

TAIXING SAINTY INDUSTRY CO., LTD.

COMPUTER SIMULATION REPORT

SCOPE OF WORK

STTTW2 TILT AND TURN WINDOW - NFRC 100/200/500

REPORT NUMBER

T1052.01-116-45 R0

TEST DATE

11/17/25

ISSUE DATE

11/17/25

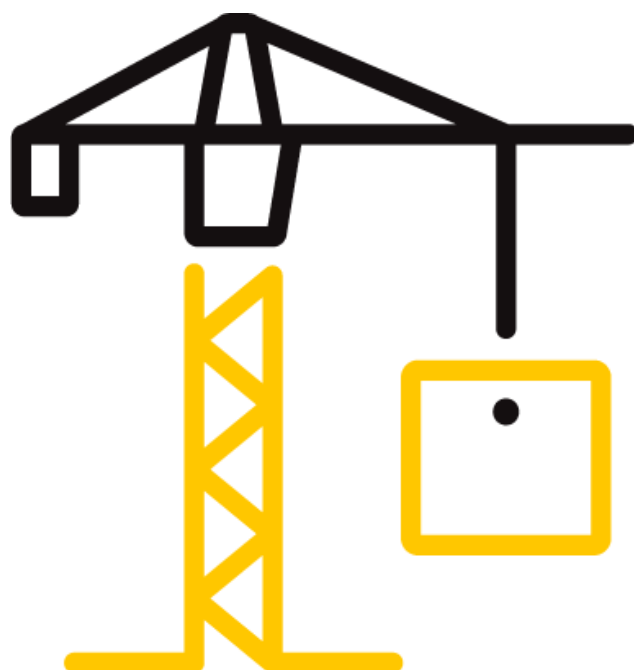
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TEST REPORT FOR TAIHING SAINTY INDUSTRY CO., LTD.

Report No: T1052.01-116-45 R0

Date: 11/17/25

REPORT ISSUED TO

TAIXING SAINTY INDUSTRY CO., LTD.

No. 29, Yingxin Road, Hongqiao Town

Taixing City, China 225400

SECTION 1

SUMMARY

SERIES/MODEL: STTTW2 Tilt and Turn Window

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance and Condensation Resistance simulations in accordance with the National Fenestration Rating Council (NFRC).

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends five years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

FOR INTERTEK B&C:

COMPLETED BY: Jacob R. Points
TITLE: Simulation Technician
SIGNATURE:
DATE: 11/17/25

JRP:jrp

REVIEWED BY: Eric S. Leitner
TITLE: Manager - Simulations
and Thermal Testing, SIRC
SIGNATURE:
DATE: 11/17/25

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Report No: T1052.01-116-45 R0

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SECTION 2

TEST METHODS

The products were evaluated in accordance with the following:

ANSI/NFRC 100-2023, Procedure for Determining Fenestration Product U-Factors

ANSI/NFRC 200-2023, Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence

NFRC 500-2017, Procedure for Determining Fenestration Product Condensation Resistance Values

**Condensation Resistance results obtained from this procedure are for controlled laboratory conditions and do not include the effects of air movement through the specimen, solar radiation, and the thermal bridging that may occur due to the specific design and construction of the fenestration system opening.*

Ratings values included in this report are for submittals to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certificate of Authorization (CA) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes. The ratings values were rounded in accordance with NFRC 601, NFRC Unit and Measurement Policy.

Intertek B&C is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The values included in this report are not considered in compliance with ANSI/NFRC 100, ANSI/NFRC 200, and/or NFRC 500 unless the associated validation test requirements have been satisfied, as applicable.

TEST REPORT FOR TAIXING SAINTY INDUSTRY CO., LTD.

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SECTION 3

TEST PROCEDURE

The total product, including specific frame, spacer, and glass details, was modeled using NFRC approved software.

FRAME AND EDGE MODELING	THERM 7.8.71
CENTER-OF-GLASS MODELING	WINDOW 7.8.71
TOTAL PRODUCT CALCULATIONS	WINDOW 7.8.71
SPECTRAL DATA LIBRARY	IGDB 108.1

Modeling Assumptions / Technical Interpretations

Any modeling assumptions and technical interpretations required to model this product are listed below.

- 1) To prevent air infiltration, tape was applied to all interior sash crack locations.

SECTION 4

SIMULATION SPECIMEN DESCRIPTION

SERIES/MODEL	STTTW2 Tilt and Turn Window
PRODUCT TYPE	Dual Action (Tilt Turn)
FRAME MATERIAL	AT - Aluminum w/ Thermal Breaks
SASH MATERIAL	AT - Aluminum w/ Thermal Breaks
STANDARD SIZE	1200mm x 1500mm

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SECTION 4 (Continued)
SIMULATION SPECIMEN DESCRIPTION

SPACER OPTIONS			
TYPE	PRIMARY SEAL	SECONDARY SEAL	CODE
H.B. Fuller/Kommerling Kodispace 4SG Spac	Silicone	-	TP-S
Technoform SP13 Spacer	PIB	Silicone	TS-D

GRID OPTIONS		
GRID SIZE	GRID TYPE	GRID PATTERN
11mm x 11mm	Aluminum Grid (Painted) - 42mm IGs - Gap #1 & 2	NFRC Standard
15mm x 15mm	Aluminum Grid (Painted) - 50mm IGs - Gap #1 & 2	NFRC Standard
19mm x 19mm	Aluminum Grid (Painted) - 32mm IGs	NFRC Standard
23mm x 23mm	Aluminum Grid (Painted) - 36mm IGs	NFRC Standard

REINFORCEMENT OPTIONS	
LOCATION	MATERIAL
None	-

GAS FILLING TECHNIQUE	
FILL TYPE	METHOD
90% Argon	Evacuated Chamber

EDGE-OF-GLASS CONSTRUCTION	
INTERIOR CONDITION	EPDM seal between glass and bead.
EXTERIOR CONDITION	EPDM seal between glass and sash.

WEATHERSTRIPPING		
TYPE	QUANTITY	LOCATION
EPDM Seal	2 rows	Frame perimeter
EPDM Seal	1 row	Sash perimeter

FRAME/SASH MATERIALS FINISH	
INTERIOR	Painted Aluminum
EXTERIOR	Painted Aluminum

VALIDATION MATRIX*	
PRODUCT LINE	REPORT NUMBER
None	-

*These products are part of a validation matrix. Only one is required for validation testing.

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SECTION 5

SPECIALTY PRODUCTS TABLE

The specialty products method allows the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 7.8.71. The method calculates overall product SHGC and VT indexed on center of glass properties. All values used in the calculations are truncated to six decimal place precision.

	No Dividers	Dividers < 1	Dividers > 1
SHGC0	0.007298	0.009885	0.012315
SHGC1	0.702779	0.625742	0.553387
VT0	0.000000	0.000000	0.000000
VT1	0.695481	0.615857	0.541071

$$SHGC = SHGC0 + SHGCc (SHGC1 - SHGC0)$$

$$VT = VT0 + VTc (VT1 - VT0)$$

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SECTION 6
SIMULATION RESULTS

