

IDEAL 4000 TEST REPORT

SCOPE OF WORK

AAMA/WDMA/CSA 101/I.S.2/A440 TESTING ON IDEAL 4000 TILT/TURN
CASEMENT WINDOW

REPORT NUMBER

J7774.01-250-44

TEST DATE(S)

05/28/19 - 06/03/19

ISSUE DATE

07/23/19

RECORD RETENTION END DATE

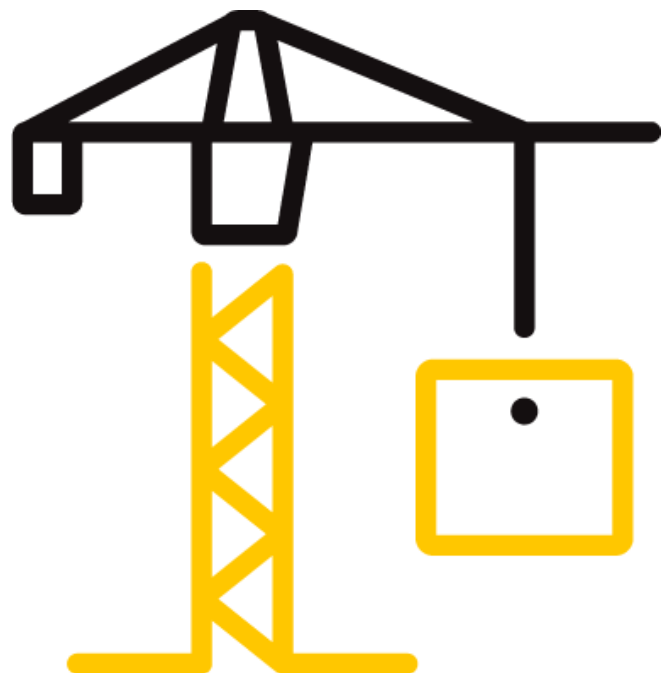
06/03/23

PAGES

19

DOCUMENT CONTROL

NUMBER RT-R-AMER-Test-2804
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Date: 07/23/19

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted to perform testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 on Ideal 4000 Tilt/Turn Casement Window. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at the Intertek B&C test facility in Windham, NH. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-11	Class-CW PG50 1200 x 1800 (47-1/4 x 71)-CW
Design Pressure	±2400 Pa (±50.13 psf)
Air Infiltration	<0.05 L/s/m ² (<0.01 cfm/ft ²)
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)

For INTERTEK B&C:

COMPLETED BY:	Kevin McNeil	REVIEWED BY:	Brian Philcrantz
TITLE:	Project Lead	TITLE:	Laboratory Manager
SIGNATURE:		SIGNATURE:	
DATE:	07/23/19	DATE:	07/23/19

cns:bp

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TEST SPECIFICATION(S)/METHOD(S)

The specimens were evaluated in accordance with the following:

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

The following test methods were used during testing:

AAMA 205-15, *In-Plant Testing Guidelines for Manufacturers and Independent Laboratories*

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

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

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

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

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

ASTM E2068-00(2016), *Standard Test Method for Determination of Operating Force of Sliding Windows and Doors¹*

ASTM F588-17, *Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact*

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MATERIAL SOURCE/INSTALLATION

The specimen was provided by the client. Representative samples of the test specimen(s) will be retained by Intertek B&C for a minimum of four years from the test completion date.

The specimen was installed into a 2x8 Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/4" shim space and the exterior perimeter of the specimen was sealed to the test buck.

