

US WEATHERSEAL WINDOWS & DOORS CORP.

TEST REPORT

SCOPE OF WORK

70MM FIXED WINDOW

REPORT NUMBER

210524009SHF-001-R1

TEST DATE(S)

2021-06-28

ISSUE DATE

2021-07-09

REVISED DATE

2021-07-09

PAGES

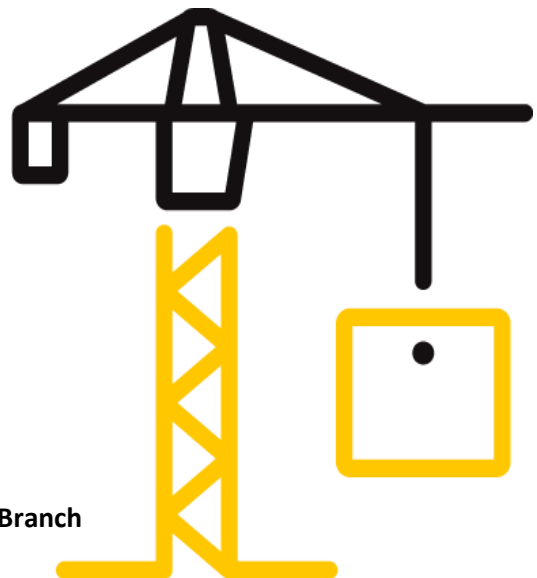
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Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch



Test Report

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Test Report

Issue Date: 2021-07-09 Intertek Report No. 210524009SHF-001-R1

Applicant: US WEATHERSEAL WINDOWS & DOORS CORP.
Applicant Address: 4918 3RD AVENUE, BROOKLYN, NY 11220
Attn: Tracy Wu
Product Type: Fixed Window
Product Model: WS-70
Primary product designator: Class CW - PG40 - Size Tested 1981 X 2438 mm (78 X 96 in) - Type FW
Optional 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)
SUBJECT: Performance testing
Fixed window

Product Information

Product Name	70MM Fixed Window	Brand	/
Sample Description	Good Condition	Sample Amount	1 set
		Received Date	2021-06-22
Sample ID	Model	Specification	
S210524009SHF.001	WS-70	1981mm(W) x 2438mm(H)	


Test Methods And Standards

Test Standard	ASTM E283/E283M-19; ASTM E547-2000(R2016); ASTM E330-2014; ASTM F588-2017
Specification Standard	AAMA/WDMA/CSA 101/I.S.2/A440-17 (NAFS 2017 - North American Fenestration Standard / Specification for Windows, Doors and Skylights)
Test Conclusion	The samples were tested according to the above standards, and the results are shown in the following page.

Note:

1.This report relates specifically to the sample(s) that were drawn and provided by the applicant or their nominated third party. The reported result(s) provide no warranty or verification on the sample(s) representing any specific goods and/or shipment and only relate to the sample(s) as received and tested.

Report Authorized



 Name: Fred Bao Title: Approver
 Name: Zac Zhang Title: Reviewer
 Name: Gio Liu Title: Project Engineer

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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 June 22, 2021.

A full scale sample of 70mm Fixed Window (Model: WS-70) 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	70mm Fixed Window
Model	WS-70 Series
Dimension of window frame	1981mm(Width) x 2438mm(Height) x 70mm(Thickness)
Dimension of window Sash	Not Applicable
Aluminum Profile	Model: LAN-70 Manufacturer: US Weatherseal Window & Door Corp.
Frame Corner Construction Details: Joinery type	The corners utilized corner key in the interior and exterior hollows. The keys were stacked once on each side of the key. Joinery type: Mitered
Reinforcement	None
Glazing	Dimension: 1855mm(Width) x 2312mm(Height) Structure: 6mm+12A+6mm+12A+6mm Low-E Supplier: Jiangsu JiaCheng Special Glass Manufacturing Co., Ltd.
Hardware	Not Applicable
Weather-strip	Not Applicable
Thermal Break	Model: (1)6x33mm; (2)10x33mm Material: PA66GF25 Nylon insulation strip Supplier: Shandong Huajian Aluminum Group Co., Ltd.
Drainage	Sizes: 25mm x 8mm(Width x Height) Quantity: 5
Gasket (between sash and frame)	Model: (1) 0508204; (2)0508306 Material: EPDM Supplier: Jiangyin Haida Rubber & Plastic Co., Ltd.