TOTAL PRODUCT CALCULATIONS (STTTW2 Tilt and Turn Window)												
Option Number	Pane Thickness 1 (in)	Gap Width 1 (in)	Pane Thickness 2 (in)	Gap Width 2 (in)	Pane Thickness 3 (in)	Gap Width 3 (in)	Pane Thickness 4 (in)	Gap Fill	Low-e (Surface #)	Tint	Spacer	Grid Type
	U-Factor (Btu/Hr-Ft2-F)			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)			Condensation Resistance (CR)	
1	XD54173 / A90 / XD54173 / A90 / BW88N-1 (6mm/6mm/6mm) - 42mm IG											
	0.231	0.472	0.231	0.472	0.233			ARG90	0.043(#2) / 0.043(#4) / 0.225(#6)	CL	TP-S	N
	U-Factor 0.19			SHGC(N) 0.14				VT(N) 0.18			CR 67	
2	XD54173 / A90 / XD54173 / A90 / BW88N-1 (6mm/6mm/6mm) - 42mm IG											
	0.231	0.472	0.231	0.472	0.233			ARG90	0.043(#2) / 0.043(#4) / 0.225(#6)	CL	TS-D	G
	U-Factor 0.21			SHGC(<1) 0.13				VT(<1) 0.16			CR 64	
3	XD54173 / A90 / XD54173 / A90 / BW88N-1 (6mm/6mm/6mm) - 50mm IG											
	0.231	0.630	0.231	0.630	0.233			ARG90	0.043(#2) / 0.043(#4) / 0.225(#6)	CL	TP-S	N
	U-Factor 0.18			SHGC(N) 0.15				VT(N) 0.18			CR 69	
4	XD54173 / A90 / XD54173 / A90 / BW88N-1 (6mm/6mm/6mm) - 50mm IG											
	0.231	0.630	0.231	0.630	0.233			ARG90	0.043(#2) / 0.043(#4) / 0.225(#6)	CL	TS-D	G
	U-Factor 0.21			SHGC(<1) 0.13				VT(<1) 0.16			CR 62	
5	XD54173 / A90 / BW88N-1 (6mm/6mm) - 32mm IG											
	0.231	0.787	0.233					ARG90	0.043(#2) / 0.225(#4)	CL	TP-S	N
	U-Factor 0.26			SHGC(N) 0.22				VT(N) 0.33			CR 52	
6	XD54173 / A90 / BW88N-1 (6mm/6mm) - 32mm IG											
	0.231	0.787	0.233					ARG90	0.043(#2) / 0.225(#4)	CL	TS-D	G
	U-Factor 0.30			SHGC(<1) 0.19				VT(<1) 0.29			CR 43	
7	XDTB0170 / A90 / XDTB0170 / A90 / Clear (6mm/6mm/6mm) - 50mm IG											
	0.233	0.630	0.233	0.630	0.231			ARG90	0.059(#2) / 0.059(#4)	CL	TP-S	N
	U-Factor 0.19			SHGC(N) 0.19				VT(N) 0.29			CR 72	
8	XDTB0170 / A90 / XDTB0170 / A90 / Clear (6mm/6mm/6mm) - 50mm IG											
	0.233	0.630	0.233	0.630	0.231			ARG90	0.059(#2) / 0.059(#4)	CL	TS-D	G
	U-Factor 0.23			SHGC(<1) 0.17				VT(<1) 0.25			CR 72	
9	XDTB0170 / A90 / XDTB0170 (6mm/6mm) - 32mm IG											
	0.233	0.787	0.233					ARG90	0.059(#2) / 0.059(#4)	CL	TP-S	N
	U-Factor 0.25			SHGC(N) 0.22				VT(N) 0.32			CR 49	
10	XDTB0170 / A90 / XDTB0170 (6mm/6mm) - 32mm IG											
	0.233	0.787	0.233					ARG90	0.059(#2) / 0.059(#4)	CL	TS-D	G
	U-Factor 0.29			SHGC(<1) 0.20				VT(<1) 0.28			CR 37	

TEST REPORT FOR TAIHING SAINTY INDUSTRY CO., LTD.

Report No: T1052.01-116-45 R0

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SECTION 6 (Continued)
SIMULATION RESULTS

TOTAL PRODUCT CALCULATIONS (STTTW2 Tilt and Turn Window)												
Option Number	Pane Thickness 1 (in)	Gap Width 1 (in)	Pane Thickness 2 (in)	Gap Width 2 (in)	Pane Thickness 3 (in)	Gap Width 3 (in)	Pane Thickness 4 (in)	Gap Fill	Low-e (Surface #)	Tint	Spacer	Grid Type
	U-Factor (Btu/Hr-Ft2-F)			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance (CR)		
11	XDTB0170 / A90 / Clear / A90 / Clear (6mm/6mm/6mm) - 42mm IG											
	0.233	0.472	0.231	0.472	0.231			ARG90	0.059(#2)	CL	TP-S	N
	U-Factor 0.24			SHGC(N) 0.23				VT(N) 0.38		CR 70		
12	XDTB0170 / A90 / Clear / A90 / Clear (6mm/6mm/6mm) - 42mm IG											
	0.233	0.472	0.231	0.472	0.231			ARG90	0.059(#2)	CL	TS-D	G
	U-Factor 0.27			SHGC(<1) 0.21				VT(<1) 0.34		CR 69		
13	XDTB0170 / A90 / Clear (6mm/6mm) - 36mm IG											
	0.233	0.945	0.231					ARG90	0.059(#2)	CL	TP-S	N
	U-Factor 0.30			SHGC(N) 0.25				VT(N) 0.42		CR 63		
14	XDTB0170 / A90 / Clear (6mm/6mm) - 36mm IG											
	0.233	0.945	0.231					ARG90	0.059(#2)	CL	TS-D	G
	U-Factor 0.36			SHGC(<1) 0.23				VT(<1) 0.37		CR 53		
15	XDTN0180-T / A90 / XDTN0180-T / A90 / Clear (6mm/6mm/6mm) - 42mm IG											
	0.232	0.472	0.232	0.472	0.231			ARG90	0.042(#2) / 0.042(#4)	CL	TP-S	N
	U-Factor 0.20			SHGC(N) 0.21				VT(N) 0.38		CR 73		
16	XDTN0180-T / A90 / XDTN0180-T / A90 / Clear (6mm/6mm/6mm) - 42mm IG											
	0.232	0.472	0.232	0.472	0.231			ARG90	0.042(#2) / 0.042(#4)	CL	TS-D	G
	U-Factor 0.23			SHGC(<1) 0.19				VT(<1) 0.34		CR 72		
17	XDTN0180-T / A90 / XDTN0180-T (6mm/6mm) - 32mm IG											
	0.232	0.787	0.232					ARG90	0.042(#2) / 0.042(#3)	CL	TP-S	N
	U-Factor 0.29			SHGC(N) 0.25				VT(N) 0.42		CR 62		
18	XDTN0180-T / A90 / XDTN0180-T (6mm/6mm) - 32mm IG											
	0.232	0.787	0.232					ARG90	0.042(#2) / 0.042(#3)	CL	TS-D	G
	U-Factor 0.35			SHGC(<1) 0.22				VT(<1) 0.37		CR 56		
19	XDTN0180-T / A90 / Clear / A90 / Clear (6mm/6mm/6mm) - 42mm IG											
	0.232	0.472	0.231	0.472	0.231			ARG90	0.042(#2)	CL	TP-S	N
	U-Factor 0.24			SHGC(N) 0.25				VT(N) 0.44		CR 70		
20	XDTN0180-T / A90 / Clear / A90 / Clear (6mm/6mm/6mm) - 42mm IG											
	0.232	0.472	0.231	0.472	0.231			ARG90	0.042(#2)	CL	TS-D	G
	U-Factor 0.26			SHGC(<1) 0.22				VT(<1) 0.39		CR 69		

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SECTION 6 (Continued)

SIMULATION RESULTS

TOTAL PRODUCT CALCULATIONS (STTTW2 Tilt and Turn Window)												
Option Number	Pane Thickness 1 (in)	Gap Width 1 (in)	Pane Thickness 2 (in)	Gap Width 2 (in)	Pane Thickness 3 (in)	Gap Width 3 (in)	Pane Thickness 4 (in)	Gap Fill	Low-e (Surface #)	Tint	Spacer	Grid Type
	U-Factor (Btu/Hr-Ft2-F)			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance (CR)		
21	XDTN0180-T / A90 / Clear (6mm/6mm) - 32mm IG											
	0.232	0.787	0.231					ARG90	0.042(#2)	CL	TP-S	N
	U-Factor 0.29			SHGC(N) 0.27				VT(N) 0.49		CR 61		
22	XDTN0180-T / A90 / Clear (6mm/6mm) - 32mm IG											
	0.232	0.787	0.231					ARG90	0.042(#2)	CL	TS-D	G
	U-Factor 0.35			SHGC(<1) 0.24				VT(<1) 0.43		CR 56		



