Suzhou TRYBA Building Materials Technology Co., Ltd.

TEST REPORT

SCOPE OF WORK
Casement Window

REPORT NUMBER
250529005SHF-001

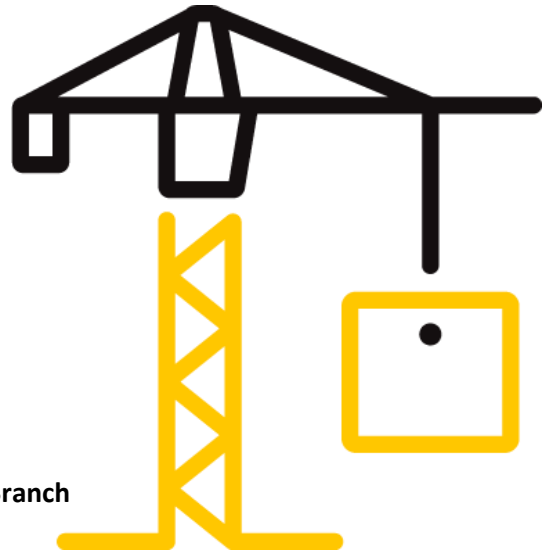
TEST DATE(S)
2025-7-23 - 2025-7-24

ORIGINAL ISSUE DATE
2025-08-05

PAGES
19

DOCUMENT CONTROL NUMBER
LFT-APAC-SHF-OP-10k(January 13, 2025)

Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch



Test Report

Statement

1.This report is invalid without company's special seal for testing on the assigned page.

2.This report is invalid without an authorized person's signature.

3.This report is invalid if altered.

4.Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Don't copy this report in partial without any official approval in written by our company. This report is invalid without re-stamping the special seal for testing in copying report.

5.This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample(s) tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

6.Except for the obligation, responsibility and liability (if any) for the appropriateness and professionality of afore-mentioned testing itself within the scope and amount of the testing fee received, Intertek does not and will not accept any other obligation or liability.

7.If the Client has any questions about the test results, Intertek B&C should be informed within the storage period of the samples. The sample storage period ends 5 working days after the offical report issue date. Samples of certification program are retained for the period required by the certification rules. The samples storage period shall be calculated according to the issue date of the original report in the case of quoting results and modifying reports.

8.Intertek B&C will service this report for the entire test record retention period. The test record retention period ends 6 years after this report original issue date. The test record retention period for certification program is 10 years. Test records and other pertinent project documentation will be retained for the entire test record retention period.

9.The report was digital signed by Shang Hai, Intertek Group plc, please using Adobe Acrobat Reader to verify the authenticity.

Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch
Plant 5 & 11(4F), No. 6958 Daye Road, Fengxian District, Shanghai, China
Tel: +86 21-61136116 Fax: 021-61189921
Website: www.intertek.com

Test Report

Original Issue Date: 2025-08-05 Intertek Report No. 250529005SHF-001

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:	80
Primary product designator:	Class CW - PG30 - Size Tested 900 × 1500 mm (35.43 × 59.06 in.) - C
Optional secondary designator:	Positive Design Pressure = +1440 Pa (30.08 psf) Negative Design Pressure = -1440 Pa (30.08 psf) Water penetration resistance test pressure = 290 Pa (6.06 psf)
SUBJECT:	Performance testing

Product Information

Product Name	Model	Specification
Casement Window	80	900mm(Width) x 1500mm(Height)
Sample ID	**Sample Amount**	**Sample Received Date**
S250529005SHF.001	1 Set	2025-07-20
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 Name: John Zhang
Title: Reviewer Title: Project Engineer

Test Report

Original Issue Date: 2025-08-05 Intertek Report No. 250529005SHF-001

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 20, 2025.

