

ALIPLAST sp. Z o.o.

TEST REPORT

TEST REPORT ISSUED TO

Aliplast sp. Z o.o.
Waclawa Moritza 3
20-276 Lublin
Poland

SPECIFICATION

AAMA/WDMA/CSA 101/I.S.2/A440-11
AAMA/WDMA/CSA 101/I.S.2/A440-17
A440S1-17

PRODUCT SERIES & TYPE

UltraGlide Series Sliding Door

PRIMARY DESIGNATION

Class CW – PG50 – Size Tested 3000 x 2500 mm (118 x 98 in) – Type SD

SECONDARY DESIGNATION

Positive Design Pressure = 2400 Pa (50.1 psf)
Negative Design Pressure = 2400 Pa (50.1 psf)
Water Penetration Resistance = 440 Pa (9.2 psf)
Canadian Air Leakage Resistance = A3

REPORT NUMBER

103682459COQ-001C

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16-May-2019

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TEST REPORT FOR ALIPLAST sp. Z o.o.


Report No.: 103682459COQ-001C


Date: 16-May-2019

CONCLUSION

The UltraGlide Series Sliding Door System, submitted by Aliplast sp. Z o.o., tested and described within this report, achieved the overall performance requirements of **Class CW – PG50** when tested in accordance with NAFS-11, NAFS-17 and A440S1-17.

For INTERTEK B&C:

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SECTION 1
SUMMARY OF RESULTS

A summary of results for AAMA/WDMA/CSA 101/I.S.2/A440-11 “Standard/Specification for windows, doors, and unit skylights”, AAMA/WDMA/CSA 101/I.S.2/A440-17 “Standard/Specification for windows, doors, and unit skylights”, A440S1-17 “Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for windows, doors, and skylights”, are as indicated in the table below:

Evaluation Property	Results
Operational Force	US – Pass; Can – Pass
Air Leakage Resistance @ 75 Pa (1.6 psf)	US – Pass; Can – A3
Water Penetration Resistance	440 Pa (9.2 psf)
Uniform Load – Deflection	2400 Pa (50.1 psf)
Uniform Load – Structural	3600 Pa (75.2 psf)
Forced Entry Resistance	Gr.20
Deglazing Test	Pass
Thermoplastic Corner Weld Test	N/A
Insect Screen Serviceability	N/A

Details of the tested results can be found in Section 7 of this report.

Primary and Secondary Designations are as indicated below:

<p>UltraGlide Series Sliding Door Class CW – PG50 – Size Tested 3000 x 2500 mm (118 x 98 in) – Type SD</p> <p>Secondary Designator Positive Design Pressure = 2400 Pa (50.1 psf) Negative Design Pressure = 2400 Pa (50.1 psf) Water Penetration Resistance = 440 Pa (9.2 psf) Canadian Air Leakage Resistance = A3</p>

SECTION 2

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SECTION 3

OBJECTIVE

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for **Aliplast sp. Z o.o.** (Aliplast) on a 3000 mm (118.1”) x 2500 mm (98.4”) UltraGlide Series Sliding Door System. Testing was conducted in accordance with following standard / specification:

- AAMA/WDMA/CSA 101/I.S.2/A440-11 “Standard/Specification for windows, doors, and unit skylights” (NAFS-11)
- A440S1-17 “Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for windows, doors, and skylights” (A440S1-17)
- AAMA/WDMA/CSA 101/I.S.2/A440-17 “Standard/Specification for windows, doors, and unit skylights” (NAFS-17)

This evaluation was started on March 6, 2019 and completed on April 12, 2019.

SECTION 4

SAMPLE ASSEMBLY AND DESCRIPTION

Manufacturer Information	Aliplast sp. Z o.o. Waclawa Moritza 3 20-276 Lublin Poland
Model Name	<ul style="list-style-type: none"> • UltraGlide Series Sliding Door
Installation	<ul style="list-style-type: none"> • Test Buck: Welded steel box frame, made from 4x pieces of 4” x 4” x 3/16” steel box beam. A wood frame made from nominal 2x4 spf was used on the interior face of the steel box frame to an additional 1-1/2” spacing away from the test wall. <ul style="list-style-type: none"> • Specimen to Buck: <ul style="list-style-type: none"> • Fasteners secured into the buck with #6 x 1” stainless steel self-tapping flat-head screws spaced approximately 304 mm – 356 mm (12”-14”) o.c. • Silicone was used to seal around the exterior perimeter to the test buck.
Size	<ul style="list-style-type: none"> • Overall Size: <ul style="list-style-type: none"> • Width: 3000 mm (118.1”) • Height: 2500 mm (98.4”)

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<p>Frame</p>	<ul style="list-style-type: none"> • Material: Thermally broken aluminum profiles • Corners: Mitred with aluminum inserts • Reinforcement: None • Polystyrene foam was used to fill in the thermal break cavities • Snap-in aluminium fixed track (head, jamb and sill) cover on the exterior side.
<p>Operable Sash Panel</p>	<ul style="list-style-type: none"> • Material: Thermally broken aluminum profiles • Corners: Mitred with aluminum inserts • Sash Size: <ul style="list-style-type: none"> • Width: 1520 mm (59.8") • Height: 2405 mm (94.7") • Reinforcement: None • Polystyrene foam was used to fill in the thermal break cavity
<p>Fixed Panel</p>	<ul style="list-style-type: none"> • Material: Thermally broken aluminum profiles • Corners: Mitred with aluminum inserts • Sash Size: <ul style="list-style-type: none"> • Width: 1520 mm (59.8") • Height: 2405 mm (94.7") • Reinforcement: None • Polystyrene foam was used to fill in the thermal break cavity
<p>Locks and Hardware</p>	<ul style="list-style-type: none"> • A multi-point lock and hinge system controlled through a single 2-stage lock handle set located approximately at mid-span of the lock stile <ul style="list-style-type: none"> • Lock assembly secured to the panel stiles and rails with factory provided fasteners at pre-determined locations • Keepers: 5x keepers, secured to the main frame in respect to the lock pin locations on the sash • 4x sets of rollers near corners, 2x each for the top and bottom rails • 2x sash stops with rubber bumper, 1x each fastened to the top and bottom rails of the fixed panel
<p>Drainage</p>	<ul style="list-style-type: none"> • The operable panel track drains into sill through 4x holes approximately 114 mm (4-1/2") and 1321 mm (52") away from the corners. A check ball valve like insert was installed into each of the holes. • Sill drains out through 4x drain holes, 8 mm (5/16") diameter, in sets of 3, approximately 152 mm (6"), 749 mm (29-1/2"), 1349 mm (53-1/8") and 2254 mm (88-3/4") from the lock jamb, each fit with a snap-in plastic hooded drain gate insert • Glazing cavities drains out through 2x slots, 32 mm x 5 mm (1-1/4" x 3/16"), along the bottom rails of both the operable and fixed panels, approximately 318 mm (12-1/2") away from the ends. The slots are fitted with a plastic insert.

