Suzhou TRYBA Building Materials Technology Co., Ltd.

TEST REPORT

SCOPE OF WORK
85 Casement Window

REPORT NUMBER
251203013SHF-002

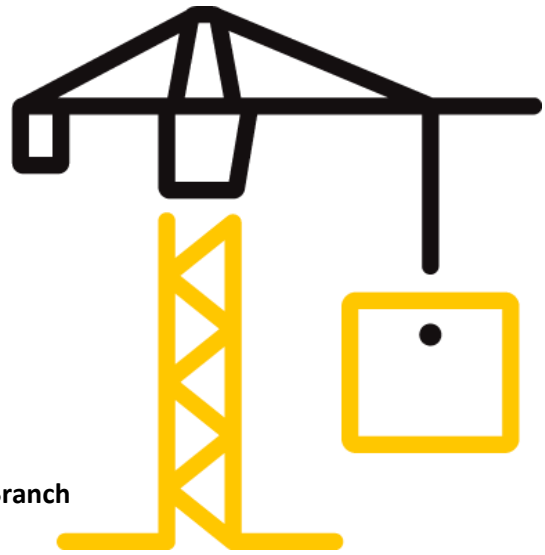
TEST DATE(S)
2025-12-10 - 2025-12-11

ORIGINAL ISSUE DATE
2025-12-24

PAGES
20

DOCUMENT CONTROL NUMBER
LFT-APAC-SHF-OP-10k(January 13, 2025)
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Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch



Test Report

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Test Report

Original Issue Date:	2025-12-24	Intertek Report No.	251203013SHF-002

Applicant:	Suzhou TRYBA Building Materials Technology Co., Ltd.
Applicant Address:	36th floor, Jinhe International Building, 35 Shishan Road, Huqiu District, Suzhou City
Attn:	Alisa
Manufacturer:	TRYBA (Shanghai) Windows Co., Ltd.
Manufacturer Address:	No.38, Mingye Road, Sheshan Industrial Park, Songjiang District, Shanghai
Product Type:	Casement Window
Product Model:	85 Energy-saving C Series
Primary product designator:	Class CW - PG50 - Size Tested 800 × 1500 mm (31.50 × 59.06 in.) - C
Optional secondary designator:	Positive Design Pressure = +2400 Pa (50.13 psf) Negative Design Pressure = -2400 Pa (50.13 psf) Water penetration resistance test pressure = 720 Pa (15.04 psf)
SUBJECT:	Performance testing

Product Information

Product Name	Model	Specification
85 Casement Window	85 Energy-saving C Series	800mm(Width) x 1500mm(Height)
Sample ID	**Sample Amount**	**Sample Received Date**
S251203013SHF.002	1 Set	2025-12-03
Brand	**Sample Description**	
TRYBA	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-2019; ASTM E547-00(R2016); ASTM E330/E330M-2014(R2021); ASTM F588-17; AAMA/WDMA/CSA101/I.S.2/A440-22 Clause 8.3.1, Clause 8.3.5 and Clause 8.3.6.4
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 8.3.6.4; CSA A440S1-25 Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440-22 Clause 5.3 and Clause 5.4
Test Conclusion	The results met AAMA/WDMA/CSA 101/I.S.2/A440-22 and CSA A440S1-25 requirements specified on Casement 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.
2. This test item was conducted in one of our multi-sites address of Plant 3-5, No. 6978 Daye Road, Fengxian District, Shanghai (No. 4-South Plant, No. 161 Litai Road).

Report Authorized

Name: Gio Liu
Title: Reviewer

Name: John Zhang
Title: Project Engineer

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Test Items, Method and Results：

2 Test Result

Table 2 Test Result

Test Description	*Requirements (Class CW-PG50)*		*Results*		*Verdict*
2025/12/10					
Operating Force Test AAMA/WDMA/CSA 101/I.S.2/A440-22, Clause 8.3.1	Maximum force to initiate motion	60 N	Maximum force to initiate motion	35 N	Pass
	Maximum force to maintain motion	60 N	Maximum force to maintain motion	24 N	
	Maximum force to initiate motion for Rotary Operators	Reported	Maximum force to initiate motion for Rotary Operators	25 N	Reported
	Maximum force to maintain motion for Rotary Operators	Reported	Maximum force to maintain motion for Rotary Operators	16 N	
Air Leakage Resistance Test AAMA/WDMA/CSA 101/I.S.2/A440-22, Clause 8.3.2 ASTM E283/E283M-2019	Maximum air leakage at+75 Pa	1.0 $L/s \cdot m^2$	Air leakage at +75 Pa	0.14 $L/s \cdot m^2$	Pass
	Maximum air leakage at-75 Pa	1.0 $L/s \cdot m^2$	Air leakage at -75 Pa	0.17 $L/s \cdot m^2$	
Water Penetration Resistance Test AAMA/WDMA/CSA 101/I.S.2/A440-22, Clause 8.3.3 ASTM E547-00 (R2016)	Minimum water pressure	360 Pa	Test Pressure	720 Pa	Pass
			After water sprayed for four cycles in 24 minutes at 720 Pa, no water penetration was observed.		