A full scale sample of Casement Window (Model: 80) 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	Casement Window
Model	80
Dimension of Window Frame	900mm(Width) x 1500mm(Height) x 80mm(Thickness)
Dimension of Window Sash	828mm(Width) x 1428mm(Height) x 80mm(Thickness)
Profile	Model: ES80K-B, ES80S-39, ES80WS-B; Material: Vinyl Supplier: Anhui Conch Group Co., Ltd.
Frame Corner Construction Details: Joinery type	45° cut and weld
Reinforcement	Model: ES80K-B, ES80WS-B Reinforced lining steel code: Q195 Supplier: Renqiu Dongjie Metal Materials Co., Ltd.
Glazing	Dimension: 684mm(Width) x 1284mm(Height) Structure: 5mm Clear Tempered(Xinyi Glass) + 12mm Lisec aluminum spacer + 5mm Clear Tempered(Xinyi Glass) with XDTN0179-D#4 + 12mm Lisec aluminum spacer + 5mm Clear Tempered (Xinyi Glass)with XD221266-D#2 Supplier: Xinyi Glass Engineering (Dongguan) Co., Ltd.
Hardware	Specify type: Lock block; Model: PSK20113 Specify type: Handle; Model: P11-L50 Specify type: The Transmission; Model: PCDQWD030XX Specify type: Lifting block; Model: PTSK001 Specify type: Friction hinge; Model: HC400G-80 Specify type: Anti-Detachment hinge; Model: FTQ15 Supplier: Guangdong Kinlong Hardware Products Co., Ltd.
Weather-strip	None
Thermal Break	None
Drainage	None
Sealing Strip	Model: PO, PK, A; Material: EPDM Supplier: Jiangyin Haida Rubber and Plastic Co., Ltd.
Sealant	Model: Antai 173 neutral silicone sealant; Material: Silicone Sealant Supplier: Guangzhou Jitai Chemical Co., Ltd.
Installation	The rough opening allowed for a 50mm shim space. The perimeter of the tested specimen was fixed by screws every 150~200mm and sealed with silicone sealant.

The sample ID was S250529005SHF.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.

Test Report

Original Issue Date: 2025-08-05 Intertek Report No. 250529005SHF-001

Test Items, Method and Results：

2 Test Result

Table 2 Test Result

Test Description	*Requirements (Class CW-PG30)*		*Results*		*Verdict*
2025/7/23					
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	50 N	Pass
	Maximum force to maintain motion	60 N	Maximum force to maintain motion	36 N	
	Maximum force to initiate motion for Rotary Operators	Reported	Maximum force to initiate motion for Rotary Operators	19 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	0.04 $L/s \cdot m^2$	Pass
	Maximum air leakage at-75 Pa	1.0 $L/s \cdot m^2$	Air leakage at -75 Pa	0.12 $L/s \cdot m^2$	
Water Penetration Resistance Test AAMA/WDMA/CSA 101/I.S.2/A440-22, Clause 8.3.3 ASTM E547-00 (R2016)	Minimum water pressure	220 Pa	Test Pressure	290 Pa	Pass
			After water sprayed for four cycles in 24 minutes at 290 Pa, no water penetration was observed.		

Test Report

Original Issue Date: 2025-08-05 Intertek Report No. 250529005SHF-001

Table 2 Test Result (Continued)

Test Description	*Requirements (Class CW-PG30)*		*Results*		*Verdict*
2025/7/23					
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)	1440 Pa	Design Pressure (DP)	+1440 Pa	Pass
			Maximum deflection at Stile at handle side	0.5 mm	
			Maximum deflection at Bottom Rail	0.4 mm	
			Design Pressure (DP)	-1440 Pa	Pass
			Maximum deflection at Stile at handle side	0.7 mm	
			Maximum deflection at Bottom Rail	0.4 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)	2160 Pa	Structural Pressure (STP)	+2160 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)	-2160 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	
2025/7/24					
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.		

