GUANGZHOU APRO BUILDING MATERIAL CO., LTD

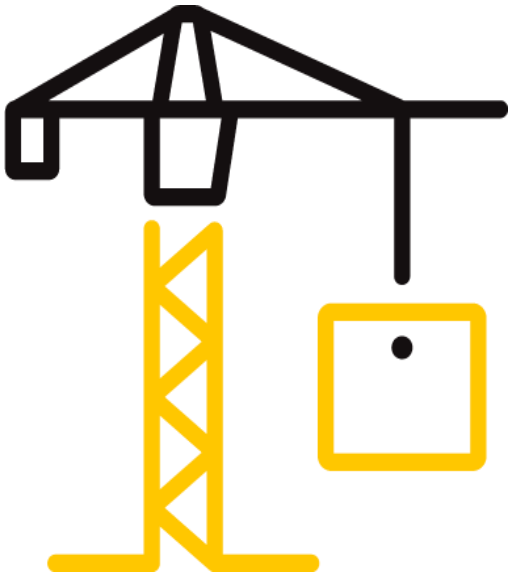
TEST REPORT

SCOPE OF WORK
WINDOWS AND DOORS

REPORT NUMBER
230616166GZC-006

ISSUE DATE
2023/8/21

PAGES
20



Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

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Test Report

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Applicant:	GUANGZHOU APRO BUILDING MATERIAL CO., LTD
Applicant Address:	NO.9 OF 66 HUA GANG AVENUE HUADU DISTRICT, GUANGZHOU, GUANGDONG, CHINA, 510815.
Attn:	JASON@GZAPRO.COM

Manufacturer:	GUANGZHOU APRO BUILDING MATERIAL CO., LTD
Manufacturer Address:	NO.9 OF 66 HUA GANG AVENUE HUADU DISTRICT, GUANGZHOU, GUANGDONG, CHINA, 510815.
Attn:	JASON@GZAPRO.COM

Primary designator:	Class CW-PG40: Size Tested 2400mm × 2100mm (94.49in. × 82.68in.) - Type SD
Secondary designator:	Positive Design Pressure = +1920 Pa (+40.10 psf) Negative Design Pressure = -1920 Pa (-40.10 psf) Water penetration resistance test pressure = 290 Pa (6.06 psf) Canadian Air Infiltration/Exfiltration = A3 level

SUBJECT: Performance testing
< Sliding Door >

Dear Sir,

This test report for represents the results of our evaluation of the above referenced product(s) to the requirements contained in the following standards:

TEST METHODS AND STANDARDS
AAMA/WDMA/CSA 101/I.S.2/A440-17 (NAFS 2017 - North American Fenestration Standard / Specification for Windows, Doors and Skylights)
CSA A440S1-19 (Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440-17)

SAMPLE ID	MODEL	SPECIFICATION
S230616166GZU.002	A140T series	2400 mm (Width) × 2100 mm (Height) × 140 mm (Thickness)

SAMPLE RECEIVED: 2023/8/2
TESTED FROM: 2023/8/11 TO 2023/8/11

TEST LOCATION: C2-1 Building Heping Fair, Yongning Street, Zengcheng District, Guangzhou, China

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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 August 2, 2023.
A full scale sample of A140T series Lift & Sliding Door (Model: A140T series) 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	A140T series Lift & Sliding Door
Model	A140T series
Dimension of Door Frame	2400 mm (Width) × 2100 mm (Height) × 140 mm (Thickness)
Dimension of Door Leaf	Operable Sash: 1208.8 mm (Width) × 2039 mm (Height) × 55 mm (Thickness) Fixed Sash: 1208.8 mm (Width) × 2039 mm (Height) × 55 mm (Thickness)
Aluminum Profile	Model: MD-T14004/MD-T14005/MD-T14003/MD-T14001/MD-14005C /MD-T14001E/MD-14001D/MD-T14005D/WTS12050 Supplier: Foshan Fei Bo Metal Co., Ltd
Frame Corner Construction Details	Mitre-cut, assembly with corners keys
Reinforcement	Not applicable
Glazing	Dimension: 1053 mm (Width) × 1883 mm (Height); Quantity: 2 Structure: 42mm (6mm Low-e+12(argon)+6mmLow-e+12(argon)+6mm Clear) tempered Triple Tempered glass Supplier: JIANGMEN JUNFA SAFETY GLASS CO., LTD
Weather-strip	Model: 5*7mm Supplier: Haida
Thermal Break	Model: TB24//TB14.8 Supplier: Foshan LAMPSTONE Plastic Co., Ltd
Drainage	Sizes: 35 mm (Width) × 5 mm (Height) Quantity: 5
Gasket	Model: MDF12018/MDF12024/MDF12021/MDF12011/EP190D/2083/EP775H Material: EPDM Supplier: Foshan Gui Mi Rubber & Plastic Co., Ltd

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Table 1 Product Information(Cont.)