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Table 2 Test Result (Continued)

Test Description	*Requirements (Class CW-PG50)*		*Results*		*Verdict*
2025/12/10					
Uniform Load Deflection Test AAMA/WDMA/CSA 101/I.S.2/A440-22, Clause 8.3.4.2 ASTM E330/E330M-2014(R2021)	Minimum Design Pressure (DP)	2400 Pa	Design Pressure (DP)	+2400 Pa	Pass
			Maximum deflection at Stile at handle side	0.4 mm	
			Maximum deflection at Bottom Rail	0.3 mm	
			Design Pressure (DP)	-2400 Pa	
			Maximum deflection at Stile at handle side	0.3 mm	
			Maximum deflection at Bottom Rail	0.2 mm	
Uniform Load Structural Test AAMA/WDMA/CSA 101/I.S.2/A440-22, Clause 8.3.4.3 ASTM E330/E330M-2014 (R2021)	Minimum Structural Pressure (STP)	3600 Pa	Structural Pressure (STP)	+3600 Pa	Pass
			No significant breakage or damage after ultimate strength was released.		
			Maximum permanent deformation at Stile at handle side	<0.1 mm	
			Maximum permanent deformation at Bottom Rail	<0.1 mm	
			Structural Pressure (STP)	-3600 Pa	
			No significant breakage or damage after ultimate strength was released.		
			Maximum permanent deformation at Stile at handle side	0.1 mm	
			Maximum permanent deformation at Bottom Rail	<0.1 mm	
2025/12/11					
Forced-entry Resistance Test AAMA/WDMA/CSA 101/I.S.2/A440-22, Clause 8.3.5 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.		
Casement hardware load Test AAMA/WDMA/CSA 101/I.S.2/A440-22, Clause 8.3.6.4	The Load to the sash	300 Pa	The Load to the sash	300 Pa	Pass
			After applied load for 10s, the sash was properly and fully close. There was no failure of screws, track, or hinge, or permanent deformation of support arms.		

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Appendix B: Test Data

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

Overall Area: 1.20 m^2

Table B.1 Test Data of Air Leakage Resistance Test

Infiltration rate (75 Pa)	0.14 $L/s \cdot m^2$	0.03 cfm/ft^2
Exfiltration rate (75 Pa)	0.17 $L/s \cdot m^2$	0.03 cfm/ft^2
Requirements (75 Pa): Maximum allowable leakage for Class CW Windows	1.0 $L/s \cdot m^2$	0.2 cfm/ft^2

The Casement Window met the requirements for Class CW Windows for Air Leakage Resistance Test as per AAMA/WDMA/CSA 101/I.S.2/A440-22.

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 Pa (15.04 psf).

The tested specimen met the requirements for Class CW-PG50 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 = 1330 mm Set Points (1-3)
Span length, L = 650 mm Set Points (3-5)

Test Pressure (DP), P = 2400 Pa (50.13 psf)