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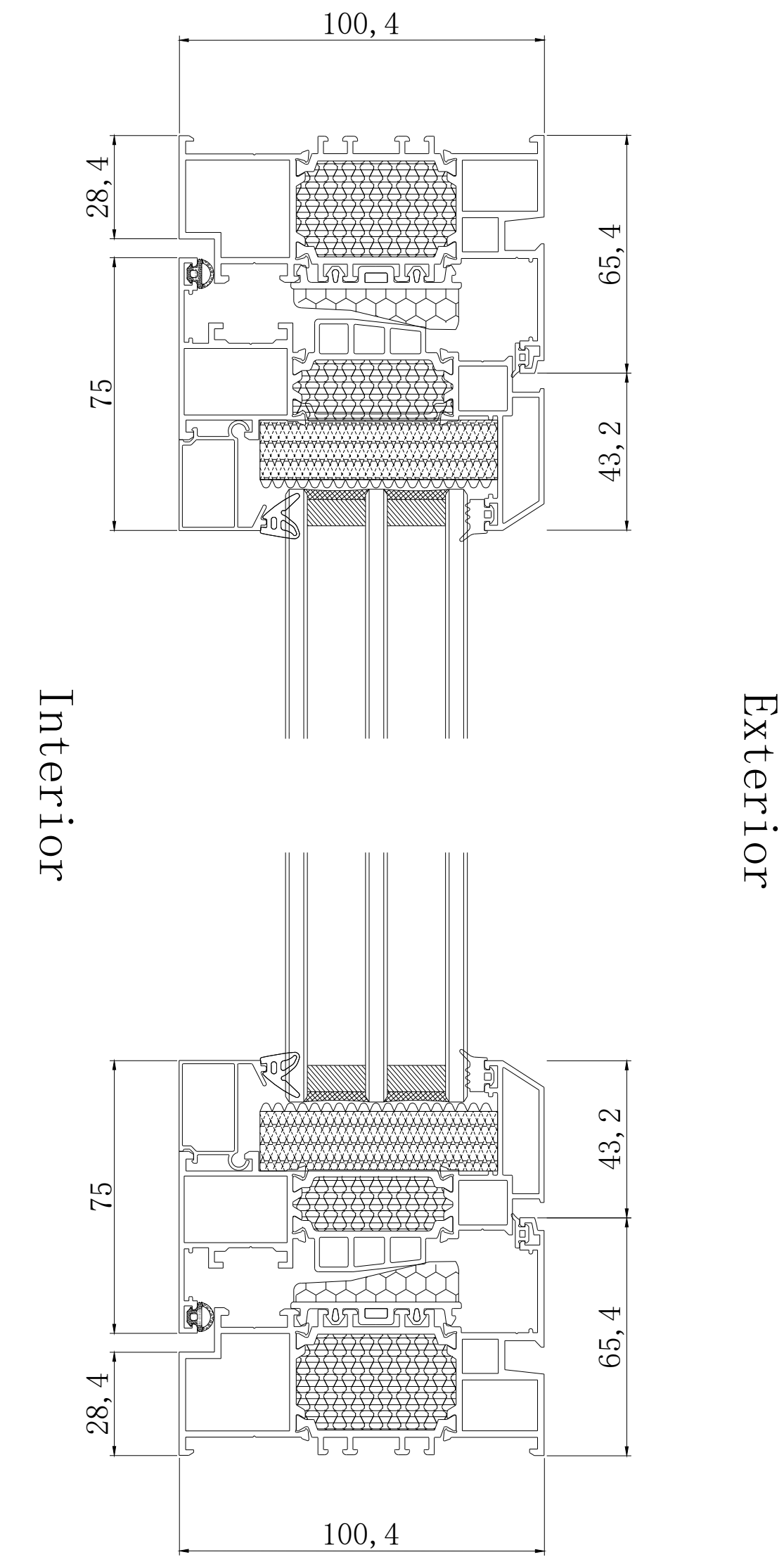
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SECTION 7

DRAWINGS / BILL OF MATERIALS

The drawings which follow have been reviewed by Intertek B&C and are representative of the simulation results reported herein. Any deviations are documented herein or on the drawings.

1500



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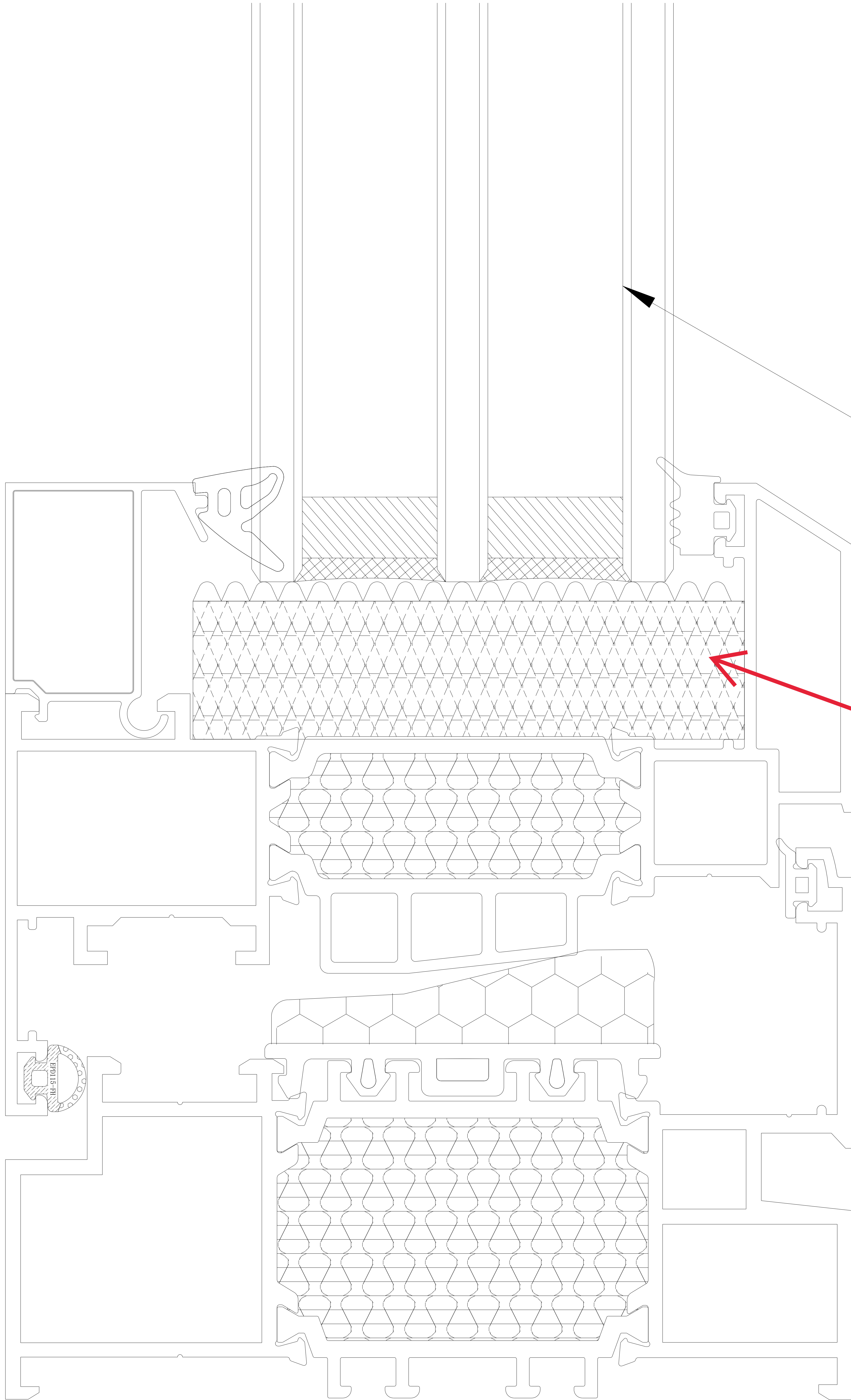
DEORATION DESIGNING:



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Customer:		
Project:		
Drawing For:		
DESIGNED	计军荣	计军荣
CHECKED		
DESIGNED		
DESIGNED		
Drawing No.	AWN2025.7	
Scale	1:1	
Map	A7	
Date		
Stage	Design	
CUSTOMER	2025/08/03	
OWNER		
MARK		

Aluminum-Bill of Materials			
Part #	Name	Material	Finish
A1	Sash	Aluminum	Powder Coating
A2	Sash	Aluminum	Powder Coating
A3	Frame	Aluminum	Powder Coating
A4	Frame	Aluminum	Powder Coating
A5	Glass Bead	Aluminum	Powder Coating
A6	Article Insulation 1	Pa66GF25 Polyamide insulation strip	
A7	Article Insulation 2	Pa66GF25 Polyamide insulation strip	
A8	Article Insulation 3	Pa66GF25 Polyamide insulation strip	
A9	Glass Gasket (Interior)	EPDM	
A10	Glass Gasket (Exterior)	EPDM	
A11	Sealing Strip 1	EPDM	
A12	Sealing Strip 2	EPDM	
A13	Equal Pressure Seal Strip	Foam Equal Pressure Seal EPDM	
A14	PU Foam Insulation	Polyurethane Foam	
A15	Triple Gass	6lowe+16Ar +6lowe+16Ar +6lowe	





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Cell: +86 150 5290 5768 (Whatsapp)
www.aluminum-window.com
Email:info@staluminum.com

Customer:

Project:

Drawing For:

DESIGNED	计军荣	计军荣
CHECKED		
DESIGNED		
DESIGNED		

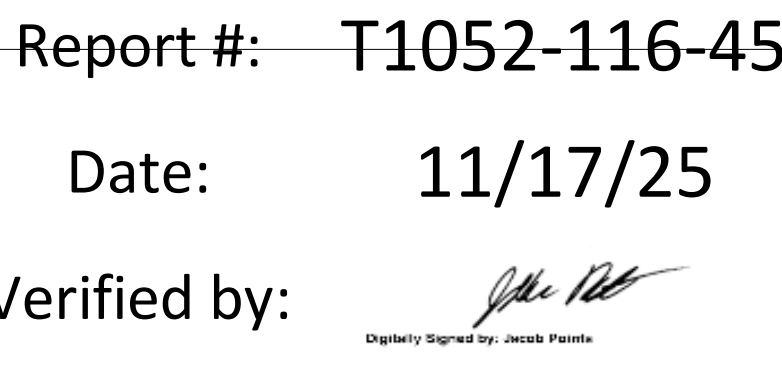
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Stage	Design

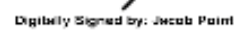
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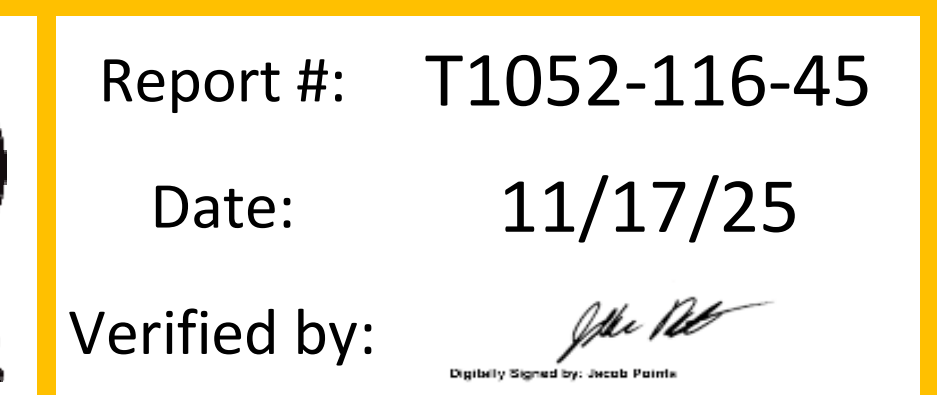


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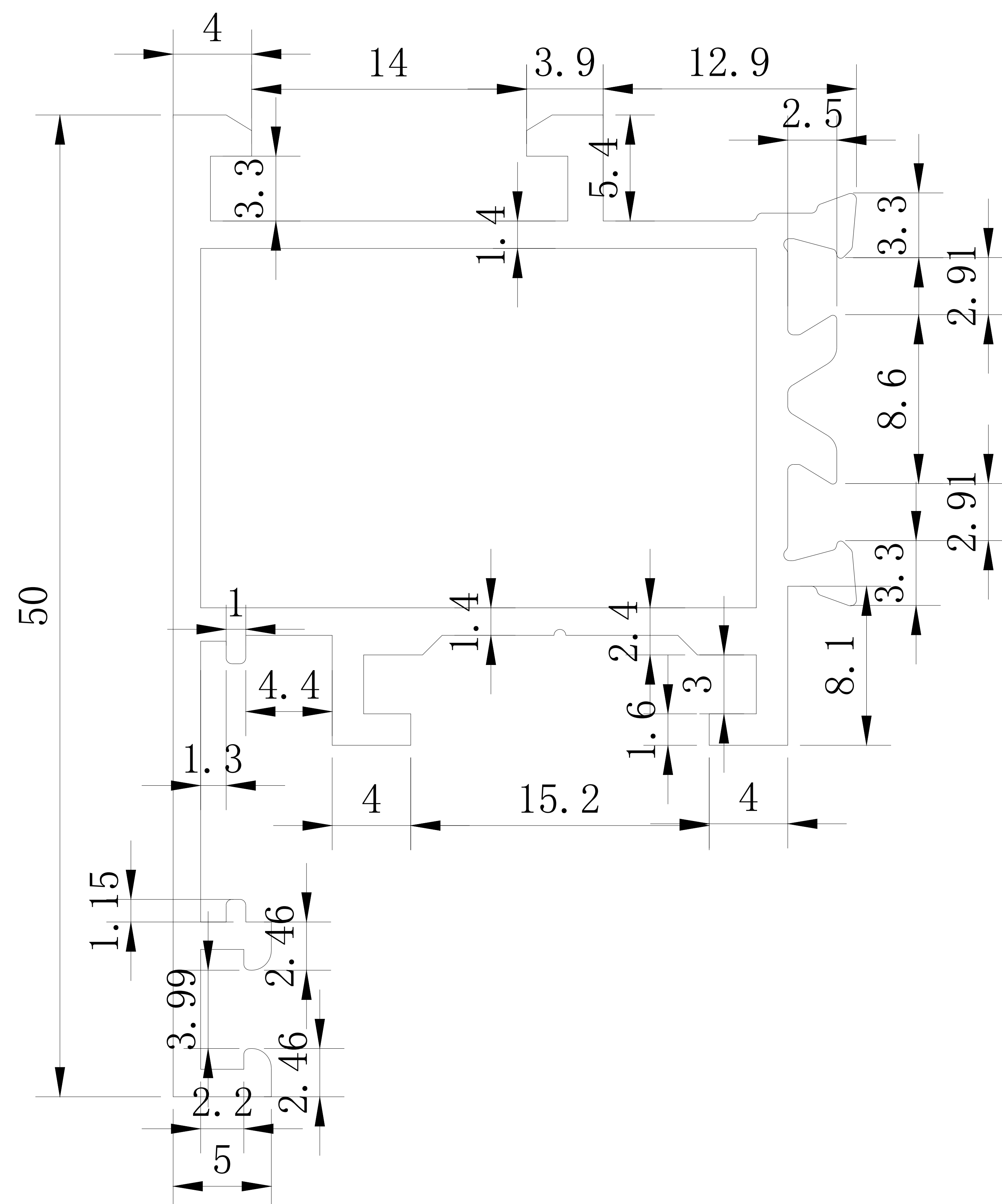
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Customer:

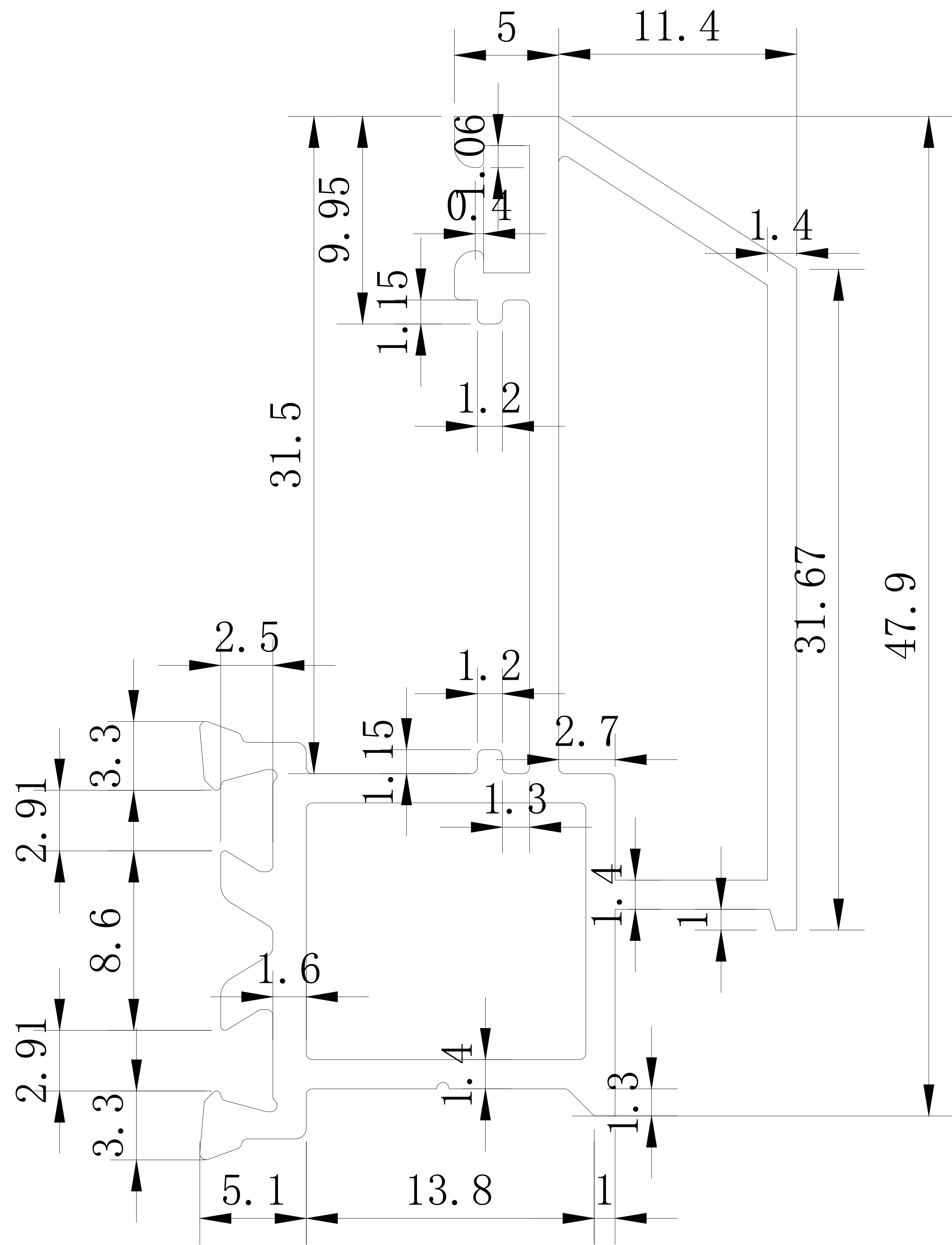
Project:

Drawing For:

DESIGNED	计军荣	计军荣
CHECKED		
DESIGNED		
DESIGNED		
Drawing No.	AWN2025.7	
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Map	A7	
Date		
Stage	Design	
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A1



A2



intertek

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Verified by:


Digitally Signed by: Jinhua Zhang

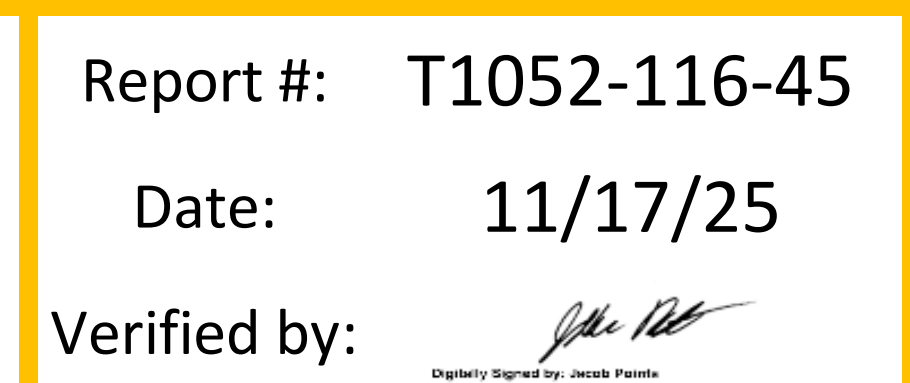
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www.aluminum-window.com
Email:info@staluminum.com

Customer:		
Project:		
Drawing For:		
DESIGNED	计军荣	计军荣
CHECKED		
DESIGNED		
DESIGNED		
Drawing No.	AWN2025.7	
Scale	1:1	
Map	A7	
Date		
Stage	Design	
CUSTOMER	2025/08/03	
OWNER		
MARK		



1. All views are external views, the solid line represents the outward opening, the dashed line represents the inward opening, and the side where the two lines intersect is the hinge installation side.

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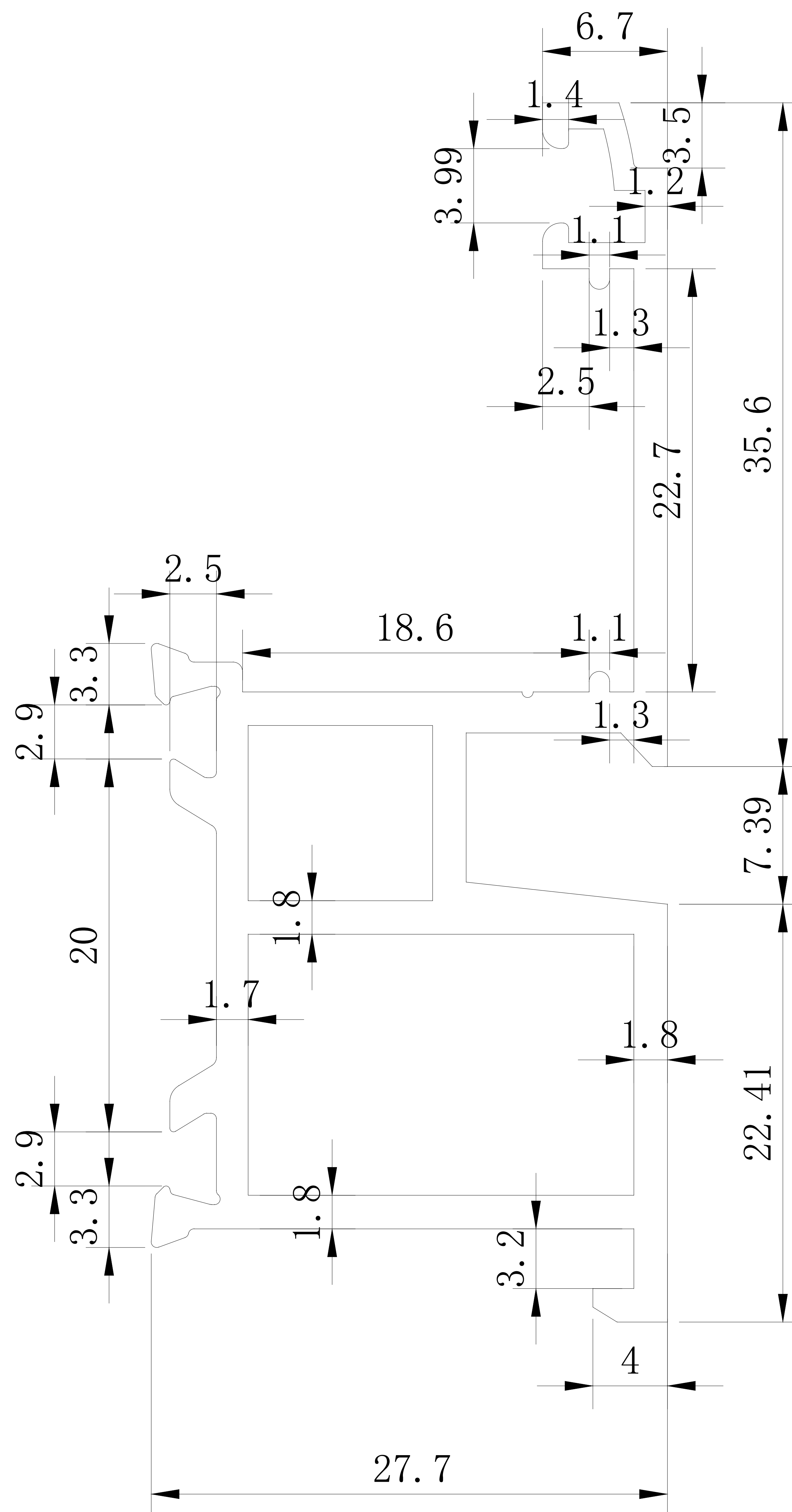
TAIXING SAINTY INDUTRY CO.,LTD.
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Email: info@staluminum.com