Hardware	1. Spindle Drive Handle with Koln; Model: F800019 2. Espagnolette with Tilt Lock Point-2300mm; Model: F020009 3. Front & Rear Roller; Model: F800016 4. Connecting Rod-850mm; Model: F020004 5. Space pack-17mm; Model: F140003 6. Screw Pack; Model: F110011 7. 23 Keeper; Model: F100008 8. Panel Stop; Model: F080001 9. Rest Block; Model: F110008 10. Top Anti-Swing Wheel; Model: MD-FB0004LX-64 11. Top Anti-Swing Wheel; Model: MD-FB0004RX-4 Supplier: CMECH
Sealant of Glass	Model: SS550 Material: Silicone sealant Supplier: Guangzhou Baiyun Chemical Industry Co., Ltd
Installation	The rough opening allowed for a 1/4" shim space. The exterior perimeter of the test specimen was sealed with silicone sealant.

The sample ID number was S230616166GZU.002. 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
Operating Force Test	Maximum force to initiate motion	180 N	Maximum force to initiate motion	147 N	Pass
	Maximum force to maintain motion	115 N	Maximum force to maintain motion	82 N	
Air leakage resistance test	Maximum air leakage at +75 Pa	0.5 L/s·m^2	Air leakage at +75 Pa	0.19 L/s·m^2	Pass
	Maximum air leakage at -75 Pa	0.5 L/s·m^2	Air leakage at -75 Pa	0.24 L/s·m^2	
Water penetration resistance test	Minimum water pressure	290 Pa	Test Pressure	290 Pa	Pass
			No water penetration occurred at 290Pa by the method of cyclic static air pressure difference during and after test.		
Uniform load deflection test at design pressure	Design Pressure (DP)	1920 Pa	Test Pressure	1920 Pa	Pass
			Maximum deflection at handle side stile	1.9 mm	
			Maximum deflection at interlocking stile	7.3 mm	

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Table 2 Test Result(Cont.)

Test Description	Requirements (Class CW-PG40)		Results		Verdict
Uniform load structural test	Structural Test Pressure (STP)	2880 Pa	Test Pressure	2880 Pa	Pass
			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.		
			Maximum deflection at handle side stile	0.3 mm	
			Maximum deflection at interlocking stile	2.1 mm	
Deglazing test	Load for vertical sash member: 320 N		Movement of vertical sash member: 8.7% Operation of test specimen was normal after testing. And there was no glazing breakage.		Pass
	Panel members shall not move from their original position by more than 90% of the original glazing bite. The test specimen shall not be damaged in any way that would inhibit normal operation of the window or door. And there shall be no glazing breakage.				
Forced-entry Resistance Test	Minimum Grade 10		Test Class	Grade 10	Pass
			After test, there was no opening which allows for entrance through the tested specimen. The sash remained locked and closed. Lock was not disengaged.		

