINDOW WALL / SLAB BYPASS

500 RS Series, Thermally Broken Aluminum Windows

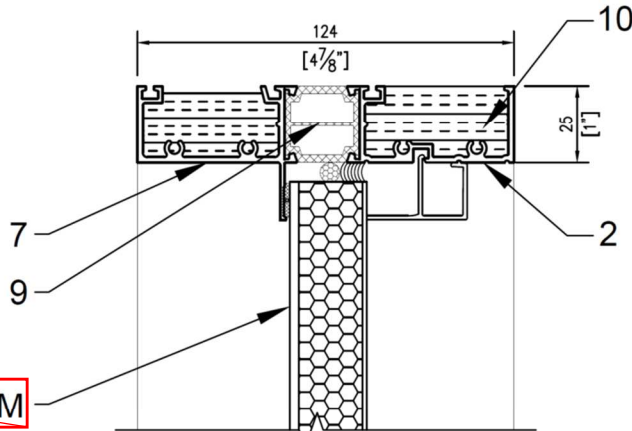




WINDOW WALL / SLAB BYPASS 500 RS Series, Thermally Broken Aluminum Windows

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3
PG2

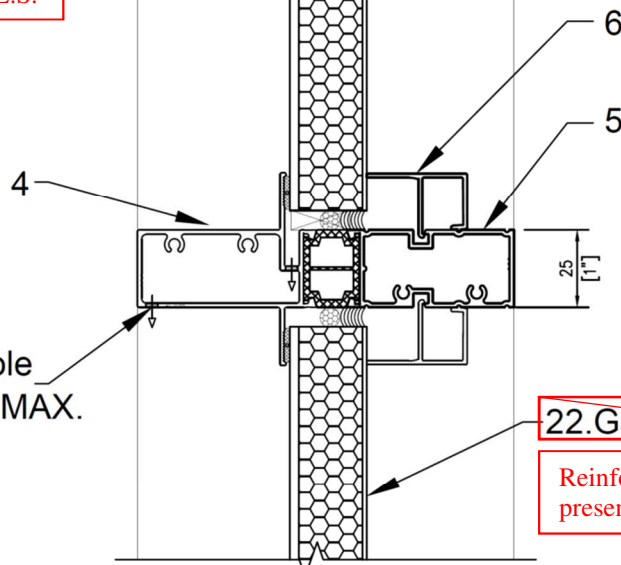


0.032" ALUMINUM
Reinforcement was not present during testing. E.S.

OUT

IN

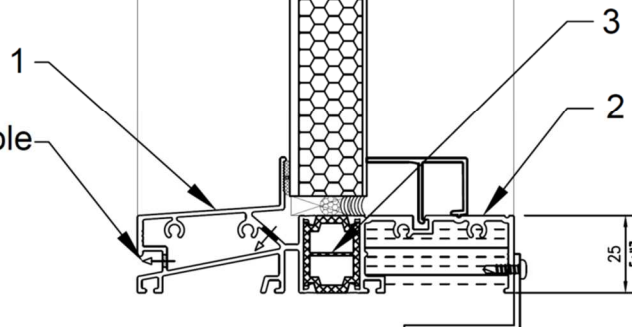
2
PG2



Drainage Hole
750 mm O.C. MAX.

22.Ga GALVANIZED
Reinforcement was not present during testing. E.S.

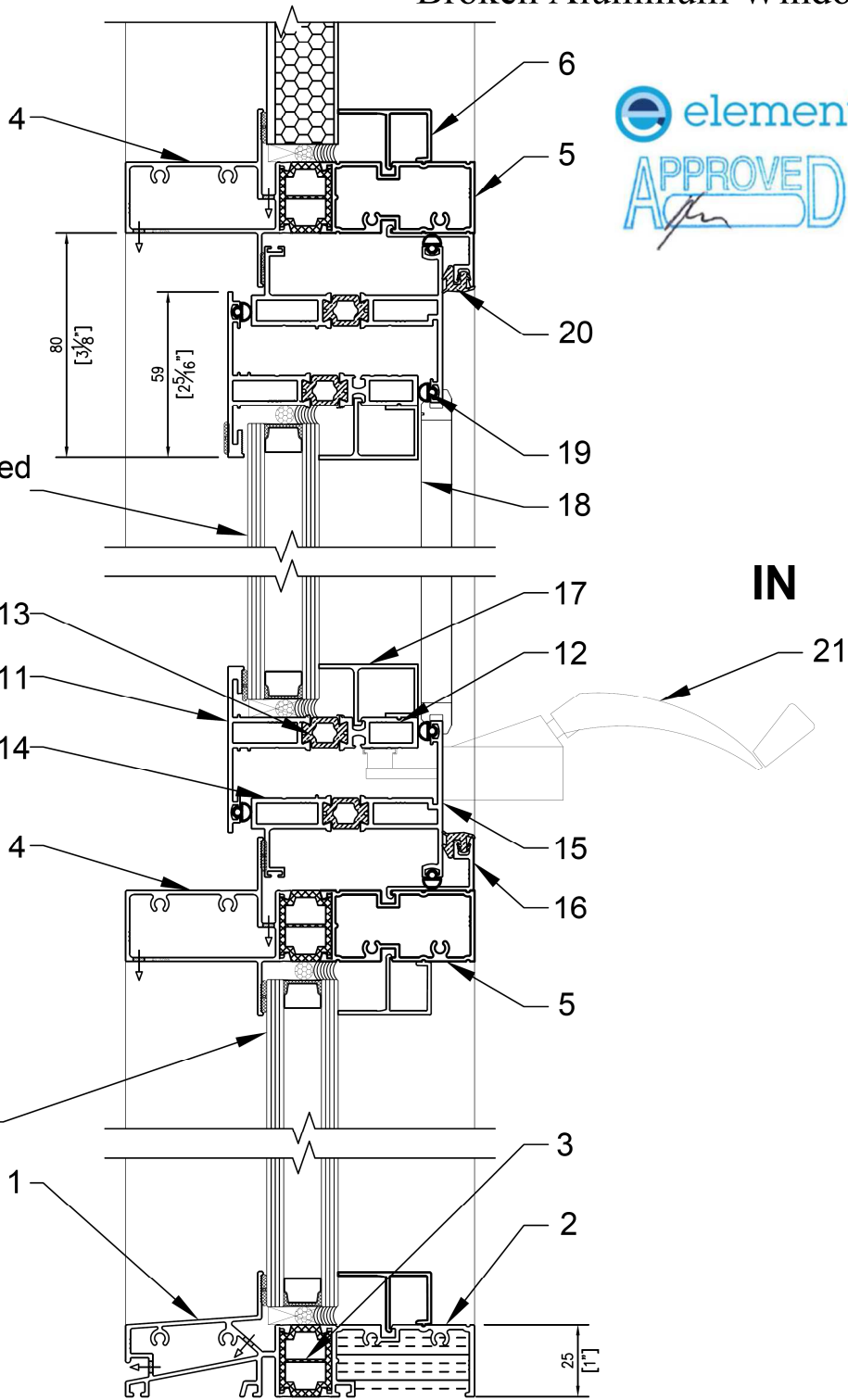
1
PG2





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WINDOW WALL / SLAB BYPASS 500 RS Series, Thermally Broken Aluminum Windows



Double Glazed Sealed Unit

OUT

IN



Double Glazed Sealed Unit





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WINDOW WALL / SLAB BYPASS 500 RS Series, Thermally Broken Aluminum Windows



Reinforcement was not present during testing. E.S.
22.Ga GALVANIZED BACK PAN

SPANDREL GLASS

8
PG4

SEALANT B/W FRAME & BACK PAN AND OVER FASTENERS

SILICONE AROUND GLASS

BLUE SKIN MEMBRANE

Reinforcement was not present during testing. E.S.

22.Ga GALVANIZED

1" FIRE STOP INSULATION

3mm / 1/8" ALUMINUM

200
[7 7/8"]

24
23

7
PG4

DRAINAGE HOLE EVERY MULLION

22

25

9

10



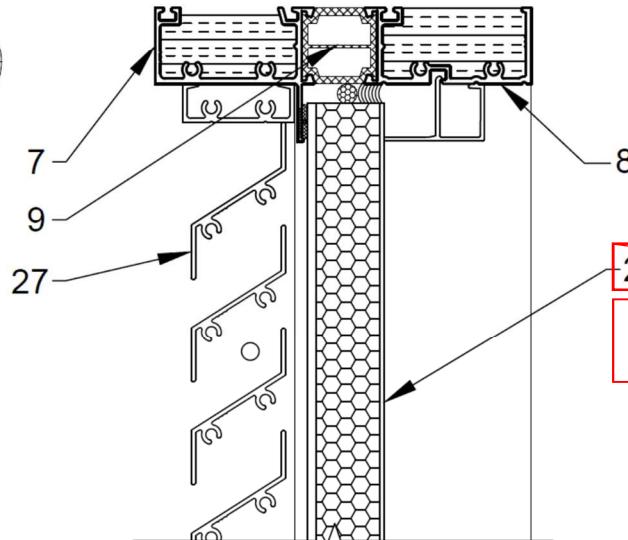
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WINDOW WALL / SLAB BYPASS 500 RS Series, Thermally Broken Aluminum Windows



10
PG5



~~22.Ga GALVANIZED~~
Reinforcement was not present during testing. E.S.

OUT

IN

#10 X 3/4" ROUND HEAD
SCREW @ 16" O.C.

26

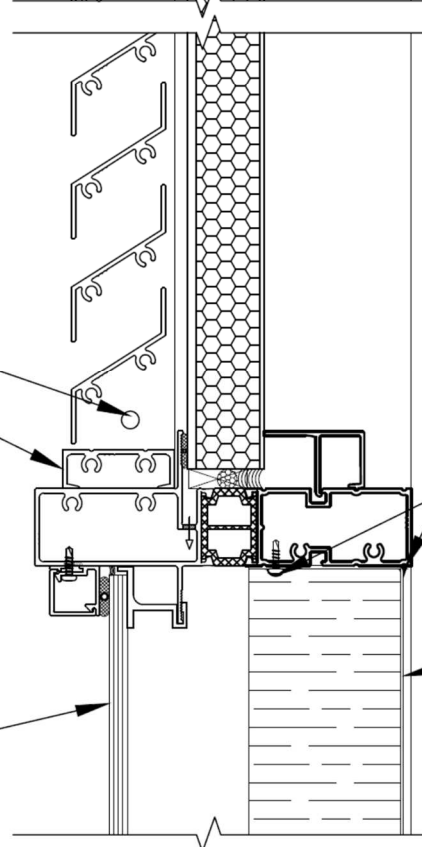
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PG5

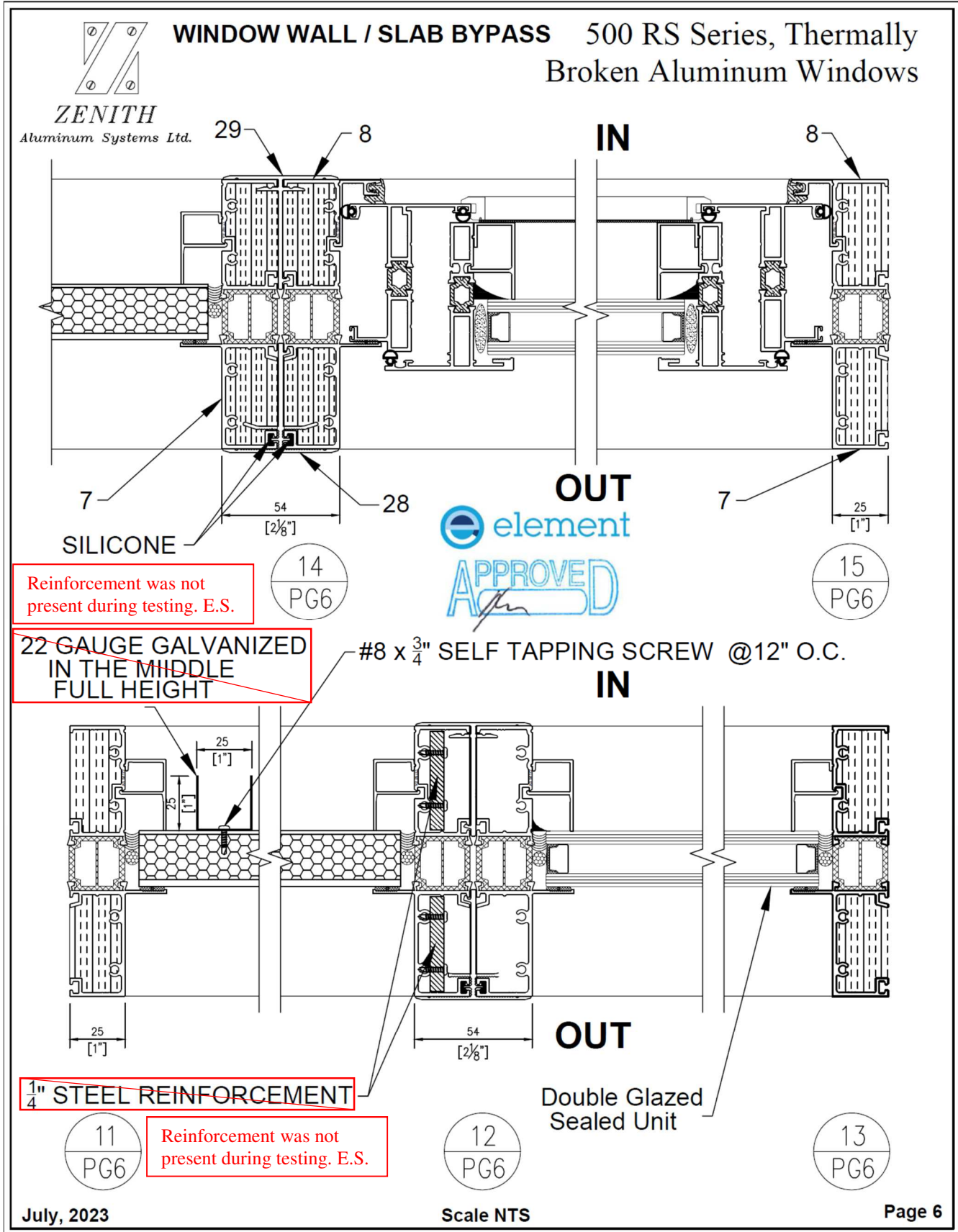
SEALANT B/W FRAME &
BACK PAN AND OVER
FASTENERS

~~22.Ga GALVANIZED~~
BACK PAN

Reinforcement was not present during testing. E.S.

