

Shanghai YY Windows Co., Ltd.

TEST REPORT

SCOPE OF WORK

Sliding Door

REPORT NUMBER

230920003SHF-003

TEST DATE(S)

2024-03-01

ISSUE DATE

2024-04-03

PAGES

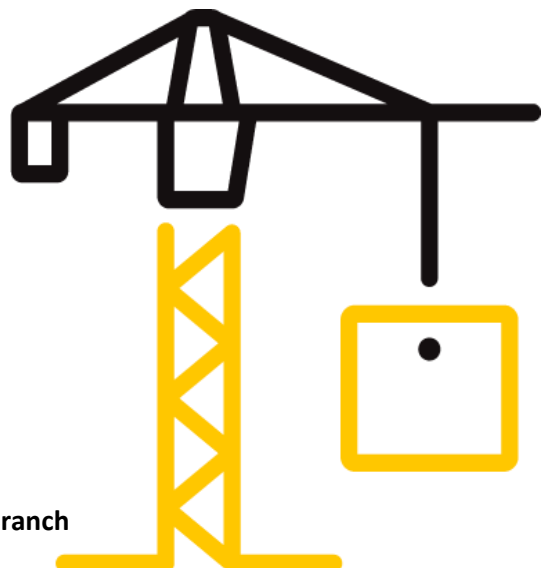
15

DOCUMENT CONTROL NUMBER

LFT-APAC-SHF-OP-10k(February 1, 2024)

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Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch



Test Report

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Test Report

Original Issue Date: 2024-04-03 Intertek Report No. 230920003SHF-003
Applicant: Shanghai YY Windows Co., Ltd.
Applicant Address: No.9300 Hunan Highway, Pudong New Area, Shanghai, China
Attn: Yvonne Yang
Manufacturer: Shanghai YY Windows Co., Ltd.
Manufacturer Address: No.9300 Hunan Highway, Pudong New Area, Shanghai, China
Product Type: Sliding Door
Product Model: YY130HT
Primary product designator: Class CW - PG40 - Size Tested 2418 × 2777mm (95.20 × 109.33 in.) - Type SD
Optional secondary designator: Positive Design Pressure = +1920Pa (40.10 psf)
Negative Design Pressure = -1920Pa (40.10 psf)
Water penetration resistance test pressure = 720 Pa (15.04 psf)
SUBJECT: Performance testing
Sliding Door

Product Information

Product Name	Model	Specification
Sliding Door	YY130HT	2418mm(Width) x 2777mm(Height)
Sample ID	Sample Amount	Sample Received Date
S230920003SHF.003	1 Set	2024-02-26
Brand	Sample Description	
YY Windows	The sample was a completely assembled, glazed, functional product (including hardware) and fully operable, fitted in the test apparatus in accordance with documented instructions.	

Test Methods And Standards

Test Standard	ASTM E283/E283M-19; ASTM E547-00(R2016); ASTM E331-00(R2016); ASTM E330/E330M-2014 (R2021); ASTM F842-17; AAMA/WDMA/CSA101/I.S.2/A440-22 Clause 8.3.1 and Clause 8.3.6.2
Specification Standard	AAMA/WDMA/CSA 101/I.S.2/A440-22 (NAFS 2022 - North American Fenestration Standard / Specification for Windows, Doors and Skylights) Clause 8.3.1, Clause 8.3.2, Clause 8.3.3, Clause 8.3.4, Clause 8.3.5 and Clause 8.3.6.2
Test Conclusion	The results met AAMA/WDMA/CSA 101/I.S.2/A440-22 requirements specified on Sliding Door, and the results were shown in the following page.

Note: 1.This report does not involve sampling. The report only reflects conformity of the tested items of the samples provided by the testing applicant. Representativeness and authenticity of the submitted samples are responsibilities of the testing applicant.

Report Authorized


Name: Fred Bao Name: Gio Liu
Title: Reviewer Title: Project Engineer

Test Report

Original Issue Date: 2024-04-03

Intertek Report No. 230920003SHF-003

Test Items, Method and Results:

1 Test Samples

Sample was submitted to Intertek directly from the client. Sample was not independently selected for testing. Sample was received at the Evaluation Center on February 26, 2024.

A full scale sample of Sliding Door (Model: YY130HT) was provided by the manufacturer that was not weathered nor conditioned.

