

Viewmax Windows and Doors Co., Ltd.

TEST REPORT

SCOPE OF WORK

S98 Fixed Window

REPORT NUMBER

240701007SHF-002

TEST DATE(S)

2024-07-15 - 2024-07-16

ORIGINAL ISSUE DATE

2024-08-14

PAGES

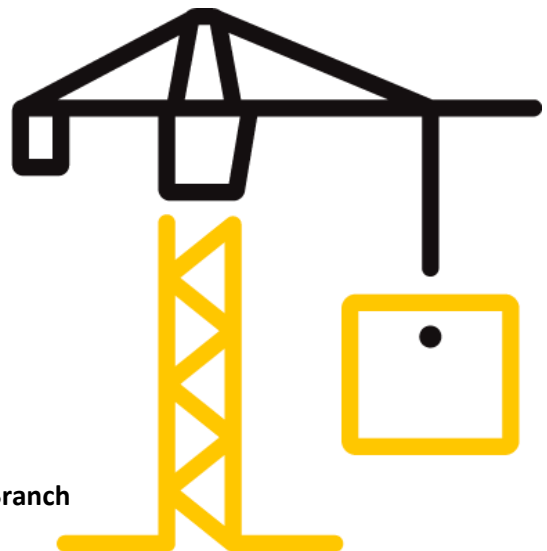
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DOCUMENT CONTROL NUMBER

LFT-APAC-SHF-OP-101(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: 2024-08-14 Intertek Report No. 240701007SHF-002

Applicant: Viewmax Windows and Doors Co., Ltd.
Applicant Address: No.297, Huaxin Road, Yanggu County, Liaocheng City, Shandong Province
Attn: Lu Houchang
Manufacturer: Viewmax Windows and Doors Co., Ltd.
Manufacturer Address: No.297, Huaxin Road, Yanggu County, Liaocheng City, Shandong Province
Product Type: Fixed Window
Product Model: S98
Primary product designator: Class CW - PG70 - Size Tested 2400 × 1800 mm (94.49 × 70.87 in.) - Type FW
Optional secondary designator: Positive Design Pressure = +3360 Pa (70.18 psf)
Negative Design Pressure = -3360 Pa (70.18 psf)
Water penetration resistance test pressure = 720 Pa (15.04 psf)
For Canada: Canadian Air Infiltration/Exfiltration: Fixed Level
SUBJECT: Performance testing
Fixed Window

Product Information

Product Name	Model	Specification
S98 Fixed Window	S98	2400mm(Width) x 1800mm(Height)
Sample ID	Sample Amount	Sample Received Date
S240701007SHF.002	1 Set	2024-07-01
Brand	Sample Description	
Viewmax	The sample was a completely assembled, glazed, functional product, fitted in the test apparatus in accordance with documented instructions.	

Test Methods And Standards

Test Standard	ASTM E283/E283M-2019; ASTM E547-00(R2016); ASTM E330/E330M-2014(R2021); ASTM F588-17
Specification Standard	AAMA/WDMA/CSA 101/I.S.2/A440-17 (NAFS 2017 - North American Fenestration Standard / Specification for Windows, Doors and Skylights) Clause 9.3.2, Clause 9.3.3, Clause 9.3.4 and Clause 9.3.5; CSA A440S1-19 Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440-17 Clause 5.4 and Clause 5.5
Test Conclusion	The results met AAMA/WDMA/CSA 101/I.S.2/A440-17 and CSA A440S1-19 requirements specified on Fixed Window, 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: Zac Zhang Title: Reviewer
Name: Gio Liu Title: Project Engineer

Test Report

Original Issue Date: 2024-08-14

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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 July 1, 2024.

