

Zhejiang Lokabo Intelligent Technology Co., Ltd.

TEST REPORT

SCOPE OF WORK

Fixed Window

REPORT NUMBER

230704004SHF-001

TEST DATE(S)

2023-08-01

ISSUE DATE

2023-08-17

PAGES

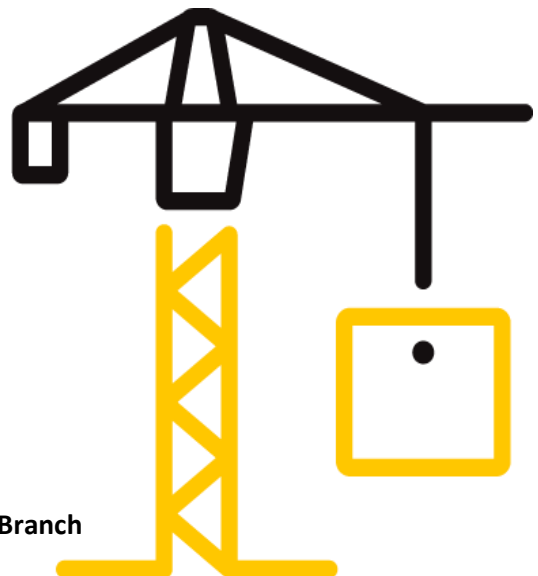
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DOCUMENT CONTROL NUMBER

LFT-APAC-SHF-OP-10k(September 1, 2022)

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Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch



Test Report

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Test Report

Issue Date: 2023-08-17 Intertek Report No. 230704004SHF-001

Applicant: Zhejiang Lokabo Intelligent Technology Co., Ltd.
Applicant Address: No.26 East Yinxian Avenue, Yinzhou District, Ningbo, Zhejiang Province
Attn: Li Shudong
Manufacturer: Zhejiang Lokabo Intelligent Technology Co., Ltd.
Manufacturer Address: No.26 East Yinxian Avenue, Yinzhou District, Ningbo, Zhejiang Province
Test Type: Performance test, samples provided by the applicant

Product Information

Product Name	Fixed Window	Brand	/
Sample Description	Good Condition	Sample Amount	1 set
		Received Date	2023-07-04
Sample ID	Model	Specification	
S230704004SHF.001	N82	1800mm (W) x 2000mm (H)	

Test Methods And Standards

Test Standard	ASTM E283/E283M-2019; ASTM E547-00 (Reapproved 2016); 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, Clause 9.3.5
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

Fred Bao
Name: Fred Bao Title: Reviewer

Gio Liu
Name: Gio Liu Title: Project Engineer



Test Report

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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 4th, 2023.

A full scale sample of Fixed Window (Model: N82) 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	Fixed Window
Model	N82
Dimension of Window Frame	1800mm (Width) x 2000mm (Height) x 81.2mm (Thickness)
Dimension of Window Sash	Not Applicable
Profile	Model: KL101060; KL103042; KL105350 Code: 6063-T5 Supplier: Foshan Nuotuo Aluminm Co., Ltd.
Frame Corner Construction Details:	Miter-cut, assembly with corners keys
Joinery type	
Reinforcement	Model: 1980mm(Length) x 60mm (Width) x 12mm(Thickness) Material: Steel Supplier: Fujian Dingxin Industrial Co., Ltd.
Glazing	Dimension: 642mm (Width) x 1928mm(Height); 1042mm(Width) x 1928mm (Height) Structure: 31mm Thick, 6mm + 19mm A + 6mm Tempered Insulating Glass Supplier: Jiangsu Jiacheng Special Glass Manufacturing Co., Ltd.
Hardware	Not Applicable
Weather-strip	Not Applicable
Thermal Break	Model: L223400G Material: PA66GF25 Nylon Insulation Strip Supplier: Ningbo Xingao Energy-saving Material Co., Ltd.
Drainage	None
Gasket	Model: L440016; L440018 Material: EPDM Supplier: Ningbo Raylton Rubber&Plastic Products Co., Ltd.
Sealant of Glass	Model: Neutral Silicone Weather Resistance 25HM Black Material: Silicone Sealant Supplier: Würth (China) Co., Ltd.
Installation	The rough opening allowed for a 6 mm shim space. The exterior perimeter of the test specimen was sealed with silicon sealant.

The sample ID number was S230704004SHF.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	Results	Verdict		
2023/8/1					
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	0.50 L/s·m ²	Air leakage at +75 Pa	0.01 L/s·m ²	Pass
	Maximum air leakage at -75 Pa	0.50 L/s·m ²	Air leakage at -75 Pa	0.02 L/s·m ²	
Water Penetration Resistance Test AAMA/WDMA/CSA1 01/I.S.2/A440-17, Clause 9.3.3 ASTM E547-00(R2016)	Minimum water pressure	360 Pa	Test Pressure	360 Pa	Pass
			After water sprayed for complete four cycles in 24 minutes at 360 Pa, no water penetration was observed.		
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)	2400 Pa	Design Pressure (DP)	+2400 Pa	Pass
			Maximum deflection at Mullion	3.2 mm	
			Maximum deflection at Glazing	6.8 mm	Reported ¹
			Design Pressure (DP)	-2400 Pa	Pass
			Maximum deflection at Mullion	3.5 mm	
			Maximum deflection at Glazing	7.1 mm	