The description of the samples given below has been prepared from information provided by the sponsor of the test. All values quoted are nominal, unless tolerances are given.

Table 1 Product Information

Product Name	Sliding Door
Model	YY130HT
Dimension of Door Frame	2418mm(Width) x 2777mm(Height) x 129mm(Thickness)
Dimension of Door Leaf	Operable Sash: 1215mm(Width) x 2704mm(Height) x 92mm(Thickness) Fixed Sash: 1215mm(Width) x 2704mm(Height) x 38mm(Thickness)
Profile	Model: YY130HT; Material: 6063-T5 Supplier: Hebei PEACE ALU Aluminium Co., Ltd.
Frame Corner Construction Details: Joinery type	Mechanically assembled: Glued & Screwed (Screw size: 4.8*25mm (Dia & Length))
Reinforcement	None
Glazing	Dimension: 1114mm(Width) x 2574mm(Height) x 2 Pieces Structure: 24mm thickness, Structure of Insulating glass: 6mm Tempered + 12mm Air + 6mm Tempered Supplier: Shanghai Haoji Safety Glass Co., Ltd.
Hardware	Sliding Door Lock Model: RAD 2000S; Handle Model: RAD 2000; Lock Cylinder Model: 31/31; Supplier: ROTO Wheel Model: PAG PH199; Supplier: PAG
Weather-strip	Model: 2866; Material: EPDM Supplier: Ningbo RuiLongte Rubber Co., Ltd.
Thermal Break	Model: C- 12, C-14.8; Material: PA66GF25 Supplier: Shanghai Yutai Building Materials Co., Ltd.
Drainage	Sizes: 30mm(Width) x 6mm(Height); Quantity: 8
Gasket	Model: 9*7; Material: Mohair Supplier: Ningbo RuiLongte Rubber Co., Ltd. Model: EPDM1549; Material: EPDM Supplier: Ningbo Xin An Dong Rubber Co., Ltd.
Sealant	Model: Dow Corning 791; Material: Silicon sealant Supplier: Dow Corning
Installation	Subsill, jambs and head fixed by screws every 300mm. The exterior perimeter of the test specimen was sealed with silicone sealant.

The sample ID number was S230920003SHF.003. The drawings of the representative sample were referenced in Appendix A, the test data was referenced in Appendix B and the photo of the representative sample was referenced in Appendix C.

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Test Items, Method and Results:

2 Test Result

Table 2 Test Result

Test Description	Requirements (Class CW-PG40)		Results		Verdict
2024/3/1					
Operating Force Test AAMA/WDMA/CSA1 01/I.S.2/A440-22, Clause 8.3.1	Maximum force to initiate motion	155 N	Maximum force to initiate motion	124 N	Pass
	Maximum force to maintain motion	155 N	Maximum force to maintain motion	116 N	
Air Leakage Resistance Test AAMA/WDMA/CSA1 01/I.S.2/A440-22, Clause 8.3.2 ASTM E283/E283M- 2019	Maximum air leakage at +75 Pa	1.0 L/s·m ²	Air leakage at +75 Pa	0.41 L/s·m ²	Pass
	Maximum air leakage at -75 Pa	1.0 L/s·m ²	Air leakage at -75 Pa	0.49 L/s·m ²	
	Maximum air leakage at +300 Pa	No Requirement	Air leakage at +300 Pa	1.30 L/s·m ²	N/A ¹
	Maximum air leakage at -300 Pa	No Requirement	Air leakage at -300 Pa	2.44 L/s·m ²	
Water Penetration Resistance Test AAMA/WDMA/CSA1 01/I.S.2/A440-22, Clause 8.3.3 ASTM E547-00 (R2016) and ASTM E331-00(R2016)	Minimum water pressure	290 Pa	Test Pressure	720 Pa	Pass ²
			After water sprayed for complete four cycles in 24 minutes per ASTM E547 and one cylce in 15 minutes per ASTM E331 at 720 Pa, no water penetration was observed.		

Note 1: As requested by the Client, we conducted Air Leakage Resistance Test at ± 300 Pa.

Note 2: As requested by the Client, Water Penetration Resistance Tests were conducted per both ASTM E547 and ASTM E331.