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Weather-strip	<ul style="list-style-type: none"> • Kerf inserted double fin (black fabric) and pile weather-strip along the top and bottom rails and lock stile on the inside of both sidewalls of the operable and fixed panels • Kerf inserted double fin (black fabric) and pile weather-strip along the face of both the fixed and operable interlock stiles. • Kerf inserted double fin (black fabric) and pile weather-strip around the perimeter of the sash opening of the main frame
Glazing	<ul style="list-style-type: none"> • IGU specification: <ul style="list-style-type: none"> • Press Glass, 6 mm / 6 mm clear tempered with a 16 mm Warm-Edge Spacer (Chromatech Ultra, Black 9004), sealed together using hot melt butyl. • Overall thickness, 28 mm (~1-1/8") • Glazing Blocks: 8x plastic setting blocks, snapped into place approximately 51 mm (2-1/2") from each corner. Foam strips were installed in the gaps between the glazing blocks and between the glazing blocks and edge to the frame. • Laid-in, interior glazed on top of a full perimeter of an EPDM gasket, applied as a single length, turned around the corner with the joint at the mid-point of the top rail. • Glazing Stops: Aluminum, snap-in with EPDM compression gasket
Drawings	<ul style="list-style-type: none"> • Copy of drawings supplied by Aliplast sp. Z o.o. included in Appendix A.

SECTION 5

TESTING AND EVALUATION METHODS

OPERATING FORCE

The Operating Force test was performed on the sash and latch in accordance with ASTM E2068-00(2016). The forces required initiate motion of the operable panel from both the fully open and fully closed positions, as well as the force required to maintain motion to the opposite limits of travel, were measured. The forces required to open and close the latches were also recorded.

AIR LEAKAGE RESISTANCE

The Air Leakage Resistance test was performed in accordance with 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”*. Air infiltration and exfiltration tests were performed using test pressures of 75 Pa (1.57 psf). The maximum air leakage rate was calculated and compared to the allowable air leakage.

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WATER PENETRATION RESISTANCE

A four-cycle Water Penetration Resistance test was performed in accordance with 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 E547). The test was performed using the specified pressure differential and a water spray rate of at least 204 L/m² per hour (5.0 U.S. gal/ft² per hour). Each cycle consisted of five minutes with the pressure applied and one minute with the pressure released, during which the water spray was continuously applied.

UNIFORM LOAD DEFLECTION

The Uniform Load Deflection tests were conducted in accordance with ASTM E330/E330M-14 *“Standard Test Method for Structural Performance of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference”* (ASTM E330), Procedure A. The tests were performed in both the positive and negative directions. After a 10 second preload (50% of the test load), followed by 1 minute with the pressure released, the tests were conducted at the specified test pressure for a period of 10 seconds. Deflections were measured at the mid-span and at the ends. The end deflections were averaged and subtracted from the mid-span deflection (to eliminate deflections caused by movement at the ends of the structural supporting members). Polyethylene film was used during the positive wind pressure sequences.

UNIFORM LOAD STRUCTURAL

The Uniform Load Structural tests were conducted in accordance with ASTM E330/E330M-14 *“Standard Test Method for Structural Performance of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference”* (ASTM E330), Procedure A. After a 10 second preload (50% of test load), followed by 1 minute with the pressure released, the sample was subjected to a Uniform Load Structural test using a specified test pressure for a time of 10 seconds. The test was performed in both the positive and negative directions. After the test loads were released, the permanent deflections were recorded and the specimen was inspected for failure or permanent deformation of any part of the system that would cause any operational malfunction. Polyethylene film was used during the positive wind pressure sequences.

FORCED ENTRY RESISTANCE

The Forced-entry Resistance Test was conducted in accordance with ASTM F842-14 *“Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing Impact”*. This included the Disassembly, Sash Manipulation, Lock Hardware Manipulation, and Assembly Tests.

DEGLAZING TEST

The deglazing test was conducted in accordance with Section 5.3.6.3 of NAFS-08 and Section 9.3.6.3 of NAFS-11. After the test loads were removed, the specimen was inspected for any damage that would inhibit the normal operation of the system.

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THERMOPLASTIC CORNER WELD TEST

Test not applicable.

INSECT SCREEN SERVICEABILITY

Test not applicable.

DEVIATION FROM STANDARD METHOD

There were no noted deviations from the test standards used in the evaluation reported herein.

SECTION 6

TEST EQUIPMENT

Equipment used during testing is listed as follows:

Test	Equipment	Intertek ID#	
Air Leakage Resistance, Water Penetration Resistance, and Uniform Load Deflection / Structural	Fenestration Testing Control Unit	60650	
	Water spray assembly	60651	
		60652	
		60653	
	20" Line Gauge	60673	
		64928	
		64926	
	Forced-entry Resistance	Hydraulic Ram & Pump	D2701
			D2702
D2703			
Deglazing	Digital Force Gauge	D2710	
	Mitutoyo Digital Deflection Gauge	P60175	

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SECTION 7

RESULTS AND OBSERVATIONS

OPERATING FORCE

The forces required to operate the system:

Initiate Opening:	50.8 N (3.2 lbs)	Initiate Closing:	48.9 N (1.1 lbs)
Maintain Opening:	32.1 N (1.2 lbs)	Maintain Closing:	31.6 N (1.0 lbs)
Latch Opening:	20.2 N (7.4 lbs)	Latch Closing:	18.6 N (10.0 lbs)

Maximum allowable force to initiate motion:	135 N (30.4 lbs)
Maximum allowable force to maintain motion:	90 N (20.2 lbs)
Maximum allowable force to open and close latch:	100 N (22.5 lbs)

The tested specimen **met** the performance requirements of NAFS-11, NAFS-17 and A440S1-17 for Operating Force.

AIR LEAKAGE RESISTANCE

Air test data is indicated in the following table:

Property	Area m ² (ft ²)	Infiltration Rate L/s*m ² (cfm/ft ²)	Exfiltration Rate L/s*m ² (cfm/ft ²)	Compliance US (CAN)
Overall Assembly	7.50 (80.73)	0.36 (0.07)	0.34 (0.07)	Pass (A3)
Allowable Leakage Rates				
Maximum allowable air leakage rate (US, CAN – A2):		1.5 L/s*m ² , 0.3 cfm/ft ²		
Maximum allowable air leakage rate (CAN – A3):		0.5 L/s*m ² , 0.1 cfm/ft ²		

The overall system **met** the US and Canadian performance requirements as reported above when evaluated under NAFS-11, NAFS-17 and A440S1-17.

WATER PENETRATION RESISTANCE

During the 24-minute test period, using a pressure differential of 440 Pa (9.2 psf), there was no water leakage observed. The system met the **(CAN) PG60** Water Penetration Resistance performance requirements under NAFS-11, NAFS-17 and A440S1-17.