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Table 1 Product Information(Continued)

Sealant of Glass	Model: T796 Neutral silicone sealant Material: silicone sealant Supplier: Hangzhou Zhijiang Silicone Chemicals Co., Ltd.
Installation	The rough opening allowed for a 3mm shim space at the jambs and a 1.5mm shim space at the head and sill. The exterior perimeter of the window was sealed with silicone.

The sample ID number was S210524009SHF.001. 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
Air Leakage Resistance Test AAMA/WDMA/CSA1 01/I.S.2/A440-17, Clause 9.3.2 ASTM E283/E283M- 19 2021/06/28	Maximum air leakage at +75 Pa	0.5 L/s·m ²	Air leakage at +75 Pa	0.05 L/s·m ²	Pass
	Maximum air leakage at -75 Pa	0.5 L/s·m ²	Air leakage at -75 Pa	0.04 L/s·m ²	
			Average air leakage rate	0.04 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) 2021/06/28	Minimum water pressure	290 Pa (6.06 psf)	Test Pressure	580 Pa (12.11 psf)	Pass
			After water sprayed for complete four cycles in 24 minutes at 580 Pa (12.11 psf), there was no water penetration.		
Uniform Load Deflection Test AAMA/WDMA/CSA1 01/I.S.2/A440-17, Clause 9.3.4.2 ASTM E330-2014 2021/06/28	Minimum Design Pressure (DP)	1920 Pa (40.10 psf)	Design Pressure (DP)	1920 Pa (40.10 psf)	Pass
			Maximum deflection at Jamb	1.9 mm	
Uniform Load Structural Test AAMA/WDMA/CSA1 01/I.S.2/A440-17, Clause 9.3.4.3 ASTM E330-2014 2021/06/28	Minimum Structural Pressure (STP)	2880 Pa (60.15 psf)	Structural Pressure (STP)	2880 Pa (60.15 psf)	Pass
			No significant breakage or damage after ultimate strength was released.		
			Maximum permanent deformation at Jamb	0.1 mm	
Forced-entry Resistance Test AAMA/WDMA/CSA1 01/I.S.2/A440-17, Clause 9.3.5 ASTM F588-2017 2021/06/28	Minimum Grade 10		Test Class	Grade 10	Pass
			After test, there was no damage and permanent deformation.		