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Table 2 Test Result

Test Description	Requirements (Class CW-PG40)		Results		Verdict
2024/3/1					
Uniform Load Deflection Test AAMA/WDMA/CSA1 01/I.S.2/A440-22, Clause 8.3.4.2 ASTM E330/E330M-2014(R2021)	Minimum Design Pressure (DP)	1920 Pa	Design Pressure (DP)	+1920 Pa	Pass
			Maximum deflection at Stile at handle side	4.0 mm	
			Maximum deflection at Mullion	12.3 mm	
			Design Pressure (DP)	-1920 Pa	
			Maximum deflection at Stile at handle side	3.8 mm	
			Maximum deflection at Mullion	13.3 mm	
Uniform Load Structural Test AAMA/WDMA/CSA1 01/I.S.2/A440-22, Clause 8.3.4.3 ASTM E330/E330M-2014(R2021)	Minimum Structural Pressure (STP)	2880 Pa	Structural Pressure (STP)	+2880 Pa	Pass
			No significant breakage or damage after ultimate strength was released.		
			Maximum permanent deformation at Stile at handle side	0.7 mm	
			Maximum permanent deformation at Mullion	0.4 mm	
			Structural Pressure (STP)	-2880 Pa	
			No significant breakage or damage after ultimate strength was released.		
			Maximum permanent deformation at Stile at handle side	0.8 mm	
			Maximum permanent deformation at Mullion	0.4 mm	
Forced-entry Resistance Test AAMA/WDMA/CSA1 01/I.S.2/A440-22, Clause 8.3.5 ASTM F842-17	Minimum Grade 10		Test Class	Grade 10	Pass
			After test, there was no damage and permanent deformation.		
Deglazing Test AAMA/WDMA/CSA1 01/I.S.2/A440-22, Clause 8.3.6.2	Load for horizontal sash members	320N	After test, the sample does not be damaged in any way that would inhibit normal operation and there was no glazing breakage.		Pass