LOCATION	ANCHOR DESCRIPTION	ANCHOR SPACING
Nail integral fin	1-1/2" screws	Head and sill, 4" from corners and 9" on center

SECTION 5

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Patrik Muzila	EAS LLC
Andy Lee	EAS LLC
Jose Liberto	EAS LLC
Rob Sampson	RCS Consulting
Brandon Petit	Intertek B&C
Kevin McNeil	Intertek B&C

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SECTION 6

TEST SPECIMEN DESCRIPTION

Product Type: Tilt/Turn Casement

Series/Model: Ideal 4000

Product Size(s):

Test Specimen #1

OVERALL AREA:	WIDTH		HEIGHT	
	millimeters	inches	millimeters	inches
2.2 m ² (23.3 ft ²)				
Overall size	1200	47-1/4	1800	71
Panel size	1124	44-1/4	1727	68

Frame Construction:

MEMBER	MATERIAL	DESCRIPTION
All members	Vinyl	Extruded
	JOINERY TYPE	DETAIL
All corners	Mitered	Thermally welded

Panel Construction:

MEMBER	MATERIAL	DESCRIPTION
All members	Vinyl	Extruded
	JOINERY TYPE	DETAIL
All corners	Mitered	Thermally welded

Reinforcement:

DRAWING NUMBER	LOCATION	MATERIALS
#DAW_uPVC_ID4000	Rails and stiles in frame and vent	

Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
TPE flat type gasket	1 row	Frame perimeter
TPE flat type gasket	1 row	Panel perimeter

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Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.*

GLASS TYPE	SPACER TYPE	INTERIOR LITE	EXTERIOR LITE	GLAZING METHOD
61/64" IG	Sealant-backed Molecular Sieve	5/32" AN	5/32" AN	Glass installed from interior and held in place with snap-in glazing beads

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Panel	1	968 x 1568	38-1/8 x 61-3/4	1/2"

Drainage:

METHOD	SIZE	QUANTITY	LOCATION
Weepslot with cover	1-1/8" wide by 3/16" high	2	Sill, 5-3/4" from corners

Hardware:

DESCRIPTION	QUANTITY	LOCATION
Tilt turn handle with multi-point lock system	1	Stile, 28" up from corner
Tilt turn hinges	2	One on top, one on bottom corners
Multi-locking points	9	Two on head and sill, two on hinge side, three on handle side

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TEST RESULTS

The temperature during testing was 18°C (65°F). The results are tabulated as follows:

Test Specimen #1:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Operating Force, per ASTM E2068	Initiate Motion: 44 N (10 lbf) Maintain Motion: 36 N (8 lbf) Latches: 40 N (9 lbf)	Report only 000 N (30.35 lbf) max 000 N (22.48 lbf) max	
Air Leakage, Infiltration per ASTM E283 at 75 Pa (1.57 psf)	<0.05 L/s/m ² (<0.01 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1, 2
Air Leakage, Infiltration per ASTM E283 at 300 Pa (6.27 psf)	<0.05 L/s/m ² (<0.01 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1, 2
Water Penetration, per ASTM E547 and ASTM E331 at 580 Pa (12.11 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E330 Deflections taken at jamb +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	2.0 mm (0.08") 5.3 mm (0.21")	9.1 mm (0.36") max. 9.1 mm (0.36") max.	3, 4, 5
Uniform Load Structural, per ASTM E330 Permanent set taken at jamb +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	0.0 mm (0.00") 0.0 mm (0.00")	3.3 mm (0.13") max. 3.3 mm (0.13") max.	3, 4, 5
Forced Entry Resistance, per ASTM F588, Type: B - Grade: 10	Pass	No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	
Deglazing, per ASTM E987 Operating direction, 320 N (72 lbf) Remaining direction, 230 N (52 lbf)	Pass	Meets as stated	
	Pass	Meets as stated	

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Note 1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.

Note 2: Test Date 05/28/19 (Air Note Only)

Note 3: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation. The deflection data is recorded in this report for special code compliance and information only.

Note 4: Loads were held for 10 seconds.

Note 5: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

SECTION 8 ALTERATIONS

No alterations were required.

SECTION 9 CONCLUSION

The specimen tested successfully met the performance requirements for a Class-CW PG50 1200 x 1800 (47-1/4 x 71)-CW rating.