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Table 2 Test Result (Continued)

Test Description	Requirements	Results	Verdict		
2023/8/1					
Uniform Load Structural Test AAMA/WDMA/CSA101/I.S.2/A440-17, Clause 9.3.4.3 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 Mullion		1.4 mm	Reported ¹
		Maximum permanent deformation at Glazing		<0.1 mm	
		Structural Pressure (STP)		-3600 Pa	Pass
		No significant breakage or damage after ultimate strength was released.			
		Maximum permanent deformation at Mullion		0.1 mm	Reported ¹
		Maximum permanent deformation at Glazing		0.1 mm	
Forced-entry Resistance Test AAMA/WDMA/CSA101/I.S.2/A440-17, Clause 9.3.5 ASTM F588-17	Minimum Grade 10	Test Class	Grade 10	Pass	
		After test, there was no entry or permanent deformation, the window was still operable.			

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

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Appendix A: Sample Drawings

项目名称 美标检测N82固定

工程地址

LOKABO

洛卡博门窗

门窗双线内视效果图

注意： 此页特殊备注

注意：

面积：

共 2 页，第 1 页

制图员 王元壮

审核人

复核人

技术说明：
1. 图中尺寸为成窗尺寸

签字确认：

N82 Fixed Windows

Frame size 28.6mm

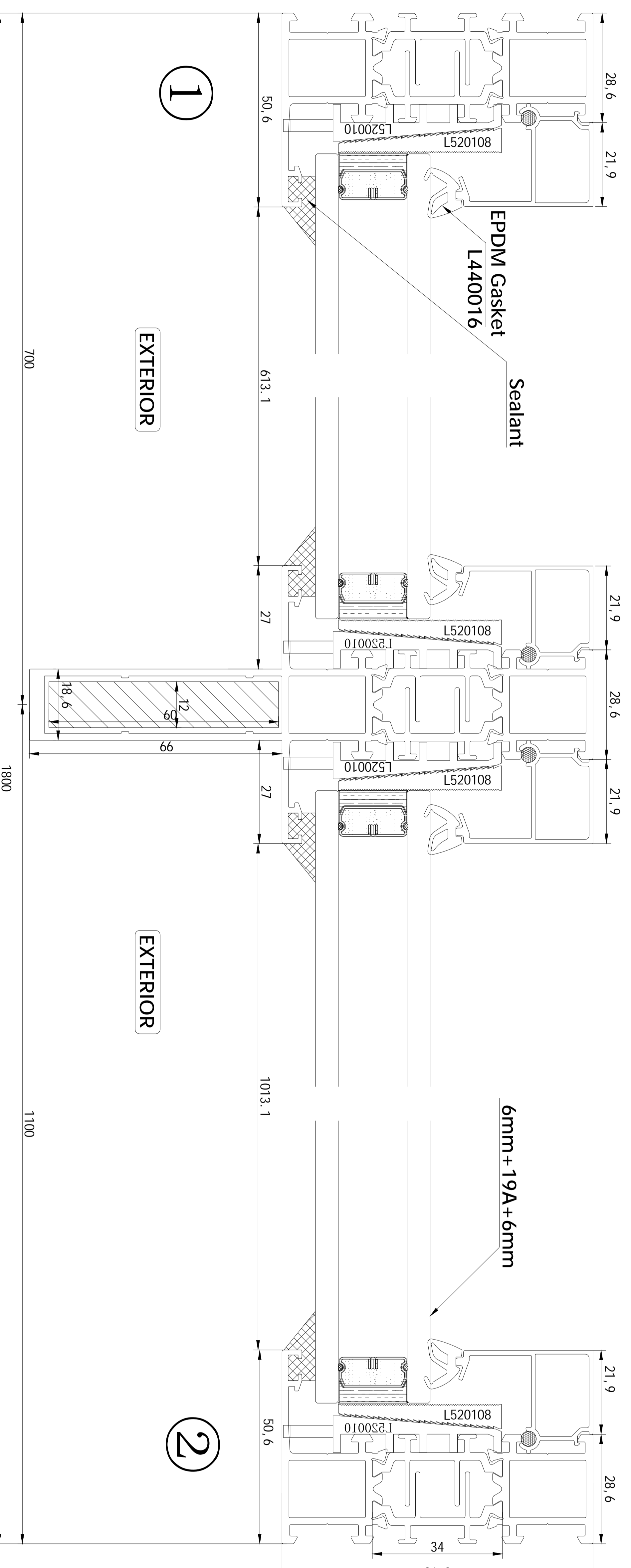
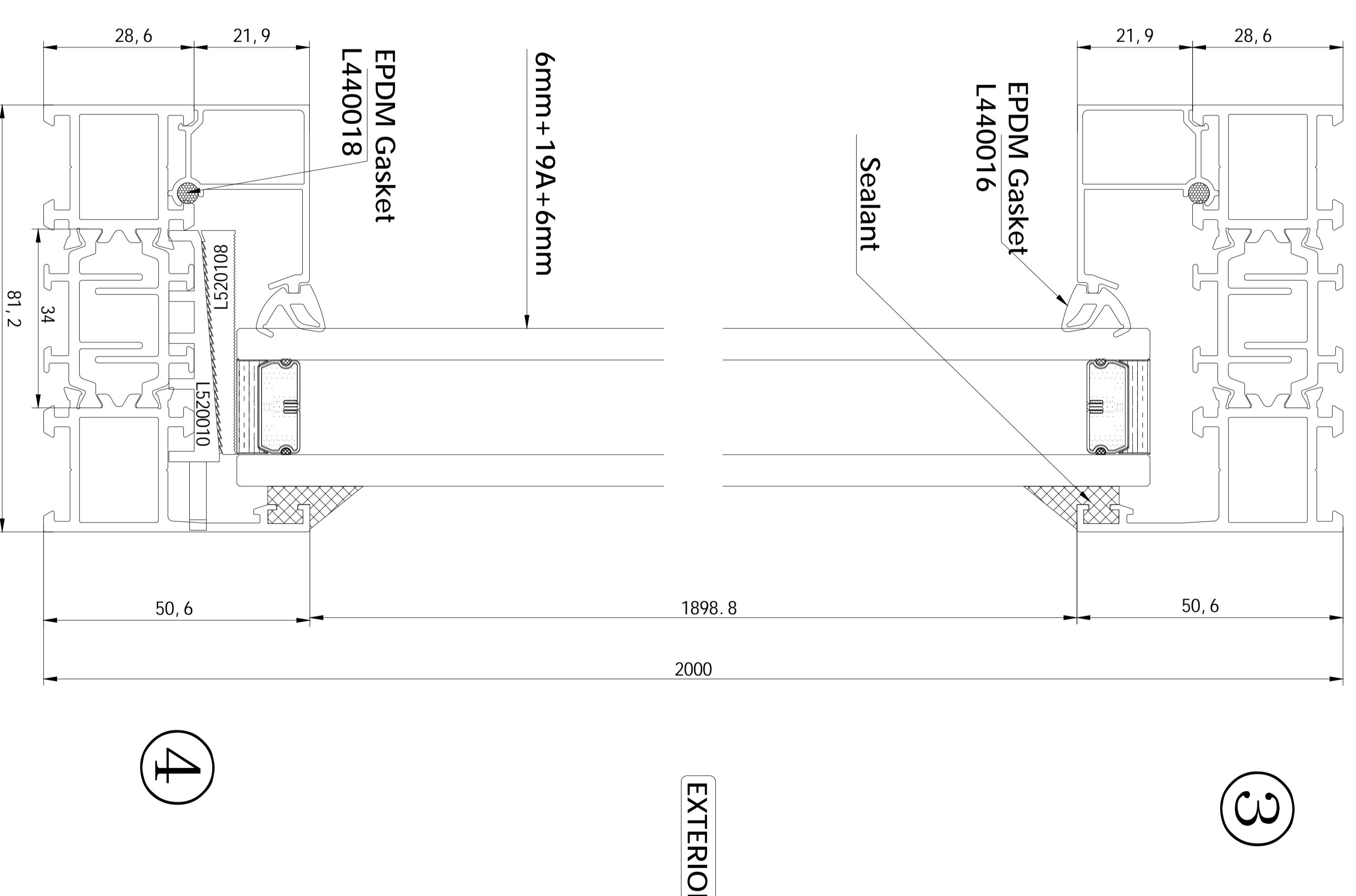
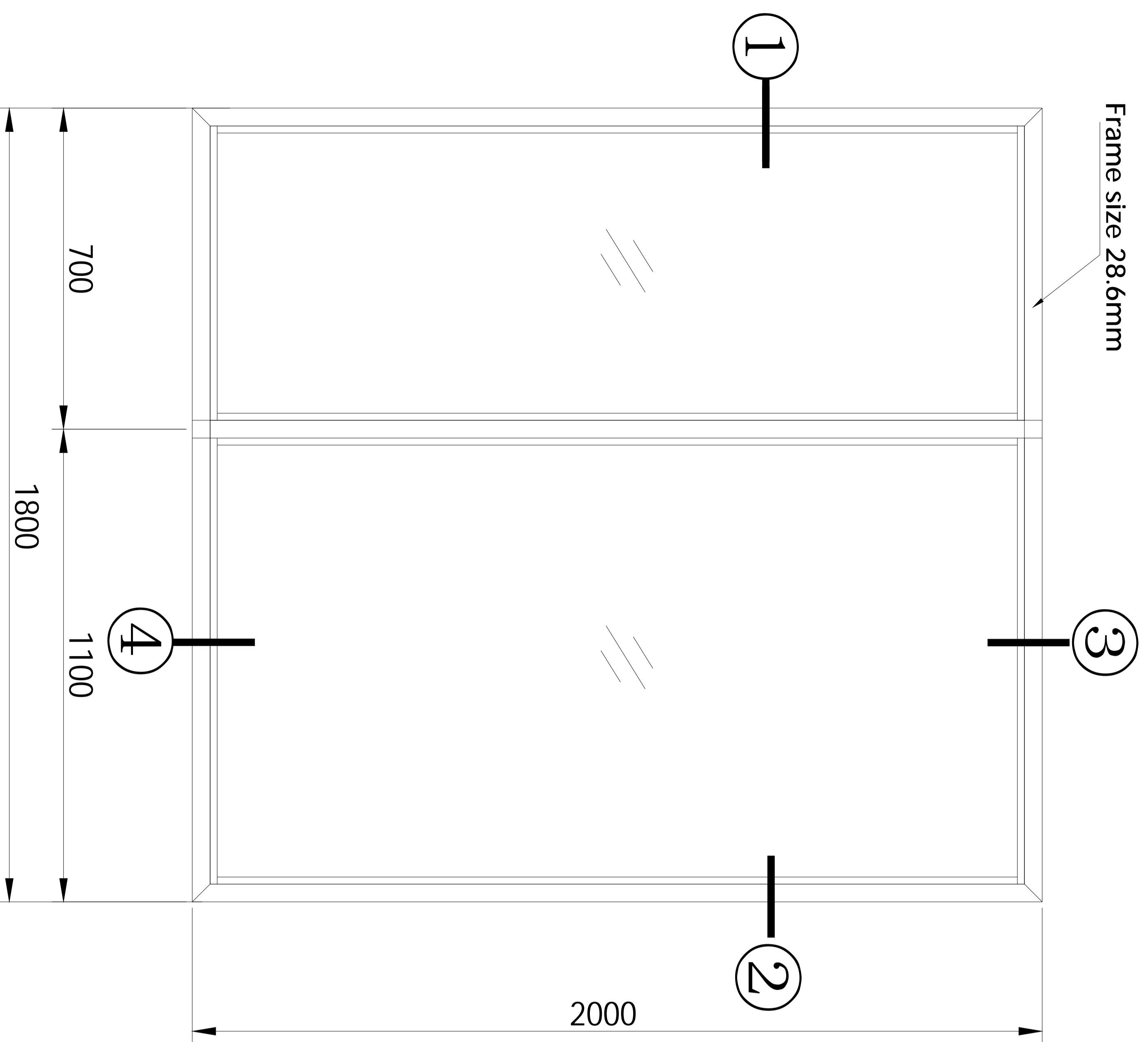
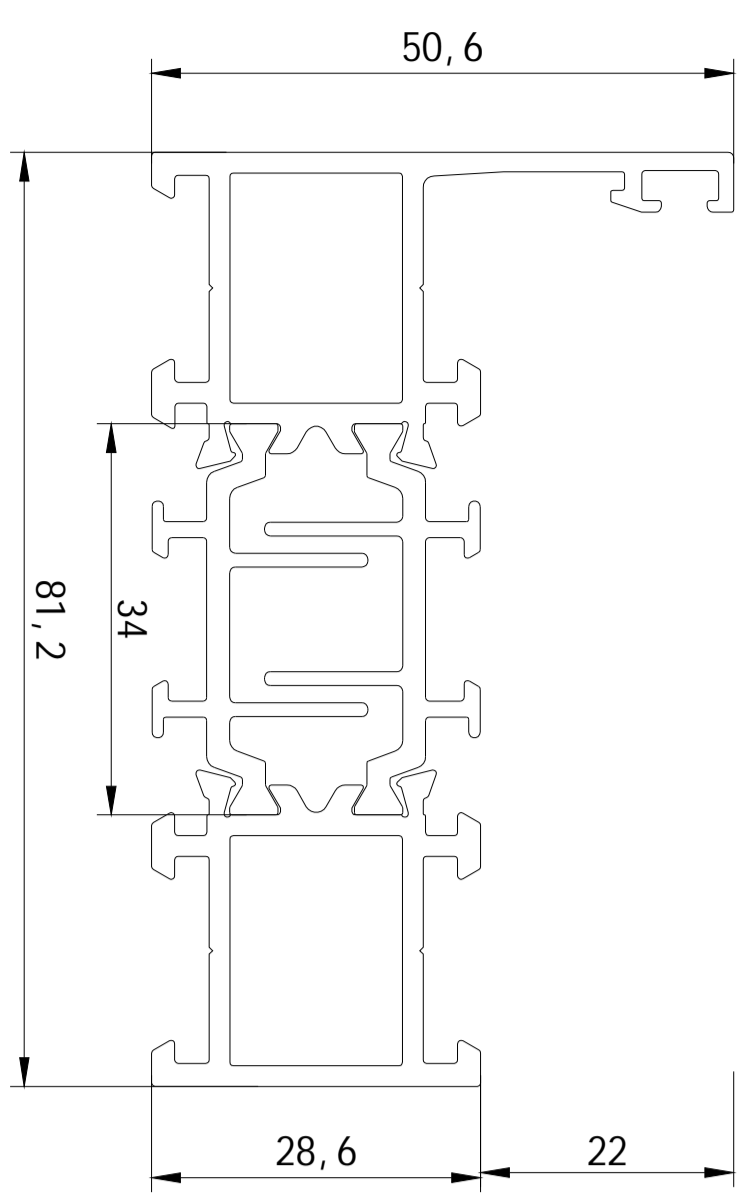