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Appendix A: Sample Drawings

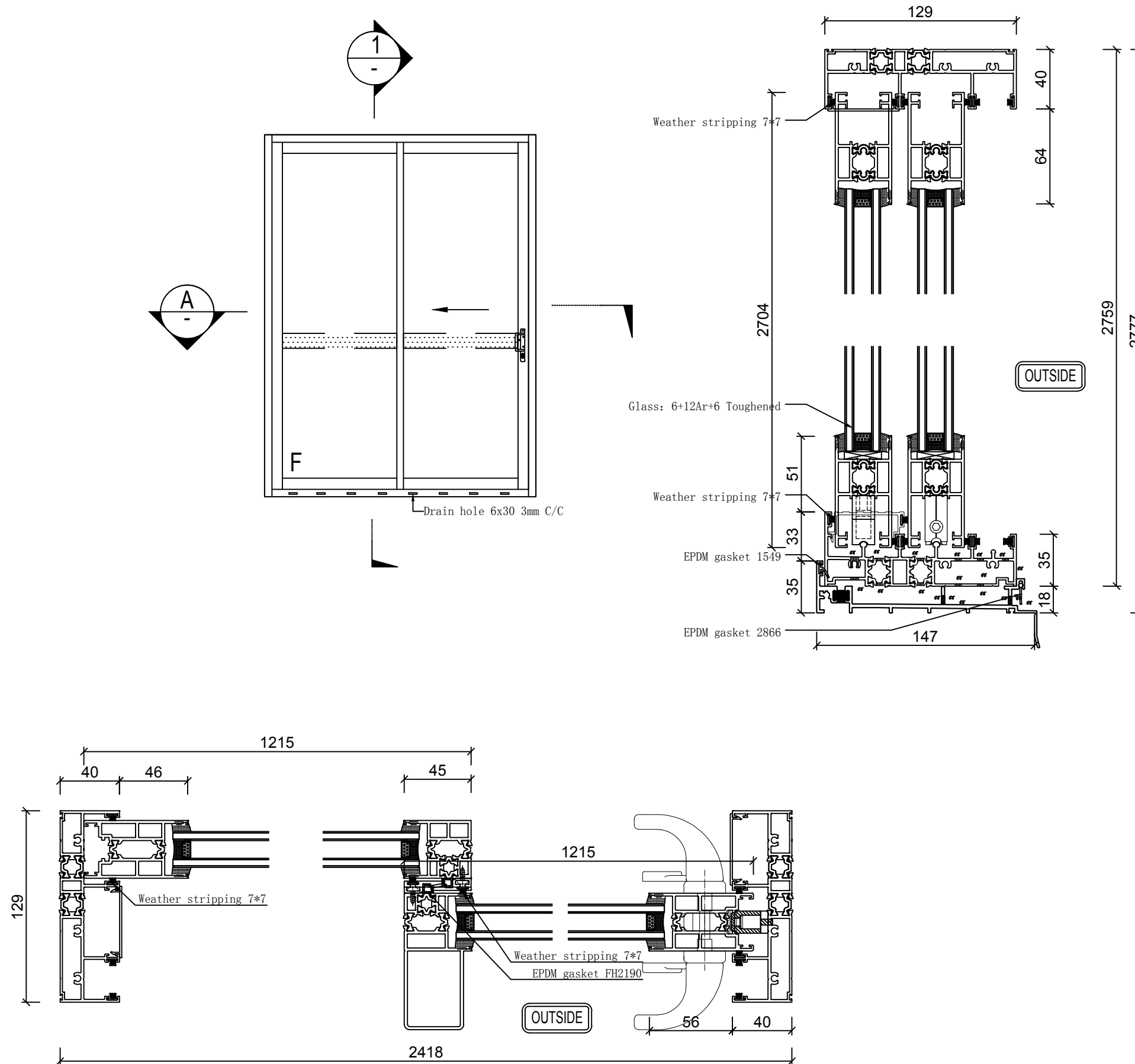


Fig.1 Drawing of Representative Sample

intertek	Report #:	230920003SHF-003
Total Quality. Assured.	Date:	04/03/24
	Verified by:	G. G. G. G. G.

Revision		
Rev.	Date	DESCRIPTION
A	20240304	
B	20240329	
C	20240401	

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2.	Read these drawings in conjunction with architectural drawings only	
3.	All the measurements are in mm unit	
4.	Copyright reserves to YY WINDOWS	
5.	Any changes will probably incur extra charges once the shop drawings are approved for production	
6.	38 - 45 working days for delivery time since approval on the shop drawings	
7.	Protective film/tape to be removed by builder within 3 months of installation.	

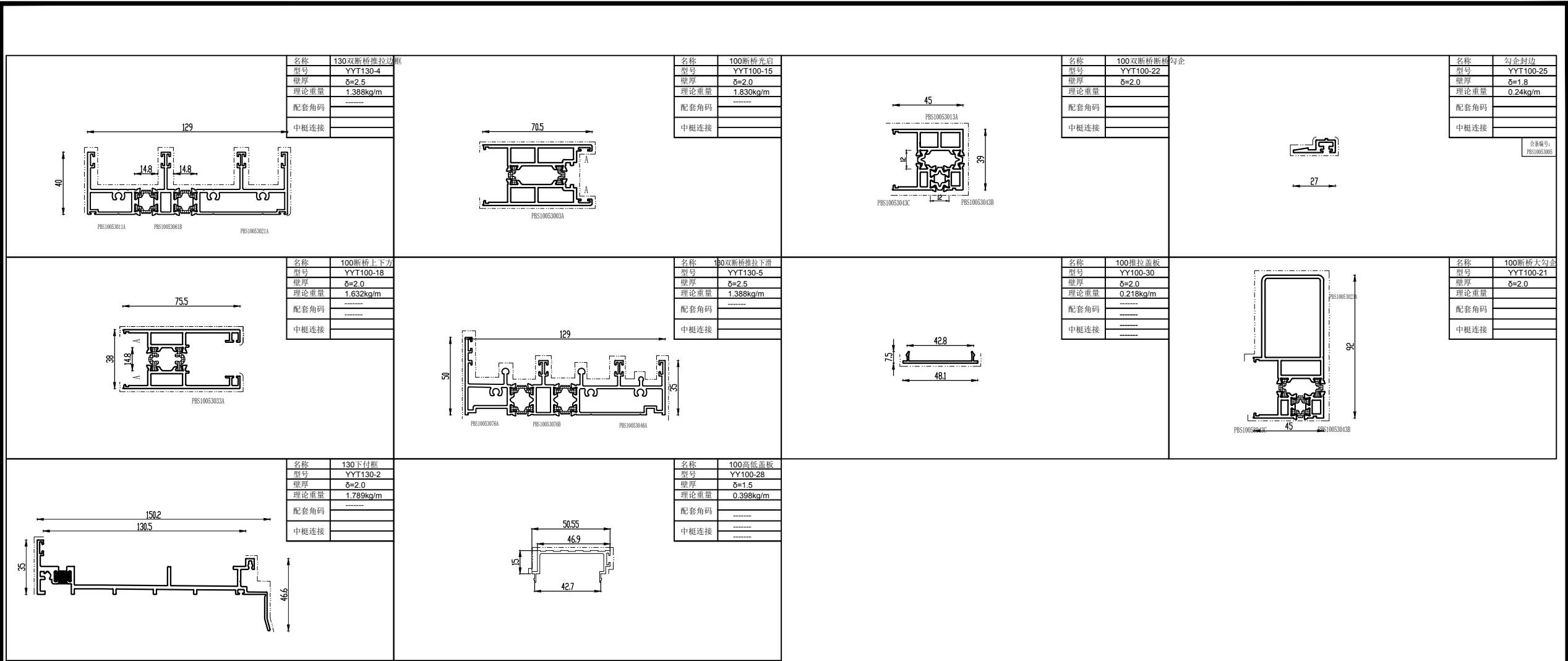
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Order Number:	