SPANDREL GLASS

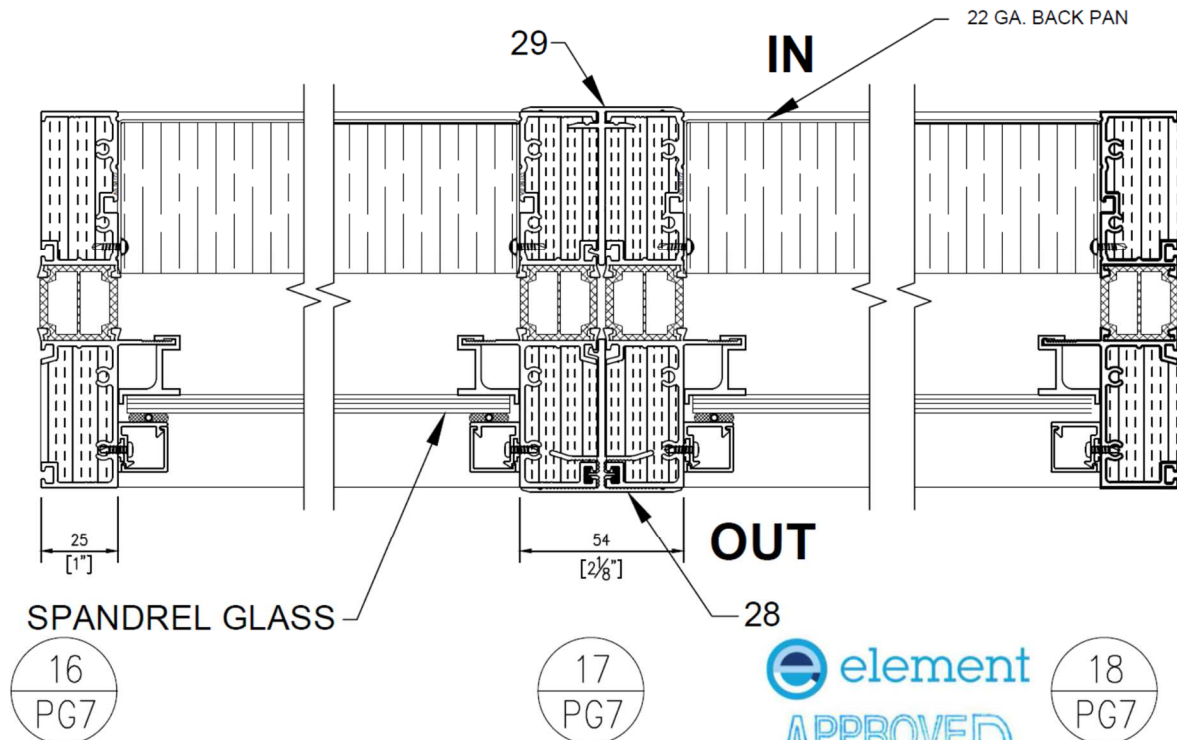
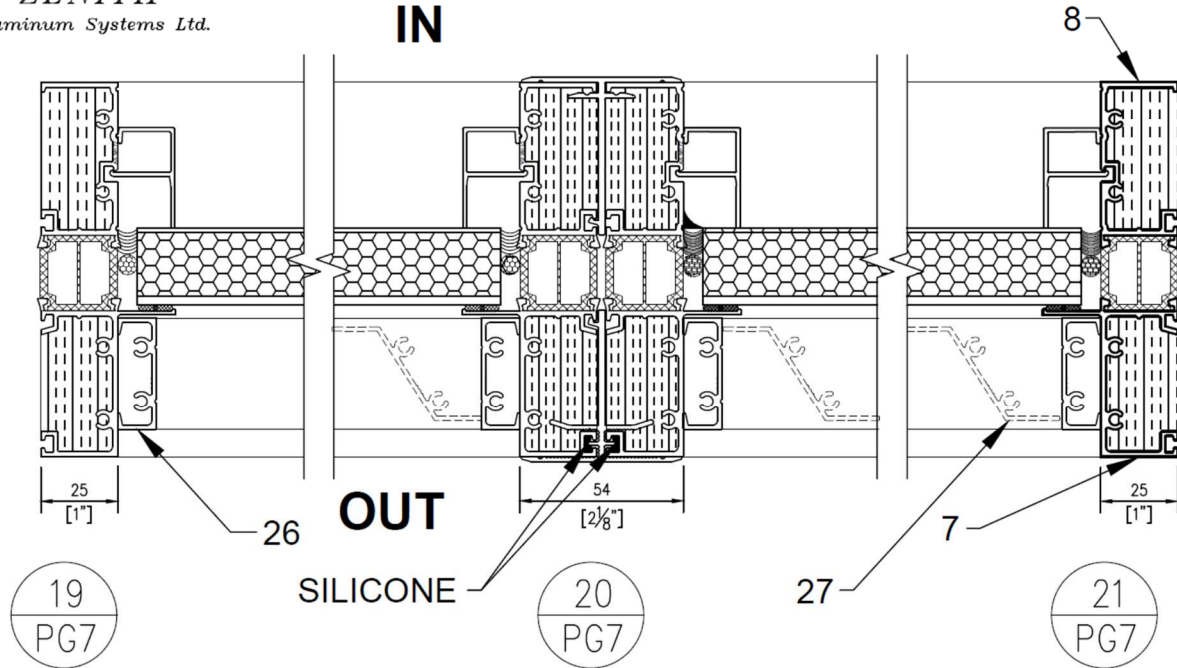






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WINDOW WALL / SLAB BYPASS 500 RS Series, Thermally Broken Aluminum Windows





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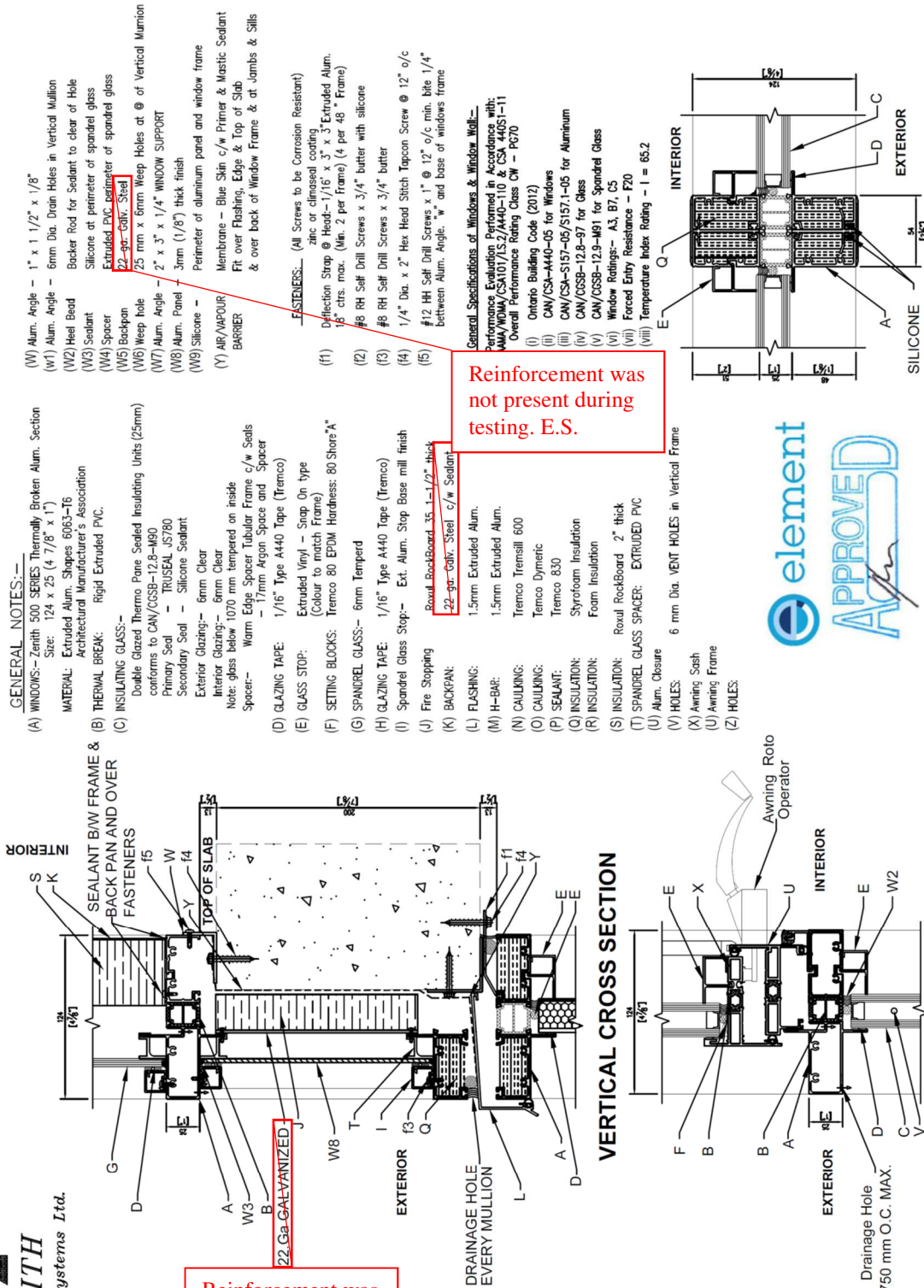
WINDOW WALL / SLAB BYPASS 500 RS Series, Thermally Broken Aluminum Windows



No.	Die No.	Description	Supplier
8	AS58174	Fixed Exterior Male Frame	Hydro Extrusion
2	AS58172	Fixed Interior Male Frame	Hydro Extrusion
4	AH70355	Exterior Mullion with Drainage	Hydro Extrusion
5	AH58170	Interior Mullion	Hydro Extrusion
1	AH70354	Exterior Base Drainage	Hydro Extrusion
6	V630	PVC Glass Stop -for Fixed	Hydro Extrusion
14	AH65002	Awning Exterior Frame	Hydro Extrusion
15	AH64950	Awning Interior Frame	Hydro Extrusion
11	AH65093	Awning Exterior Sash	Hydro Extrusion
12	AH64957	Awning Interior Sash	Hydro Extrusion
16	AH65747	Awning Interior Closure	Hydro Extrusion
	AS65136	Awning Corner Key	Hydro Extrusion
18		Awning Screen	Nap
17	V-731	PVC Glass Stop -for Awning	Rollaway
21		Awning Roto Operator	Nap
		Awning Hinges	Nap
9	V-706	Perimeter Thermal Break	Vinyl Profiles
3	V-707	Mullion thermal Break	Vinyl Profiles
13	V-708	Awnings Thermal Break	Vinyl Profiles
20	V-701	Awning Interior Gasket	Vinyl Profiles
19	V-44	Awning Bulb	Vinyl Profiles
24	AS 5647	Exterior 2-Parts Stop	Hydro Extrusion
23	AS 5646	Interior 2-Parts stop Base	Hydro Extrusion
27	AS 57050	Ext Louver Fin.	Hydro Extrusion
26	AS 56978	Ext Louver Main Frame.	Hydro Extrusion
28	AS 61066	Exterior H - Bar	Hydro Extrusion
29	AS 61077	Interior H -Bar	Hydro Extrusion
21	AS 68201	Head Sill	Hydro Extrusion