Fig. 1 Drawing of Representative Sample

Intertek
Total Quality Assured

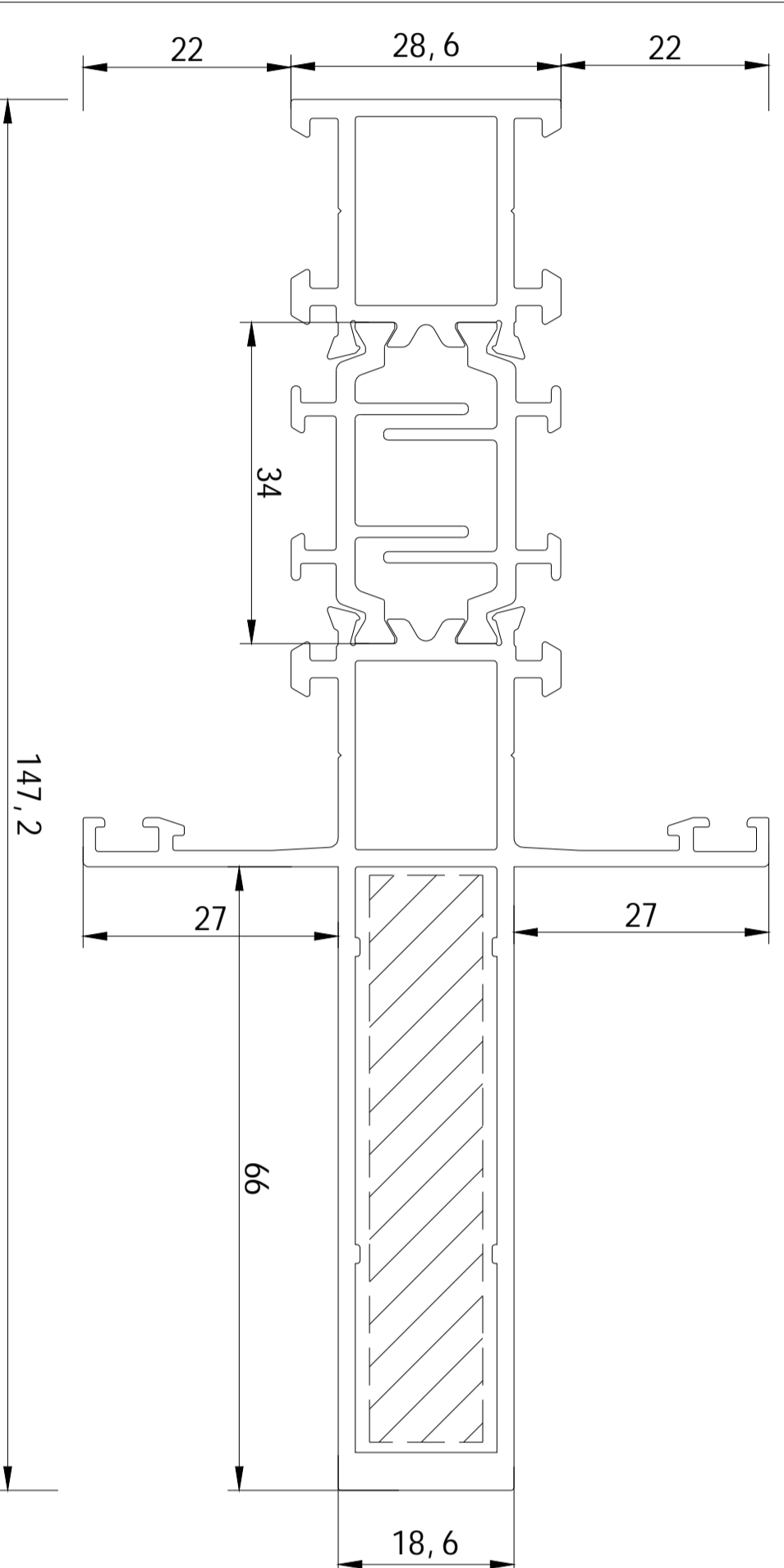
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Date: 08/17/23
Verified by: *Ophe Liu*