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Appendix A: Sample Drawings

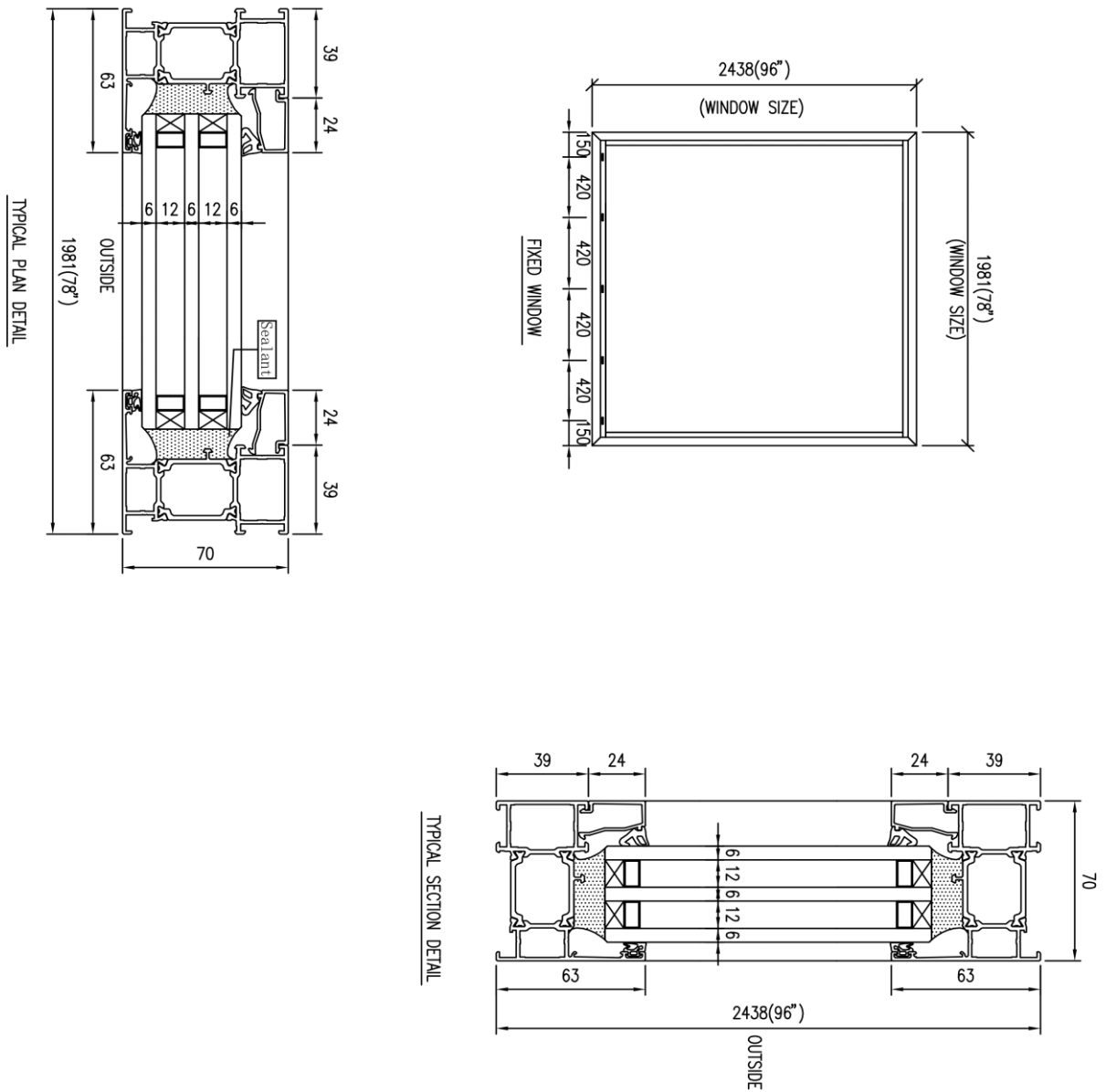


Fig.1 Drawing of Representative Sample

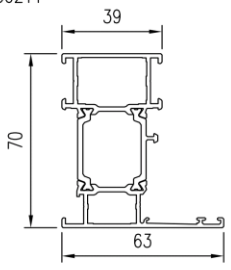
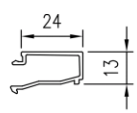
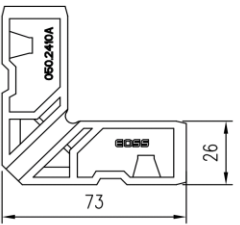
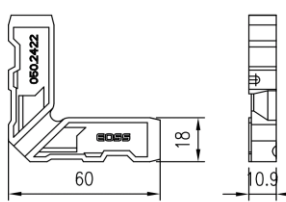

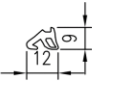
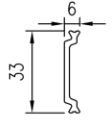
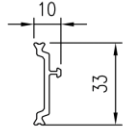
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<p>0030211</p>  <p>Window frame</p>	<p>0011133</p>  <p>Line pressing</p>	<p>0502410</p>  <p>Corner connector</p>	<p>0502422</p>  <p>Corner connector</p>
<p>0508204</p>  <p>Adhesive tape outside glass</p>	<p>0508306</p>  <p>Inner glass adhesive strip</p>	 <p>Insulation strip</p>	 <p>Insulation strip</p>