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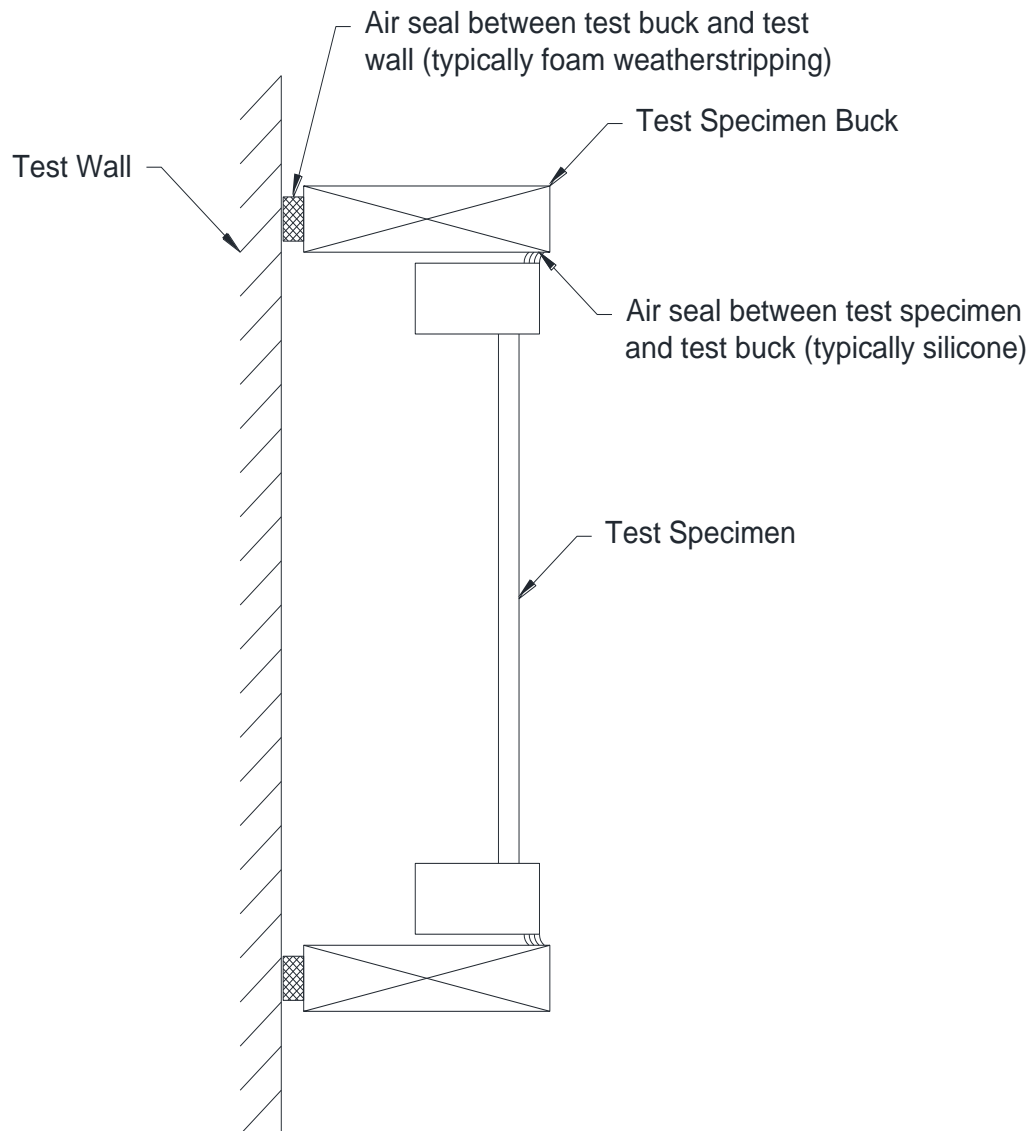
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SECTION 10

LOCATION OF AIR SEAL

The air seal between the test specimen and the test wall is detailed below. The seal is made of foam weatherstripping and is attached to the edge of the test specimen buck. The test specimen buck is placed against the test wall and clamped in place, compressing the weatherstripping and creating a seal.