KL101060



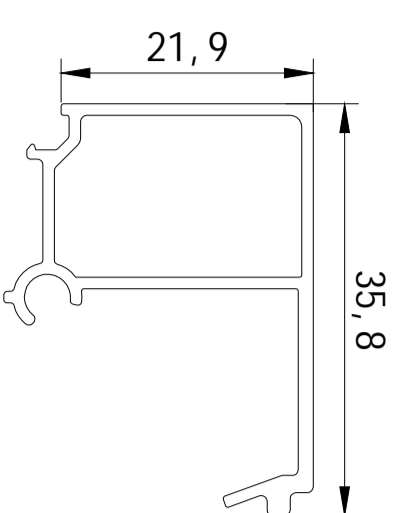
WINDOW FRAMES

KL103042



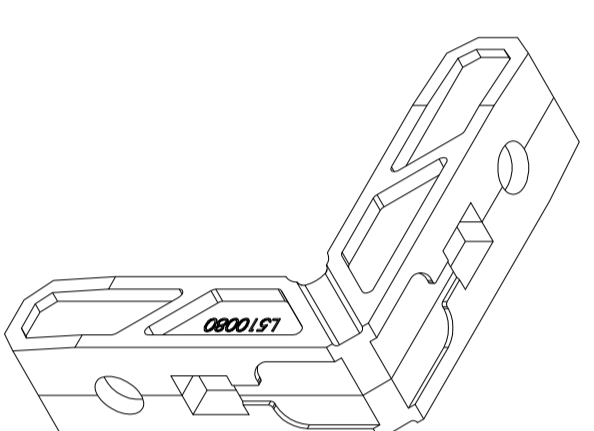
STRONG IN THE FORCE

KL105350



GLAZING BEAD

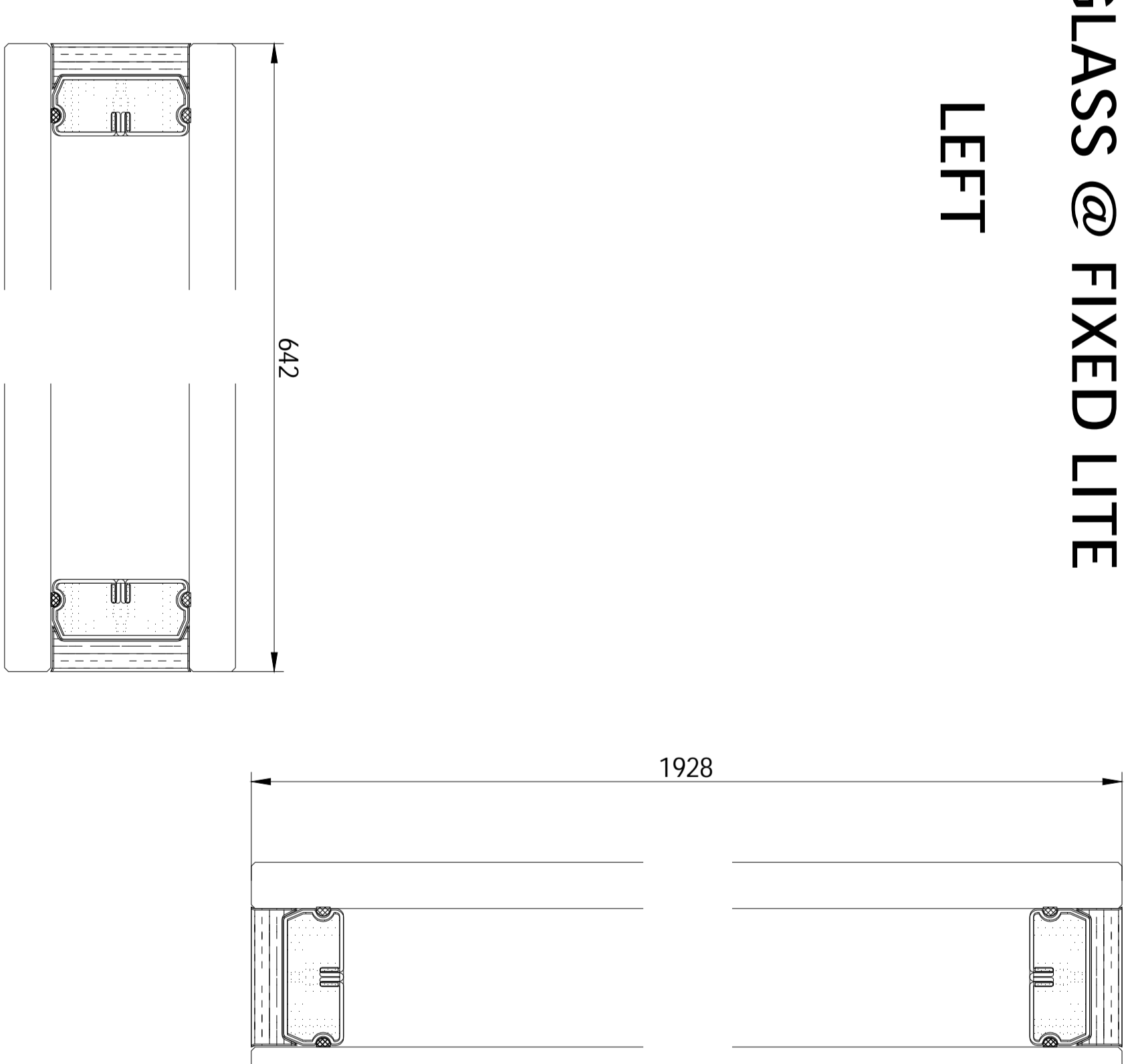
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ANGLE CODE