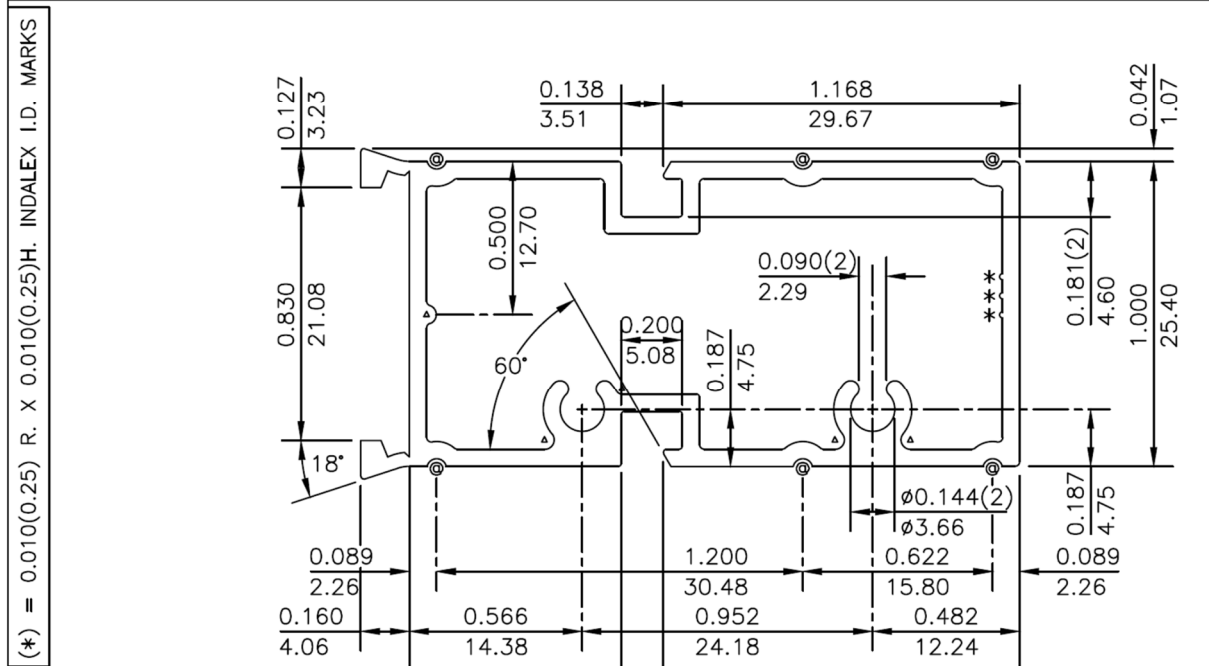
WINDOW WALL / SLAB BYPASS

500 RS Series, Thermally Broken Aluminum Windows

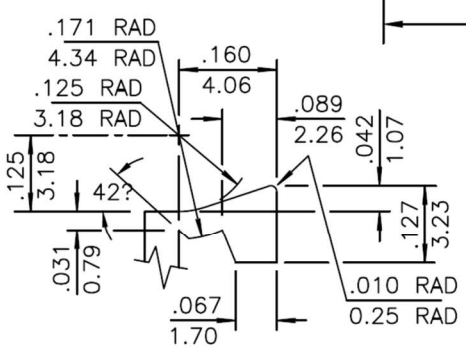




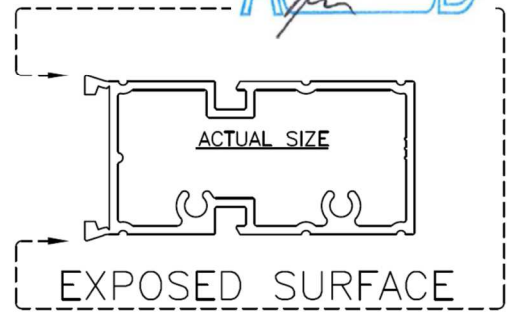
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INDALEX LIMITED 5675 Kennedy Road Mississauga, Ontario L4Z 2H9		DATE	SYM
		REVISION	



DETAIL
4 X F.S.



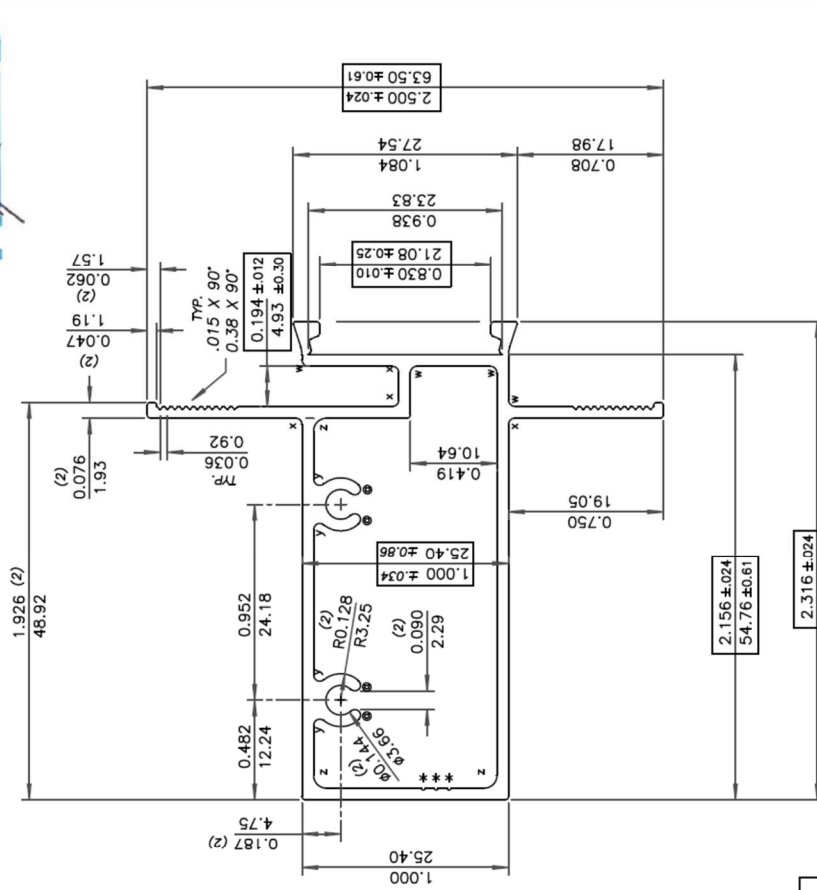
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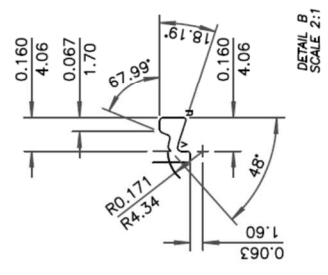
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	±.008 ±0.20 0.056(1.42)		
EST. AREA 0.459 IN ² 296 MM ²	OUT PER. 7.947 IN 202 MM		
EST. WT. 0.550 LBS/FT. 0.819 KG/M	FACTOR 28		
EST. PER. 15.327 IN 389 MM	c.c.d. 2.399 IN 61 MM		
DWN BY <i>[Signature]</i> ALLOY 6063-T5	SCALE 2:1	DATE 07/05/03	
BREAK ALL CORNERS .016"R (0.41 mm)R UNLESS OTHERWISE NOTED.		STANDARD ALUMINUM ASSOCIATION TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED	



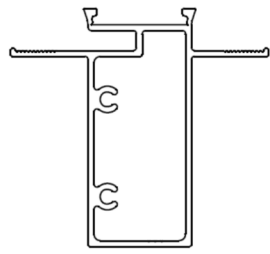
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DESCRIPTION: SAPA 5675 Kennedy Road Mississauga, Ontario L4Z 2H6	7604.21.00.00	AH-70355	1
	DATE:	PROPOSAL#:	REVISION:
		31938-3	



START SLOWLY WITH
SHORT HOT BILLET



NO SURFACES EXPOSED.



- CUSTOMER'S SUPPLY CODE FILE
- UNMARKED RADII = RADIUS TO SUIT
 - BREAK CORNERS = 0.016 (0.41) R.
 - (z) = 0.062 (1.57) R. (3)
 - (y) = 0.030 (0.76) R. (4)
 - (x) = 0.031 (0.79) R. (4)
 - (w) = 0.032 (0.81) R. (4)
 - (v) = 0.125 (3.18) R. (2)
 - (u) = 0.010 (0.25) R. (2)
 - (*) = FULL R. (4)

(*) = 0.010(0.25) R. X 0.010(0.25)D. SAPA I.D. MARKS

sapa:	UNSPECIFIED WALL THICKNESS	±0.006(0.15) S
		±0.056(1.42) H
EST. AREA	0.540 IN ² 348 MM ²	OUT PER. 11.345 IN 288 MM
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OWN BY	Falbo	ALLOY 6063-T6
DATE	14-05-09	

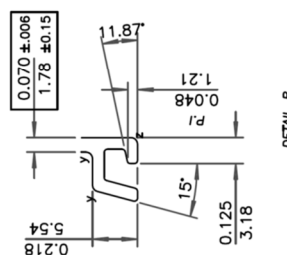
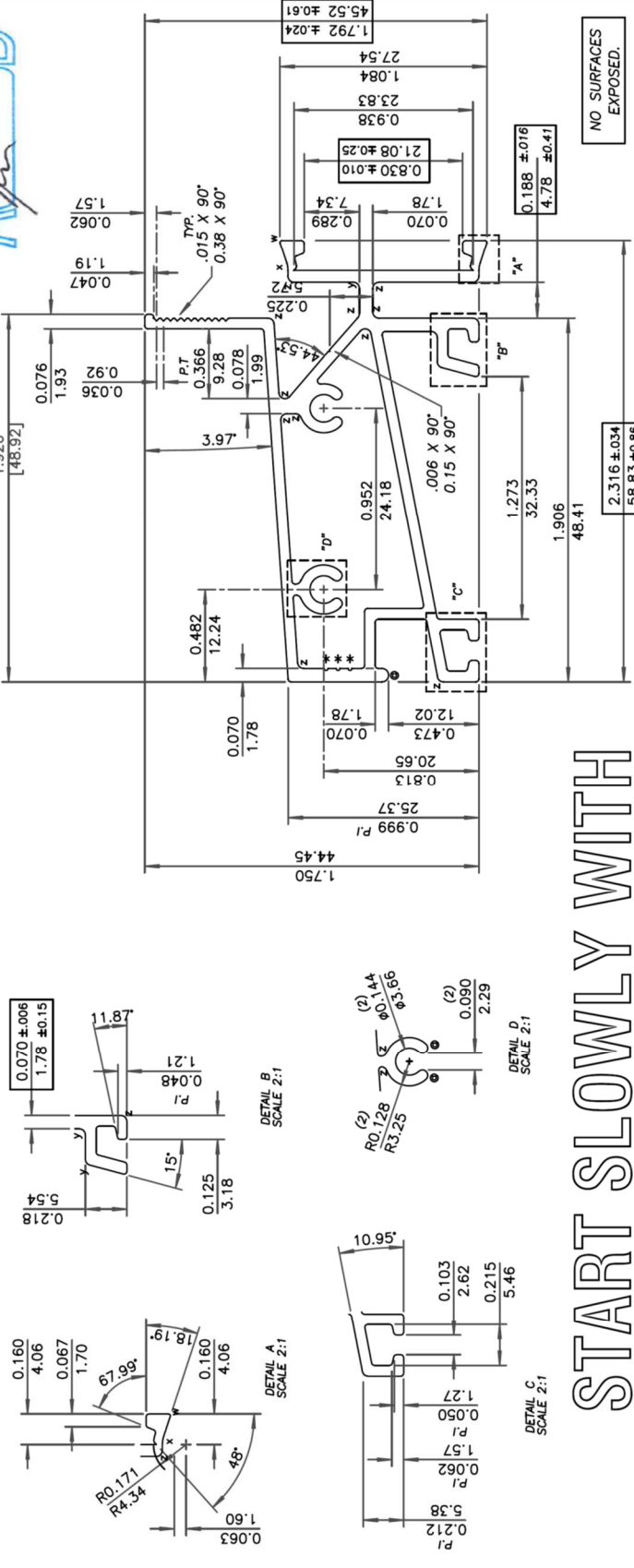
STANDARD ALUMINUM ASSOCIATION TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED



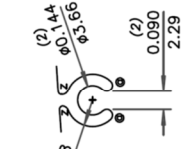


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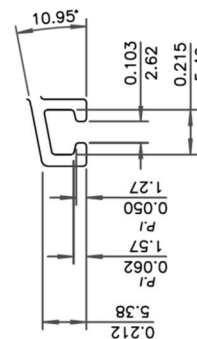
BREAK-THROUGH VERY SLOWLY



DETAIL A SCALE 2:1

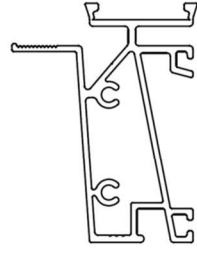


DETAIL B SCALE 2:1



DETAIL C SCALE 2:1

START SLOWLY WITH SHORT HOT BILLET



sapa:	UNSPECIFIED WALL THICKNESS	±0.006(0.15) S
		±0.056(1.42) H
		±0.010(0.25) H
EST. AREA 0.600 IN ² 387 MM ²	OUT PER. 13.776 IN 350 MM	
EST. WT. 0.720 LBS/FT 1.072 KG/M	FACTOR 28	
DWN BY <i>Y. Hahn</i>	ALLOY 6063-T6	SCALE 2:1
	DATE 14-05-09	

UNMARKED RADII = RADIUS TO SUIT
BREAK CORNERS = 0.016 (0.41) R.
(z) = 0.032 (0.81) R. (15)
(y) = 0.031 (0.79) R. (3)
(x) = 0.125 (3.17) R. (2)
(w) = 0.010 (0.25) R. (2)
(Ø) = FULL R. (5)

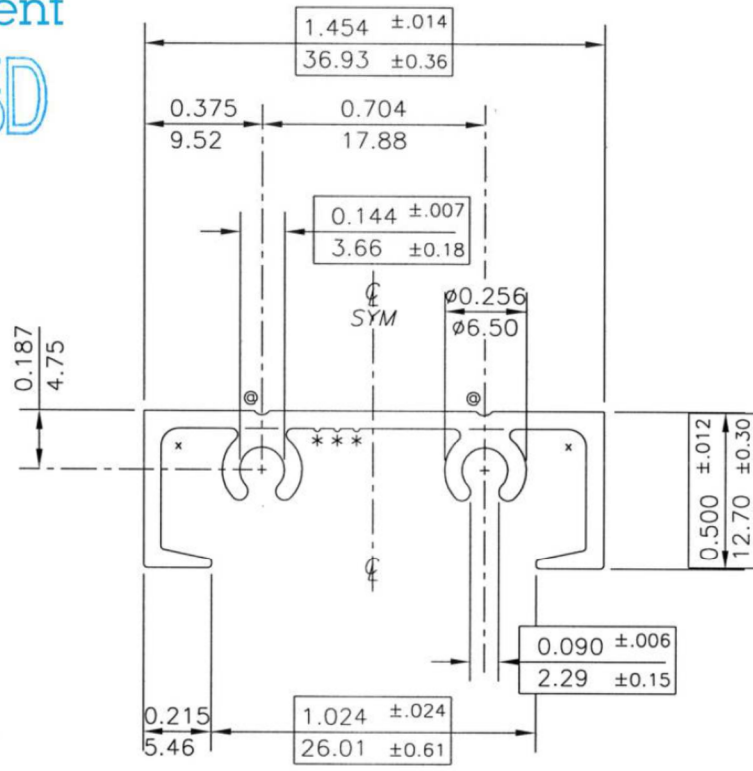
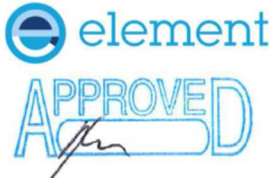
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(*) = 0.010(0.25) R. X 0.010(0.25)D. SAPA I.D. MARKS



