FENESTRATION AIR WATER AND STRUCTURAL REPORT

Customer: Windloch

System Description: Windloch/Elvial Minimal S52 H12

Product Type Aluminum 2 Panel Sliding Door

Report Number: 23-0428-01

TITLE	*TEST METHOD*	*SUMMARY OF RESULTS*
UNIFORM STRUCTURAL LOAD (DEFLECTION)	E330-14	30 psf (1436 Pa)
PROOF LOAD TEST	E330-14	PASS
AIR INFILTRATION	E283-19	.110 CFM/SQ FT (28.32L/M @ 6.24 PSF (300Pa)
WATER RESISTANCE	E331-00	NO LEAKAGE AT 8 PSF (385 Pa)
TEST START DATE		6.20.2023
TEST COMPLETION DATE		6.20.2023
SPECIMEN SIZE		91” (2312mm) X 114” (2896mm)

BUILDING ENVELOPE TESTING LLC

Lab Address
51 Decker Drive
Greenville NY, 10940

PHONE 844-883-7852

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Fenestration Lab Evaluation Report

Issued to: **Error! Reference source not found.**

Windloch Inc.

467 Brook Ave, Unit C

Deer Park NY, 11729

Building Envelope Testing, LLC was contracted by the above, to perform a lab test to evaluate the air infiltration, water penetration resistance and structural performance of the fenestration sample supplied by the client. The test was performed in customer shop. The specimen was inspected and was found to match the dimensions and details of the shop drawing provided.

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Pre-Test Inspection:

A visual inspection of the specimen was performed prior to testing. The test specimen was compared to the customer supplied shop drawings and fabrication sheets. No obvious deficiencies or anomalies were observed, The test specimen was operated, closed, and locked 5 (five) times prior to testing.

Test Specifications:

The test was performed according to the requirements of the following test methods:

ASTM E283-19, "Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen."

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

ASTM E330-14, "Standard test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference."

Water penetration shall be defined as any water that is not contained in an area with provisions to drain to the exterior or the collection of more than l4g (0.5 oz) of water in the specified test period on top of an interior horizontal framing member surface. Any water present shall not extend beyond a plane parallel to the glazing (the vertical plane) intersecting the innermost projection of the test specimen, not including interior trim and hardware, under the specified conditions of air pressure difference across the specimen. If two or more evaluations are administered on a single specimen within 24 hours, BET will let the specimen drain for 15 minutes and then apply a negative or positive pressure for up to 15 minutes at a higher pressure than testing to assure the removal of any residual water from the specimen prior to reevaluation/retest. When a client requests that a particular specimen be evaluated/tested at a pressure other than that which is specified in the project specifications, this test/evaluation will be for information purposes only and is only an official test if all parties agree. Allowable air infiltration rates stipulated in AAMA 502 do not account for maximum allowable air infiltration rates required by the local building code or the IECC. The maximum allowable rates shown in IECC (and in the locally adopted states and municipal versions) are law and override the allowable rates contained in NAFS/AAMA 101 and AAMA 503.

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Test Specimen Description:

Attached Shop Drawing Supplied by Client

Frame Materials	Aluminum with Polyamide thermal seperators
Manufacturers model	Windloch/Elvial Minimal S52 H12
Operation	XO Sliding Door
Glazing	
Specimen Width	91”
Specimen Height	114”
Test Chamber Configuration	Window Installed in Wood Buck with tandem buck screws at 12” centers. Buck is installed in Clients Open front chamber with spray racks on inside of chamber. Window interior on exterior of chamber for viewing.
Pressure Measurement Device	Testo 510-i
Flow Measurement Device	Testo 510-I with 1 ½” flow meter (BET equipment)

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Witnesses Present:

NAME	TITLE
Eliot Benor	Manager
Silvio Espinal	Senior Technician
Eric Ashford	Technician
Yoav Ben Shimon	Windloch Representative

Field Conditions-General Information:

Ambient Air Temperature:	66 degF
Barometric Pressure:	30.16 in hg
Ambient Humidity:	63%

General Note: Unless specifically noted within this report, atmospheric conditions at the time of testing did not have an adverse impact on the results of the test. These environmental conditions are recorded for informational use only to confirm that the conditions will not have a negative impact on testing. Adjustment for exterior wind speed is made at time of testing (when wind speed exceeds 15mph) based on the formula WC=.002496(mph) 2X .192 for Air infiltration tests.