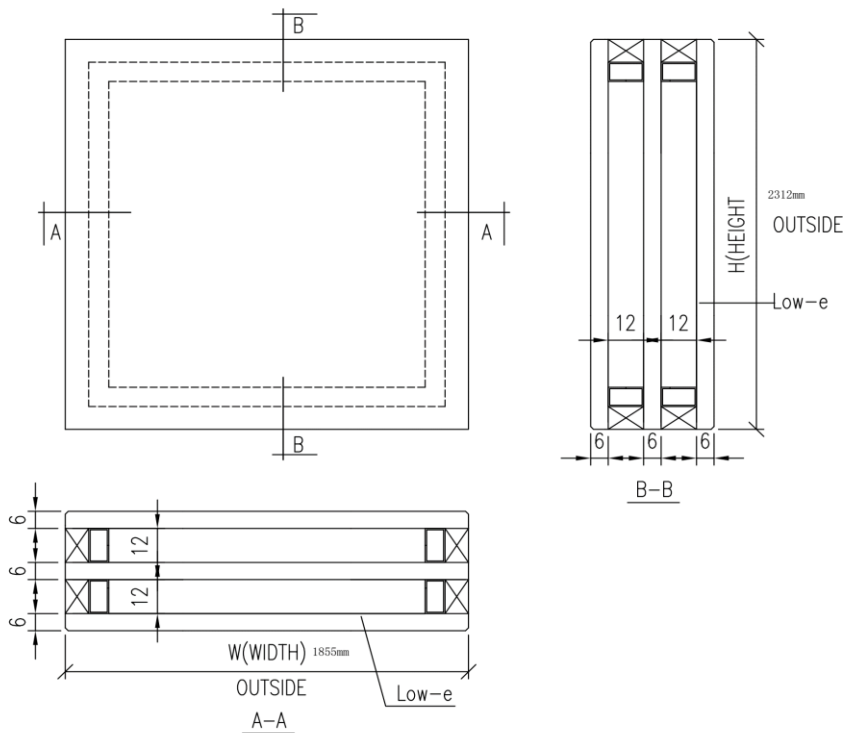


Fig.2 Drawing of Representative Sample

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Appendix B: Test Data

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

Overall area: 4.83 m²**Table B.1 Test Data of Air Leakage Resistance Test**

Infiltration rate (75 Pa)	0.05 L/s·m ²	0.01 cfm/ft ²
Exfiltration rate (75 Pa)	0.04 L/s·m ²	0.01 cfm/ft ²
Average air leakage rate (75 Pa)	0.04 L/s·m ²	0.01 cfm/ft ²
Air leakage rate for class CW of Fixed Window (75 Pa)	0.5 L/s·m ²	0.10 cfm/ft ²

The tested specimen met the requirements for class CW of 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 E547-2000(R2016)

No water penetration occurred when the pressure was 580 Pa (12.11 psf).

After water sprayed for complete four cycles in 24 minutes at 580 Pa (12.11 psf), there was no water penetration.

Test result: $P_{\max} = 580$ Pa (12.11 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/A440-17.

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Appendix B: Test Data

B.3 Uniform Load Deflection Test – Test method ASTM E330-2014, Procedure A

Span length, L = 2320 mm Set Points (1-3)

Span length, L = 1800 mm Set Points (4-6)