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Appendix A: Sample Drawings

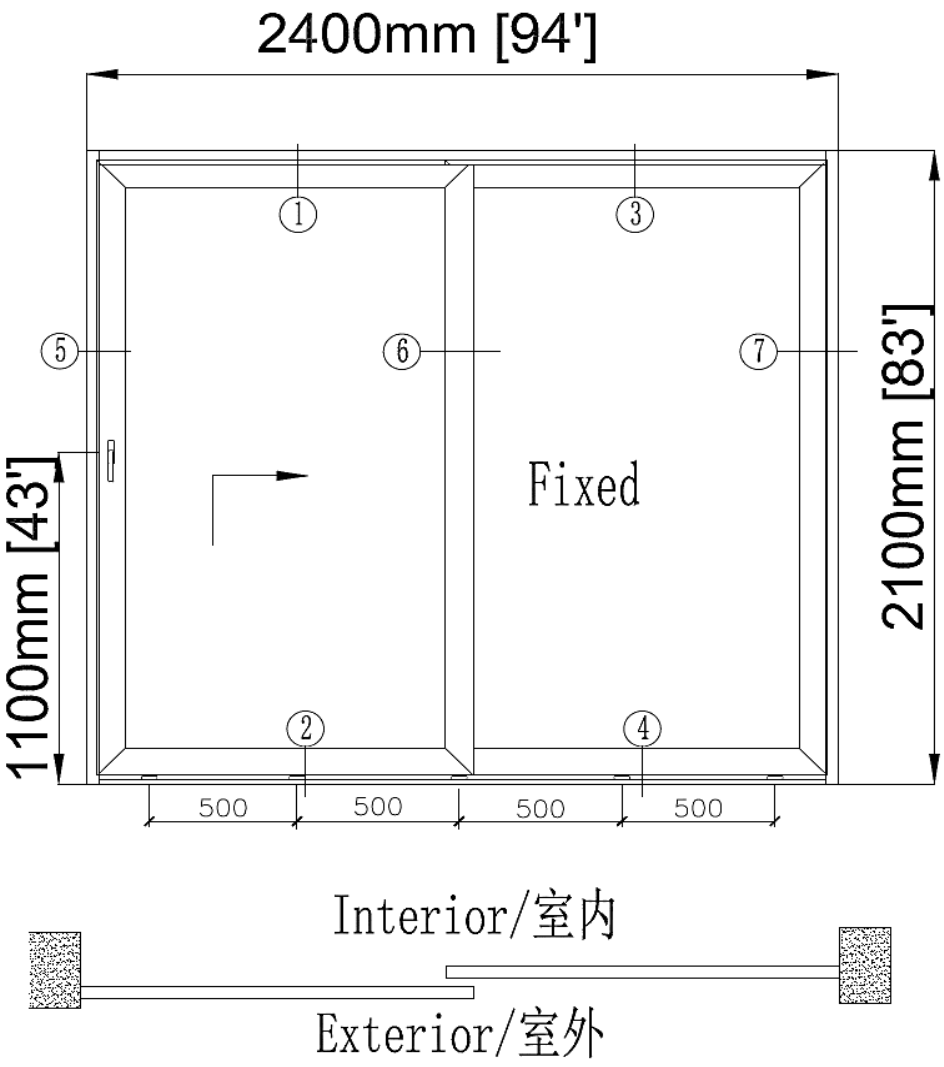


Fig.1 Drawing of Representative Sample

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Appendix A: Sample Drawings (Cont.)

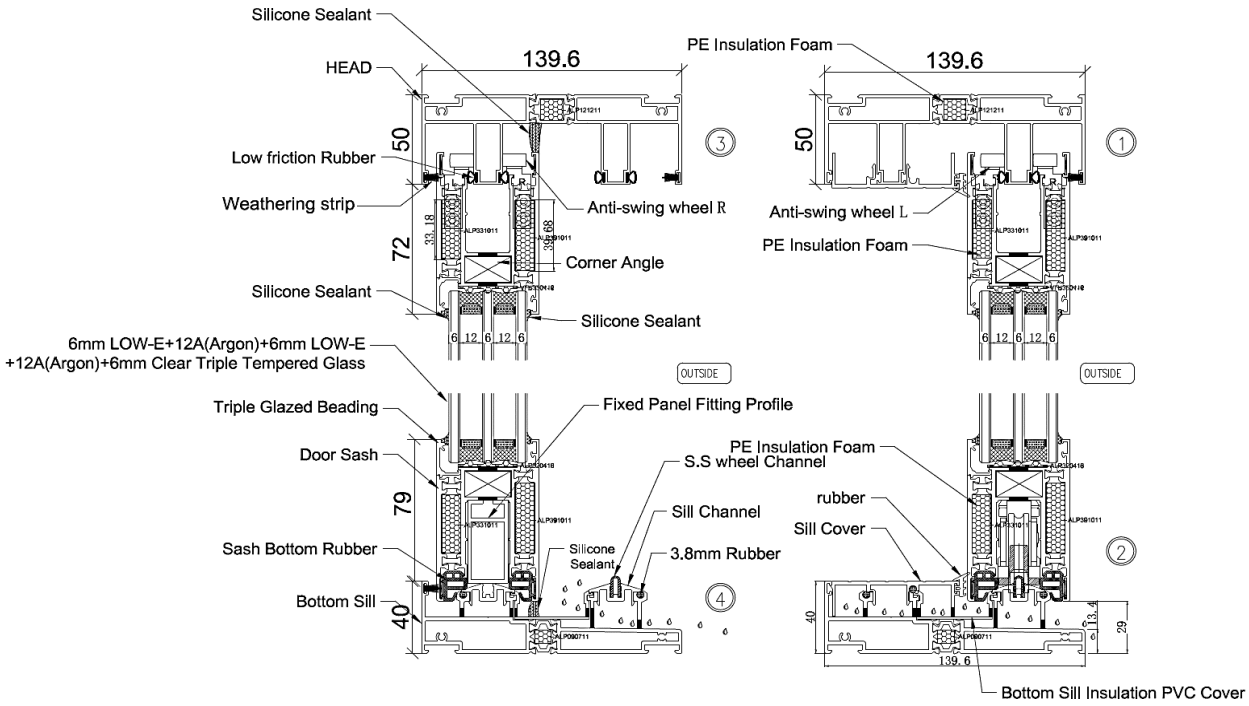


Fig.2 Drawing of Representative Sample

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Appendix A: Sample Drawings (Cont.)