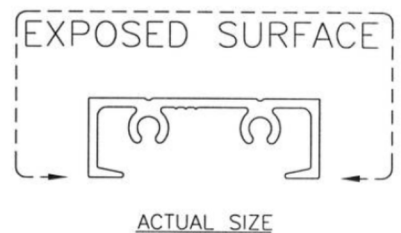
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INDALEX LIMITED 5675 Kennedy Road Mississauga, Ontario L4Z 2H9		DATE	SYM	REVISION

CUSTOMER'S SUPPLIED CAD FILE

(*) = 0.010(0.25) R. X 0.010(0.25)H. INDALEX I.D. MARKS



(⊙) = 0.031(0.79) R. X 0.022(0.56)D. (2)
 (·) = 0.020(0.51) R. (4)
 (x) = 0.056(1.42) R. (2)
 UNMARKED RADII = RADIUS TO SUIT



	UNSPECIFIED WALL THICKNESS	
	0.056(1.42)	
EST. AREA 0.207 IN ² 134 MM ²	OUT PER. - IN - MM	
EST. WT. 0.249 LBS/FT. 0.370 KG/M	FACTOR 28	
EST. PER. 6.989 IN 178 MM	C.C.D. 1.534 IN 39 MM	
DWN BY J.S.	ALLOY 6063-T5	SCALE 2:1 DATE 06/11/02

SAMPLE APPROVAL

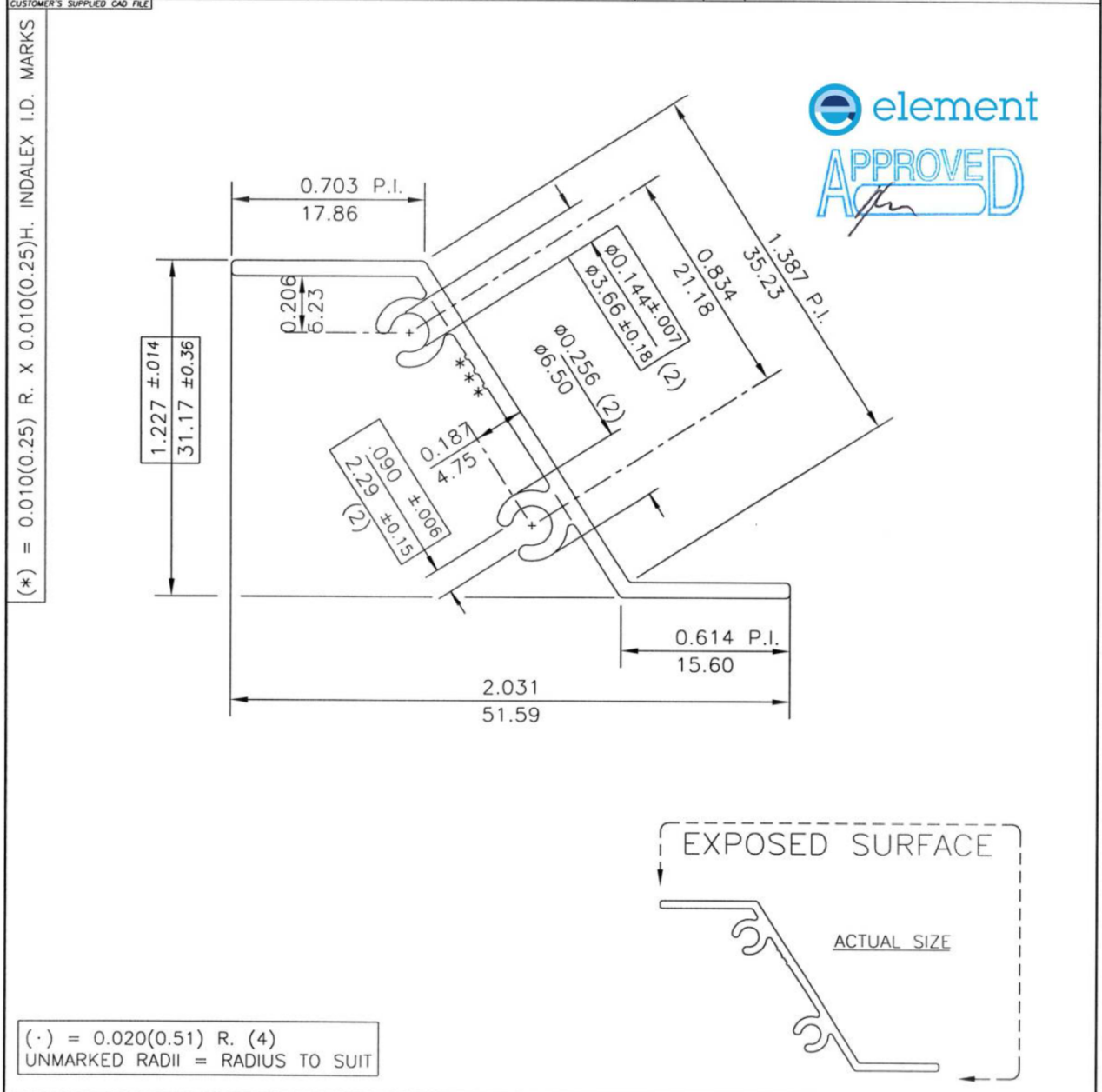
THIS SAMPLE IS APPROVED
 AND INDALEX LIMITED
 MAY PROCEED WITH PRODUCTION


SIGNED: _____
 DATE: _____

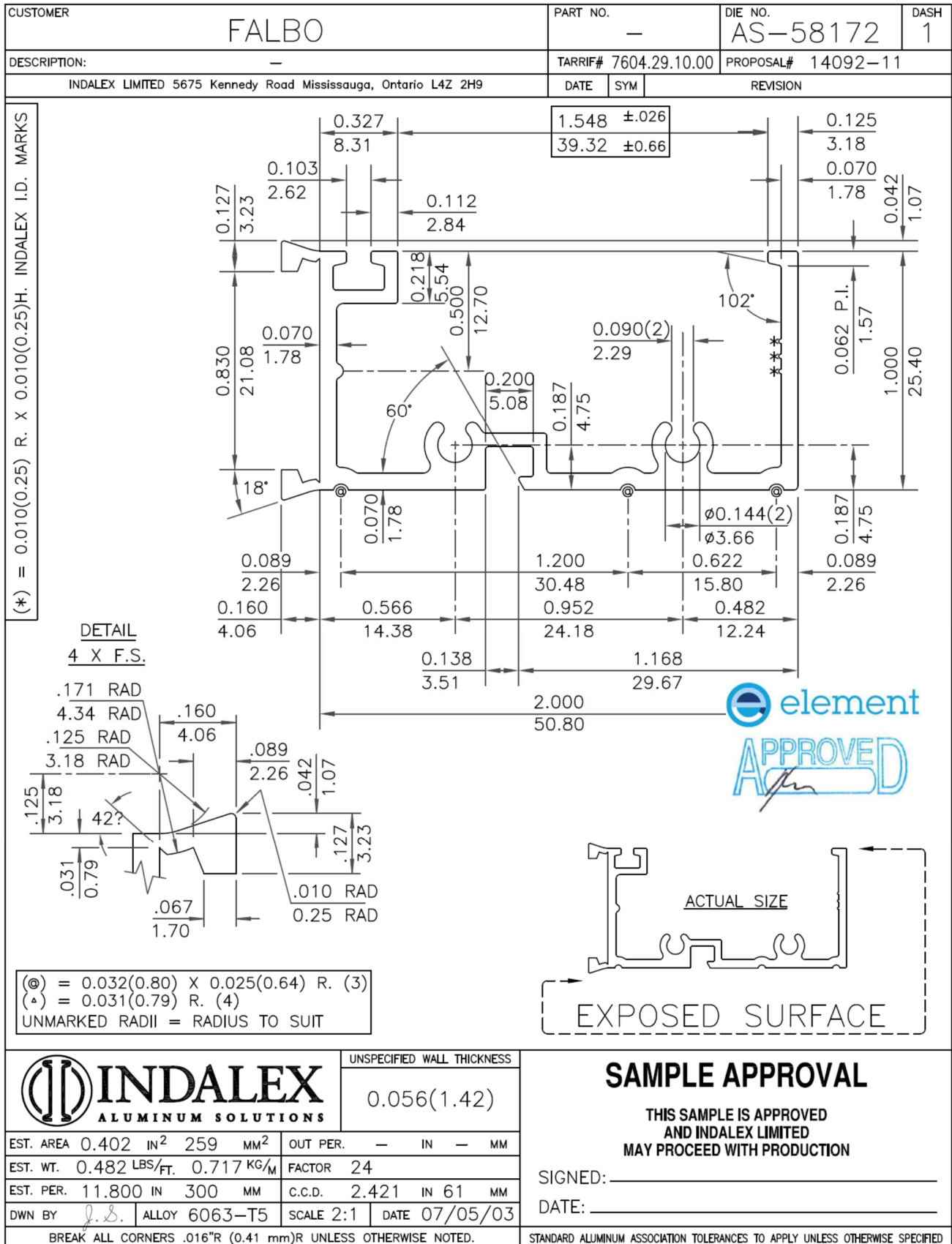
BREAK ALL CORNERS .016"R (0.41 mm)R UNLESS OTHERWISE NOTED.

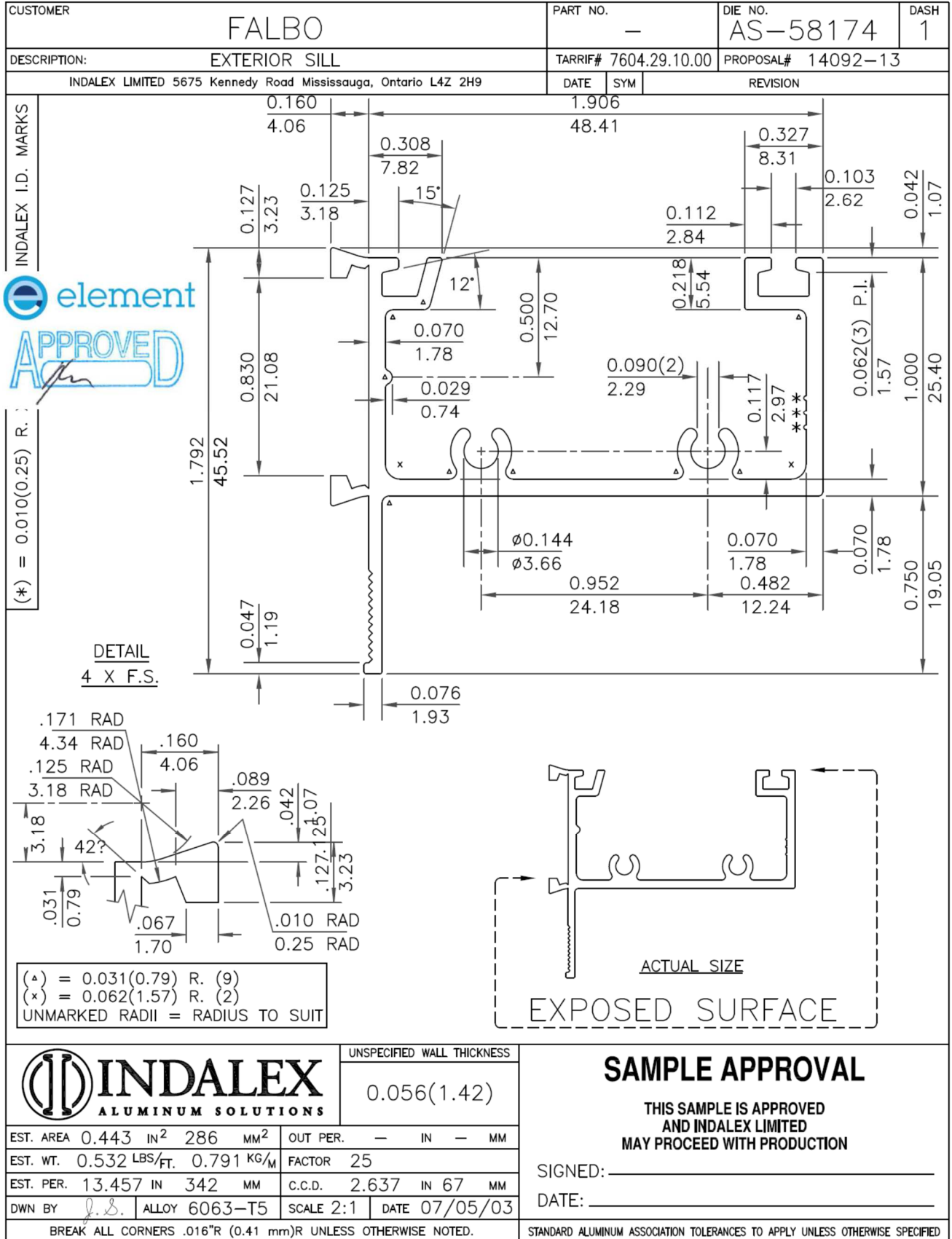
STANDARD ALUMINUM ASSOCIATION TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED