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Testing Result

ASTM E283 Air Evaluation

Test #	Test Pressure [psf]	Tare Reading [CFM]	After Tare Reading [CFM]	Total Leakage [CFM]	Total Rate [CFM/ft]	Linear ft. Crack [ft]
1	6.24	26.03	33.95	7.92	.110	41.9

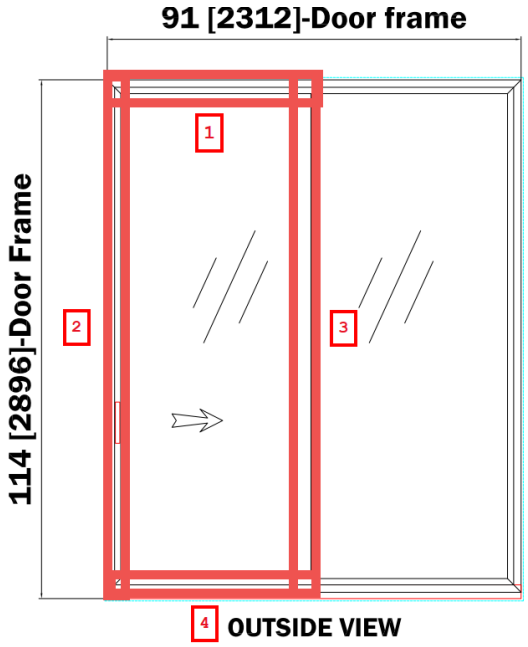

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FIGURE 1: OPERABLE TARE LOCATIONS

ASTM E331 Water Evaluation

Test #	Start Time	End Time	Test Pressure [psf]	Results
1	11:05 AM	12:30 PM	8	Pass

FIGURE 2: PASS AT 8 PSF

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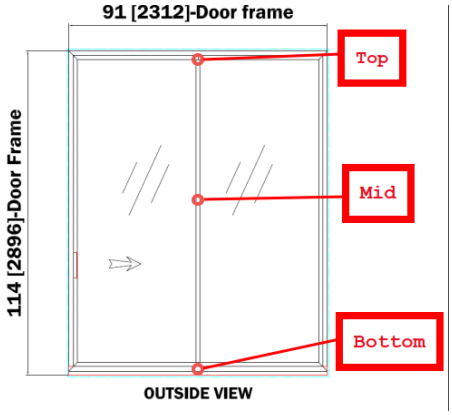
ASTM E330 Structural and Overload Evaluation



Uniform Load Deflection

POSITIVE CHAMBER - POSITIVE WIND LOAD				
PRESSURE [PSF]	W.G. "	MID-SPAN READING [MM]	MID-SPAM DEFLECTION [INCHES]	PASS/FAIL
0	0	766		
15	2.88	760	-0.24	PASS
20	3.84	757	-0.36	PASS
25	4.8	753	-0.52	PASS
30	5.76	750	-0.64	PASS

NEGATIVE CHAMBER - NEGATIVE WIND LOAD				
PRESSURE [PSF]	W.G. "	MID-SPAN READING [MM]	MID-SPAM DEFLECTION [INCHES]	PASS/FAIL
0	0	772	0	
20	3.84	783	0.44	PASS
25	4.8	785	0.52	PASS
30	5.76	787	0.6	PASS

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ALLOWABLE DEFLECTION	0.65"

Proof Load Test

POSITIVE CHAMBER - POSITIVE WIND LOAD			
PRESSURE [PSF]	**W.G. "**	**MID-SPAM PERMANENT SET [INCHES]**	**Result**
45	8.64	-0.12	Pass

NEGATIVE CHAMBER - NEGATIVE WIND LOAD			
PRESSURE [PSF]	**W.G. "**	**MID-SPAM PERMANENT SET [INCHES]**	**Result**
45	8.64	0.08	Pass

ALLOWABLE PERMANENT SET	0.228"

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This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Testing is performed on a specific specimen on a specific date and is valid on that specimen at that time, it is not validation that the product(s) installed are suitable or will meet the same performance levels as the tested specimen. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report is intended to help in the client's quality assurance program, but it does not represent a continuous or exhaustive evaluation of the specimen tested or of other products or materials that were not evaluated. The statements and data provided herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.