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UNIFORM LOAD – DEFLECTION & STRUCTURAL

Interlock Deflection Data:

Hinge stile span, L = 2400 mm (94.49")

Deflection limit, L/175 = 13.71 mm (0.54")

Residual deflection limit, L*0.3% = 7.20 mm (0.28")

Test Pressure, Pa (psf)	Deflection Measurements, mm (in.)				Compliance
	Positive		Negative		
	Deflection	Residual	Deflection	Residual	
2400 (50.1)	10.45 (0.41)	0.08 (0.00)	12.21 (0.48)	0.25 (0.01)	Pass DP50
3600 (75.2)	n/a	0.28 (0.01)	n/a	0.25 (0.01)	

After the test loads were released, the specimen was inspected and there was found to be no failure or permanent deformation of any part of the window system that would cause any operational malfunction. The system met the overall **DP50** Uniform Load performance requirements under NAFS-11 and NAFS-17.

FORCED ENTRY RESISTANCE

Attempts to gain entry by opening the glazing panel, in accordance with the Disassembly and Sash Manipulation tests for a Type A assembly, were unsuccessful. The system met the **Grade 20** Forced-entry Resistance performance requirements of NAFS-11 and NAFS-17.

DEGLAZING TEST

	Vertical (Latching Stile)	Horizontal (Bottom Rail)
Load, N	320	230
Deflection, mm	1.63	0.77
Allowable, mm	8.1	

After the test loads were removed, the specimen was inspected for any damage that would inhibit the normal operation of the system. The tested specimen **met** the performance requirements of NAFS-11 and NAFS-17.

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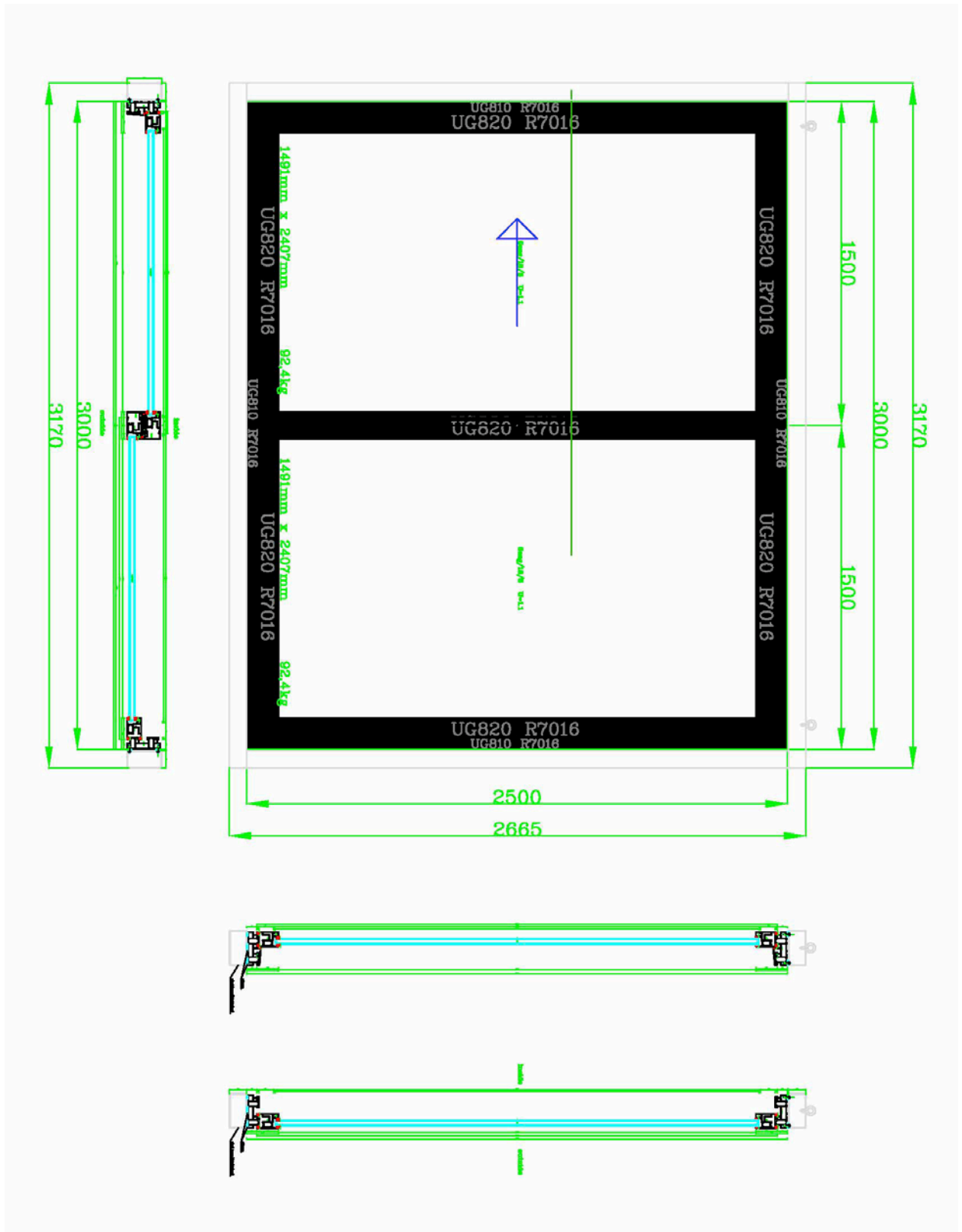
SECTION 8 CONCLUSION

The UltraGlide Series Sliding Door System, submitted by Aliplast sp. Z o.o., tested and described within this report, achieved the overall performance requirements of **Class CW – PG50** when tested in accordance with NAFS-11, NAFS-17 and A440S1-17.