CUSTOMER FALBO ALUMINUM SYSTEMS		PART NO. -	DIE NO. AS-57050	DASH 1
DESCRIPTION: Z-BAR		TARRIF# 7604.29.10.00	PROPOSAL# 13613-5A	
INDALEX LIMITED 5675 Kennedy Road Mississauga, Ontario L4Z 2H9		DATE	SYM	REVISION



		UNSPECIFIED WALL THICKNESS 0.056(1.42)
EST. AREA 0.211 IN ² 136 MM ²	OUT PER. - IN - MM	
EST. WT. 0.253 LBS/FT. 0.376 KG/M	FACTOR 28	
EST. PER. 7.116 IN 181 MM	C.C.D. 2.360 IN 60 MM	
DWN BY <i>J.S.</i>	ALLOY 6063-T5	SCALE 2:1 DATE 06/11/02
BREAK ALL CORNERS .016"R (0.41 mm)R UNLESS OTHERWISE NOTED.		STANDARD ALUMINUM ASSOCIATION TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED



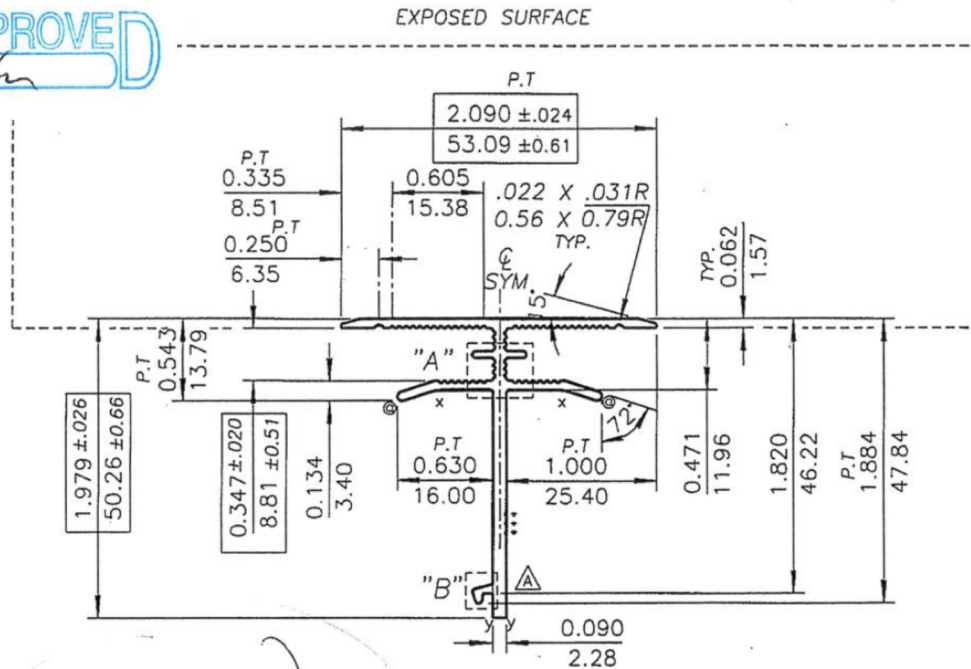




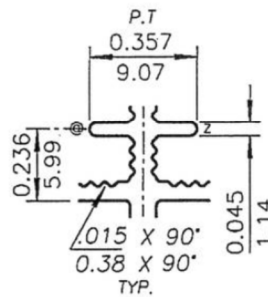
CUSTOMER FALBO ALUMINUM SYSTEMS	PART NO. -	DIE NO. AS-61066	DASH
DESCRIPTION: EXTERIOR H-BAR	TARIFF# 7604.29.10.00	PROPOSAL# 14823-4A	
SAPA 5675 Kennedy Road Mississougo, Ontario L4Z 2H9			
DATE 15-01-06	SYM A	REVISION REMOVED LOWER RIGHT SIDE LEG	BY Angelo



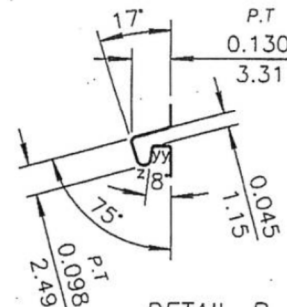
\$ 711



[Handwritten signature]



DETAIL A
 SCALE 2:1



DETAIL B
 SCALE 2:1

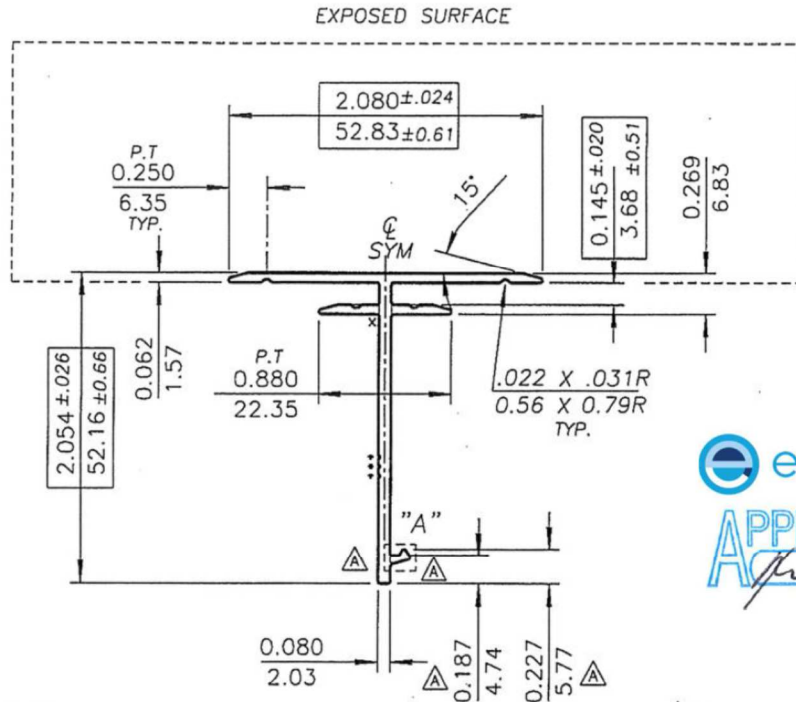
CUSTOMER'S SUPPLIED CAD FILE
 UNMARKED RADII = RADIUS TO SUIT
 BREAK CORNERS = 0.016 (0.41) R.
 (z) = 0.023 (0.57) R. (2)
 (y) = 0.010 (0.25) R. (4)
 (x) = 0.250 (6.35) R. (2)
 (⊙) = FULL R. (3)

(*) = 0.010(0.25) R. X 0.010(0.25)D. SAPA I.D. MARKS

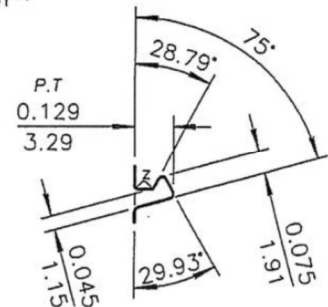
sapa:	UNSPECIFIED WALL THICKNESS	NOTE CHECK OR INDICATE EXPOSED SURFACES, CIRCLE CRITICAL DIMENSIONS INDICATE LOCATION FOR SAPA IDENTIFICATION MARK
	A/S	
AREA 0.376 IN ² 242 MM ²	OUT PER. -- IN -- MM	SHAPE DRAWING APPROVAL PLEASE SIGNIFY BELOW THAT THE SHAPE AND DIMENSIONS CONFORM TO YOUR REQUIREMENTS AND THAT YOU AGREE TO ACCEPT ALL LEGAL RESPONSIBILITIES FOR PATENTS, TRADE MARK, COPYRIGHT, INDUSTRIAL DESIGN OR ANY OTHER INFRINGEMENT RELATING TO THIS SHAPE AND TO INDEMNIFY AND SAVE HARMLESS SAPA FROM ANY CLAIMS, SUITS, ACTIONS OR DEMANDS ARISING THEREFROM. SIGNED BY: _____ DATE: _____
EST. WT. 0.451 LBS/FT. 0.671 KG/M	FACTOR 26	
EST. PER. 11.950 IN 304 MM	C.C.D. 2.501 IN 64 MM	
DWN BY S.B	ALLOY 6063-T5	
SCALE 1:1	DATE 08-02-15	
BREAK ALL CORNERS .016"R (0.41 mm)R UNLESS OTHERWISE NOTED.		STANDARD ALUMINUM ASSOCIATION TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED

CUSTOMER FALBO ALUMINUM SYSTEMS	PART NO. -	DIE NO. AS-61067	DASH
DESCRIPTION: SAPA 5675 Kennedy Road Mississauga, Ontario L4Z 2H9	TARRIF# 7604.29.10.00	PROPOSAL# 14823-5A	
	DATE 15-01-06	SYN A	REVISION REMOVED ONE LEG, CHANGED SHAPE OF DETAIL A 227 WAS .245, .187 WAS .187

\$604



[Handwritten Signature]