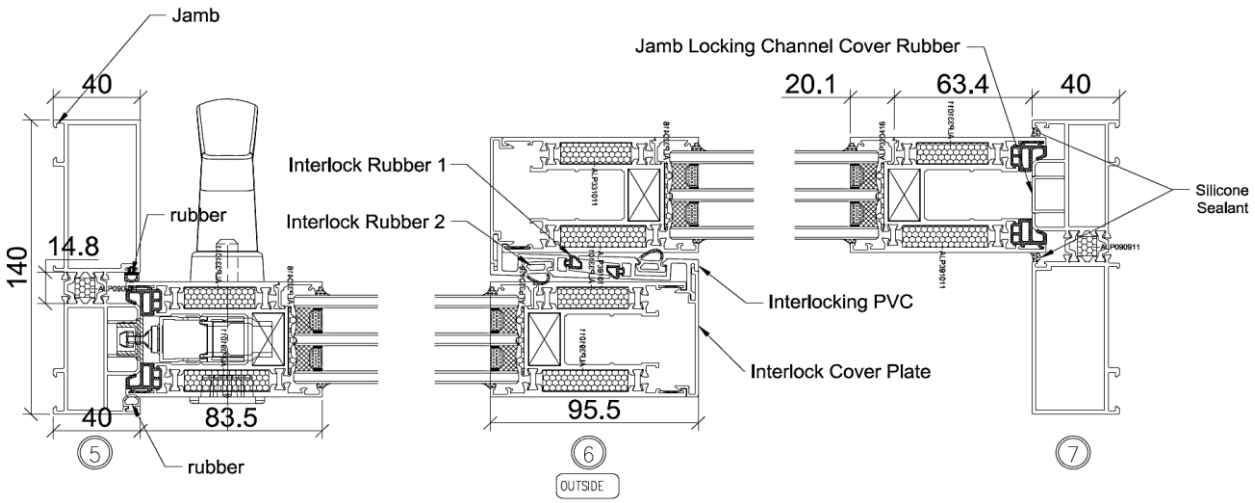


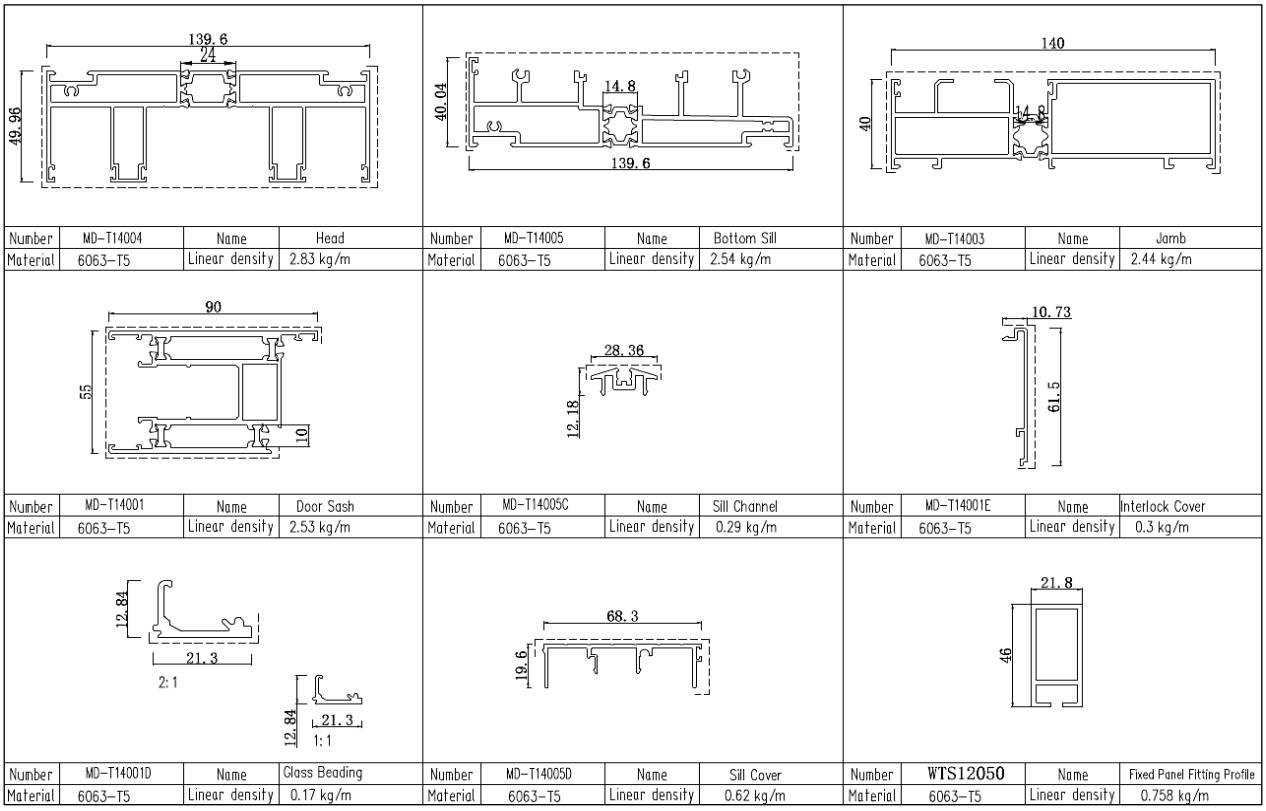
Fig.3 Drawing of Representative Sample

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Appendix A: Sample Drawings (Cont.)