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

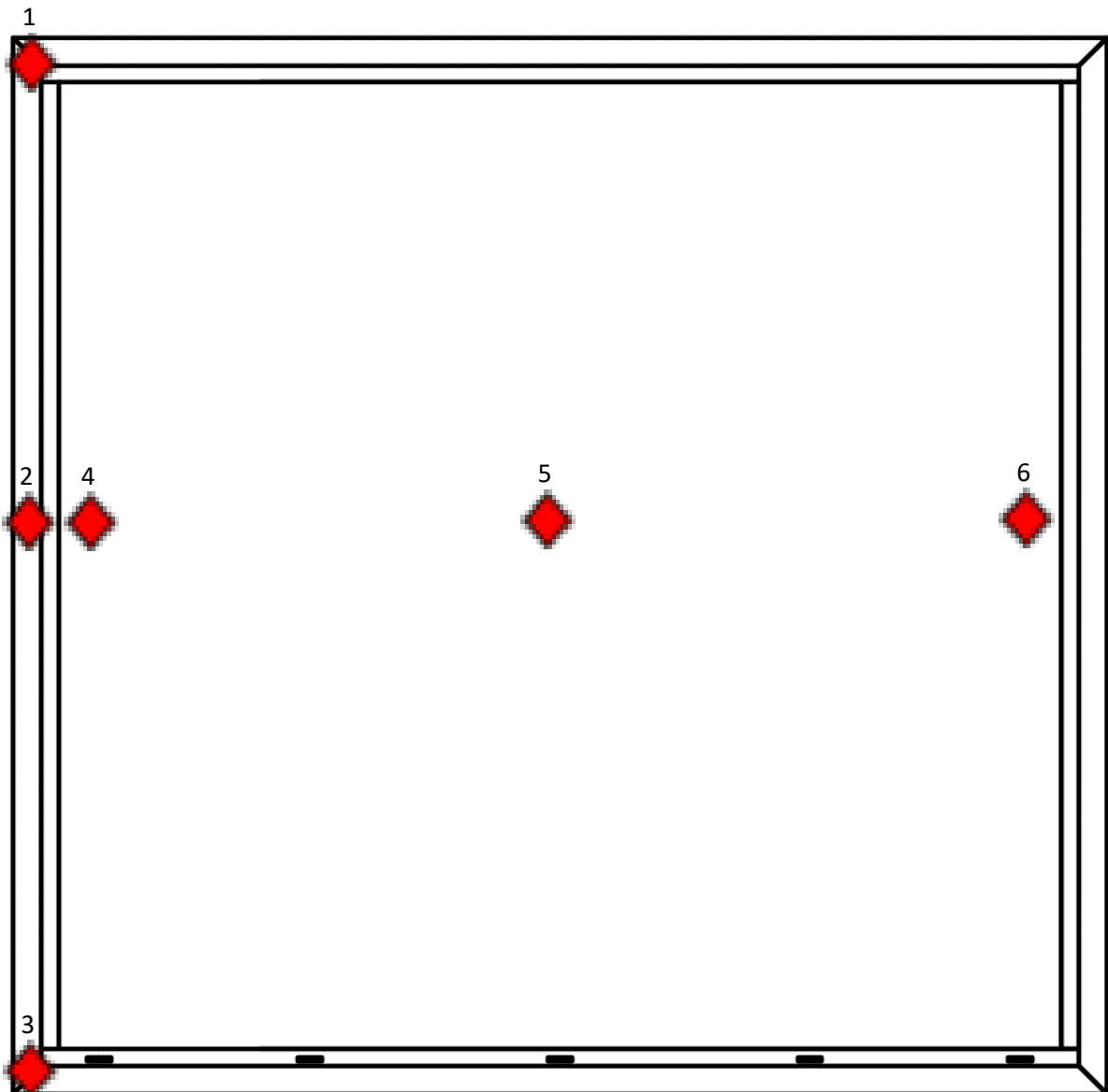


Fig.3 Locations of Displacement Measuring Devices

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Table B.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	2320	+P = 1920	0.2	0.7	0.3	0.4
		0	0.1	0.2	0.1	0.1
		-P = -1920	0.3	2.3	0.5	1.9
		0	0.1	0.3	0.1	0.2
Member (mm)		Test Pressure (Pa)	Deflection (mm)			Maximum Deflection(mm)
Item	Span Length		4	5	6	
Glazing	1800	+P = 1920	1.9	21.2	1.8	19.4
		0	0.3	0.2	0.3	<0.1
		-P = -1920	4.9	18.1	4.3	13.5
		0	0.4	0.5	0.5	<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	
1920 Pa (40.10 psf)	0.4	(0.02)	1.9	(0.07)
Span length, L =	2320 mm	(91.34 in.)	Deflection limit L/175 =	13.26 mm (0.52 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	
1920 Pa (40.10 psf)	19.4	(0.76)	13.5	(0.53)
Span length, L =	1800 mm	(70.87 in.)	Report Only.	

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/A440-17.

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Appendix B: Test Data

B.4 Uniform Load Structural Test – Test method ASTM E330-2014, Procedure A

Design Pressure, P = 1920 Pa (40.10 psf)

Structural Pressure, P = 2880 Pa (60.15 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	2320	+P = 2880	–	–	–	–
		0	0.1	0.2	0.1	0.1
		-P = -2880	–	–	–	–
		0	<0.1	0.1	0.2	<0.1
Permanent Deformation limit, L x 0.3% = 6.96 mm						
Member (mm)		Test Pressure (Pa)	Permanent deformation(mm)			Maximum permanent deformation(mm)
Item	Span Length		4	5	6	
Glazing	1800	+P = 2880	–	–	–	–
		0	0.3	0.4	0.5	<0.1
		-P = -2880	–	–	–	–
		0	0.2	0.1	0.1	<0.1
Report Only.						