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SECTION 11

PHOTOGRAPHS



Photo No. 1
Test Specimen #1



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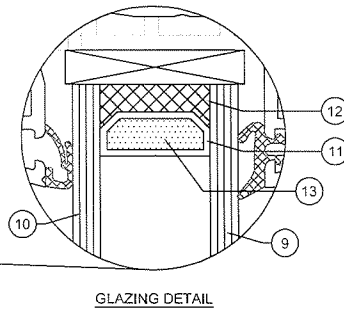
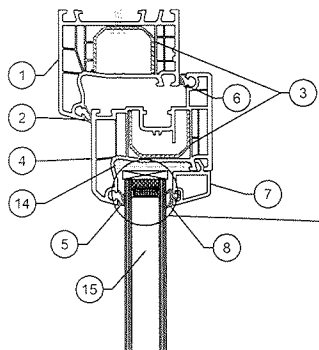
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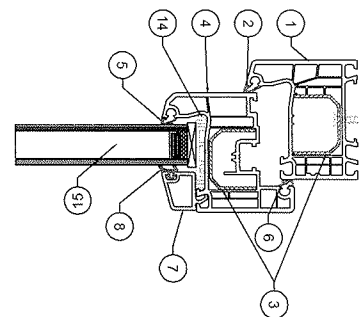
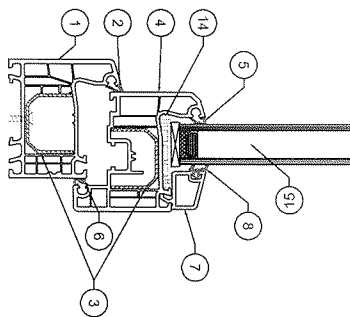
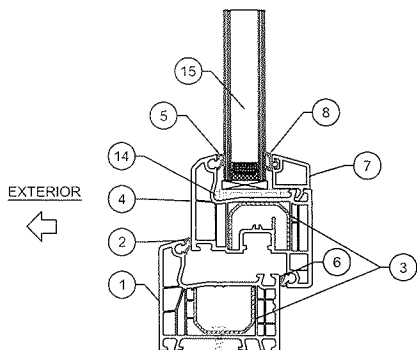
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DRAWINGS

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.