For BET:

Edward Lopez

Ed Lopez

Testing Project Manager

Eliot Benor

Field Testing Manager

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Attachments (pages): This report is complete only when all attachments listed are included.

Appendix A – Window Shop Drawing

Appendix B – Revisions

WINDOW SHOP DRAWING

SEE ATTACHED PDF

APPENDIX B

REVISION LOG

REVISION NUMBER	DESCRIPTION	DATE	ISSUED BY

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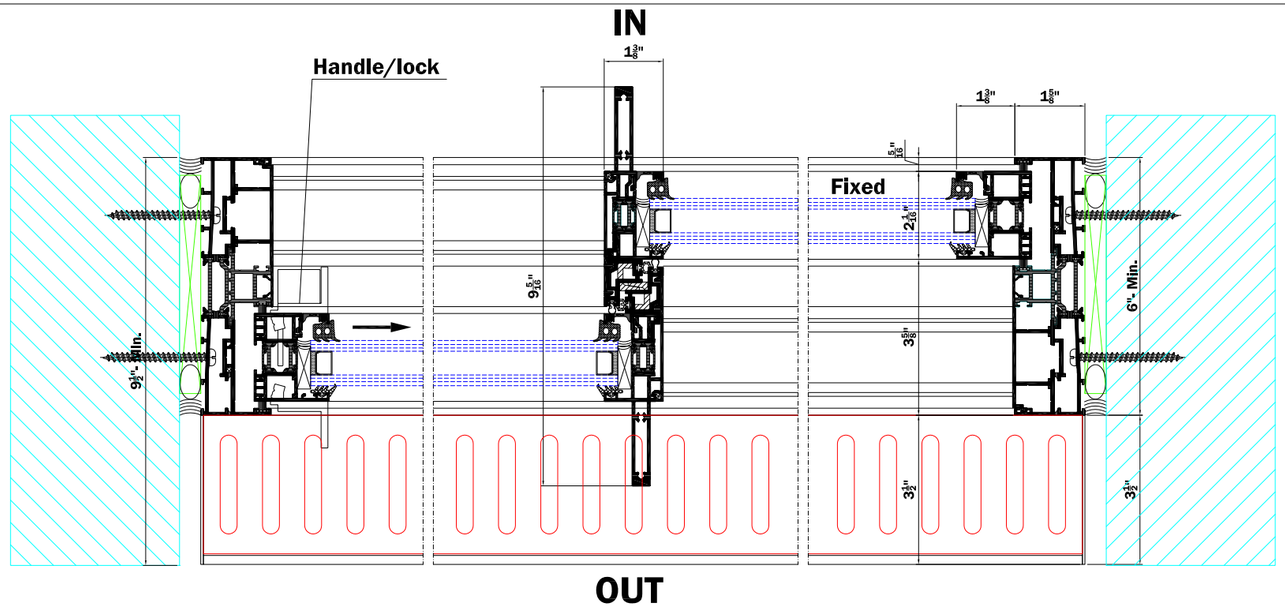
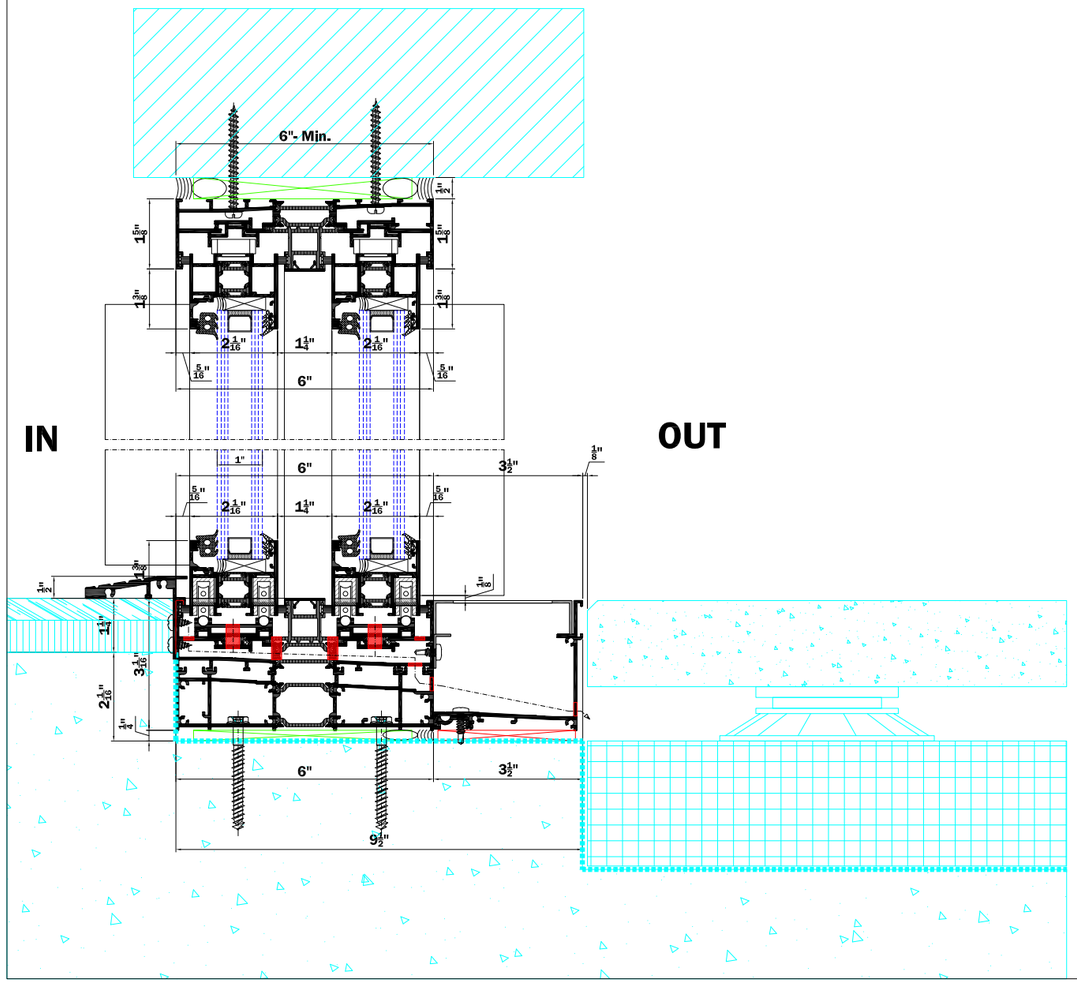
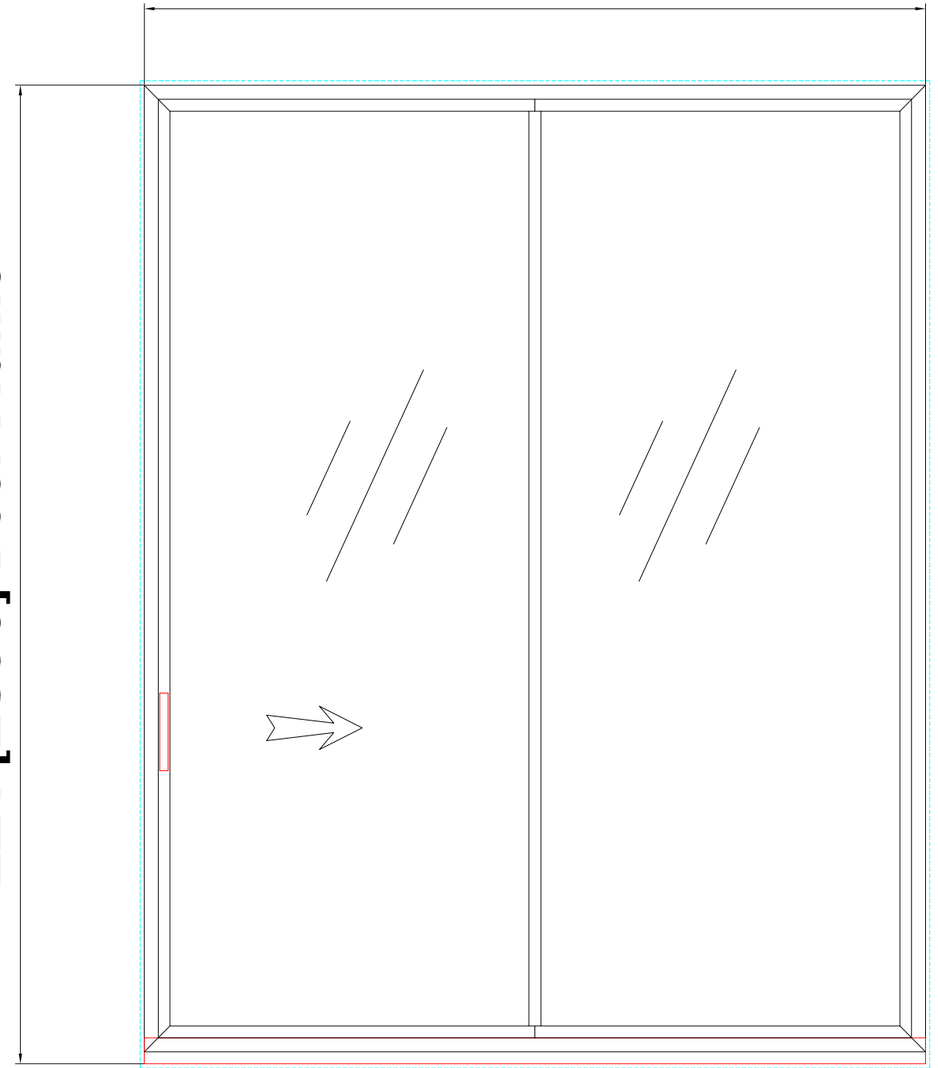