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

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Perm. Set		Perm. Set	
2880 Pa (60.15 psf)	0.1	(<0.01)	<0.1	(<0.01)

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

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

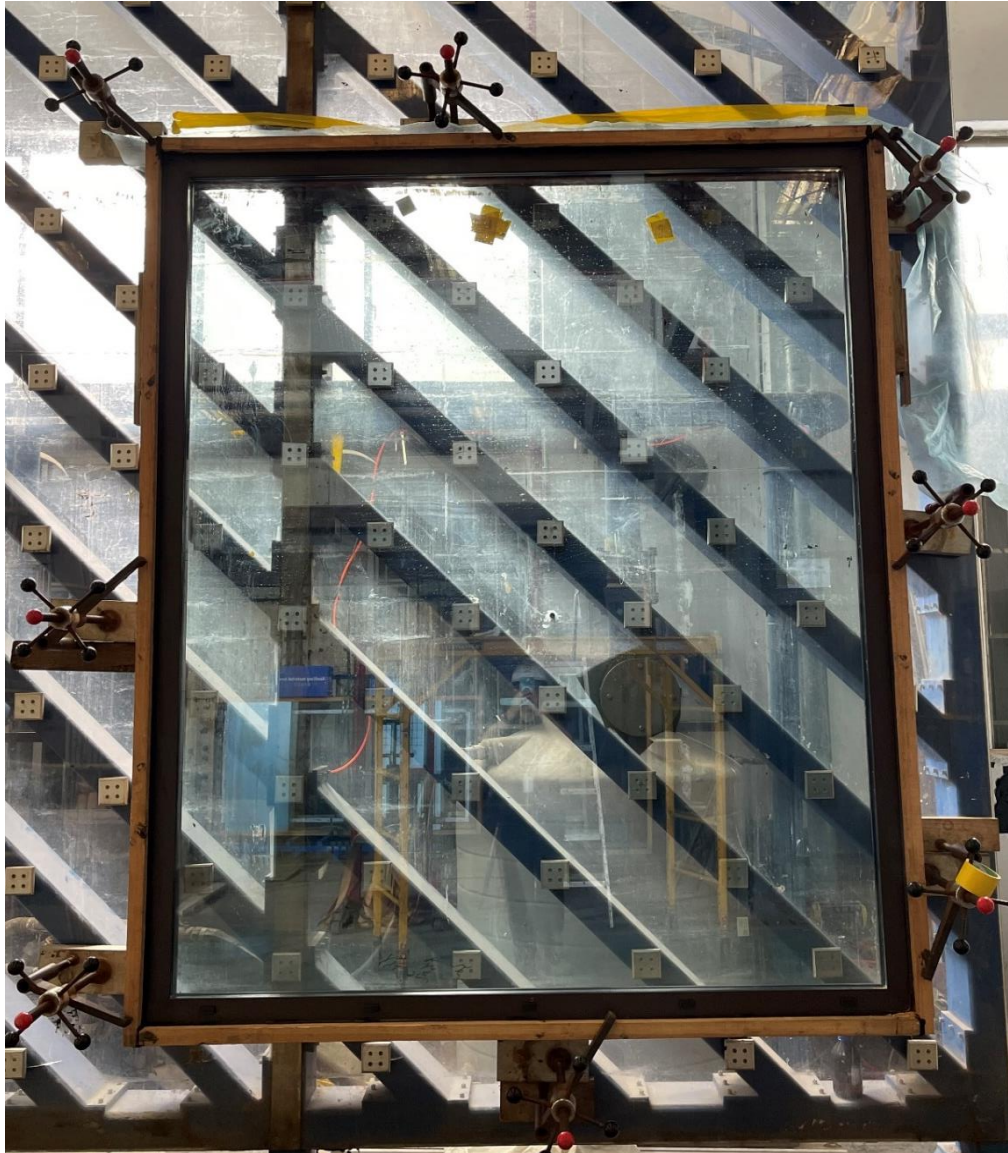
The tested specimen met the requirements for Class CW-PG40 for Uniform Load Structure Test as per AAMA/WDMA/CSA 101/I.S.2/A440-17.

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Appendix C: Sample Received Photo



Revision:

NO.	Date	Changes
210524009SHF-001	2021-07-09	First issue
210524009SHF-001-R1	2021-07-09	"Maximum deflection at Jamb" was revised to "Maximum permanent deformation at Jamb" in Test Result of Table 2 on Page 6

Note: Since the issue date of 210524009SHF-001-R1 report, the original report 210524009SHF-001 was cancelled at the same time.