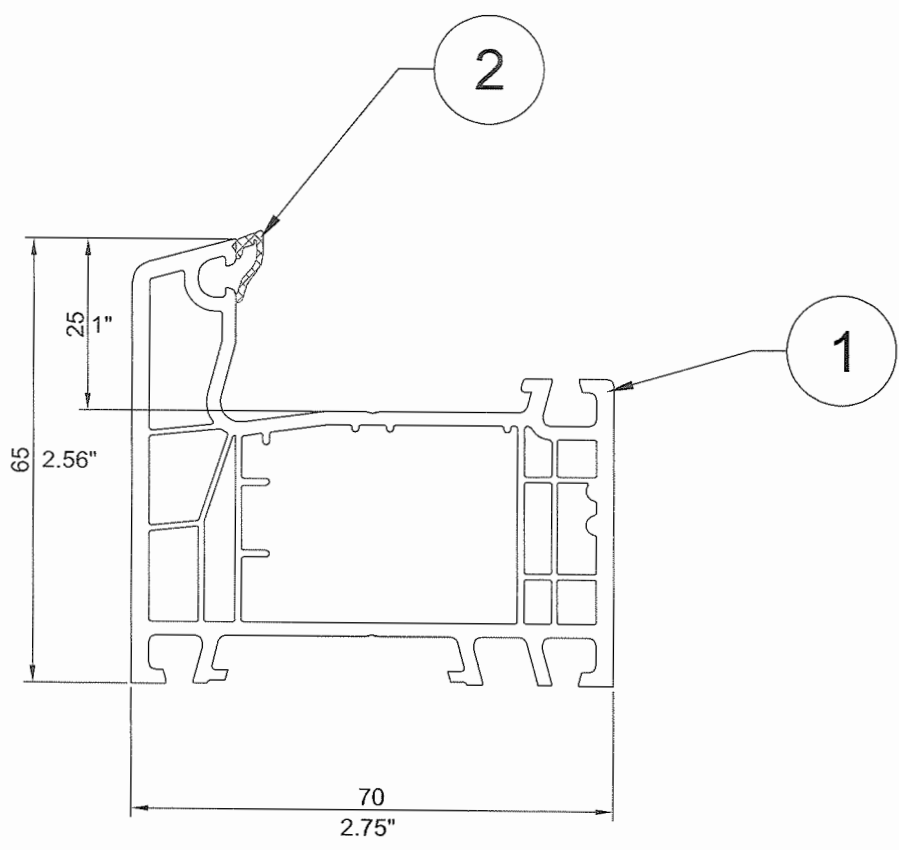
Item	DWG Numbers	Description	Material
1	140x01	Frame Head/Sill/Jamb	Vinyl
2	140x01	Frame Gasket	TPE
3	229023	Profile Reinforcement	Steel
4	140x20	Sash Rails/Stiles	Vinyl
5	140x20	Vent Exterior Gasket	TPE
6	140x20	Sash Gasket	TPE
7	120836	Vent Interior Gasket	EPDM
8	120836	Lami Square Glz Bead	Vinyl
9	GLZ_4_16_4	Internal Pane 4mm	Glass
10	GLZ_4_16_4	External Pane 4mm	Glass
11	GLZ_4_16_4	Warm Edge Spacer 16mm	Composit
12	GLZ_4_16_4	Sealant	HMB/Polyurethane
13	GLZ_4_16_4	Desiccant	Molecular Sieve
14	-	Setting blocks	Vinyl
15	GLZ_4_16_4	Fill the space	Argon Gas



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Revised By:	Date:	Revision:
Revised By:	Date:	Revision:
Description:	Drawn by:	
Title:	Date:	
VERTICAL AND HORIZONTAL DETAILS		
Series/Model:	Scale:	Sheet:
Aluplast Ideal 4000	1:1	1 of 5
Drawing No.		Date:
DAW_uPVC_ID4000		2019-02-13

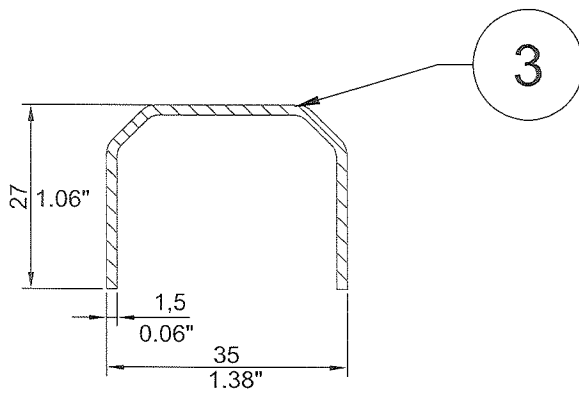
Item	DWG Numbers	Description	Material
1	140x01	Frame Head/Sill/Jamb	Vinyl
2	140x01	Frame Gasket	TPE



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Title: Frame Head/Sill/Jamb with Frame Gasket			Date: 2019-02-14
Series/Model: Aluplast Ideal 4000	Scale: 1:1	Sheet: 2 of 6	Drawing No. 140x01