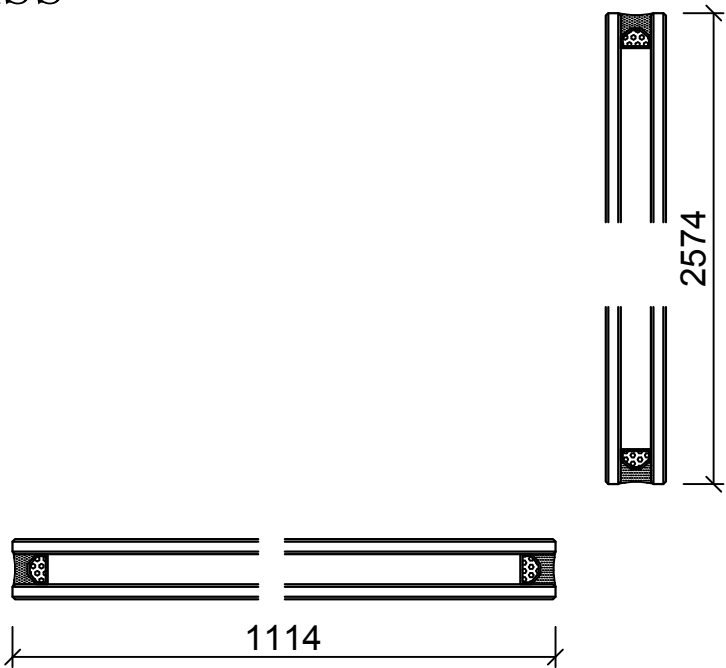
Project Name:	

Drawing Name:	Detial
Drawing No :	D02
Sales:	
Designer :	Lianhong Zhang
Scale :	4:1 (A3)
Page :	

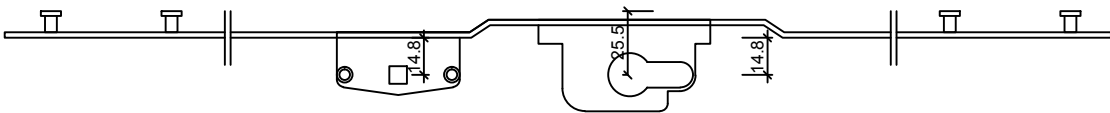
	
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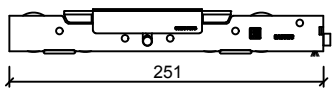
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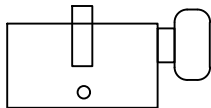
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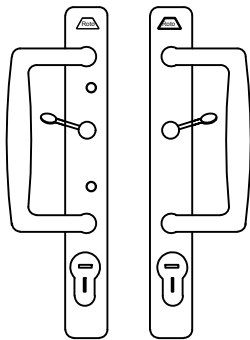
Model:ROTO RAD2000S



Model: PAG PH199



Model: 31/31



Model: ROTO RAD2000

Fig.2 Drawing of Representative Sample

intertek	Report #:	230920003SHF-003
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	Verified by:	Guo, Lin

Revision

Rev.	Date	DESCRIPTION
A	20240304	
B	20240329	
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- Read these drawings in conjunction with architectural drawings only
- All the measurements are in mm unit
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- Protective film/tape to be removed by builder within 3 months of installation.