91 [2312]-Door frame



OUTSIDE VIEW

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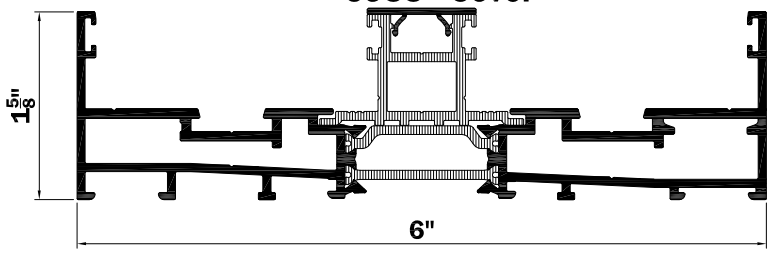
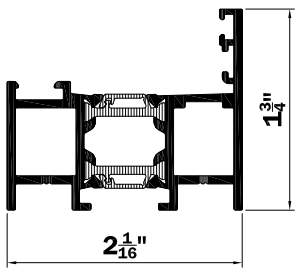
PROJECT NAME:		CAD FILE : S52.dwg
DESCRIPTION: 2 Panels Sliding Doors Details		DATE: 06/21/23 / REV. 1
		SCALE:
DESIGN BY: YOAV BEN-SHIMON	SYSTEM MODEL: Elvial Minimal S52 HI2	DRAWING NUMBER: 1