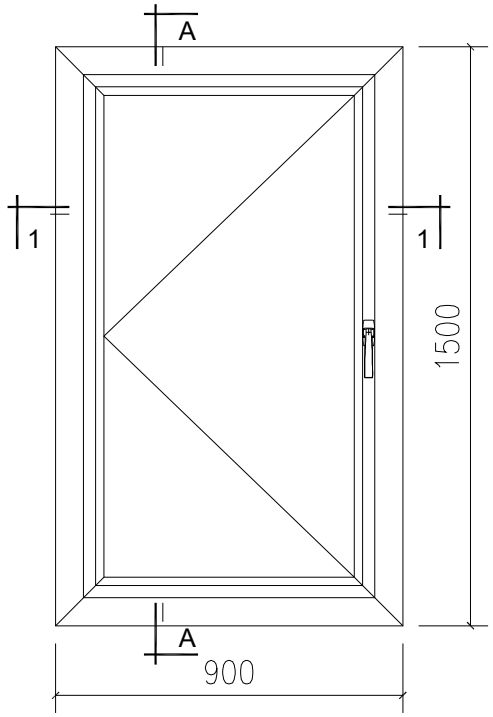
Test Report

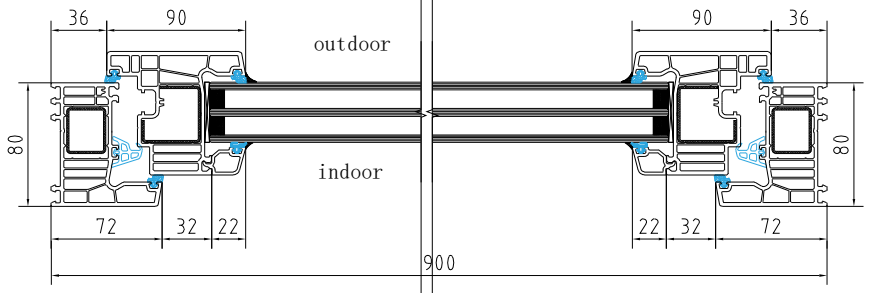
Original Issue Date: 2025-08-05 Intertek Report No. 250529005SHF-001

Appendix A: Sample Drawings

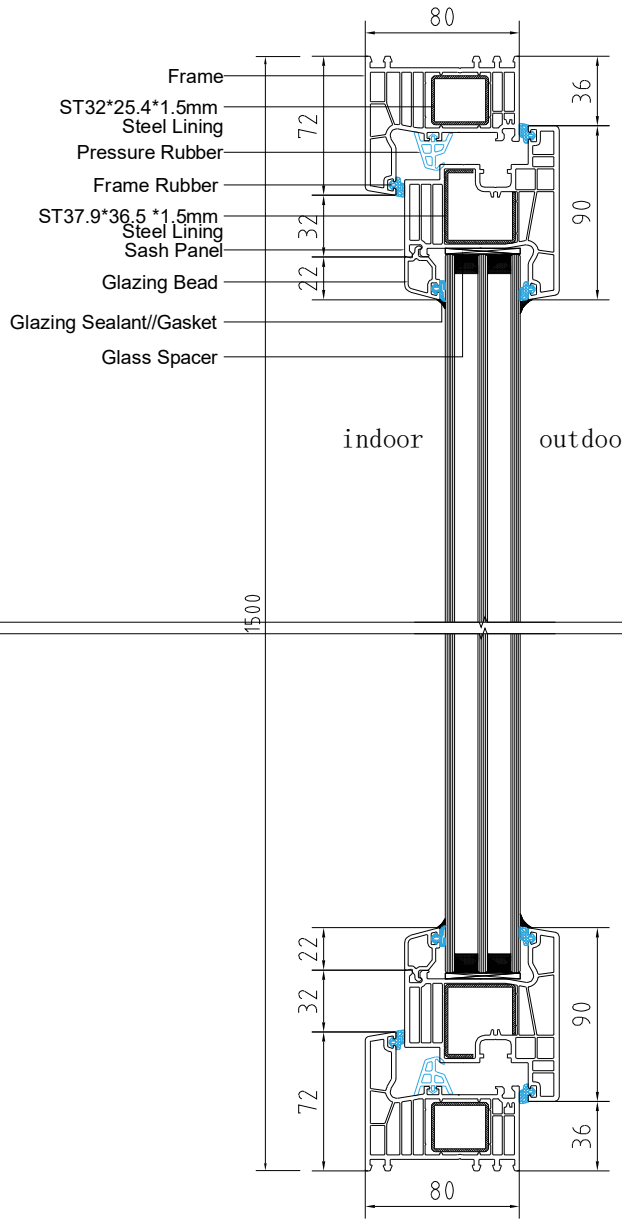
intertek
Total Quality. Assured.