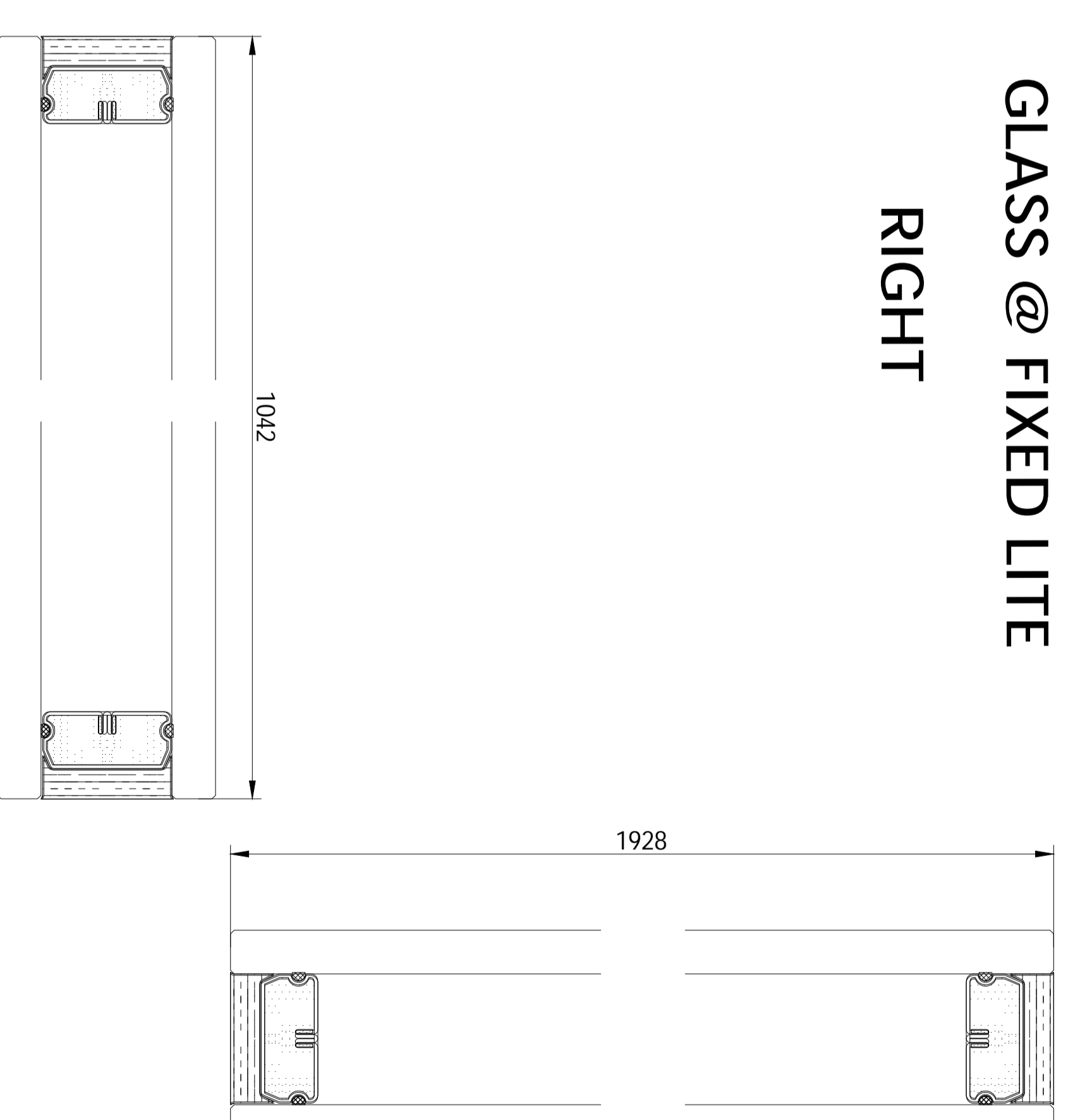
GLASS @ FIXED LITE

LEFT



GLASS @ FIXED LITE

RIGHT



项目名称

美标检测N82固定

工程地址

LOKABO
洛卡博门窗

门窗双线内视效果图

此页特殊备注

注意:

面积: _____

共 2 页, 第 2 页

制 图 员 王元壮

审 核 人

复 核 人

技术说明:
1. 图中尺寸为成窗尺寸

签字确认:

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Appendix B: Test Data

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

Area of Fixed Window: 3.60 m²

Table B.1 Test Data of Air Leakage Resistance Test

Infiltration rate (75 Pa)	0.01 L/s·m ²	<0.01 cfm/ft ²
Exfiltration rate (75 Pa)	0.02 L/s·m ²	<0.01 cfm/ft ²
Average air leakage rate (75 Pa)	0.02 L/s·m ²	<0.01 cfm/ft ²
Requirements (75 Pa): Maximum allowable leakage for Class CW Windows (Fixed)	0.5 L/s·m ²	0.1 cfm/ft ²

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Appendix B: Test Data

B.2 Water resistance test – Test method ASTM E547-00 (Reapproved 2016)

No water penetration occurred when the pressure was 360 Pa (7.52 psf).

After water sprayed for complete four cycles in 24 minutes at 360 Pa, no water penetration was observed.

Test result: $P_{\max} = 360$ Pa (7.52 psf).