A full scale sample of S98 Fixed Window (Model: S98) 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	S98 Fixed Window
Model	S98
Dimension of Window Frame	2440mm(Width) x 1800mm(Height) x 98mm(Thickness)
Dimension of daylight opening	2290mm(Width) x 1690mm(Height)
Profile	Aluminum Model: S98 Supplier: Huajian Aluminum Industry Group Co., Ltd.
Frame Corner Construction Details:	45° cutting, corner with pin Angle code connection fixed and glued, Surface
Joinery type	laser welding
Reinforcement	None
Glazing	Dimension: 2326mm(Width) x 1726mm(Height) Structure: 51mm thickness, 12mm Tempered + 27mm Ar + 12mm Tempered Glass Supplier: Viewmax Co., Ltd.
Hardware	None
Weather-strip	None
Thermal Break	Model: 500274, 500275; Material: PA66GF25 Supplier: Xin Gao Co., Ltd.
Drainage	Sizes: 30mm(Width) x 5mm(Height); Quantity: 4
Gasket	Model: 463252, 470715, 470716, 463249; Material: EPDM Supplier: Ningbo Conta Sealing Products Co., Ltd.
Sealant	Model: 796 Neutral Silicone Sealant; Material: Silicone Supplier: Dow Corning Ltd.
Installation	The rough opening allowed for a 10mm shim space. The perimeter of the test specimen was fixed by screws every 300mm and sealed with silicone sealant.

The Sample ID was S240701007SHF.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-PG70)		Results		Verdict
2024/7/15					
Air Leakage Resistance Test AAMA/WDMA/CSA1 01/I.S.2/A440-17, Clause 9.3.2 ASTM E283/E283M-2019	Maximum air leakage at +75 Pa	0.2 L/s·m ²	Air leakage at +75 Pa	0.02 L/s·m ²	Pass
	Maximum air leakage at -75 Pa	0.2 L/s·m ²	Air leakage at -75 Pa	0.03 L/s·m ²	
Water Penetration Resistance Test AAMA/WDMA/CSA1 01/I.S.2/A440-17, Clause 9.3.3 ASTM E547-2000 (R2016)	Minimum water pressure	510 Pa	Test Pressure	720 Pa	Pass
			After water sprayed for four cycles in 24 minutes at 720 Pa, no water penetration was observed.		
2024/7/16					
Uniform Load Deflection Test AAMA/WDMA/CSA1 01/I.S.2/A440-17, Clause 9.3.4.2 ASTM E330/E330M-2014 (R2021)	Minimum Design Pressure (DP)	3360 Pa	Design Pressure (DP)	+3360 Pa	Pass
			Maximum deflection at Jamb	0.9 mm	
			Maximum deflection at Glazing	7.8 mm	Reported ¹
			Design Pressure (DP)	-3360 Pa	Pass
			Maximum deflection at Jamb	1.3 mm	
			Maximum deflection at Glazing	7.6 mm	Reported ¹

Note: 1. The deflection of the glazing is recorded for reference only.

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Table 2 Test Result (Continued)

Test Description	Requirements (Class CW-PG70)		Results		Verdict
2024/7/16					
Uniform Load Structural Test AAMA/WDMA/CSA1 01/I.S.2/A440-17, Clause 9.3.4.3 ASTM E330/E330M-2014 (R2021)	Minimum Structural Pressure (STP)	5040 Pa	Structural Pressure (STP)	+5040 Pa	Pass
			No significant breakage or damage after ultimate strength was released.		
			Maximum permanent deformation at Jamb	0.2 mm	
			Maximum permanent deformation at Glazing	<0.1 mm	
			Structural Pressure (STP)	-5040 Pa	
			No significant breakage or damage after ultimate strength was released.		
			Maximum permanent deformation at Jamb	0.5 mm	
			Maximum permanent deformation at Glazing	<0.1 mm	
Forced-entry Resistance Test AAMA/WDMA/CSA1 01/I.S.2/A440-17, Clause 9.3.5 ASTM F588-17	Minimum Grade 10		Test Class	Grade 10	Pass
			During the test and upon removal of loads, all locking devices were remained engaged and could not entry.		