Number	MD-T14004	Name	Head
Material	6063-T5	Linear density	2.83 kg/m

Number	MD-T14005	Name	Bottom Sill
Material	6063-T5	Linear density	2.54 kg/m

Number	MD-T14003	Name	Jamb
Material	6063-T5	Linear density	2.44 kg/m

Number	MD-T14001	Name	Door Sash
Material	6063-T5	Linear density	2.53 kg/m

Number	MD-T14005C	Name	Sill Channel
Material	6063-T5	Linear density	0.29 kg/m

Number	MD-T14001E	Name	Interlock Cover
Material	6063-T5	Linear density	0.3 kg/m

Number	MD-T14001D	Name	Glass Beading
Material	6063-T5	Linear density	0.17 kg/m

Number	MD-T14005D	Name	Sill Cover
Material	6063-T5	Linear density	0.62 kg/m

Number	WTS12050	Name	Fixed Panel Fitting Profile
Material	6063-T5	Linear density	0.758 kg/m

Fig.4 Drawing of profile section

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Appendix A: Sample Drawings (Cont.)

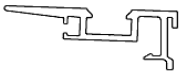
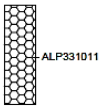
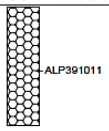
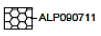
			
Number MDF12021 Name Head/sash rubber	Number 5*8 Name Brush	Number MDF12018 Name Bottom Sash Rubber	Number MDF10001 Name S.S Bottom Sill Rail
			
Number MDF11014 Name Sill Insulated PVC	Number MDF12006 Name 3.8mm rubber	Number MDF11015 Name Jamb cover plate	Number MDF11022 Name Interlock PVC Locking
			
Number MDF12011 Name Interlock Rubber 2	Number MDF12024 Name Interlock Rubber 1	Number ALP121211 Name PE Insulation Foam	Number ALP331011 Name PE Insulation Foam
			
Number ALP391011 Name PE Insulation Foam	Number ALP090911 Name PE Insulation Foam	Number ALP090711 Name PE Insulation Foam	Number ALP320416 Name PE Insulation Foam
			
Number EP190D Name rubber	Number 2083/3.8 Name rubber	Number EP775H Name rubber	

Fig.5 Drawing of accessory

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Appendix A: Sample Drawings (Cont.)