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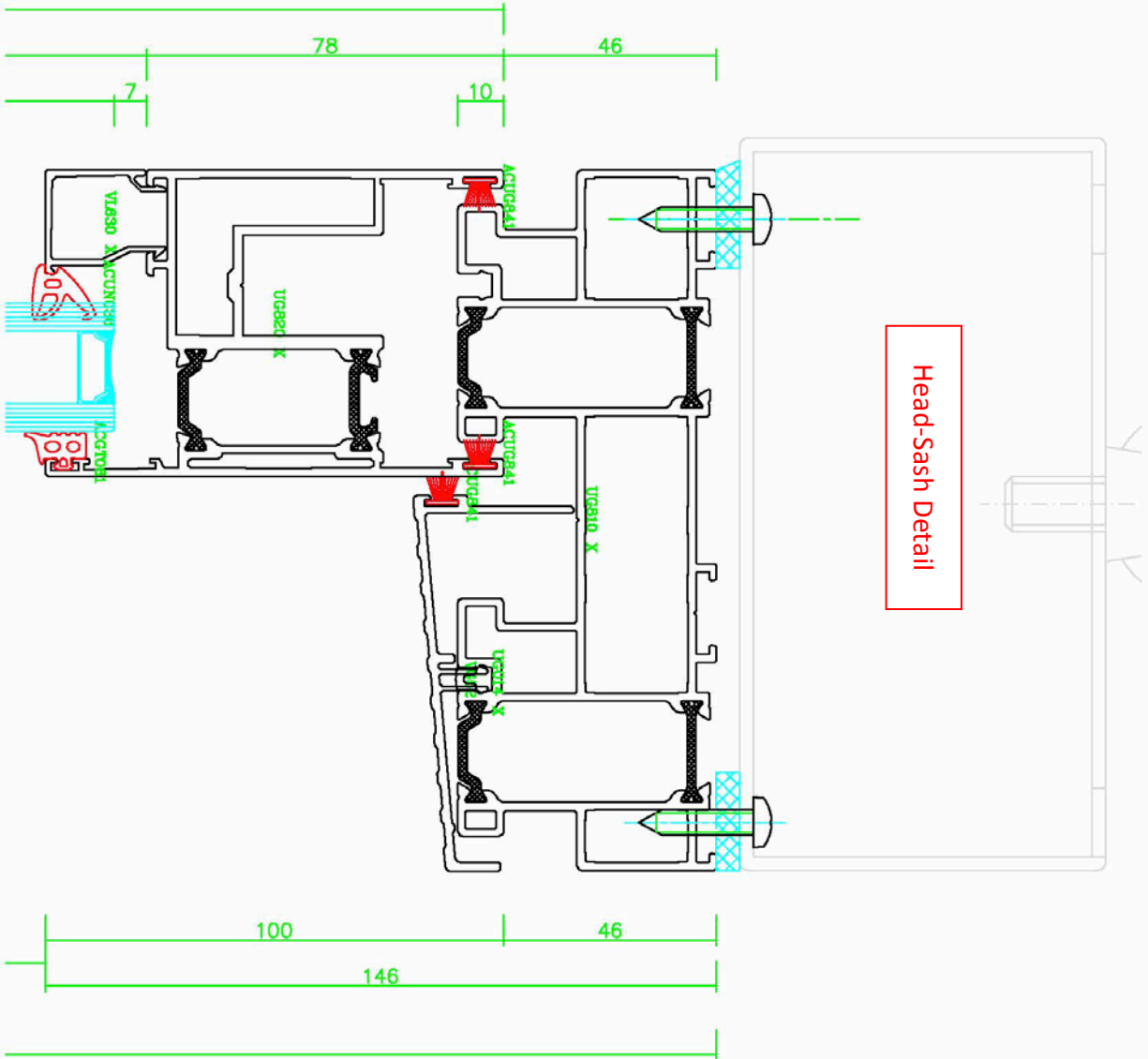
SECTION 9
APPENDIX A: DRAWINGS
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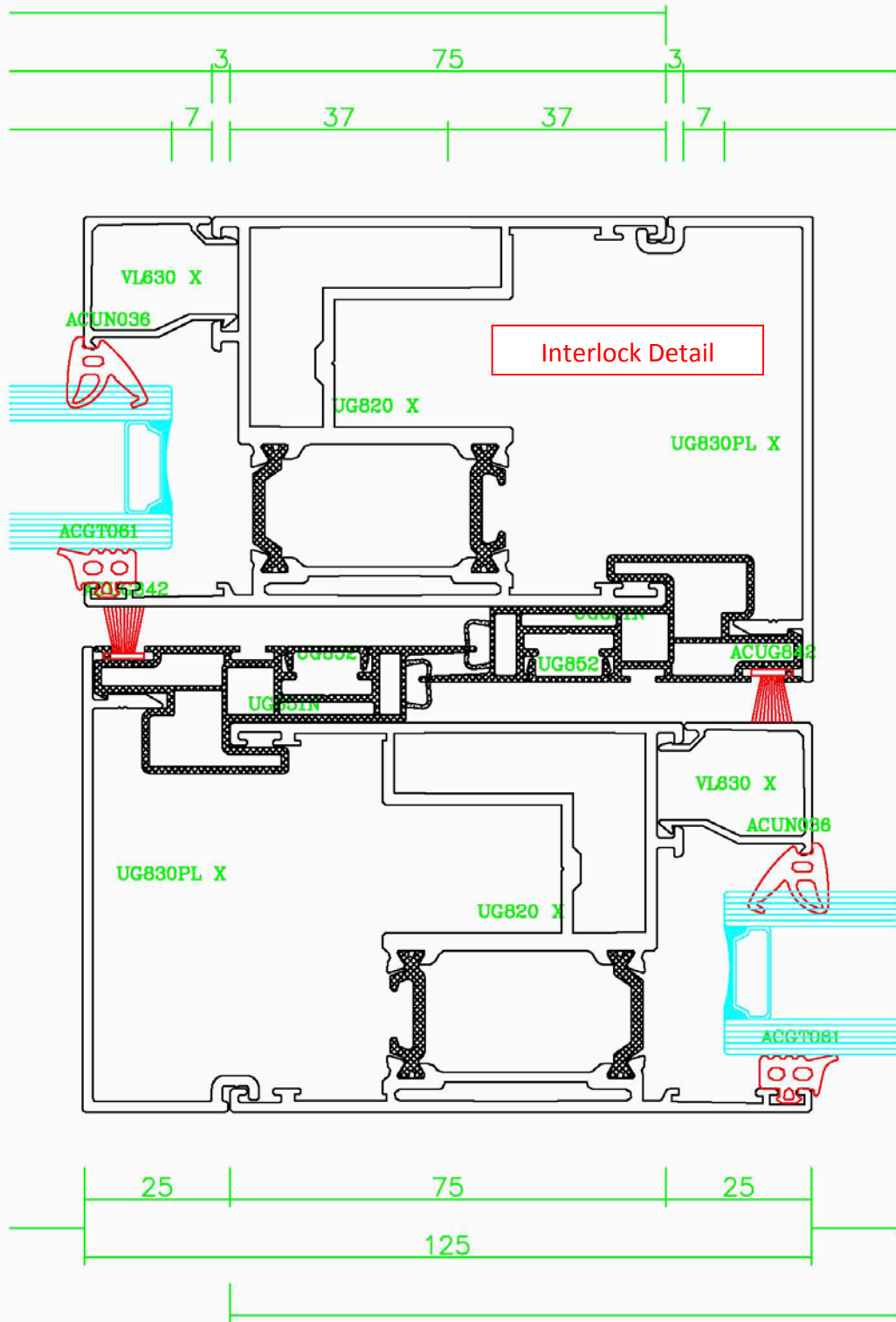