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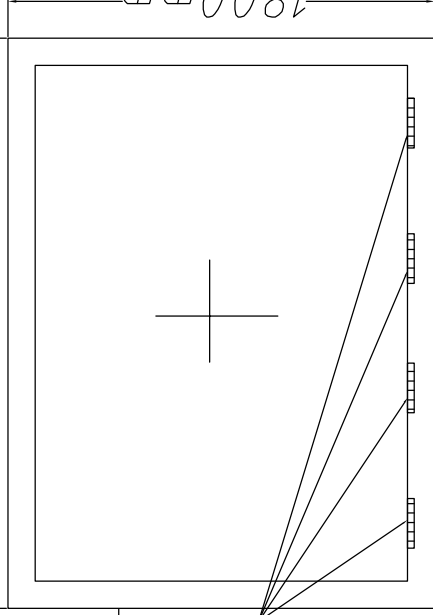
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Appendix A: Sample Drawings

B (WINDOW SIZE)

2400mm

A



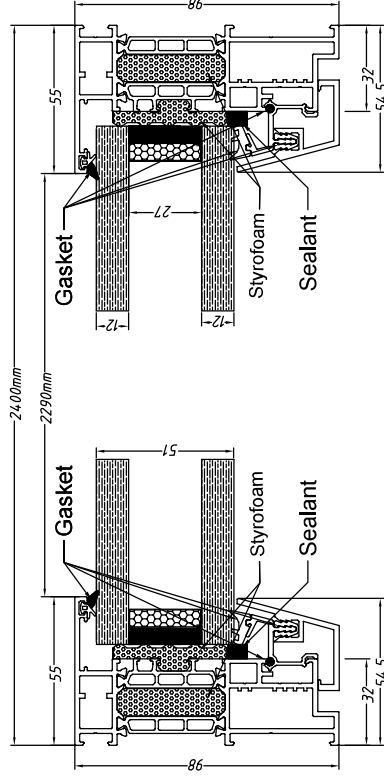
A

(WINDOW SIZE)

1800mm

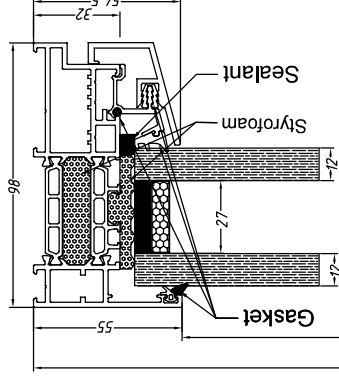
(Drainage)

B



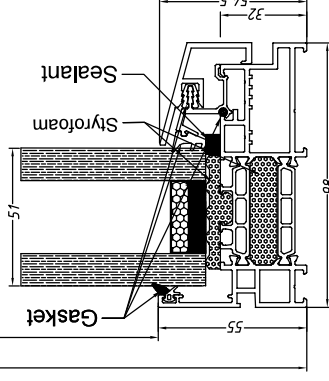
A—A

TYPICAL PLAN DETAIL



1800mm

1690mm



B — B

TYPICAL SECTION DETAIL

viewmax

REVISIONS	DATE

CONER-SGNATURE

PROJECT APPROVED

DESIGN	
DRAWN	
CHECKED	
SPECIAL FIELD IN CHARGE	

PROJECT

TITLE

PROJ.NO.

DWG.NO.