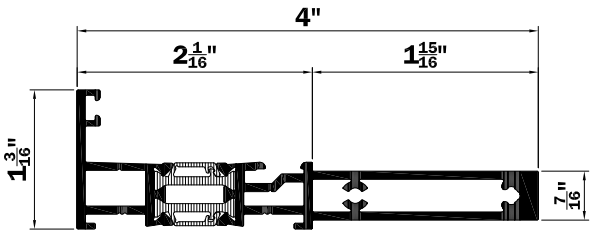
6933 - Cover



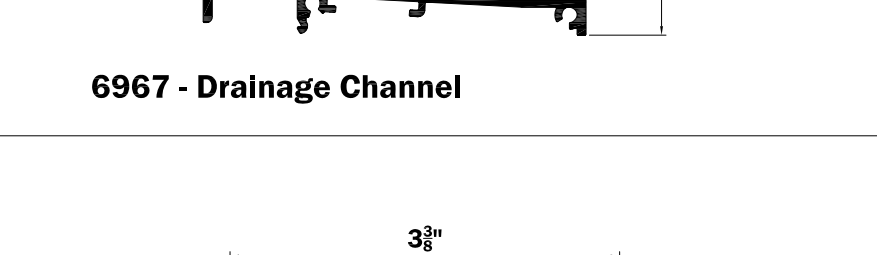
6903 - Frame



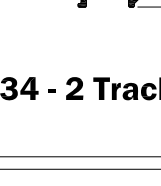
6911 - Sash



6916 - Vertical Interior Interlock Profile

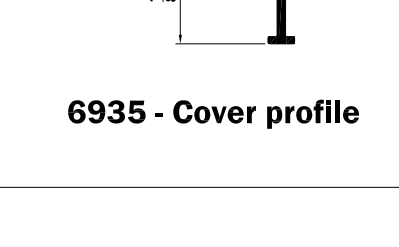


6963 - Sill Support



6955 - Glazing Bead

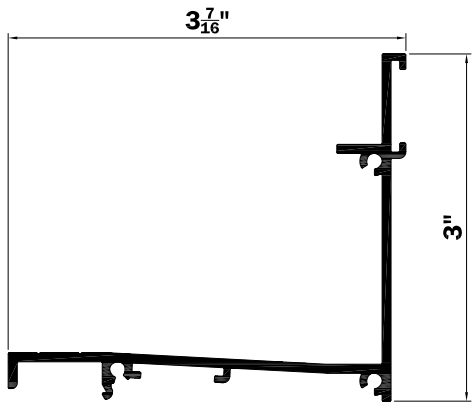
6917 - Vertical Exterior Interlock Profile



900108 - Saddle

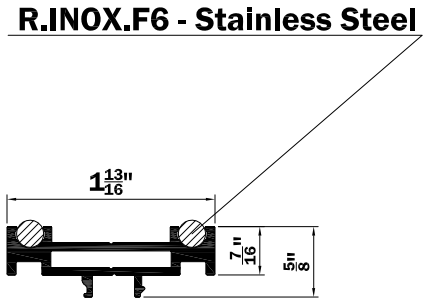
6972 - Top Sash Aligment Profile

6922 - Cover for Interlock Profile

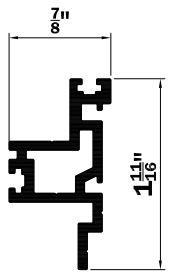


6967 - Drainage Channel

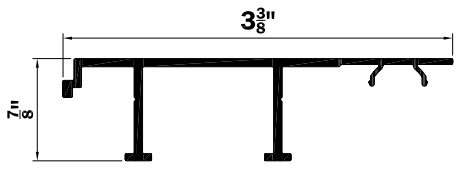
R.INOX.F6 - Stainless Steel



6934 - 2 Tracks profile



PH.6921 - Insulation for Interlock Profile (Polyamid)



6935 - Cover profile

CR.6900.02 - Stainless Steel cover for drainage channel

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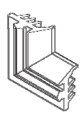
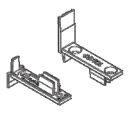
PROJECT NAME:		CAD FILE : S52.dwg
DESCRIPTION: 2 Panels Sliding Doors Profiles List		DATE: 06/21/23 / REV. 1 / SCALE:
DESIGN BY: YOAV BEN-SHIMON	SYSTEM MODEL: Elvial Minimal S52 HI2	DRAWING NUMBER: 2

SECTIONS / CUTTINGS

Double rail successive construction

CODE	DESCRIPTION	QUANTITY
PF.6900 	Frame's insulating bar SC I 4.2X25 DIN7981 A2	≈ 2Wf+2Hf meters - Meter - μέτρα
PH.6921 	Hook's insulating bar SC I 3.9X9.5 DIN7981 A2	≈ 2Hhp
BRTF.7X7-M  or QL.69650-M 	Brush or Q-lon	≈ 6Wf + 6Hf meters -
QL.48750-M 	Q-lon for hook	≈ 2PH.6921 meters
LS.6921.02T 	Glazing gasket for hook	≈ 2PH.6921 meters
R.INOX.F6 	Solid INOX rail	≈ 2Wir1+3Wir2 meters
LT.1063EPDM 	Inner glazing gasket	≈ 4Wgb+4Hgb meters
LT.1121EPDM 	Outer glazing gasket	≈ 4Wgb+4Hgb meters
LS.6922.01E 	Foamed sealing string	≈ 2Hhc+Wir1+Wir2+4Wfc+3Hfc meters (2) 2Hhc+Wir1=Wir2+3Hfc meters