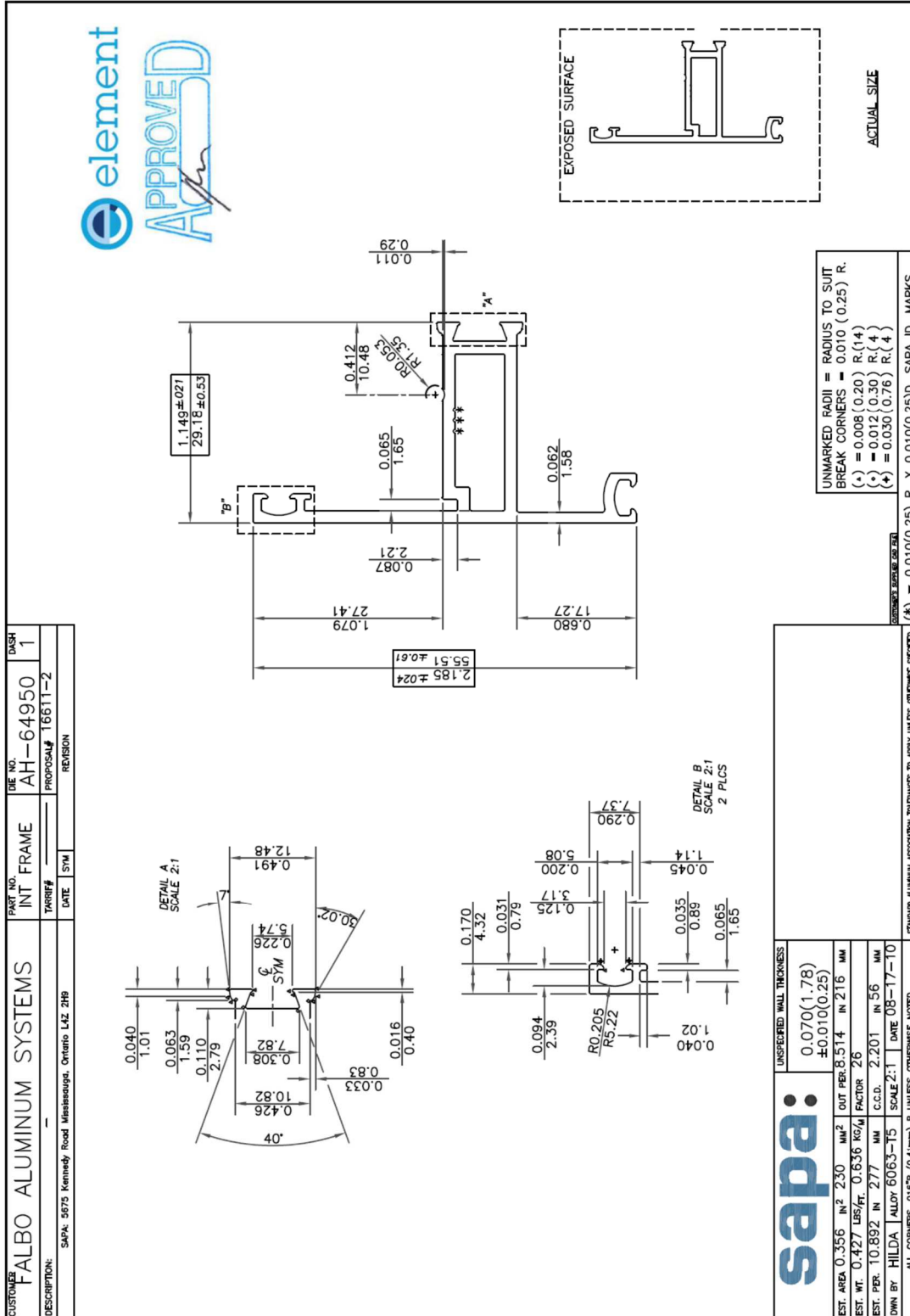


△ DETAIL A
SCALE 2:1

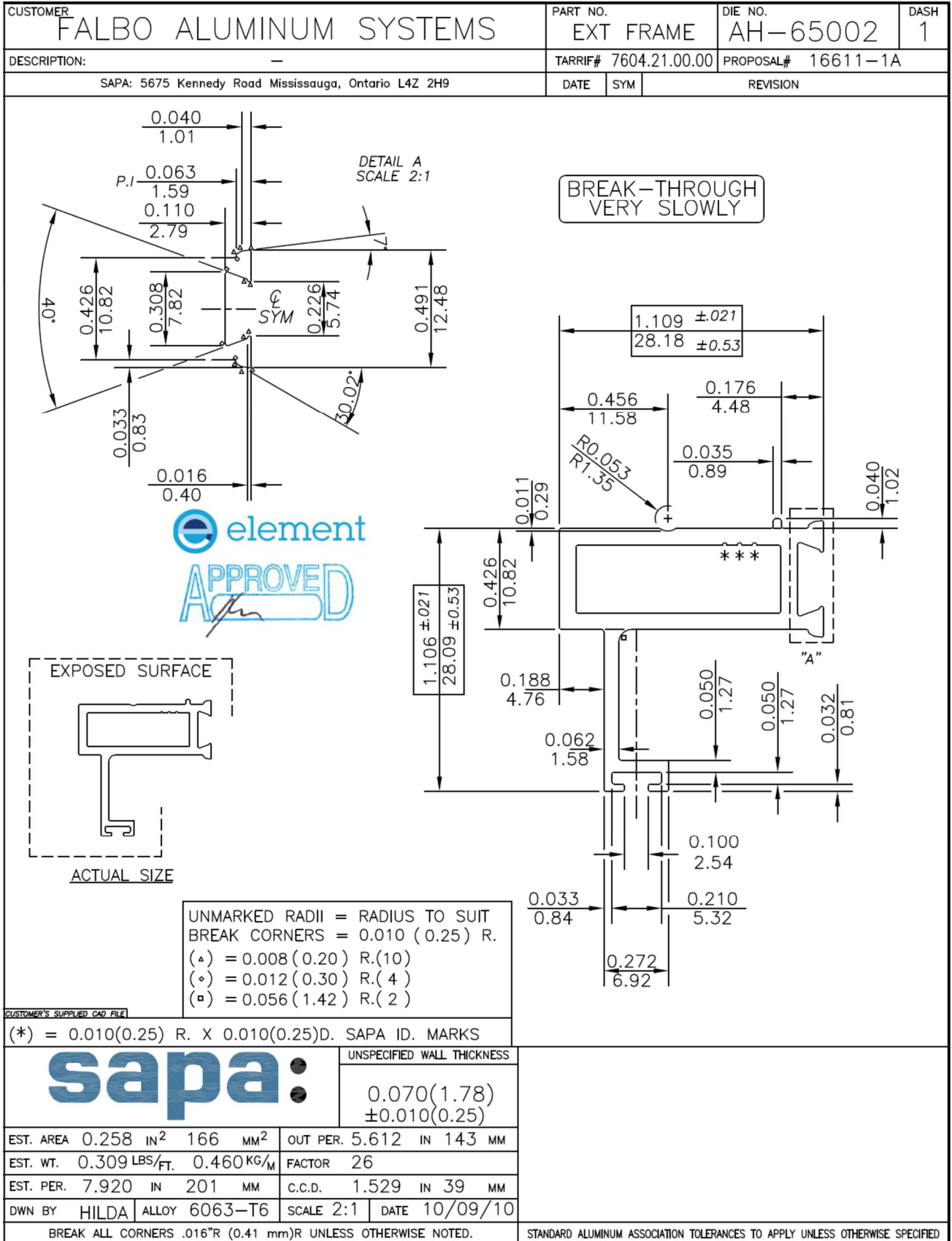
CUSTOMER'S SUPPLIED CAD FILE
UNMARKED RADII = RADIUS TO SUIT
BREAK CORNERS = 0.016 (0.41) R.
(z) = 0.010 (0.25) R. (2)
(x) = 0.015 (0.38) R. (1)

(*) = 0.010(0.25) R. X 0.010(0.25)D. SAPA I.D. MARKS

sapa:	UNSPECIFIED WALL THICKNESS	NOTE	
	A/S	CHECK OR INDICATE EXPOSED SURFACES, CIRCLE CRITICAL DIMENSIONS INDICATE LOCATION FOR SAPA IDENTIFICATION MARK	
AREA 0.332 IN ² 214 MM ²	OUT PER. — IN — MM	SHAPE DRAWING APPROVAL	
EST. WT. 0.398 LBS/FT. 0.593 KG/M	FACTOR 25	PLEASE SIGNIFY BELOW THAT THE SHAPE AND DIMENSIONS CONFORM TO YOUR REQUIREMENTS AND THAT YOU AGREE TO ACCEPT ALL LEGAL RESPONSIBILITIES FOR PATENTS, TRADE MARK, COPYRIGHT, INDUSTRIAL DESIGN OR ANY OTHER INFRINGEMENT RELATING TO THIS SHAPE AND TO INDEMNIFY AND SAVE HARMLESS SAPA FROM ANY CLAIMS, SUITS, ACTIONS OR DEMANDS ARISING THEREFROM.	
EST. PER. 10.004 IN 254 MM	C.C.D. 2.550 IN 65 MM	SIGNED BY:	DATE:
DWN BY S.B	ALLOY 6063-T5	SCALE 1:1	DATE 07-04-24
BREAK ALL CORNERS .016"R (0.41 mm)R UNLESS OTHERWISE NOTED.		STANDARD ALUMINUM ASSOCIATION TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED	



CUSTOMER	FALBO ALUMINUM SYSTEMS	PART NO.	INT FRAME	REV. NO.	AH-64950	DASH	1
DESCRIPTION:	SAPA: 5475 Kennedy Road Mississauga, Ontario L4Z 2H9	TARIFF#		PROPOSAL#	T6611-2		
		DATE	SYM	REVISION			

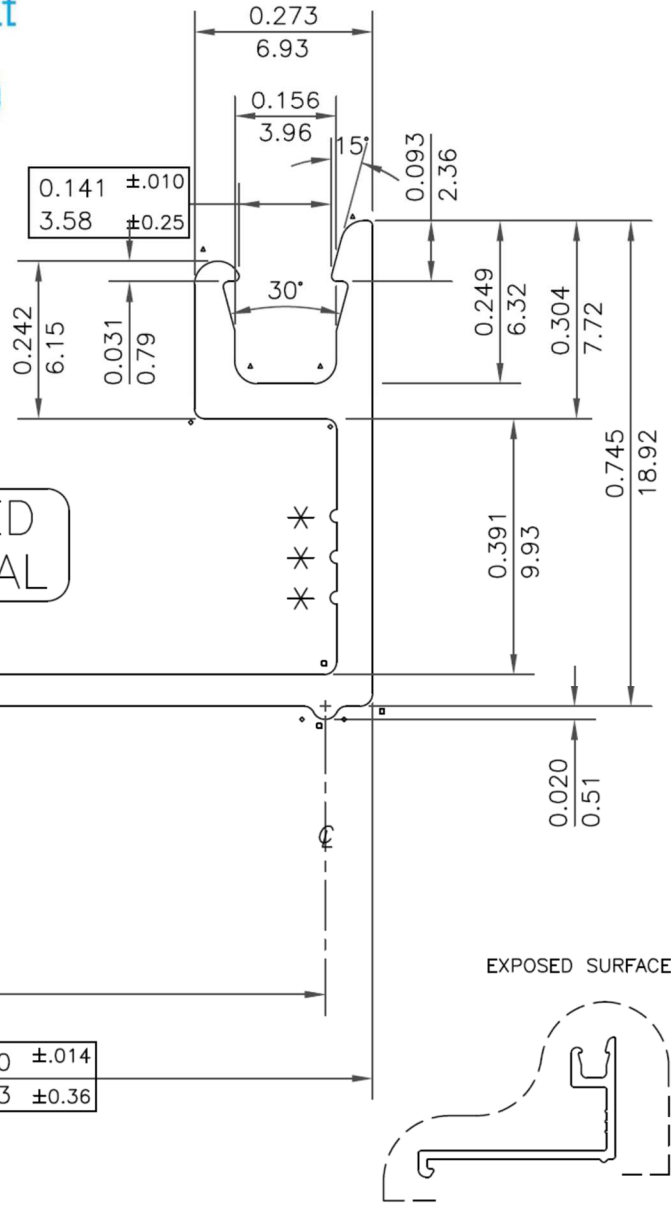




CUSTOMER FALBO ALUMINUM SYSTEMS		PART NO. —	DIE NO. AS-65747	DASH 2
DESCRIPTION: AWNING CLOSER		TARRIF# 7604.29.10.00	PROPOSAL# 16935-1A	
SAPA 5675 Kennedy Road Mississauga, Ontario L4Z 2H9		DATE 11/07/18	SYM A	REVISION .020" NIB REMOVED
				BY S.B.

UNMARKED RADII = RADIUS TO SUIT
 BREAK CORNERS = 0.008 (0.20) R.
 (+) = 0.050 (1.27) R. (1)
 (Δ) = 0.035 (0.89) R. (4)
 (□) = 0.020 (0.79) R. (4)
 (◇) = 0.016 (0.41) R. (2)

CUSTOMER'S SUPPLIED CAD FILE
 FLOW LINES WILL APPEAR

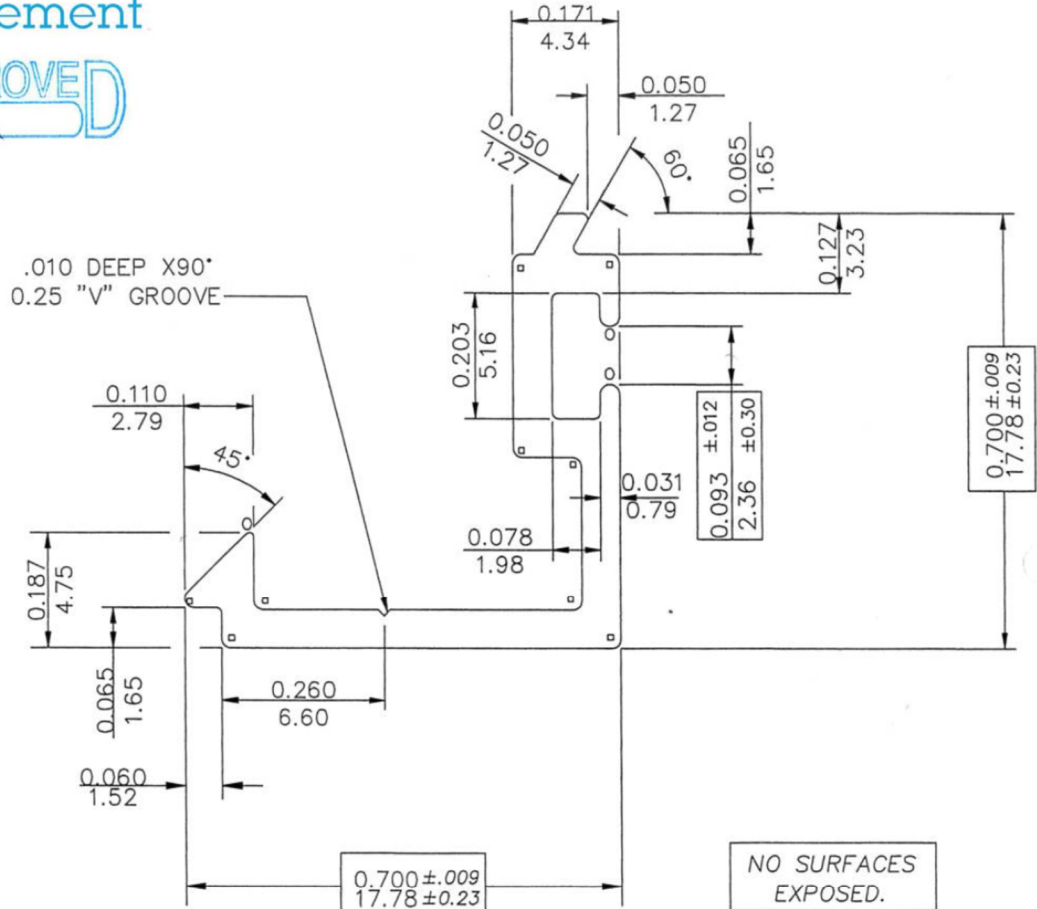
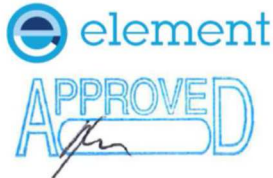


(*) = 0.010(0.25) R. X 0.010(0.25)H. SAPA I.D. MARKS

sapa:	UNSPECIFIED WALL THICKNESS	0.050(1.27) ±0.008(0.20)
	EST. AREA	0.129 IN ² 83 MM ²
EST. WT.	0.155 LBS/FT. 0.231 KG/M	OUT PER. — IN — MM
EST. PER.	4.948 IN 126 MM	FACTOR 32
DWN BY	M.H. ALLOY 6063-T5	C.C.D. 1.459 IN 37 MM
	SCALE 4:1	DATE 11/02/01
BREAK ALL CORNERS .016"R (0.41 mm)R UNLESS OTHERWISE NOTED.		STANDARD ALUMINUM ASSOCIATION TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED



CUSTOMER: INDALEX				PART NO. —		DIE NO. AS-5646		DASH 1	
DESCRIPTION: 2PC STOP - INTERIOR				TARRIF# —		PROPOSAL# —			
INDALEX LIMITED 5675 Kennedy Road Mississauga, Ontario L4Z 2H9				DATE: 07/12/20		SYM: A		REVISION: TOLERANCE ADDED	
NEVER PAINT								S.B.	



UNMARKED RADII = RADIUS TO SUIT
 BREAK CORNERS = 0.010(0.25) R.
 (o) = FULL . R.(3)
 (◻) = .015(0.38) R.(9)

NO SURFACES EXPOSED.