SCALE

DATE

intertek

Report #:

240701007SHF-002

Date:

08/14/24

Verified by:

Fig.2 Drawing of Representative Sample

viewmax		
REVISIONS		
DATE		
CONER-SIGNATURE		
PROJECT APPROVED		
DESIGN		
DRAWN		
CHECKED		
SPIAL FIELD IN CHARGE		
PROJECT		
TITLE		
PROJ.NO.		
DWG.NO.		
D-03		
SCALE	DATE	

284112			284111			284113		
500274			500275			281111		
284112			500269			500269		
463252			470715			463249		
470716								

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2407010075HF-002

Date:

08/14/24

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Fig.3 Drawing of Representative Sample

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Appendix B: Test Data

B.1 Air Leakage Resistance Test – Test method ASTM E283/E283M-2019

Overall area: 4.32 m²

Table B.1 Test Data of Air Leakage Resistance Test

Infiltration rate (75 Pa)	0.02 L/s·m ²	<0.01 cfm/ft ²
Exfiltration rate (75 Pa)	0.03 L/s·m ²	0.01 cfm/ft ²
Requirements (75 Pa): U.S. (only) maximum allowable leakage for Class CW Windows; Canadian (only) air Infiltration / Exfiltration levels for Class CW Windows: Fixed Level	0.2 L/s·m ²	0.04 cfm/ft ²

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

The tested specimen met the requirements for Canadian (only) Air Infiltration / Exfiltration levels for Class CW windows: Fixed level for Air Leakage Resistance Test as per AAMA/WDMA/CSA 101/I.S.2/A440-17.

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Appendix B: Test Data

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

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

After water sprayed for four cycles in 24 minutes 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-PG70 for Water Penetration Resistance Test as per AAMA/WDMA/CSA 101/I.S.2/A440-17.

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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 = 1700 mm Set Points (1-3)

Span length, L = 1660 mm Set Points (4-6)

Test Pressure (DP), P = 3360 Pa (70.18 psf)