Client Signature

Order Number:

Project Name:

Drawing Name:	Detial
Drawing No :	D03
Sales:	
Designer :	Lianhong Zhang
Scale :	4:1 (A3)
Page :	



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Appendix B: Test Data

B.1 Air Leakage Resistance Test – Test method ASTM E283/E283M-19

Overall area: 6.75 m²

Table B.1 Test Data of Air Leakage Resistance Test

Infiltration rate (75 Pa)	0.41 L/s·m ²	0.08 cfm/ft ²
Exfiltration rate (75 Pa)	0.49 L/s·m ²	0.10 cfm/ft ²
Requirements at 75 Pa: Maximum allowable leakage for Class CW Sliding Doors	1.0 L/s·m ²	0.2 cfm/ft ²

The tested specimen met the requirements for Class CW Sliding Doors for Air Leakage Resistance Test as per AAMA/WDMA/CSA 101/I.S.2/A440-22.

Table B.2 Test Data of Air Leakage Resistance Test

Infiltration rate (300 Pa)	1.30 L/s·m ²	0.26 cfm/ft ²
Exfiltration rate (300 Pa)	2.44 L/s·m ²	0.48 cfm/ft ²

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Appendix B: Test Data

B.2 Water resistance test – Test method ASTM E547-00 (R2016) and ASTM E331-00 (R2016)

No water penetration occurred when the pressure was 720 Pa (15.04 psf).

After water sprayed for complete four cycles in 24 minutes per ASTM E547 and one cycle in 15 minutes per ASTM E331 at 720 Pa, no water penetration was observed.

Test result: $P_{\max} = 720 \text{ Pa}$ (15.04 psf).

The tested specimen met the requirements for Class CW-PG40 for Water Penetration Resistance Test as per AAMA/WDMA/CSA 101/I.S.2/A440-22.

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Appendix B: Test Data

B.3 Uniform Load Deflection Test – Test method ASTM E330/E330M-2014(R2021), Procedure A

Span length, L = 2620 mm Set Points (1-3)

Span length, L = 2620 mm Set Points (4-6)

Test Pressure (DP), P = 1920 Pa (40.10 psf)