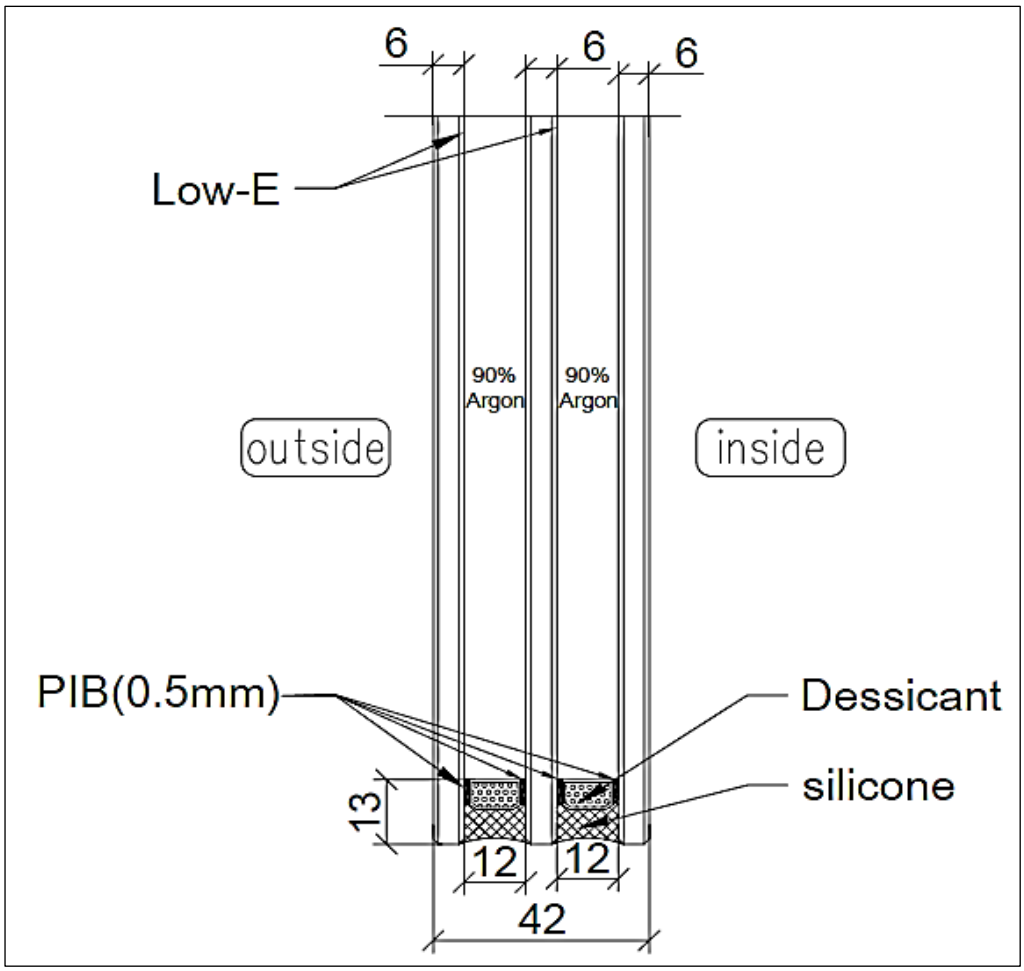


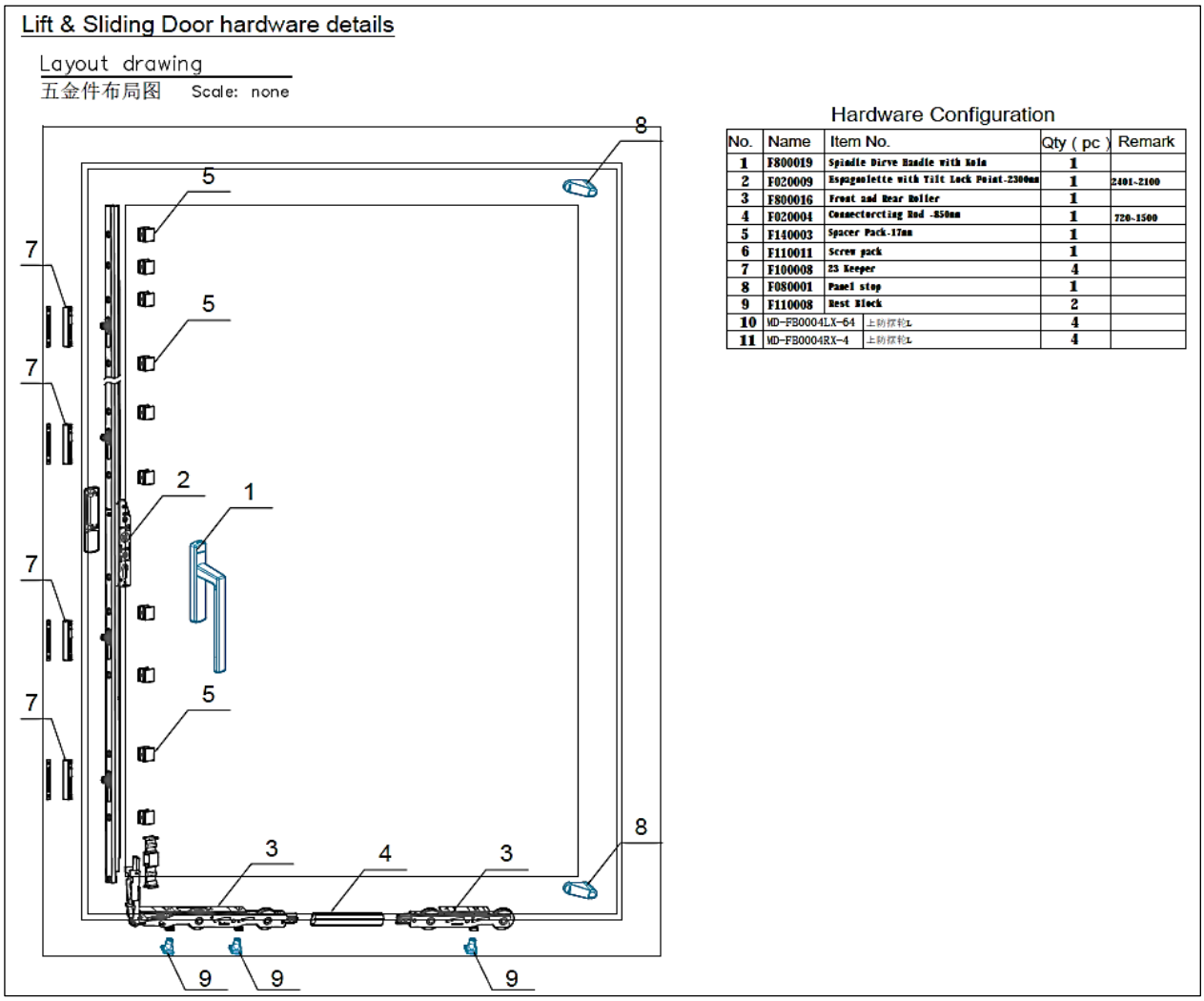
Fig.6 Drawing of glazing

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Appendix A: Sample Drawings (Cont.)