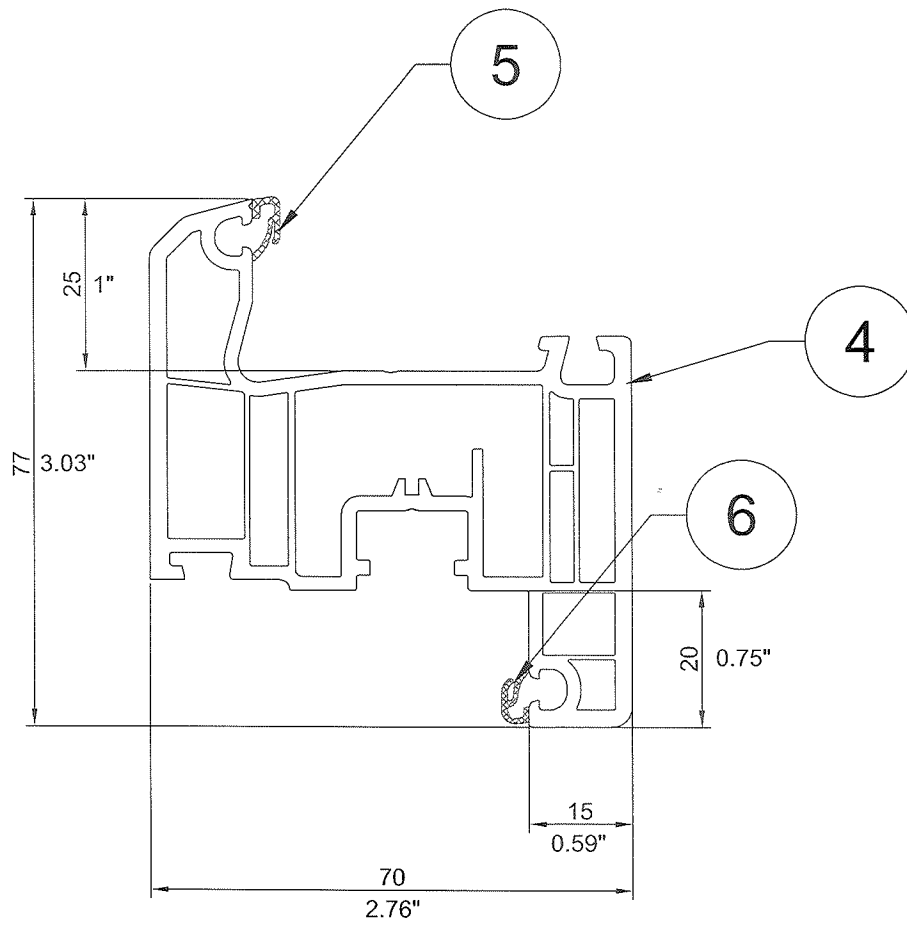
Item	DWG Numbers	Description	Material
3	229023	Profile Reinforcement	Vinyl



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Title: Profile Reinforcement			Date: 2019-02-14
Series/Model: Aluplast Ideal 4000	Scale: 1:1	Sheet: 3 of 6	Drawing No. 229023

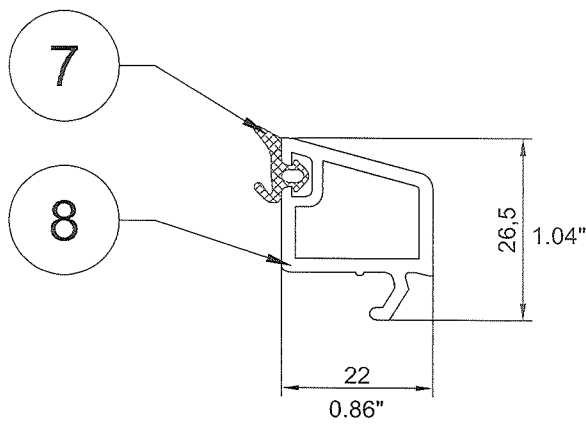
Item	DWG Numbers	Description	Material
4	140x20	Sash Rails/Stiles	Vinyl
5	140x20	Vent Exterior Gasket	TPE
6	140x20	Sash Gasket	TPE