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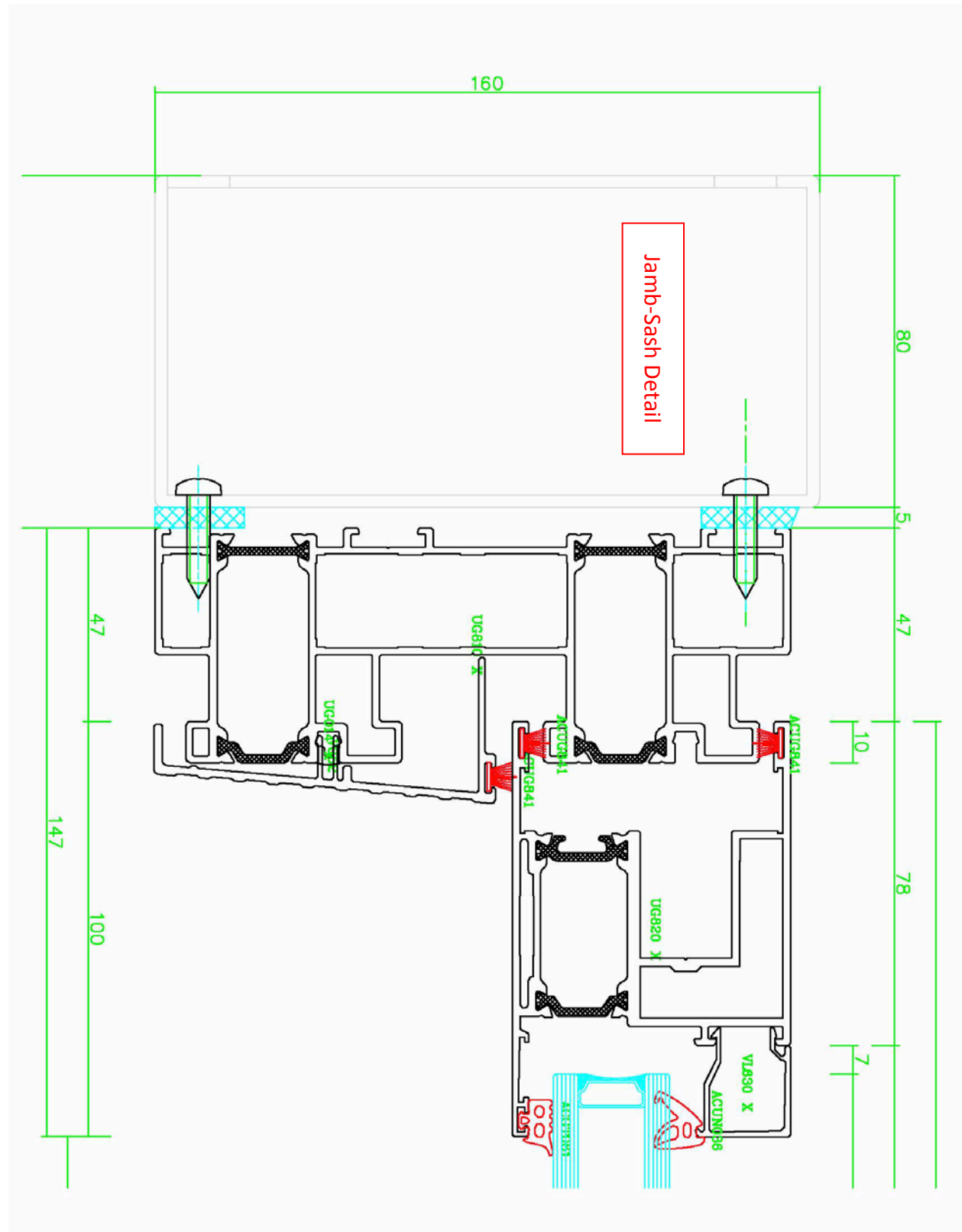


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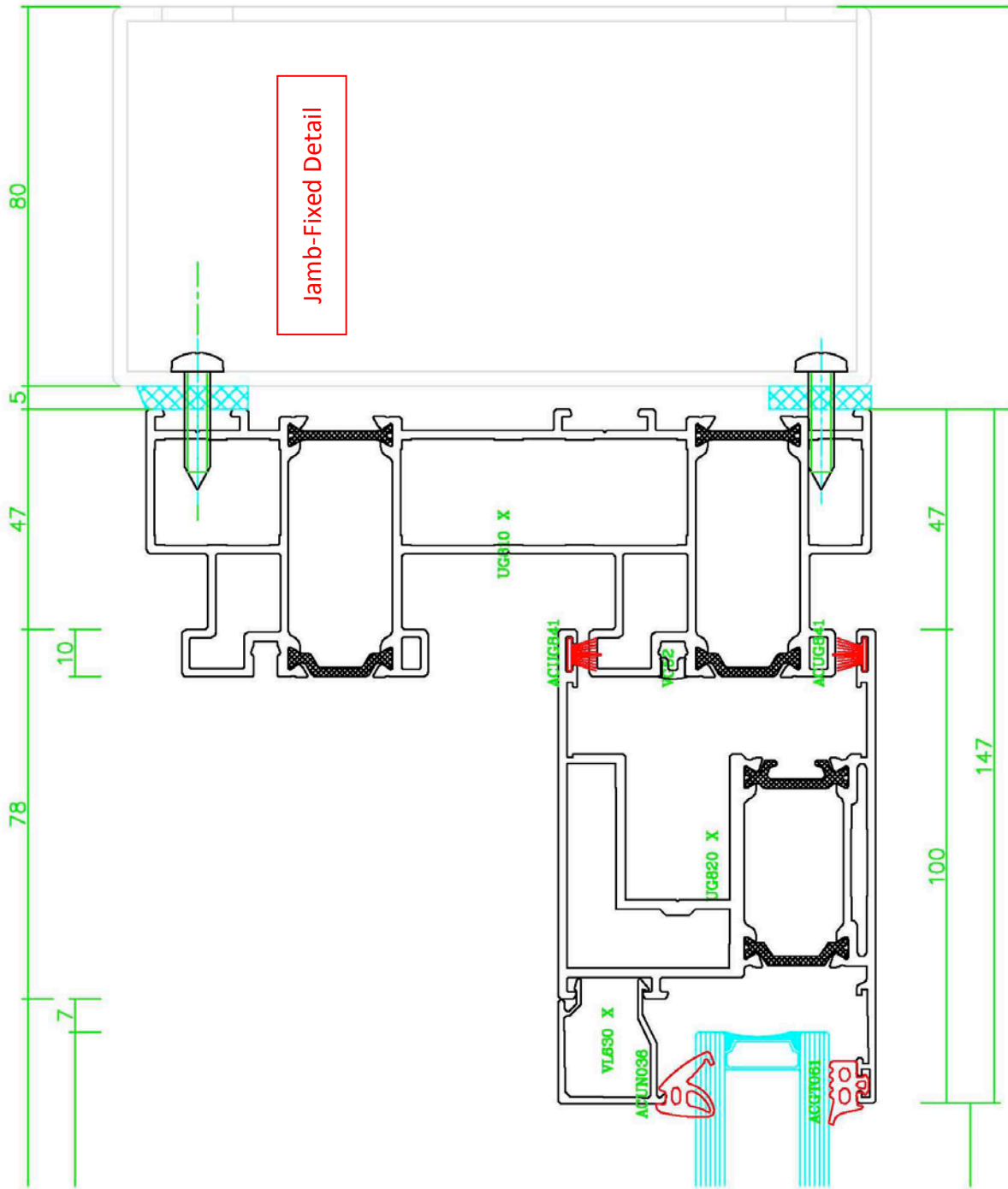
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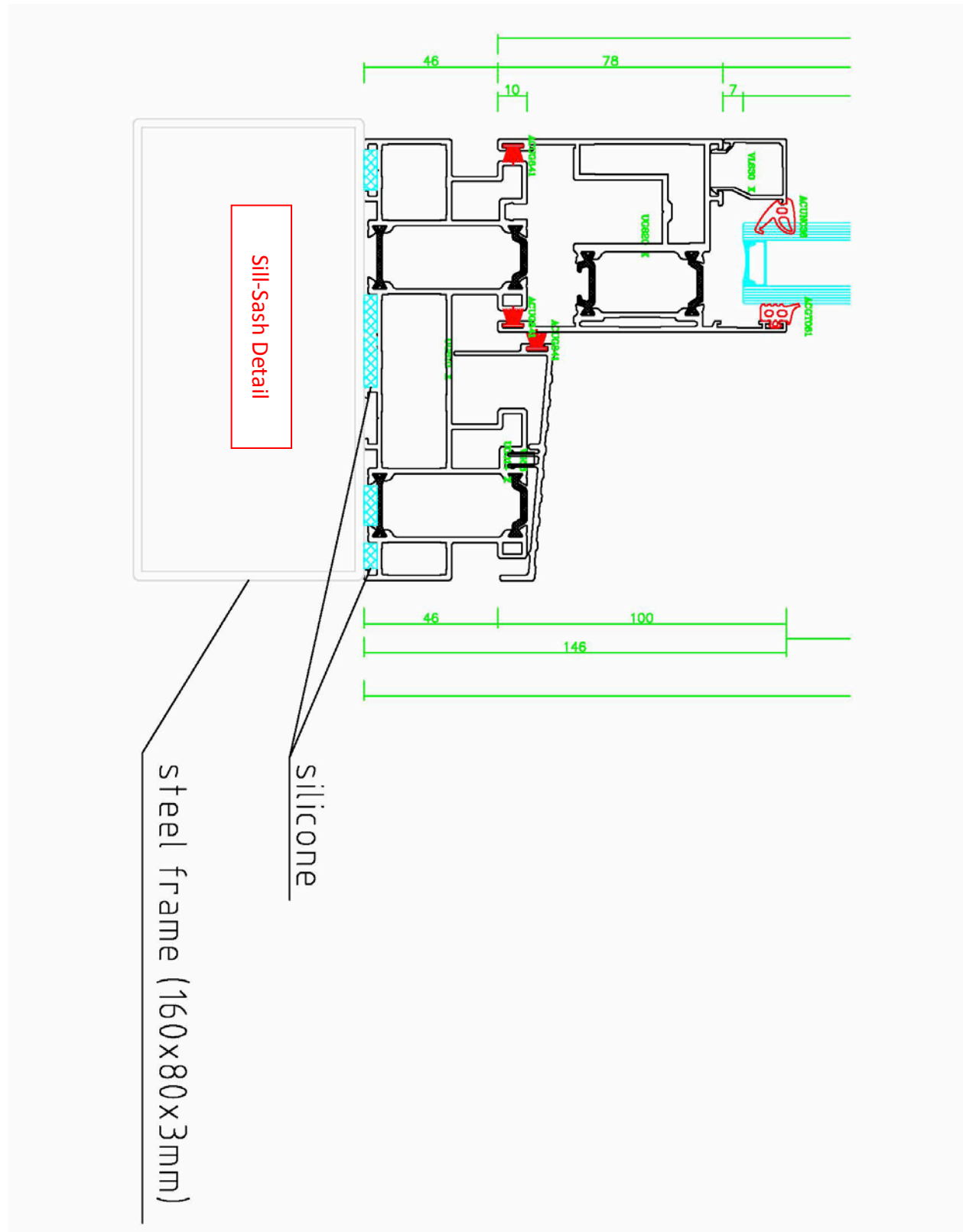