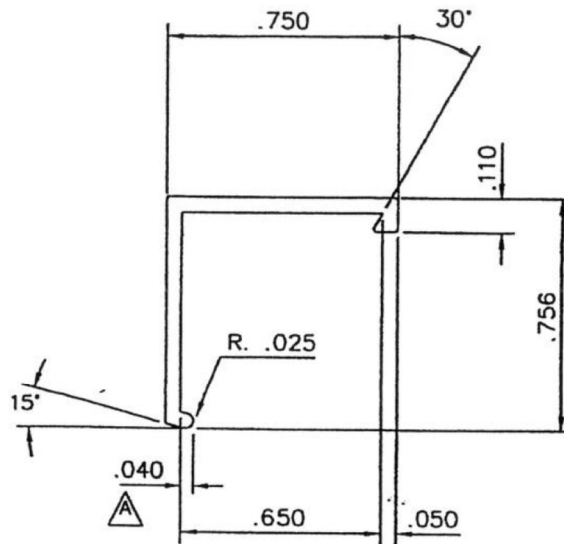
ACTUAL SIZE

NOTE: TO SNAP-FIT WITH AS-5647

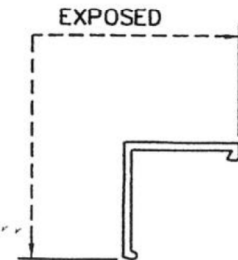
		UNSPECIFIED WALL THICKNESS		SAMPLE APPROVAL THIS SAMPLE IS APPROVED AND INDALEX LIMITED MAY PROCEED WITH PRODUCTION SIGNED: _____ DATE: 5/13/16	
		0.062(1.57) ±0.006(0.15)			
AREA	0.104 IN ² 67 MM ²	OUT PER.	— IN — MM		
WT.	0.125 LBS/FT. 0.186 KG/M	FACTOR	29		
EST. PER.	3.571 IN 91 MM	C.C.D.	0.938 IN 24 MM		
DWN BY	S.B.	ALLOY	6063-T5	SCALE	4:1
			DATE	07/11/77	
BREAK ALL CORNERS .016\"R (0.41mm) R UNLESS OTHERWISE NOTED.				STANDARD ALUMINUM ASSOCIATION TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED	



CUSTOMER	INDALEX	PART NO.	1\2KMISSFNPIDIEDWGS37\5000VAE	
		DIE NO.	AS-5647	DAS
DESCRIPTION:	2 PART STOPS	TARRIF #	7604.29.10.00	PROPOSAL # D5647
		DATE	SYM	REVISION
		82/10/04		WT. RECALC. PA
		90/02/13	△	.040 WAS .015 OUTSIDE



SNAP FIT WITH AS-5646



ACTUAL SIZE

Caradon Indalex		UNSPECIFIED WALL THICKNESS	
TORONTO - MONTREAL - VANCOUVER CALGARY		0.050	
EST. AREA 0.078	IN ² 50	MM ²	OUT PER. IN MM
EST. WT. 0.092	LBS/FT. 0.136	KG/M	FACTOR 35
EST. PER. 3.185	IN 81	MM	C.C.D. 1.049 IN 27 MM
DWN BY S.S	ALLOY 6063-T5	SCALE 2:1	DATE 70/07/25

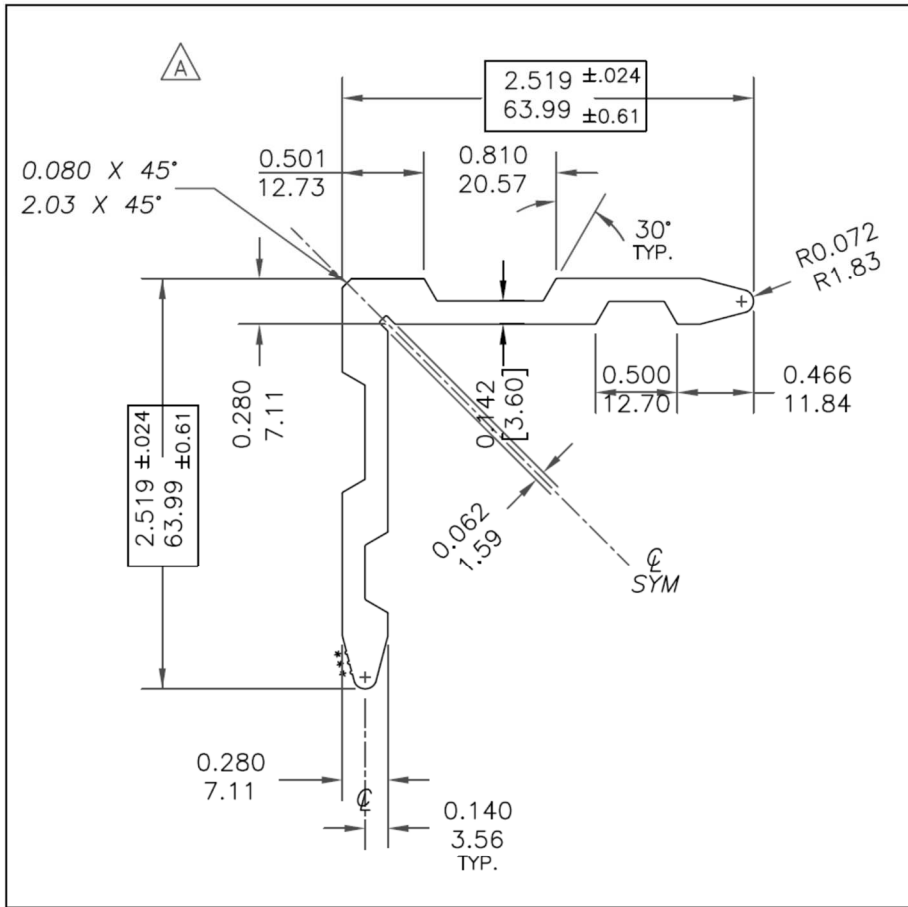
186"

.64328ea.

BREAK ALL CORNERS .010"R (0.25R) UNLESS OTHERWISE NOTED



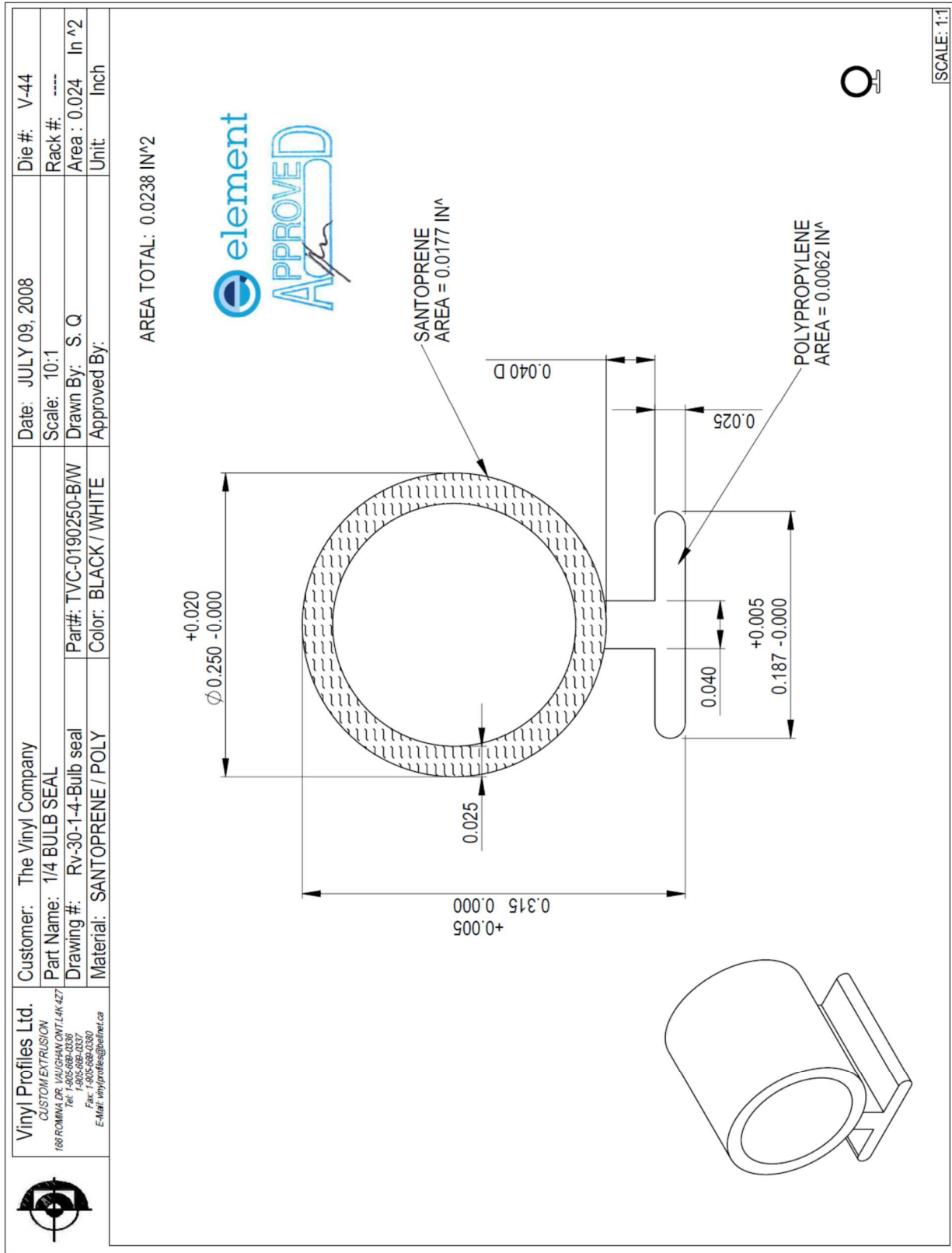
CUSTOMER: FALBO ALUMINUM SYSTEMS		PART NO. CONER KEY	DIE NO. AS-65136	DASH 2
DESCRIPTION: SAPA: 5675 Kennedy Road Mississauga, Ontario L4Z 2H9		TARRIF# 7604.29.10.00	PROPOSAL# 16716-1	
		DATE 11/03/21	SYM Δ	REVISION
<u>CUSTOMER'S SUPPLIED CAD FILE</u>		ENTIRE PROFILE CHANGE AS PER CUST. REQUEST M.H.		