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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 = 1980 mm Set Points (1-3)

Span length, L = 960 mm Set Points (4-6)

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

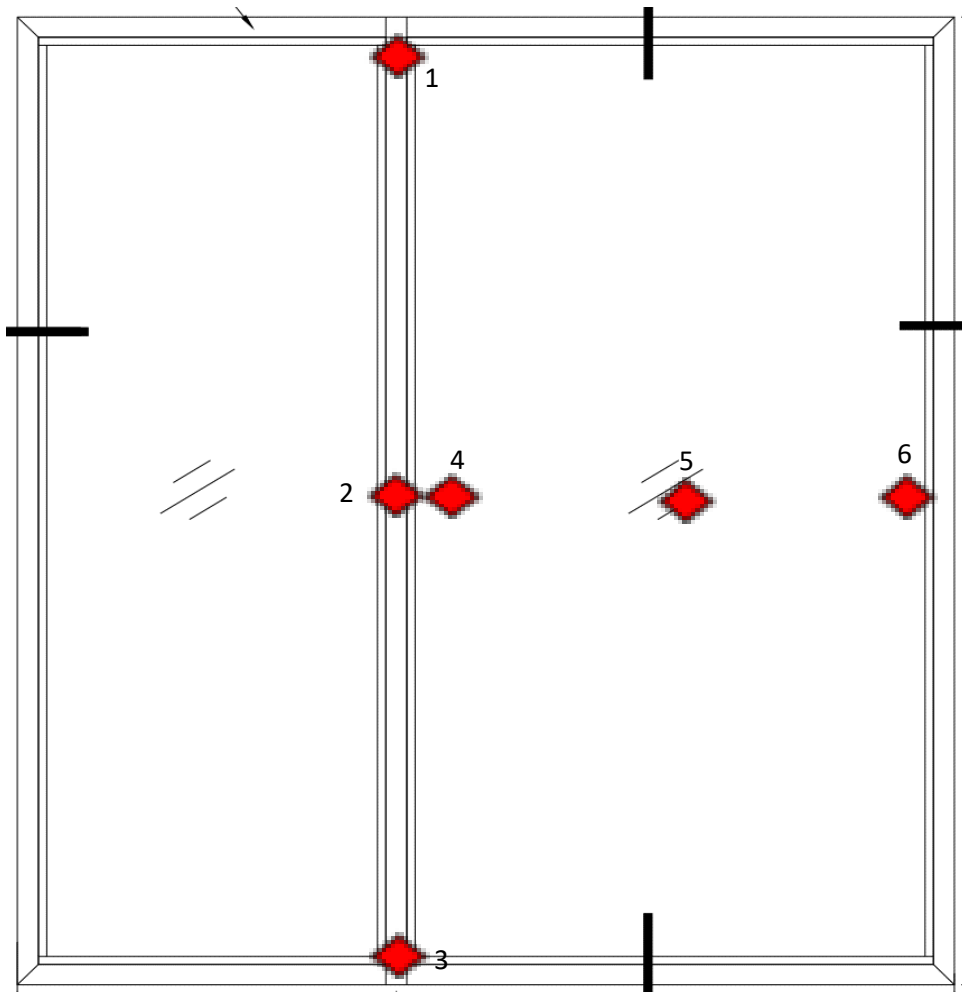


Fig.3 Locations of Displacement Measuring Devices

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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	
Mullion	1980	+P = 2400	0.8	4.7	2.3	3.2
		0	<0.1	0.3	<0.1	0.3
		-P = -2400	1.3	6.9	5.5	3.5
		0	0.2	1.5	0.4	1.2
Member (mm)		Test Pressure (Pa)	Deflection (mm)			Maximum Deflection(mm)
Item	Span Length		4	5	6	
Glazing	960	+P = 2400	6.0	10.9	2.2	6.8
		0	0.1	<0.1	<0.1	<0.1
		-P = -2400	8.4	12.7	2.8	7.1
		0	1.4	0.9	0.4	<0.1

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

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Maximum Deflection		Maximum Deflection	
2400 Pa (50.13 psf)	3.2	(0.13)	3.5	(0.14)
Span length, L =	1980 mm	(77.95 in.)	Deflection limit L/175 =	11.3 mm (0.45 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	
2400 Pa (50.13 psf)	6.8	(0.27)	7.1	(0.28)
Span length, L =	960 mm	(37.80 in.)	No Deflection limit.	

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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 = 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	
Mullion	1980	+P = 3600	–	–	–	–
		0	0.1	2.4	2.0	1.4
		-P = -3600	–	–	–	–
		0	0.2	1.0	1.7	0.1
Permanent Deformation limit, L x 0.3% = 5.9 mm						
Member (mm)		Test Pressure (Pa)	Permanent deformation(mm)			Maximum permanent deformation(mm)
Item	Span Length		4	5	6	
Glazing	960	+P = 3600	–	–	–	–
		0	2.0	1.1	0.4	<0.1
		-P = -3600	–	–	–	–
		0	0.9	0.6	0.2	0.1
No Permanent Deformation limit.						

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

Test Pressure	Deflection Measurements, mm (in.)			
	Positive		Negative	
	Perm. Set		Perm. Set	
3600 Pa (75.19 psf)	1.4	(0.06)	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	
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.

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Appendix C: Sample Received Photo



Revision:

NO.	Date	Changes
230704004SHF-001	2023-08-17	First issue