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Title: Sash Rails/Stiles with gaskets			Date: 2019-02-14
Series/Model: Aluplast Ideal 4000	Scale: 1:1	Sheet: 4 of 6	Drawing No. 140x20

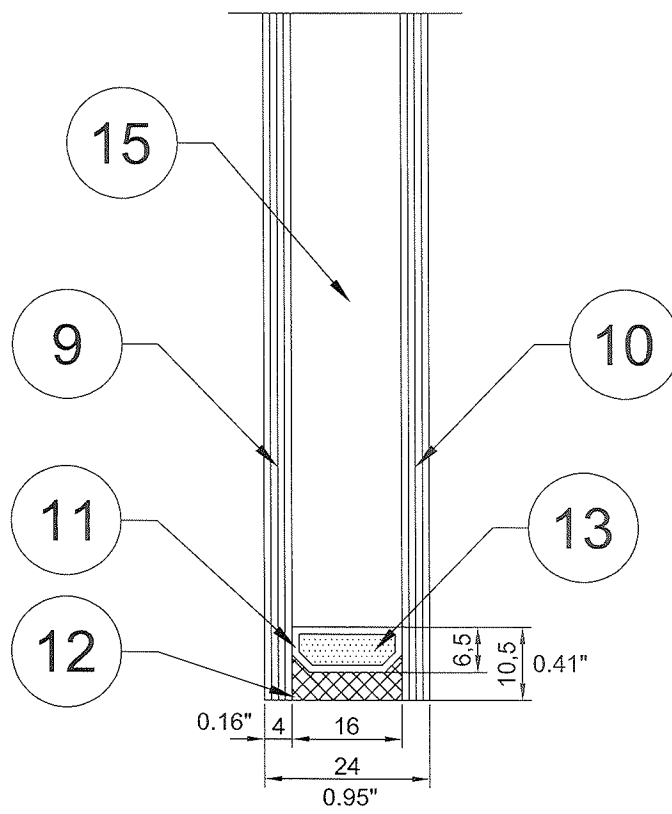
Item	DWG Numbers	Description	Material
7	120836	Vent Interior Gasket	EPDM
8	120836	Lami Square Glz Bead	Vinyl