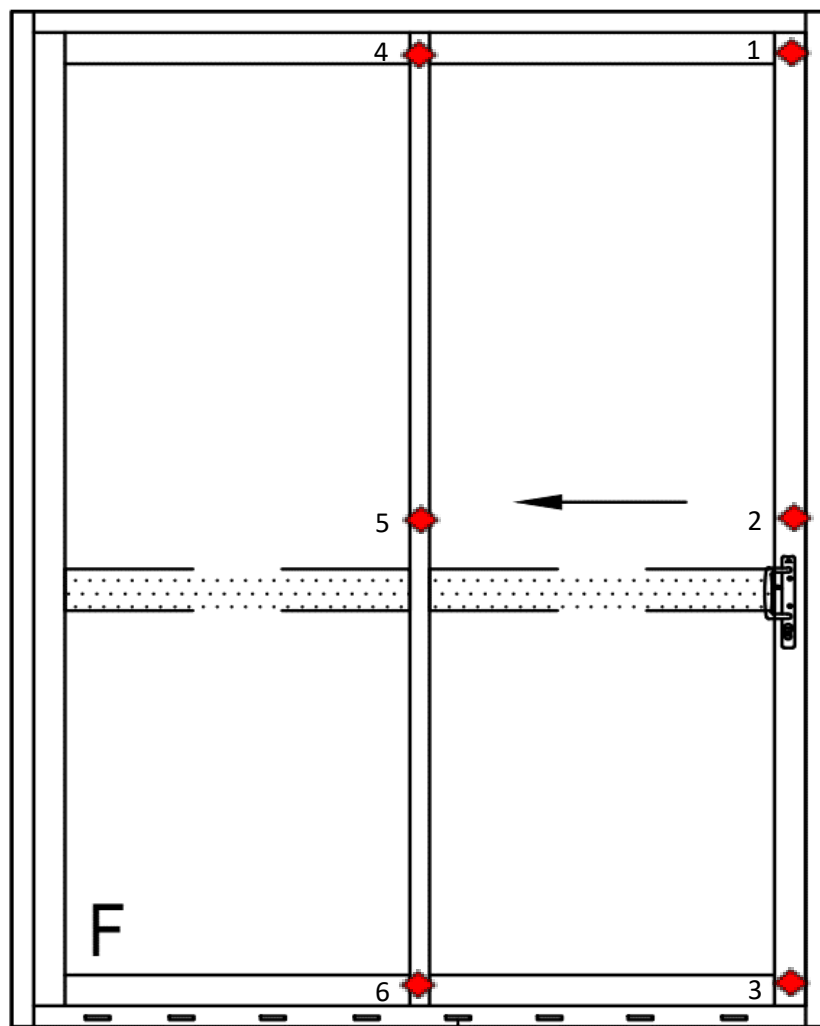


Fig.3 Locations of Displacement Measuring Devices

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Table B.3 Test Data of Uniform Load Deflection Test

Member (mm)		Test Pressure (Pa)	Deflection (mm)			Maximum Deflection(mm)
Item	Span Length		1	2	3	
Stile at handle side	2620	+P = 1920	0.6	4.5	0.5	4.0
		0	0.2	0.4	<0.1	0.3
		-P = -1920	1.7	5.5	1.7	3.8
		0	0.5	1.2	0.4	0.8
Member (mm)		Test Pressure (Pa)	Deflection (mm)			Maximum Deflection(mm)
Item	Span Length		4	5	6	
Mullion	2620	+P = 1920	3.6	15.8	3.4	12.3
		0	0.2	0.4	0.2	0.2
		-P = -1920	4.0	17.2	3.8	13.3
		0	0.9	1.0	0.5	0.3

Table B.4 Test Data of Uniform Load Deflection Test for Stile at handle side

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Maximum Deflection		Maximum Deflection	
1920 Pa (40.10 psf)	4.0	(0.16)	3.8	(0.15)
Span length, L = 2620 mm (103.15 in.) Deflection limit L/175 = 15.0 mm (0.59 in.)				

Table B.5 Test Data of Uniform Load Deflection Test for Mullion

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Maximum Deflection		Maximum Deflection	
1920 Pa (40.10 psf)	12.3	(0.48)	13.3	(0.52)
Span length, L = 2620 mm (103.15 in.) Deflection limit L/175 = 15.0 mm (0.59 in.)				

The tested specimen met the requirements for Class CW-PG40 for Uniform Load deflection Test at design pressure as per AAMA/WDMA/CSA 101/I.S.2/A440-22.

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Appendix B: Test Data

B.4 Uniform Load Structural Test – Test method ASTM E330/E330M-2014(R2021), Procedure A

Design Pressure, P = 1920 Pa (40.10 psf)

Structural Pressure, P = 2880 Pa (60.15 psf)

Table B.6 Test Data of Uniform Load Structural Test

Member (mm)		Test Pressure (Pa)	Permanent deformation(mm)			Maximum permanent deformation(mm)
Item	Span Length		1	2	3	
Stile at handle side	2620	+P = 2880	—	—	—	—
		0	0.6	1.2	0.4	0.7
		-P = -2880	—	—	—	—
		0	0.5	1.3	0.5	0.8
Permanent Deformation limit, L x 0.3% = 7.9 mm						
Member (mm)		Test Pressure (Pa)	Permanent deformation(mm)			Maximum permanent deformation(mm)
Item	Span Length		4	5	6	
Mullion	2620	+P = 2880	—	—	—	—
		0	0.8	1.1	0.6	0.4
		-P = -2880	—	—	—	—
		0	2.0	1.8	0.9	0.4
Permanent Deformation limit, L x 0.3% = 7.9 mm						

Table B.7 Test Data of Uniform Load Structural Test For Stile at handle side

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Perm. Set		Perm. Set	
2880 Pa (60.15 psf)	0.7	(0.03)	0.8	(0.03)

Table B.8 Test Data of Uniform Load Structural Test For Mullion

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Perm. Set		Perm. Set	
2880 Pa (60.15 psf)	0.4	(0.02)	0.4	(0.02)

After the test loads were released, there was no failure or permanent deformation of any part of the door system that would cause the test specimen to be inoperable. There was no permanent deformation which was in excess of 0.3% of its span.

The tested specimen met the requirements for Class CW-PG40 for Uniform Load Structure Test as per AAMA/WDMA/CSA 101/I.S.2/A440-22.

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Appendix C: Sample Received Photo



Revision.

NO.	Date	Changes
230920003SHF-003	2024-04-03	First issue