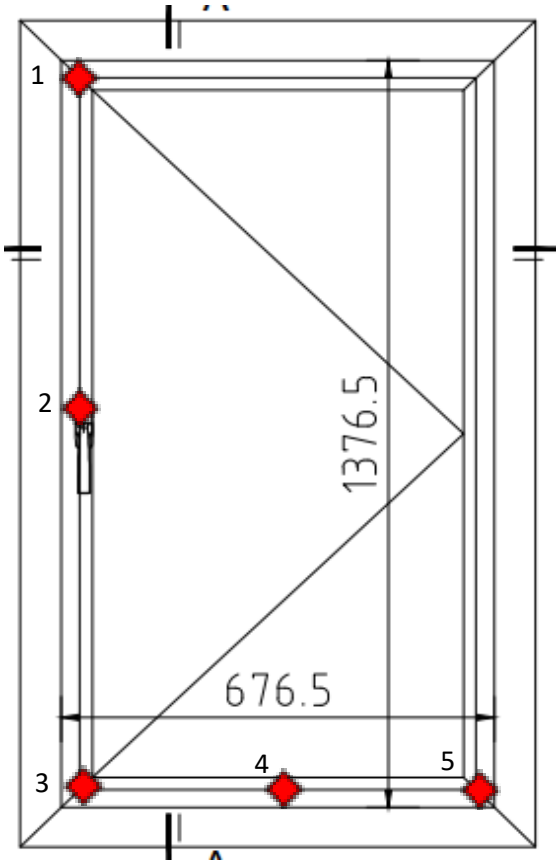


Fig.8 Locations of Displacement Measuring Devices

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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	
Stile at handle side	1330	+P = 2400	0.6	1.0	0.6	0.4
		0	0.1	0.1	<0.1	0.1
		-P = -2400	0.3	0.6	0.3	0.3
		0	0.1	0.1	0.1	<0.1
Member (mm)		Test Pressure (Pa)	Deflection (mm)			Maximum Deflection(mm)
Item	Span Length		3	4	5	
Bottom Rail	650	+P = 2400	0.6	0.8	0.5	0.3
		0	<0.1	0.1	0.1	0.1
		-P = -2400	0.3	0.6	0.5	0.2
		0	0.1	0.1	0.2	<0.1

Table B.3 Test Data of Uniform Load Deflection Test for Stile at handle side

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Maximum Deflection		Maximum Deflection	
2400 Pa (50.13 psf)	0.4	(0.02)	0.3	(0.01)
Span length, L = 1330 mm (52.36 in.)		Deflection limit L/175 = 7.6 mm (0.30 in.)		

Table B.4 Test Data of Uniform Load Deflection Test for Bottom Rail

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Maximum Deflection		Maximum Deflection	
2400 Pa (50.13 psf)	0.3	(0.01)	0.2	(0.01)
Span length, L = 650 mm (25.59 in.)		Deflection limit L/175 = 3.7 mm (0.15 in.)		

The tested specimen met the requirements for Class CW-PG50 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 Structrual Test – Test method ASTM E330/E330M-2014(R2021), Procedure A

Design Pressure, P = 2400 Pa (50.13 psf)
Structural Pressure, P = 3600 Pa (75.19 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	
Stile at handle side	1330	+P = 3600	–	–	–	–
		0	0.1	0.1	0.1	<0.1
		-P = -3600	–	–	–	–
		0	0.1	0.2	0.2	0.1
Permanent Deformation limit, L x 0.3% = 4.0 mm						
Member (mm)		Test Pressure (Pa)	Permanent deformation(mm)			Maximum permanent deformation(mm)
Item	Span Length		3	4	5	
Bottom Rail	650	+P = 3600	–	–	–	–
		0	0.1	0.2	0.3	<0.1
		-P = -3600	–	–	–	–
		0	0.2	0.2	0.3	<0.1
Permanent Deformation limit, L x 0.3% = 2.0 mm						

Table B.6 Test Data of Uniform Load Structural Test For Stile at handle side

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Perm. Set		Perm. Set	
3600 Pa (75.19 psf)	<0.1	(<0.01)	0.1	(<0.01)

Table B.7 Test Data of Uniform Load Structural Test For Bottom Rail

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Perm. Set		Perm. Set	
3600 Pa (75.19 psf)	<0.1	(<0.01)	<0.1	(<0.01)

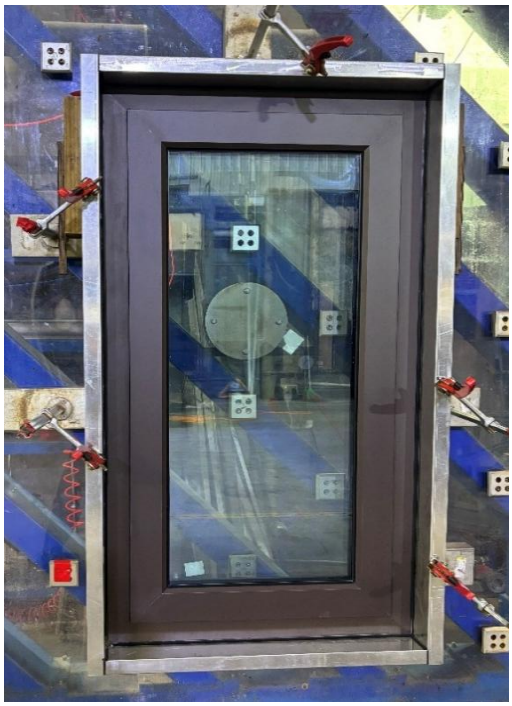
After the test loads were released, there was no failure or permanent deformation of any part of the window system that would cause the test specimen to be inoperable. There was no permanent deformation which was in excess of 0.3% of its span.

The tested specimen met the requirements for Class CW-PG50 for Uniform Load Structure Test at Structural Pressure as per AAMA/WDMA/CSA 101/I.S.2/A440-22.

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Appendix C: Sample Received Photo



Revision:

NO.	Date	Changes
251203013SHF-002	2025-12-24	First issue