Report #:	250529005SHF-001
Date:	08/05/25
Verified by:	





1-1 Horizontal section
1:5



A-A Vertical profile
1:5

Customer confirmation signature:

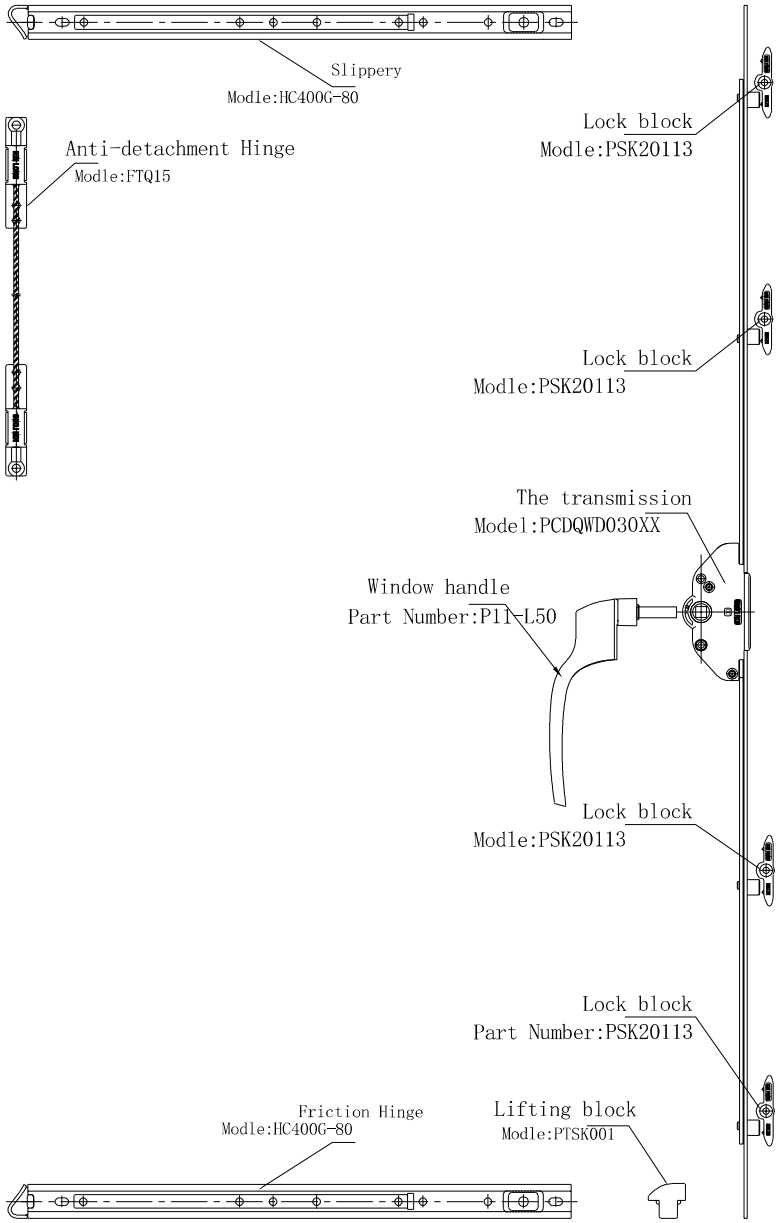
Project name
Customers:

Drawing	Yong Sun
Design	Yong Sun
Check	

Picture name
Profile cross-section layout

The picture number	DYTM02-1
Date of drawing	2025-06-01

Report #:	250529005SHF-001
Date:	08/05/25
Verified by:	



Customer confirmation signature:

Project name
Customers:

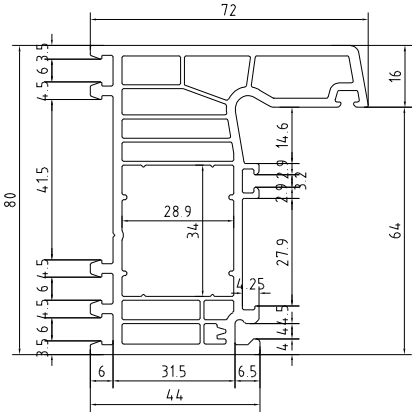
Drawing	Yong Sun
Design	Yong Sun
Check	

Picture name

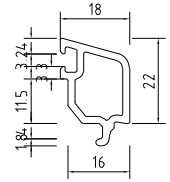
Hardware cross-section diagram

The picture number	DYTM02-2
Date of drawing	2025-06-01

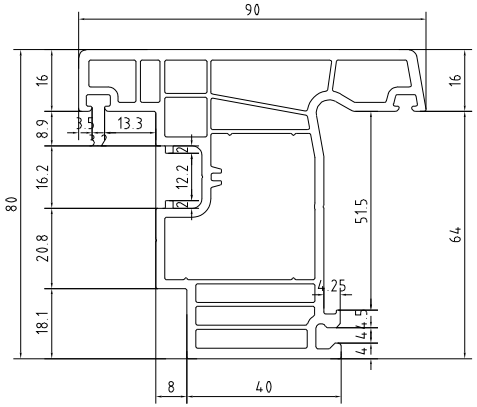
Report #:	250529005SHF-001
Date:	08/05/25
Verified by:	



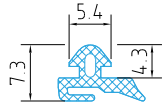
Frame
Modle:ES80K-B



Glazing Bead
Modle:ES80S-39



Sash Panel
Modle:ES80WS-B



Glass Rubber (EPDM)
Leather type: PK type

Customer confirmation signature:

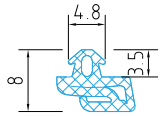
Project name
Customers:

Drawing	Yong Sun
Design	Yong Sun
Check	

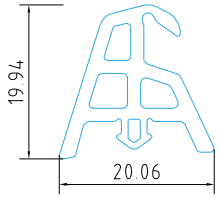
Picture name
The cross-section diagram

The picture number	DYTM02-3
Date of drawing	2025-06-01

Report #:	250529005SHF-001
Date:	08/05/25
Verified by:	

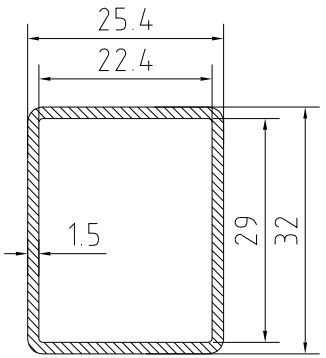


Glass Rubber（EPDM)
Leather type: PO type

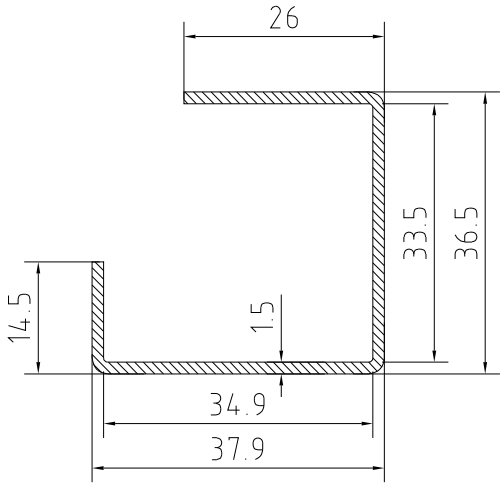


Pressure Rubber（EPDM)
Leather type: A type

Customer confirmation signature:	
Project name Customers:	
Drawing	Yong Sun
Design	Yong Sun
Check	
Picture name	The cross-section diagram
The picture number	DYTM02-4
Date of drawing	2025-06-01