Hardware Configuration

No.	Name	Item No.	Qty (pc)	Remark
1	F800019	Spindle Dirve Handle with Key	1	
2	F020009	Espagnolette with Tilt Lock Point-2300mm	1	2401-2100
3	F800016	Front and Rear Roller	1	
4	F020004	Connectorcting Rod -850mm	1	720-1500
5	F140003	Spacer Pack-17mm	1	
6	F110011	Screw pack	1	
7	F100008	25 Keeper	4	
8	F080001	Panel stop	1	
9	F110008	Rest Block	2	
10	WD-FB0004LX-64	上防撑轮L	4	
11	WD-FB0004RX-4	上防撑轮L	4	

Fig.7 Hardware

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Appendix B: Test Data

B.1 Operating Force Test

Table B.1 Test Data of Operating Force Test

Force Type		Force Data, N				Requirement	Verdict
		1#	2#	3#	Average		
Initiate motion	Open	148	149	144	147	No more than 180N	Pass
	Close	86	89	84	86		
Maintain motion	Open	79	82	86	82	No more than 110N	Pass
	Close	67	72	73	71		

The tested specimen met the requirements of Operating Force Test as per AAMA/WDMA/CSA 101/I.S.2/A440-17 and CSA A440S1-19.

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Appendix B: Test Data

B.2 Air Leakage Resistance Test – Test method: ASTM E283/E283M-2019

Door area: 5.04 m^2 (54.25 ft^2)

Table B.2 Test Data of Air Leakage Resistance Test

	Air Leakage in cfm/ft^2	Air Leakage in $L/s \cdot m^2$
Infiltration rate (75 Pa)	0.037	0.19
Exfiltration rate (75 Pa)	0.048	0.24
Average air leakage rate (75 Pa)	0.043	0.22

The tested specimen met the requirements of Class CW-PG40 for Air Leakage Resistance Test as per AAMA/WDMA/CSA 101/I.S.2/A440-17 and CSA A440S1-19.

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Appendix B: Test Data

B.3 Water resistance test – Test method ASTM E547-2000(R2016)

No water penetration occurred at 290Pa by the method of cyclic static air pressure difference during and after test according to ASTM E547-2000(R2016).

The tested specimen met the requirements of Class CW-PG40 for Water Penetration Resistance Test as per AAMA/WDMA/CSA 101/I.S.2/A440-17 and CSA A440S1-19.

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Appendix B: Test Data

B.4 Uniform Load Deflection Test – Test method ASTM E330/E330M-2014, Procedure A

Span length, L1 = 1940 mm (Point: #1-3 for Handle side stile)
Span length, L2 = 1940 mm (Point: #4-6 for Interlocking stile)