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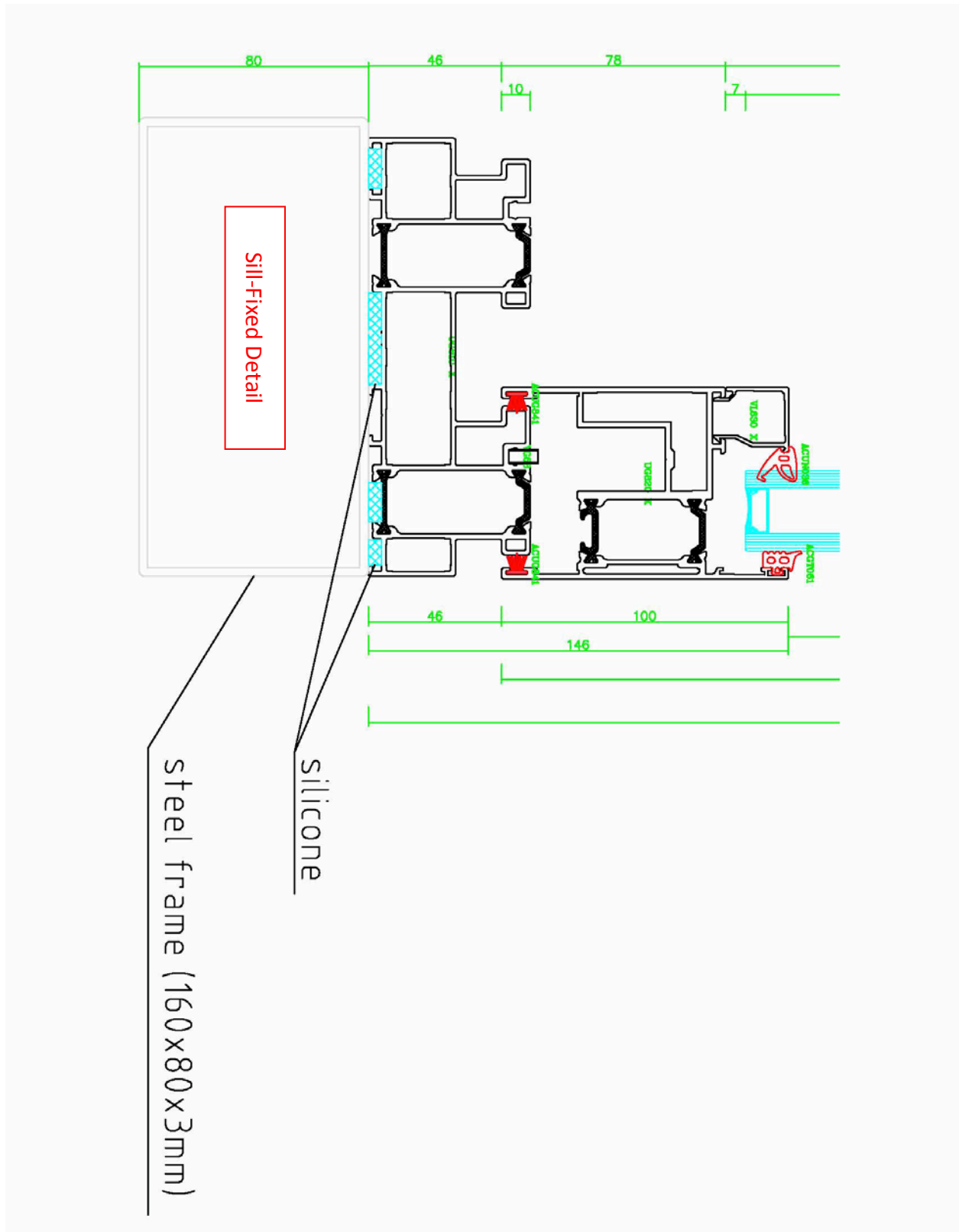
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Date: 16-May-2019