Steel Lining
Part Number:
ES80K-B



Steel Lining
Part Number:
ES80WS-B

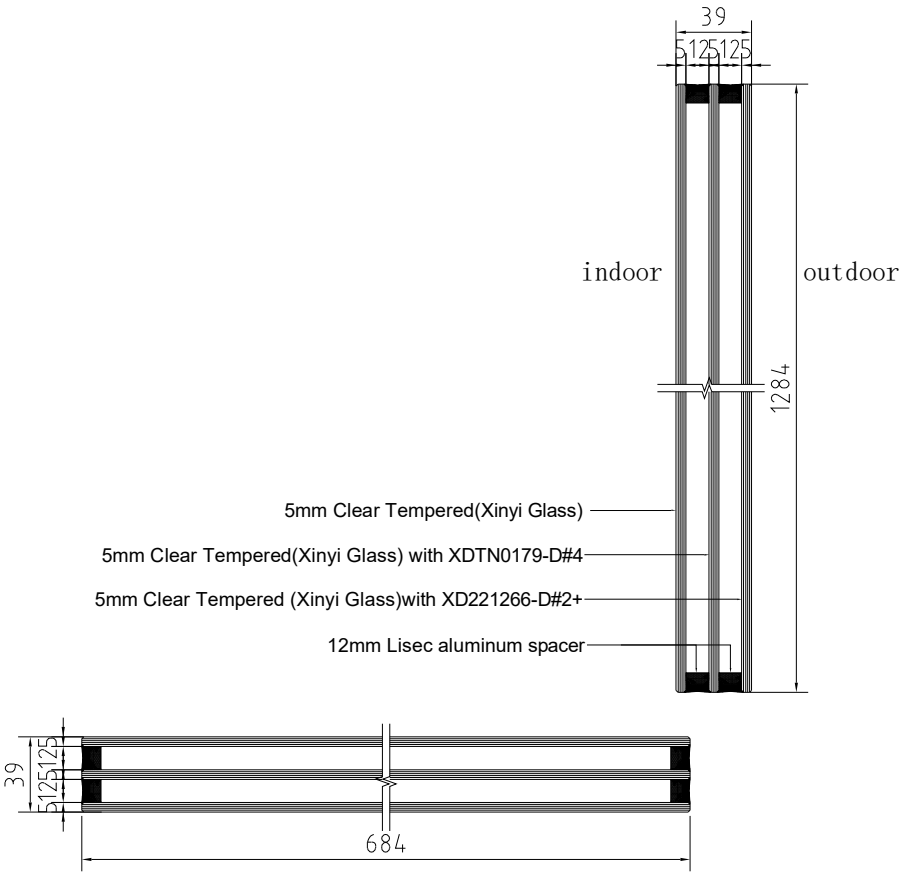
Customer confirmation signature:	
Project name Customers:	
Drawing	Yong Sun
Design	Yong Sun
Check	
Picture name Profile lining steel drawings	
The picture number	DYTM02-5
Date of drawing	2025-06-01

intertek
Total Quality. Assured.

Report #:	250529005SHF-001
Date:	08/05/25
Verified by:	

intertek
Total Quality Assured

Report #:	250529005SHF-001
Date:	08/05/25
Verified by:	



Fan glass

Customer confirmation signature:

Project name
Customers:

Drawing	Yong Sun
Design	Yong Sun
Check	

Picture name

Glass cross-section diagram

The picture number	DYTM02-6
Date of drawing	2025-06-01

Test Report

Original Issue Date: 2025-08-05 Intertek Report No. 250529005SHF-001

Appendix B: Test Data

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

Overall Area: 1.35 m^2

Table B.1 Test Data of Air Leakage Resistance Test

Infiltration rate (75 Pa)	0.04 $L/s \cdot m^2$	0.01 cfm/ft^2
Exfiltration rate (75 Pa)	0.12 $L/s \cdot m^2$	0.02 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 290 Pa (6.06 psf).
After water sprayed for four cycles in 24 minutes at 290 Pa, no water penetration was observed.

Test result: P_{max} = 290 Pa (6.06 psf).

The tested specimen met the requirements for Class CW-PG30 for Water Penetration Resistance Test as per AAMA/WDMA/CSA 101/I.S.2/A440-22.

Appendix B: Test Data

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

Span length, L = 1350 mm Set Points (1-3)
Span length, L = 740 mm Set Points (3-5)

Test Pressure (DP), P = 1440 Pa (30.08 psf)