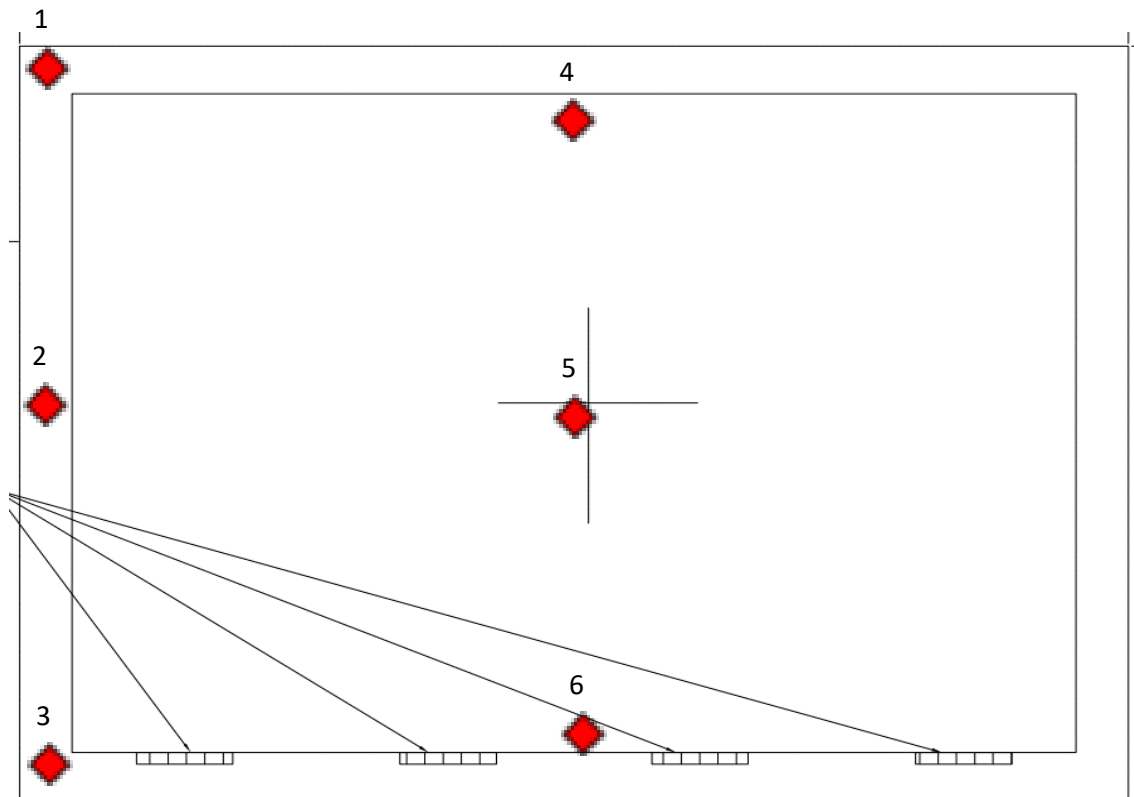


Fig.5 Locations of Displacement Measuring Devices

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Table B.2 Test Data of Uniform Load Deflection Test

Member (mm)		Test Pressure (Pa)	Deflection (mm)			Maximum Deflection(mm)
Item	Span Length		1	2	3	
Jamb	1700	+P = 3360	0.1	1.2	0.5	0.9
		0	<0.1	0.2	0.1	0.2
		-P = -3360	0.1	1.6	0.5	1.3
		0	0.1	0.2	0.1	0.1
Member (mm)		Test Pressure (Pa)	Deflection (mm)			Maximum Deflection(mm)
Item	Span Length		4	5	6	
Glazing	1660	+P = 3360	3.3	11.5	4.1	7.8
		0	0.5	0.4	0.4	<0.1
		-P = -3360	3.5	11.5	4.4	7.6
		0	0.5	0.4	0.3	<0.1

Table B.3 Test Data of Uniform Load Deflection Test for Jamb

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Maximum Deflection		Maximum Deflection	
3360 Pa (70.18 psf)	0.9	(0.04)	1.3	(0.05)
Span length, L = 1700 mm (66.93 in.) Deflection limit L/175 = 9.7 mm (0.38 in.)				

Table B.4 Test Data of Uniform Load Deflection Test for Glazing

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Maximum Deflection		Maximum Deflection	
3360 Pa (70.18 psf)	7.8	(0.31)	7.6	(0.30)
Span length, L = 1660 mm (65.35 in.) No Deflection limit.				

The tested specimen met the requirements for Class CW-PG70 for Uniform Load deflection Test at Design Pressure as per AAMA/WDMA/CSA 101/I.S.2/A440-17.

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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 = 3360 Pa (70.18 psf)

Structural Pressure, P = 5040 Pa (105.26 psf)

Table B.5 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	
Jamb	1700	+P = 5040	–	–	–	–
		0	<0.1	0.2	0.1	0.2
		-P = -5040	–	–	–	–
		0	<0.1	0.5	0.1	0.5
Permanent Deformation limit, L x 0.3% = 5.1 mm						
Member (mm)		Test Pressure (Pa)	Permanent deformation(mm)			Maximum permanent deformation(mm)
Item	Span Length		4	5	6	
Glazing	1660	+P = 5040	–	–	–	–
		0	0.5	0.3	0.4	<0.1
		-P = -5040	–	–	–	–
		0	0.6	0.5	0.4	<0.1
No Permanent Deformation limit.						

Table B.6 Test Data of Uniform Load Structural Test For Jamb

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Perm. Set		Perm. Set	
5040 Pa (105.26 psf)	0.2	(0.01)	0.5	(0.02)

Table B.7 Test Data of Uniform Load Structural Test For Glazing

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Perm. Set		Perm. Set	
5040 Pa (105.26 psf)	<0.1	(<0.01)	<0.1	(<0.01)

After the test loads were released, there was no failure or permanent deformation of any part of the window 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-PG70 for Uniform Load Structure Test at Structural Pressure as per AAMA/WDMA/CSA 101/I.S.2/A440-17.

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Appendix C: Sample Received Photo



Revision:

NO.	Date	Changes
240701007SHF-002	2024-08-14	First issue