LISTA PRODUKCYJNA NR: LP 0008/03/2019 Created: 28.03.2019 15:23:24 Realization date: Date not set Client:	ORDER: Canada_tests_suwanki (002) Qty of positions: 2 Surface [m2]: 9,3 Qty of: 2 Circuit [m]: 16,4 Labor [hours]: 0,00 Weight [kg]: 432,3
Pos. 1 ULTRAGLIDE - 2 rails (B=3 000, H=2 500) Profiles code:Lakierowany niestandardowy 7016 Furniture colour:Lakierowany niestandardowy 7016 Fillings:6esg/16/6 U=1.1	
Quantity: 1 Surface: 7,50 m2 Circuit: 11,00 m Weight without 142,61 kg Weight of glass: 180,74 kg Total weight: 323,35 kg Labor: 0,00 hours U Factor: 4,5 W/(m²·K)	
System: ULTRAGLIDE Colour of Lakierowany niestandardowy 7016	
Wyliczyl: Zatwierdził: Zrealizował:	View from the outside

Profiles

Code	Quantity	Dimensions	Location	Description
UG014 R7016	1 pcs	2439 mm. (45';45')	1	OUTSIDE SILL
	1 pcs	1407 mm. (0';45')	2	
	1 pcs	1407 mm. (45';0')	3	
UG031	2 pcs	2351 mm.	4	Reinforcing profile
UG810 R7016	2 pcs	2500 mm. (45';45')	1+5	Sliding door frame 2 rails
	2 pcs	3000 mm. (45';45')	2..3	
UG820 R7016	4 pcs	1491 mm. (45';45')	A..B	Sash for sliding doors
	4 pcs	2407 mm. (45';45')	A..B	
UG830PL R7016	2 pcs	2407 mm.	A..B	CHICANE FOR SLIDING DOOR

Additional profiles

Code	Quantity	Dimensions	Location	Description
UG851N	2 pcs	2407 mm.	A..B	Pvc chicane for sliding door
UG852	2 pcs	2407 mm.	A..B	Synthetic clip profile for ug851
VG52	2 pcs	2391 mm.	1	Ornamental strip pvc for vg10
	2 pcs	2887 mm.	2	
	1 pcs	2367 mm.	5	
VG53	1 pcs	2882 mm.	3	Stainless steel rail
VL630 R7016	4 pcs	1335 mm.	A..B	Glazing bead 23mm (equivalent for GL023)
	4 pcs	2207 mm.	A..B	

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Seals

Code	Quantity	Dimensions	Location	Description
ACGT061	14,26 m		A.B	External glazing gasket 6mm
ACUG841	26,81 m		1..3+A.B	Brush fitting 7.5mm + 3mm
ACUG842	14,44 m		A.B	
ACUN036	14,26 m		A.B	Glazing gasket 6-8mm

Accessories

Code	Quantity	Dimensions	Location	Description
ACTL021A	8 pcs.		A.B	Clamping corner
ACUG012	8 pcs.		A.B	Square coupling joint ins.ch.
ACUG040	1 pcs.		A	Stop block
ACUG044	6 pcs.		B	Vent support
ACUG048 R7016	1 pcs.		A	Stop block
ACUG057	8 pcs.		A.B	Glazing support ultraglide
ACUG120Z	2 pcs.		A.B	Central plug - black
ACUG129	4 pcs.		A	Center piece
ACUG810A	4 pcs.		1..3+5	Clamping corner
ACUG810B	4 pcs.		1..3+5	
ACUG810C	4 pcs.		1..3+5	
ACUG830	2 pcs.		4	Closer section for el door
ACUG831	1 pcs.		4	
ACUN020	8 pcs.		A.B	Alignm.corner locking funct.
ACUN667	4 pcs.		A.B	Zaslepka odwodnienia do skrzydła - czarna
ACVG29	2 pcs.		A	Anti lift up piece
ACVG45Z	4 pcs.		3	Drain hole cover black
ACVG57	2 pcs.		3	Drainage vg10
ACVL020A	16 pcs.		A.B	Framing square aluminium

Kovanie

Code	Quantity	Dimensions	Location	Description
ACMX016 03	1 pcs.		A	Profile half-cylinder 40mm - 880-9h
ACUG110	2 pcs.		A	Double pulley inox ug
ACUG746	5 pcs.		A	Support for lock
ACUG747	4 pcs.		A	
ACUG756	1 pcs.		A	Change for acfa120 l= 70mm
ACVG751	1 pcs.		A	Multi lock 5 point - 6774-u24a-15x1,6870-6x1,
ACVG754 R7016	1 pcs.		A	INSIDE HANDLE

Glazing and plates

Code	Quantity	Dimensions	Location	Description
6esg/16/6 U=1.1	2 pcs.	1 321mm x 2 237mm 3,0m2	1	6esg/16/6 U=1.1