CODE	DESCRIPTION	QUANTITY
MX210 	Casted joint corner for frame	8 PCS
4696.125P 	Extruded joint corner for sash	8 PCS
GE1204.INOX 	Alignment corner	4 PCS
LG.1121 	Alignment corner	8 PCS
AL.EX.6991 	Joint accessory for hook	8 PCS
AL.EX.6993 	Fixing accessory for hook - Sash	min 6 PCS
P.ST.6900 	Fixing rail accessory	4 PCS
PF.2004 	Drainage covering cap	Depend on frame's width
PF.2003 	Drainage cap	Depend on frame's width
PF.SV9NEBC 	Security drainage valve Ø12	Depend on frame's width
P.6921 	Pair caps for 6922 hook's cover + BR I BRTF. 7X7 - M or BRM. 7X8 (4)	1 PAIR
P.6916 	Pair caps for reinforcement's profiles	2 PAIR
P.PH.6921 	Pair caps for PVC hook PH.6921	2 PAIR
SL.6900.01 	Sealing accessory for upper cap P.6921 + BR I BRTF. 7X7 - M or BRM. 7X8 (1), (4)	1 PCS

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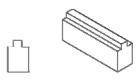
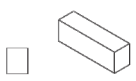
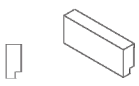
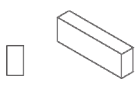
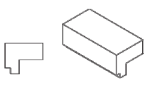
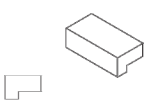
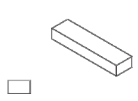
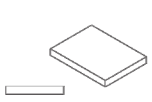
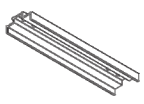
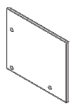
PROJECT NAME:		CAD FILE : S52.dwg
DESCRIPTION: 2 Panels Sliding Doors Hardware List		DATE: 06/21/23 / REV. 1 / SCALE:
DESIGN BY: YOAV BEN-SHIMON	SYSTEM MODEL: Elvial Minimal S52 HI2	DRAWING NUMBER: 3

CODE	DESCRIPTION	QUANTITY
SL.6900.02 	Sealing accessory for upper cap. P.6921 + BR I BRTF. 7X7 - M or BRM. 7X8 (2), (4)	1 PCS
CS.6900.03 	Lower central sealing accessory	1 PCS
CS.6900.04 	Upper central sealing accessory	1 PCS
SF.6900.11 	Lower foamed sealing accessory for frame	2 PCS
SF.6900.41 	Lower foamed sealing accessory on PVC	2 PCS
SF.6900.12 	Upper foamed sealing accessory for frame	2 PCS
SF.6900.42 	Upper foamed sealing accessory on PVC	2 PCS
SF.6900.13 	Upper foamed sealing accessory for frame	2 PCS
SF.6900.43 	Upper foamed sealing accessory on PVC	2 PCS
SF.6900.14 	Foamed sealing accessory for additional profile 6972	2 PCS
SF.6900.15 	Lower foamed sealing accessory for rail	2 PCS
R6900D17 	Roller	4 PCS
ST.6972.065 	Stabilizing accessory for sash front side Depend on the construction dimensions	2 PCS
ST.6972.130 	Stabilizing accessory for sash - hooks side Depend on the construction dimensions	2 PCS

CODE	DESCRIPTION	QUANTITY
ST.6988.050 	Stopper for moving sashes	1 PCS
ST.6987.058 	Shock absorber	4 PCS
ST.6994.100 	Accessory for fixed sash	4 PCS
ST.04.022 	Accessory corner for fixed sash	2 PCS

GLAZING CUTTINGS

Parametrical with sash	Glazing width	Wgl = Ws - 36.5mm
	Glazing height	Hgl = Hs - 65mm
Parametrical with frame	Glazing width	$Wgl = \frac{Wf - 139mm}{2}$
	Glazing height	Hgl = Hf - 130mm

CODE	DESCRIPTION	QUANTITY
P.X6963 	End cap for drainage substructure 6963 + SC I3.9X13 DIN7981 A2 (16 pcs.	2 PCS
P.X6967 	End cap for drainage channel 6967 SC I 3.9X13 DIN7981 A2 (6 pcs	2 PCS

1. Without the use of additional profile 6972 or its accessories.
2. With the use of additional profile 6972 or its accessories.
3. Extra cutting for placing between the locking plates or vertical mullion area.
4. The accessories include screws and gaskets where necessary.

ELVIAL

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PROJECT NAME:		CAD FILE : **S52.dwg**
DESCRIPTION: **2 Panels Sliding Doors Hardware List**		DATE: **06/21/23** REV. **1** SCALE:
DESIGN BY: **YOAV BEN-SHIMON**	SYSTEM MODEL: **Elvial Minimal S52 HI2**	DRAWING NUMBER: **4**