Test Pressure (DP), P = 1920 Pa

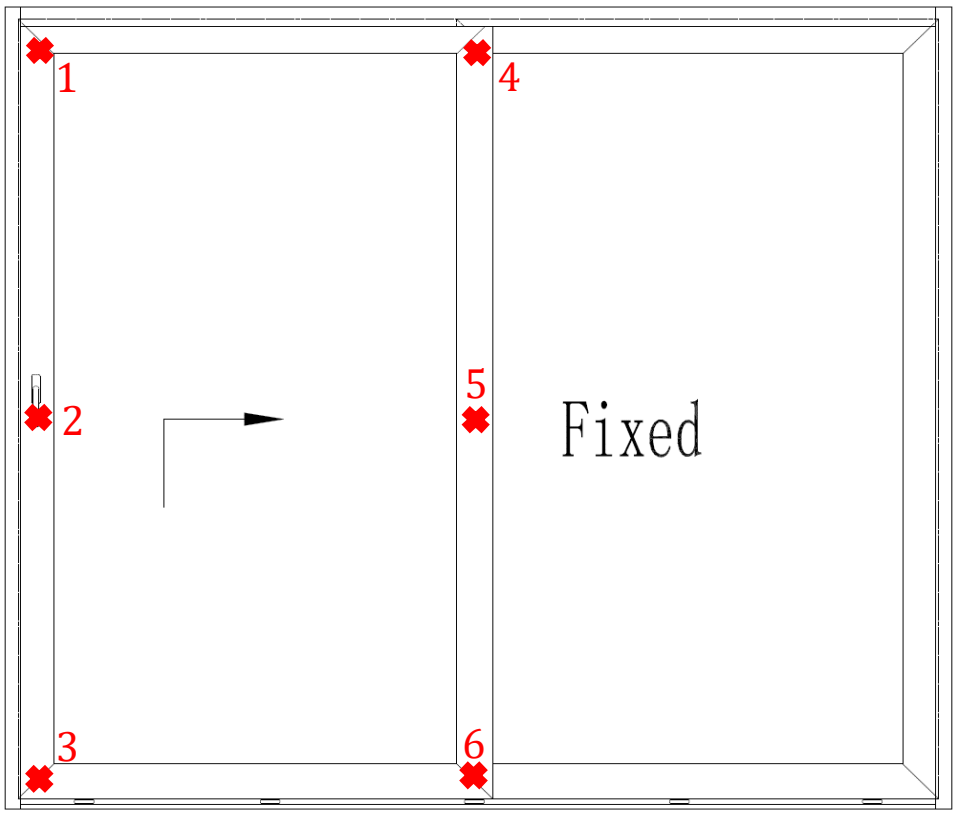


Fig.8 Locations of Displacement Measuring Devices

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

Table B.3 Test Data of Uniform Load Deflection Test

Member (mm)		Test Pressure (Pa)	Displacement (mm)			Deflection
Item	Span Length		1	2	3	
Handle side stile	1940	+P = +1920	0.5	2.4	0.7	1.8
		0	0.1	0.3	0.1	0.2
		-P = -1920	1.2	2.9	0.9	1.9
		0	0.1	0.3	0.1	0.2
Member (mm)		Test Pressure (Pa)	Displacement (mm)			Deflection
Item	Span Length		4	5	6	
Interlocking stile	1940	+P = +1920	3.8	9.1	2.1	6.2
		0	0.1	0.3	0.1	0.2
		-P = -1920	2.9	10.5	3.5	7.3
		0	0.1	0.9	0.2	0.8

Table B.4 Test Data of Uniform Load Deflection Test for Handle Side Stile

Test Pressure	Positive		Negative	
	Deflection	Perm. Set	Deflection	Perm. Set
Measurements, mm	1.8	0.2	1.9	0.2
Deflection limit at design pressure, L1/175=11.09 mm				

Table B.5 Test Data of Uniform Load Deflection Test for Interlocking Stile

Test Pressure	Positive		Negative	
	Deflection	Perm. Set	Deflection	Perm. Set
Measurements, mm	6.2	0.2	7.3	0.8
Deflection limit at design pressure, L2/175=11.09 mm				

During each load, no main frame or sash member deflected more than L/175, where L is the length of the unsupported span. And no damage was found, the operation was normal after testing.
The tested specimen met the requirements for Class CW-PG40 for Uniform Load Deflection Test as per AAMA/WDMA/CSA 101/I.S.2/A440-17 and CSA A440S1-19.

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Appendix B: Test Data

B.5 Uniform Load Structrual Test – Test method ASTM E330/E330M-2014, Procedure A

Design Pressure, P = 1920 Pa ; Structural Pressure, P = 2880 Pa

Table B.6 Test Data of Uniform Load Structural Test

Member (mm)		Test Pressure (Pa)	Permanent deformation(mm)			Net permanent deformation,mm
Item	Span Length		1	2	3	
Handle side stile	1940	+P = +2880	—	—	—	—
		0	0.1	0.4	0.2	0.3
		-P = -2880	—	—	—	—
		0	0.1	0.4	0.1	0.3
Member (mm)		Test Pressure (Pa)	Permanent deformation(mm)			Net permanent deformation,mm
Item	Span Length		4	5	6	
Interlocking stile	1940	+P = +2880	—	—	—	—
		0	0.1	1.4	0.2	1.3
		-P = -2880	—	—	—	—
		0	0.3	2.4	0.3	2.1

Table B.7 Test Data of Uniform Load Structural Test for Handle Side Stile

Test Pressure	Perm. Set	
	Positive	Negative
Measurements, mm	0.3	0.3
Permanent deflection limit, L1*0.3%=5.82 mm		

Table B.8 Test Data of Uniform Load Structural Test for Interlocking Stile

Test Pressure	Perm. Set	
	Positive	Negative
Measurements, mm	1.3	2.1
Permanent deflection limit, L2*0.3%=5.82 mm		

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 of Class CW-PG40 for Uniform Load Structrual Test as per AAMA/WDMA/CSA 101/I.S.2/A440-17 and CSA A440S1-19.

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Test Report

Issue Date: 2023/8/21 Intertek Report No. : 230616166GZC-006

Appendix C: Sample Received Photo



REPORT AUTHORIZED

When signed with physical or electronic signature, the contents of this report have been prepared and approved per Intertek's quality process in accordance with ISO 17025.

Approved by:	**Prepared by:**
Ziqing Chen	Oliver zhu
Name: Ziqing Chen	Name: Oliver Zhu
Title: Reviewer	Title: Project Engineer

Revision:

Revision No.	Date	Revision Reason	Revision Summary	Author	Reviewer
R0	/	/	Original Report Issue	/	/

End of Test Report