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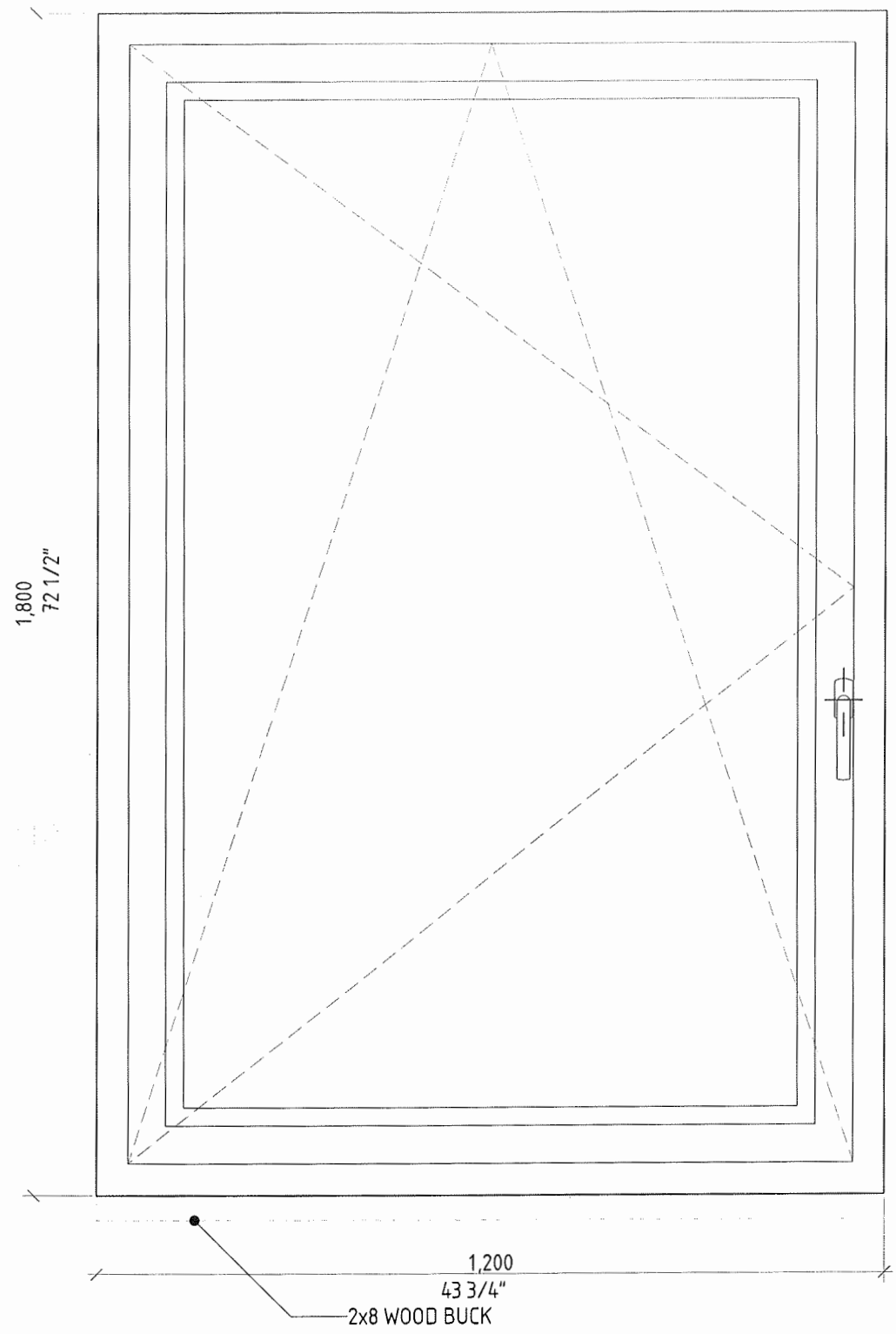
Title: Lami Square Glz Bead with gasket			Date: 2019-02-14
Series/Model: Aluplast Ideal 4000	Scale: 1:1	Sheet: 5 of 6	Drawing No. 120836

Item	DWG Numbers	Description	Material
9	GLZ_4_16_4	Internal Pane 4mm	Glass
10	GLZ_4_16_4	External Pane 4mm	Glass
11	GLZ_4_16_4	Warm Edge Spacer 16mm	Composit
12	GLZ_4_16_4	Sealant	HMB/Polyurethane
13	GLZ_4_16_4	Desiccant	Molecular Sieve
15	GLZ_4_16_4	Fill the space	Argon Gas



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Title: Insulating Glass Units 4/16/4			Date: 2019-02-14
Series/Model: Aluplast Ideal 4000	Scale: 1:1	Sheet: 6 of 6	Drawing No. GLZ_4_16_4



TYPICAL ELEVATION
SCALE: 1:10

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■ EUROPEAN
■ ARCHITECTURAL
■ SUPPLY

#Contact Address1 | #Contact City #Contact State, #Contact Postcode | #Contact Phone Number

Glass		Project #Project Name	
Profile IDEAL 4000		Comments AAMA / NFRC DAW	
Color EXT/INT white		ESG PER DWG	
		Screens none	
		Scale: 1:10	
		Date 5/24/2019	
		CAD YANNI	
		Pg. # 4	

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SECTION 13

REVISION LOG

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0	07/23/19	N/A	Original Report Issue