Customer:

Project:

Drawing For:

DESIGNED	计军荣	计军荣
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DESIGNED		
Drawing No.	AWN2025.7	
Scale	1:1	
Map	A7	
Date		
Stage	Design	
CUSTOMER	2025/08/03	
OWNER		
MARK		



Report #: T1052-116-45

Date: 11/17/25

Verified by: 
Digitally Signed by: Jacob Perle

Precautions:

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Email: info@staluminum.com

Customer:

Project:

Drawing For:

DESIGNED	计军荣	计军荣
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DESIGNED

Drawing No.	AWN2025.7
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Scale	1:1
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Map	A7
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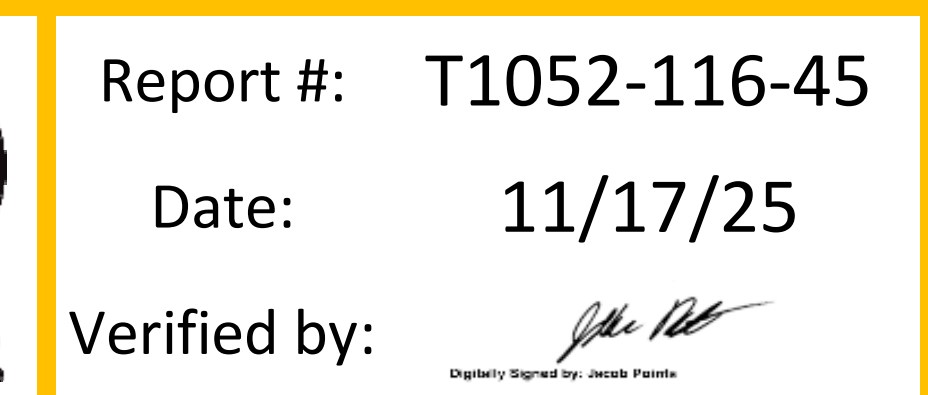
Date

Stage	Design
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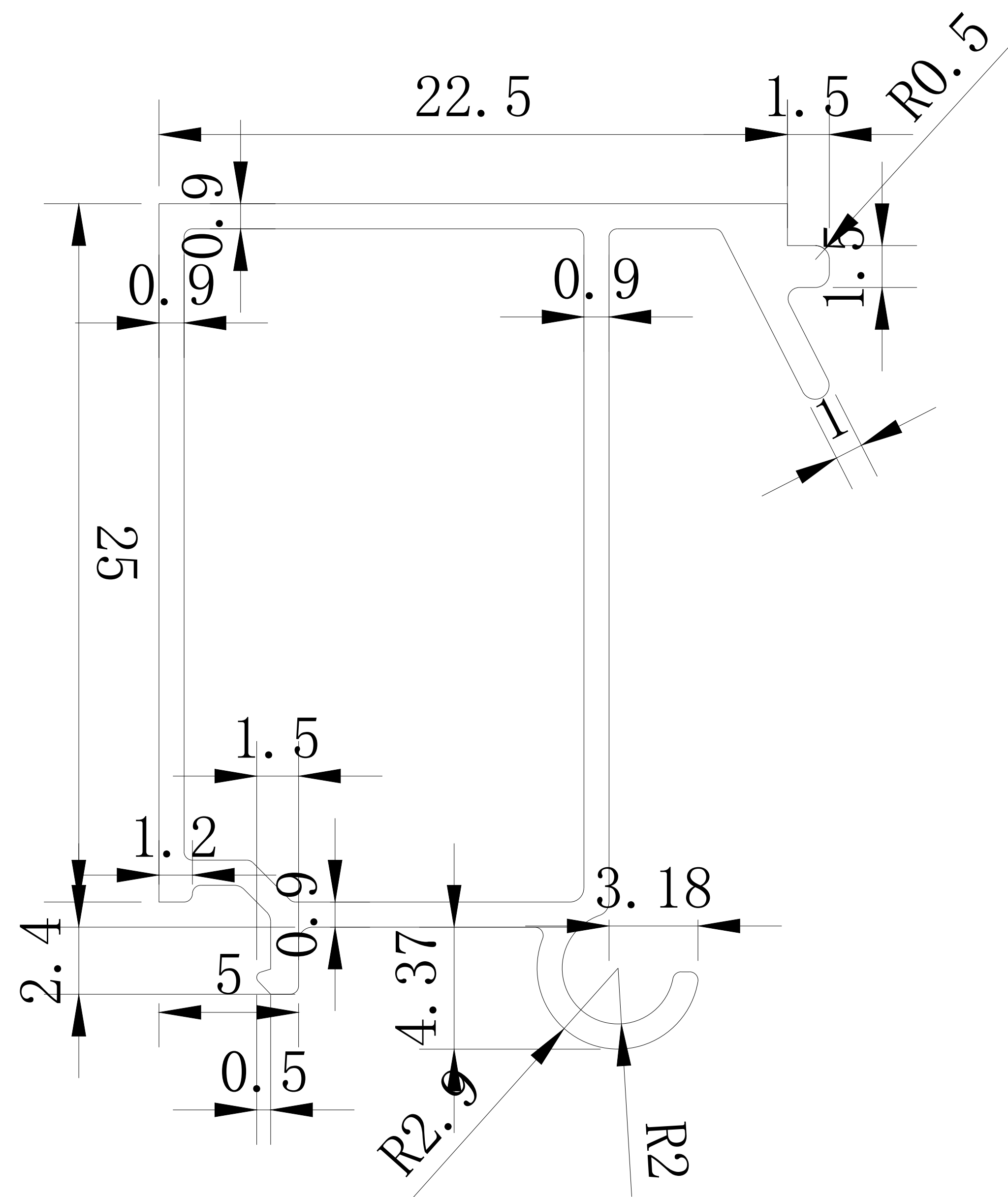
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Email: info@staluminum.com

Customer:

Project:

Drawing For:

DESIGNED	计军荣	计军荣
CHECKED		
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Drawing No.	AWN2025.7	
Scale	1:1	
Map	A7	
Date		
Stage	Design	
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A5