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SECTION 10

APPENDIX B: PHOTOGRAPHS

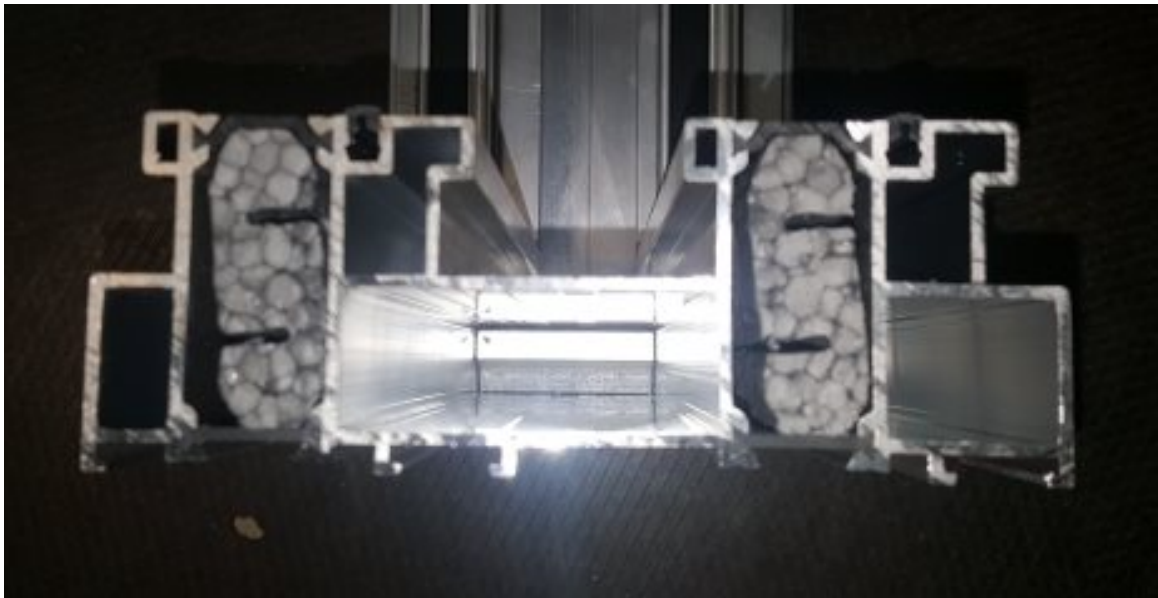
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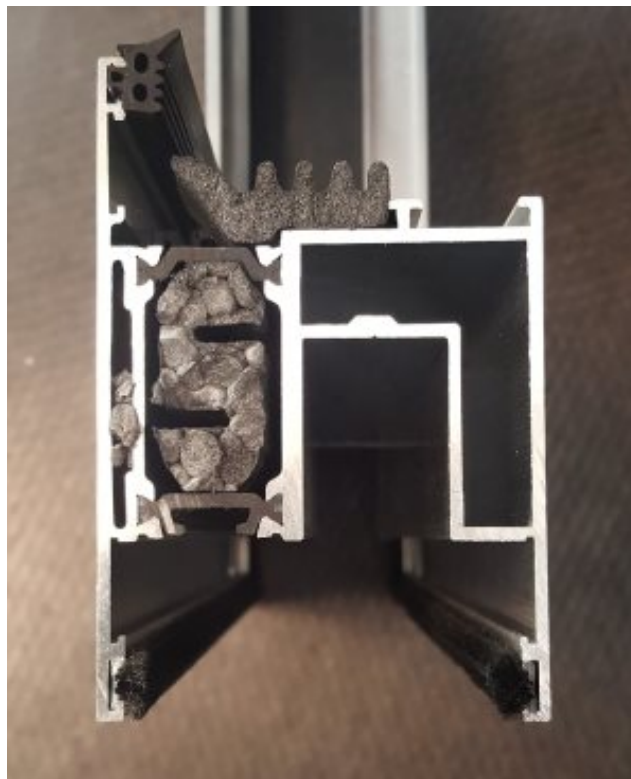
Ultra Glide Series Tilt and Slide Door – Interior

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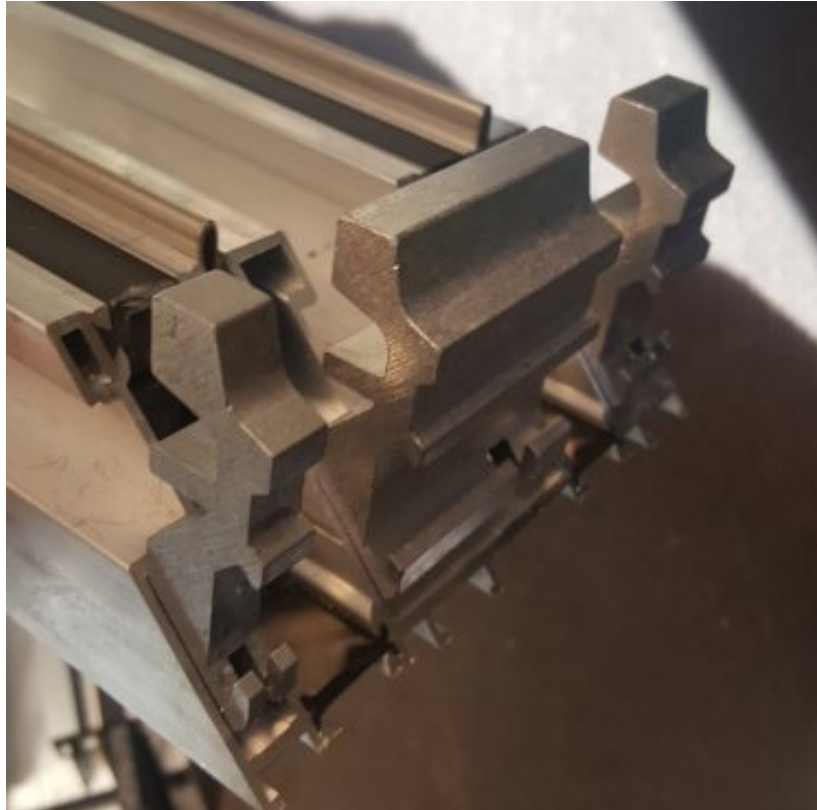


Frame profile



Sash profile

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Corner Bracket Inserts – Main Frame

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Corner Bracket Inserts – Sash Frame

Date: 16-May-2019



Operable Track Drainage with Check Ball Valve Insert



Operable and Fixed Panel Glazing Cavity Drainage

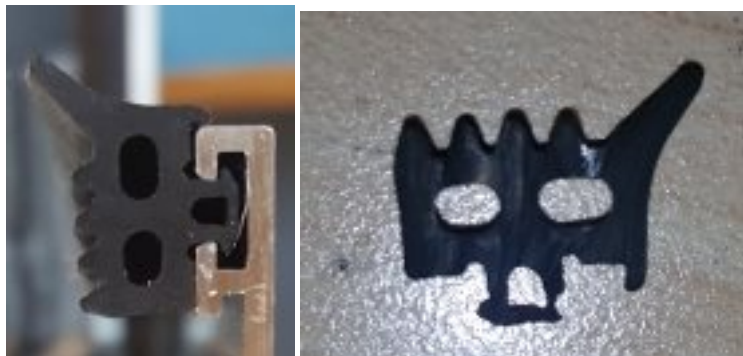


Sash Stop Bumper

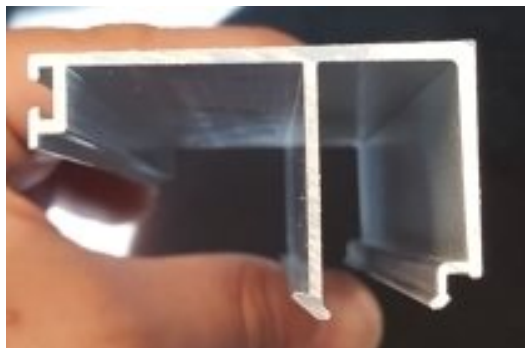
Date: 16-May-2019



Sash Gasket



Glazing Gasket



Glazing Stop

Benchmark and Non-standard Test Report: Report must be reproduced in its entirety

SECTION 11

APPENDIX C: REVISION TABLE

(1 Page)

Date: 16-May-2019

Revision Table				
Date	Section	Description	Technician	Reviewer
16-May-2019	---	Original Issue Date	---	---

Benchmark and Non-standard Test Report: Report must be reproduced in its entirety