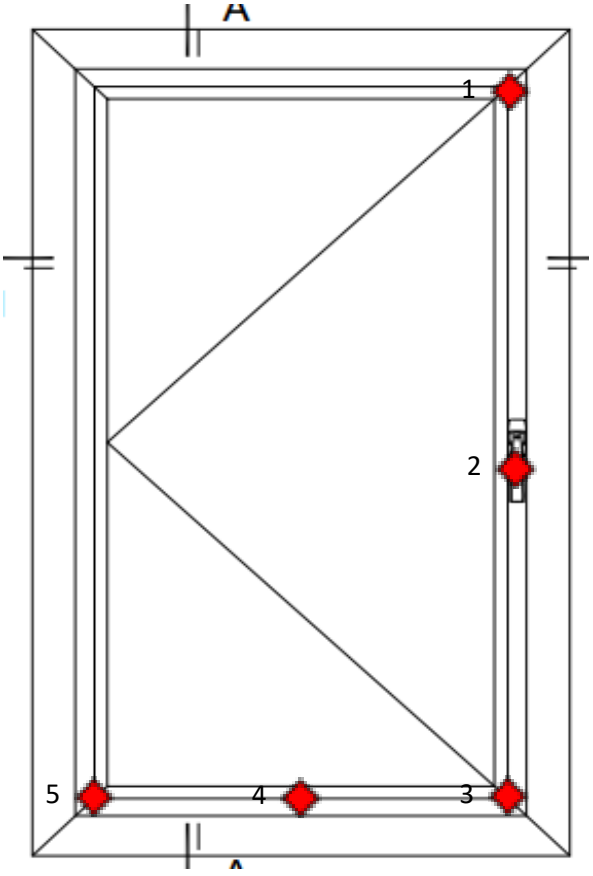


Fig.7 Locations of Displacement Measuring Devices

Test Report

Original Issue Date: 2025-08-05 Intertek Report No. 250529005SHF-001

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	1350	+P = 1440	0.5	1.0	0.5	0.5
		0	0.1	0.1	0.1	<0.1
		-P = -1440	0.9	1.4	0.6	0.7
		0	0.2	0.2	0.1	0.1
Member (mm)		Test Pressure (Pa)	Deflection (mm)			Maximum Deflection(mm)
Item	Span Length		3	4	5	
Bottom Rail	740	+P = 1440	0.5	0.9	0.5	0.4
		0	0.1	0.1	0.1	<0.1
		-P = -1440	0.6	1.1	0.8	0.4
		0	0.1	0.2	0.3	<0.1

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	
1440 Pa (30.08 psf)	0.5	(0.02)	0.7	(0.03)
Span length, L = 1350 mm (53.15 in.)		Deflection limit L/175 = 7.7 mm (0.30 in.)		

Table B.5 Test Data of Uniform Load Deflection Test for Bottom Rail

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Maximum Deflection		Maximum Deflection	
1440 Pa (30.08 psf)	0.4	(0.02)	0.4	(0.02)
Span length, L = 740 mm (29.13 in.)		Deflection limit L/175 = 4.2 mm (0.17 in.)		

The tested specimen met the requirements for Class CW-PG30 for Uniform Load deflection Test at Design Pressure as per AAMA/WDMA/CSA 101/I.S.2/A440-22.

Test Report

Original Issue Date: 2025-08-05 Intertek Report No. 250529005SHF-001

Appendix B: Test Data

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

Design Pressure, P = 1440 Pa (30.08 psf)

Structural Pressure, P = 2160 Pa (45.11 psf)

Table B.8 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	1350	+P = 2160	–	–	–	–
		0	0.2	0.2	0.1	0.1
		-P = -2160	–	–	–	–
		0	0.2	0.3	0.2	0.1
Permanent Deformation limit, L x 0.3% = 4.1 mm						
Member (mm)		Test Pressure (Pa)	Permanent deformation(mm)			Maximum permanent deformation(mm)
Item	Span Length		3	4	5	
Bottom Rail	740	+P = 2160	–	–	–	–
		0	0.1	0.3	0.3	0.1
		-P = -2160	–	–	–	–
		0	0.2	0.4	0.5	0.1
Permanent Deformation limit, L x 0.3% = 2.2 mm						

Table B.9 Test Data of Uniform Load Structural Test For Stile at handle side

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Perm. Set		Perm. Set	
2160 Pa (45.11 psf)	0.1	(<0.01)	0.1	(<0.01)

Table B.10 Test Data of Uniform Load Structural Test For Bottom Rail

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Perm. Set		Perm. Set	
2160 Pa (45.11 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-PG30 for Uniform Load Structure Test at Structural Pressure as per AAMA/WDMA/CSA 101/I.S.2/A440-22.

Test Report

Original Issue Date: 2025-08-05 Intertek Report No. 250529005SHF-001

Appendix C: Sample Received Photo

Revision:

NO.	Date	Changes
250529005SHF-001	2025-08-05	First issue