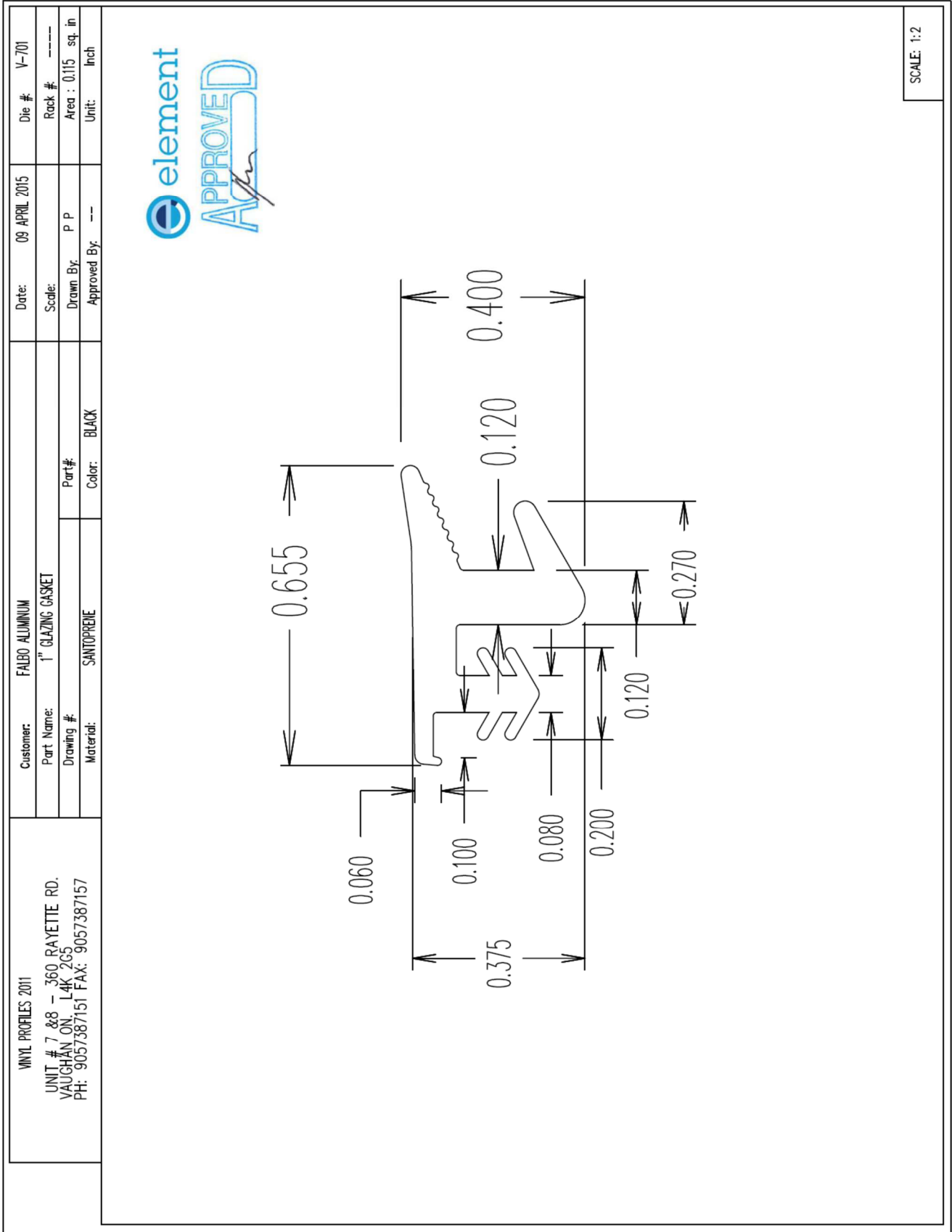


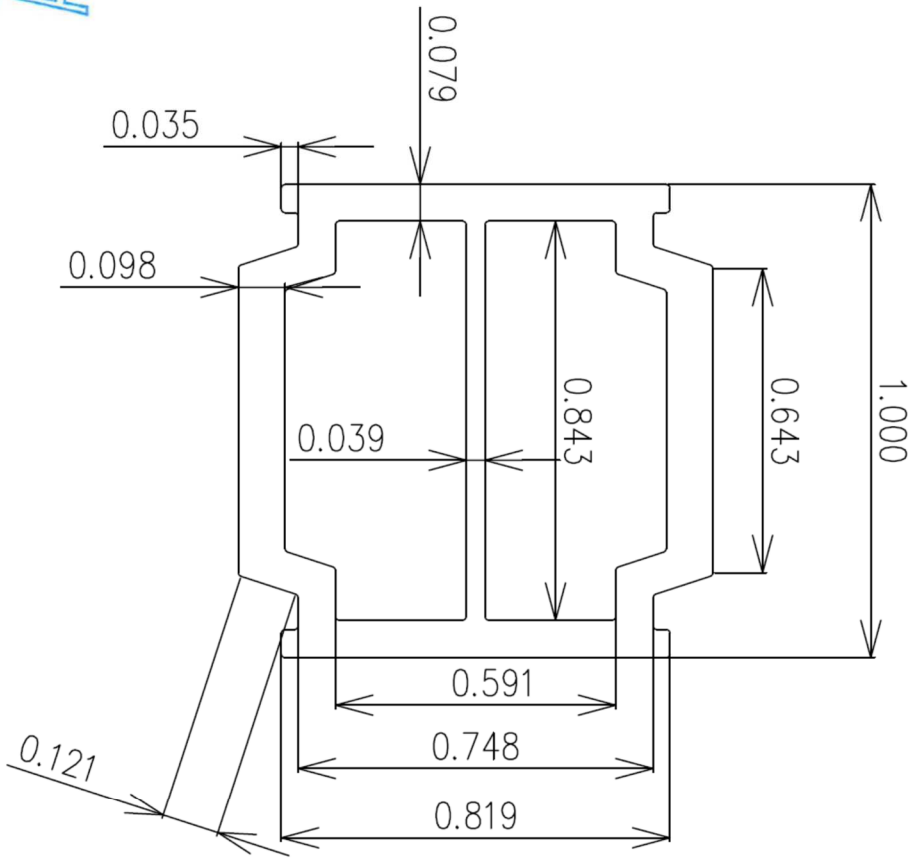
UNMARKED RADII = RADIUS TO SUIT
 BREAK CORNERS = 0.010 (0.25) R.

(*) = 0.010(0.25) R. X 0.010(0.25)H. SAPA I.D. MARKS

sapa:		UNSPECIFIED WALL THICKNESS	
		see above	
EST. AREA 0.959 IN ² 619 MM ²	OUT PER. — IN — MM		
EST. WT. 1.151 LBS/FT. 1.713 KG/M	FACTOR 9		
EST. PER. 10.470 IN 266 MM	C.C.D. 3.488 IN 89 MM		
DWN BY HILDA	ALLOY	SCALE 1:1	DATE 10-10-8
BREAK ALL CORNERS .016"R (0.41 mm)R UNLESS OTHERWISE NOTED.		STANDARD ALUMINUM ASSOCIATION TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED	



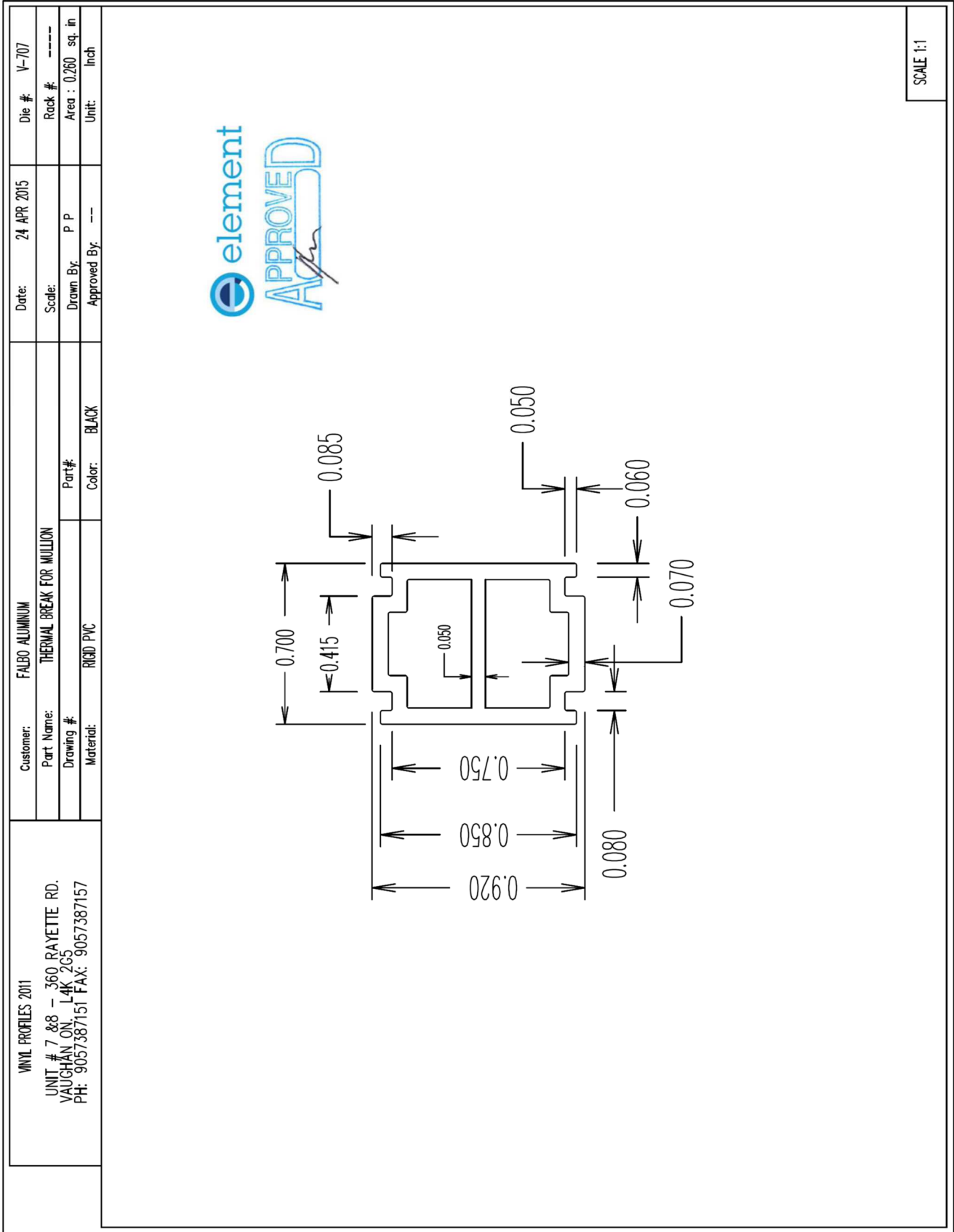


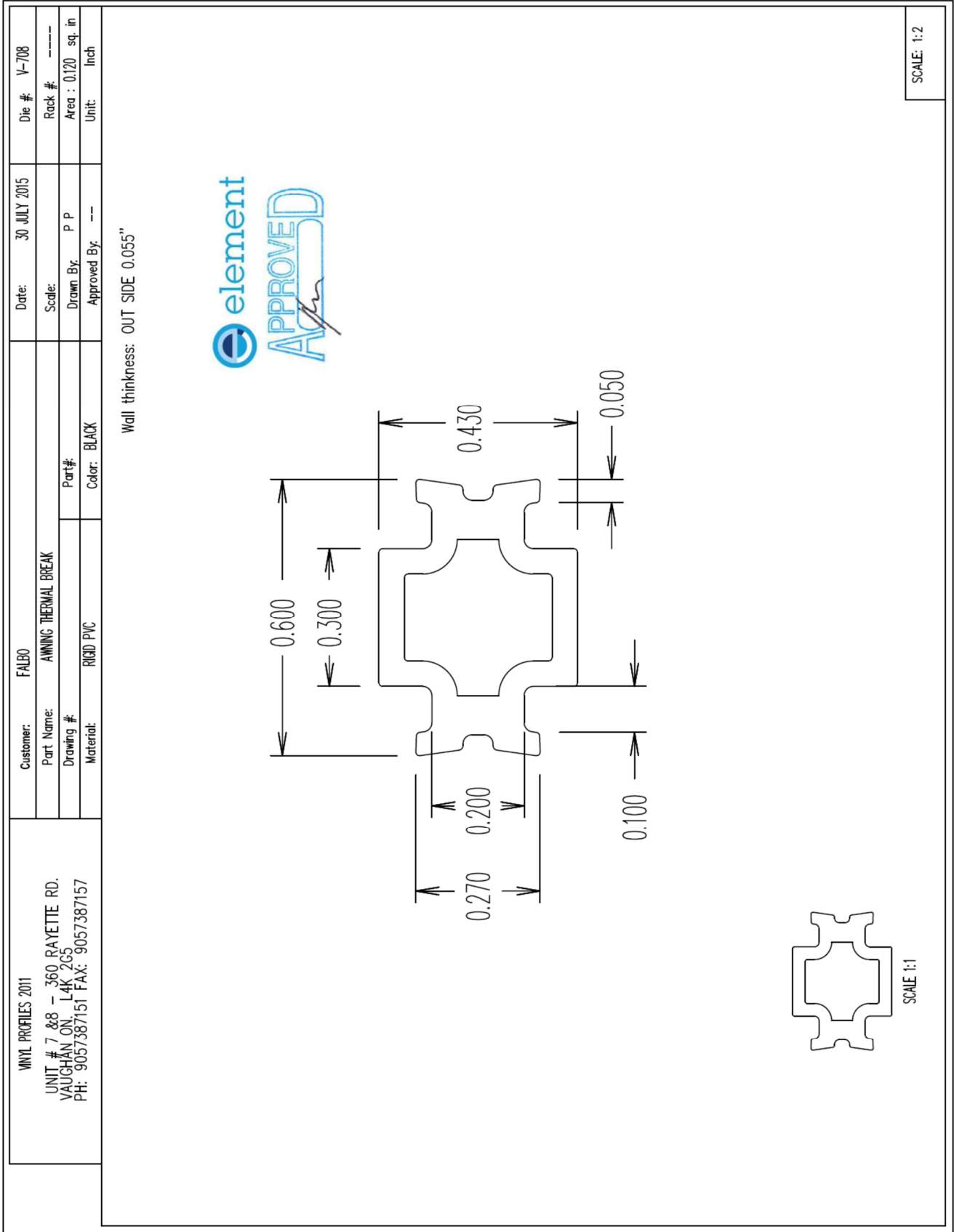


MMI PROFILES 2011
 UNIT # 7 & 8 - 360 RAVETTE RD.
 VAUGHAN, ON L4K 2G5
 PH: 9057387151 FAX: 9057387157

Customer:	FALBO ALUMINUM	Date:	24 MAY 2016	Die #:	V-706
Part Name:	1" T BREAK FOR MAIN FRAME	Scale:		Rock #:	----
Drawing #:		Drawn By:	P P	Area:	0.300 sq. in
Material:	RIGID PVC	Approved By:	--	Unit:	Inch
		Color:	BLACK		

SCALE 1:1

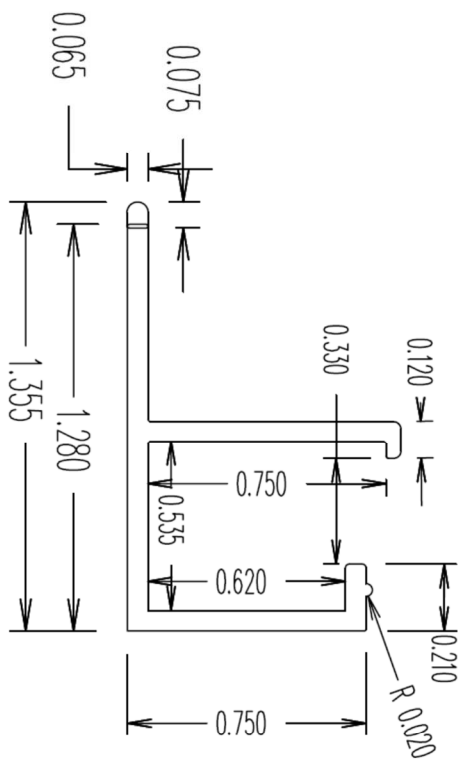






WNWL PROFILES 2011 UNIT # 7 & 8 - 360 RAYETTE RD. VAUGHAN ON. L4K 2G9 PH: 9057387151 FAX: 9057387157		Customer:	FALBO ALUMINIUM	Date:	27 JULY 2015	Die #:	V-630
		Part Name:	1" GLAZING STOP	Scale:		Rack #:	----
		Drawing #:		Drawn By:	P P	Area:	0.200 sq in
		Material:	DUAL PVC	Color:	WHITE AND BLACK	Approved By:	---
						Unit:	Inch

Wall thickness: 0.065 "



SCALE: 1:1