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Report #:

T1052-116-45

Date:

11/17/25

Verified by:


Digitally Signed by: Jinhua Zhang

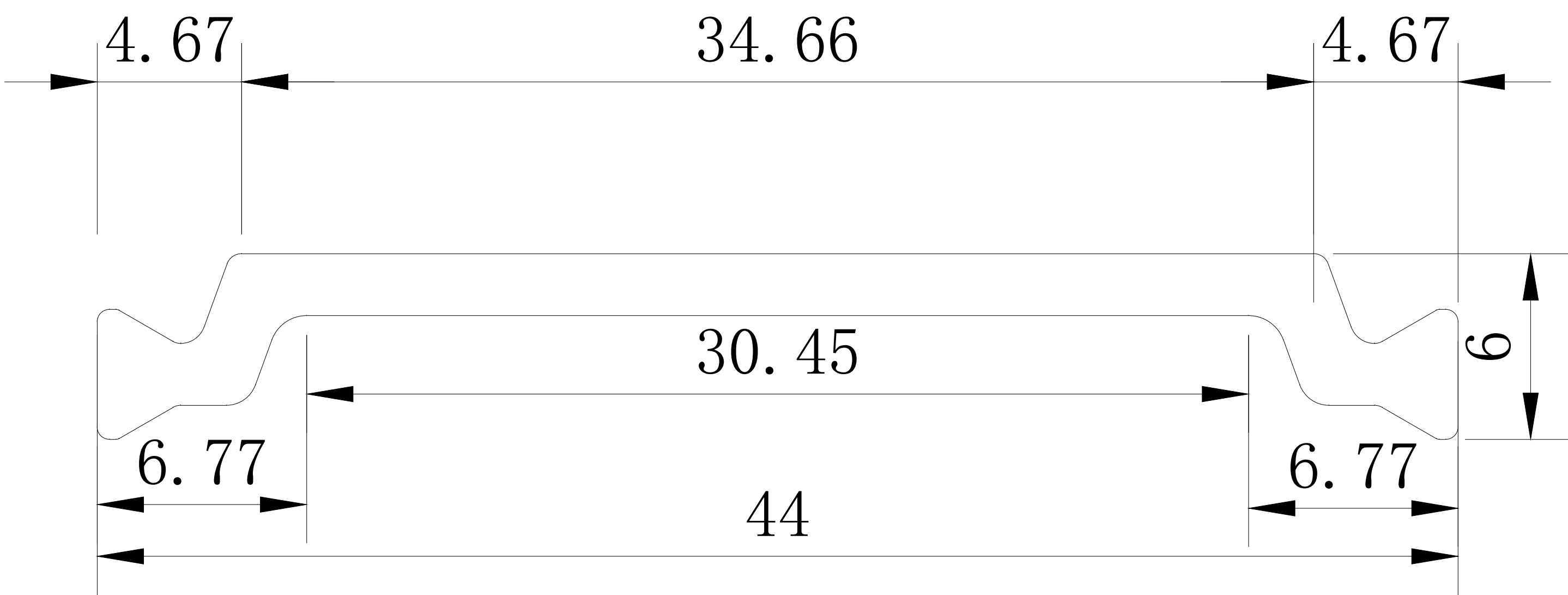
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Email:info@staluminum.com

Customer:		
Project:		
Drawing For:		
DESIGNED	计军荣	计军荣
CHECKED		
DESIGNED		
DESIGNED		
Drawing No.	AWN2025.7	
Scale	1:1	
Map	A7	
Date		
Stage	Design	
CUSTOMER	2025/08/03	
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A6



Report #:

T1052-116-45

Date:

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Verified by:


Digitally Signed by: Jinhua Pao

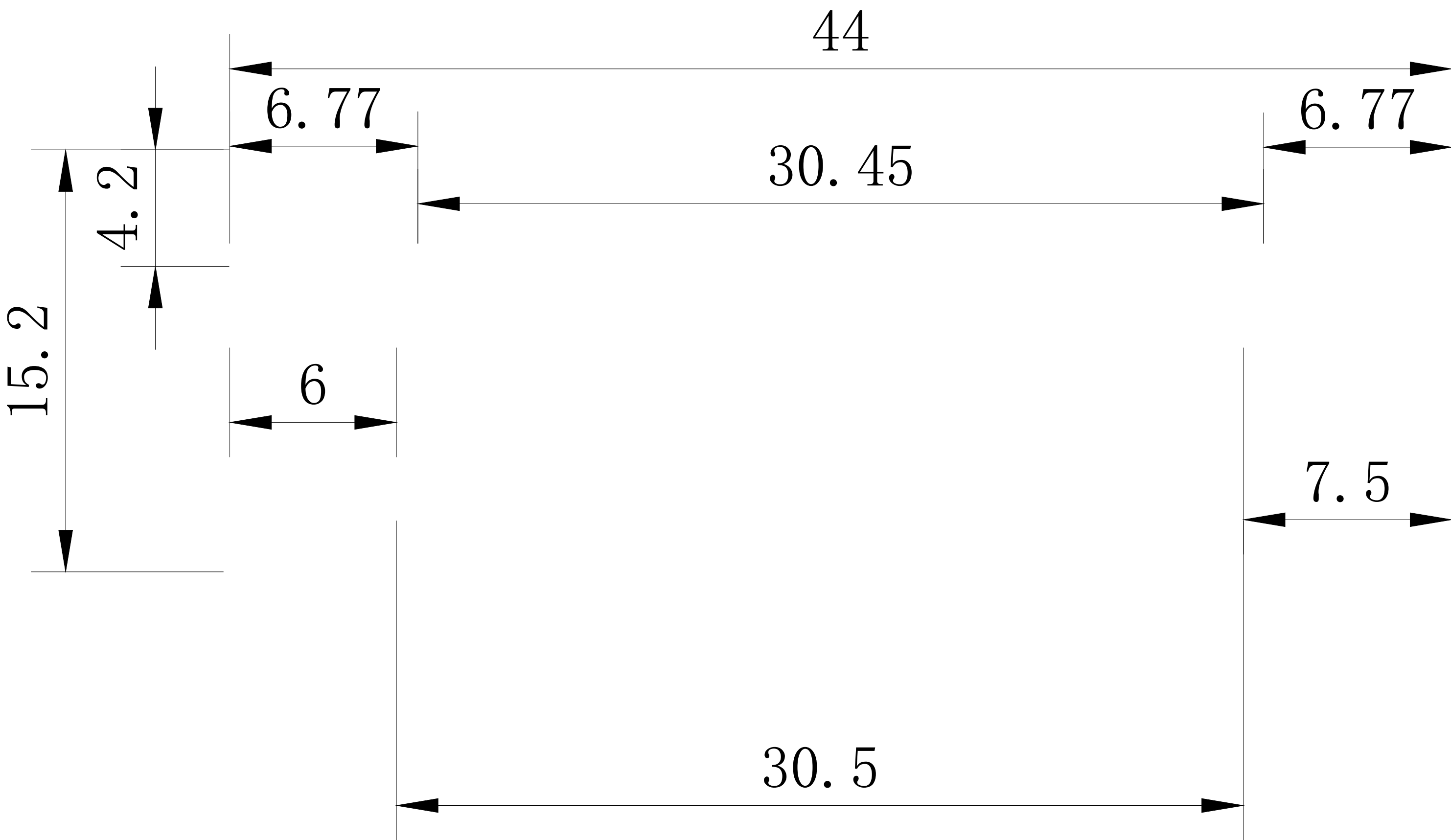
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Customer:		
Project:		
Drawing For:		
DESIGNED	计军荣	计军荣
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DESIGNED		
DESIGNED		
Drawing No.	AWN2025.7	
Scale	1:1	
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Stage	Design	
CUSTOMER	2025/08/03	
OWNER		
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Report #:

T1052-116-45

Date:

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Verified by:


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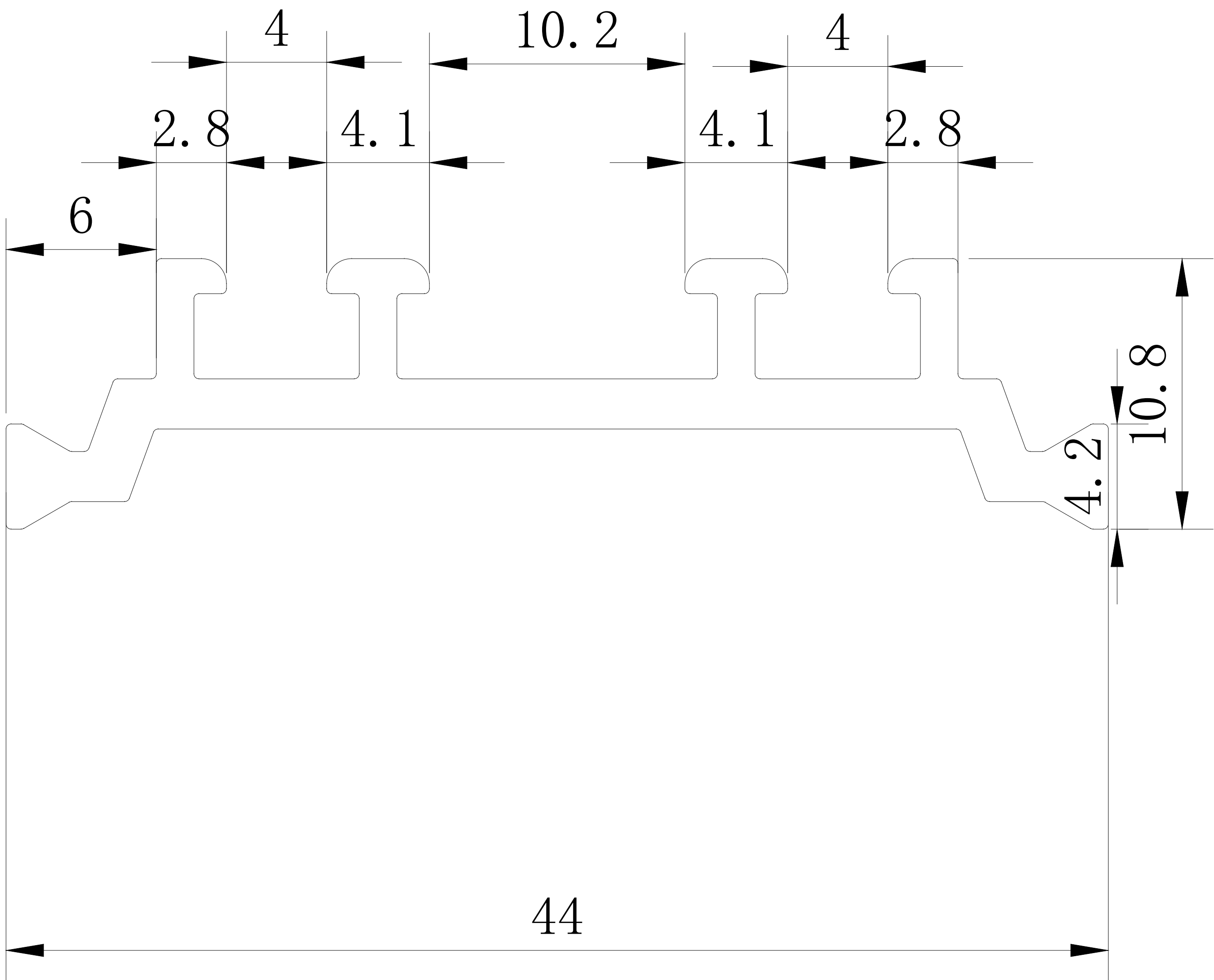
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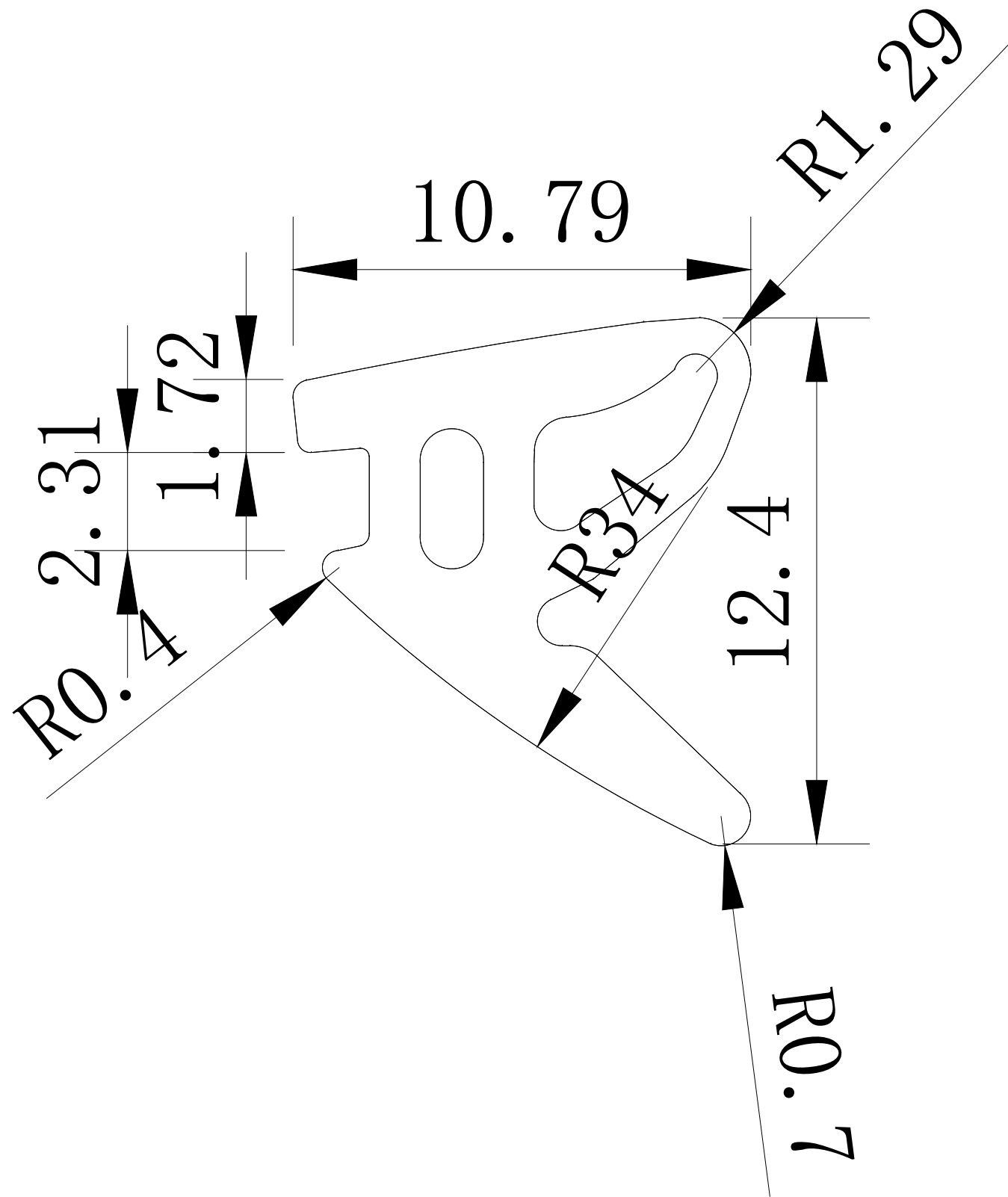


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Email: info@staluminum.com

Customer:		
Project:		
Drawing For:		
DESIGNED	计军荣	计军荣
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Drawing No.	AWN2025.7	
Scale	1:1	
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Stage	Design	
CUSTOMER	2025/08/03	
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A8



A9



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Date:

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Verified by:


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Customer:		
Project:		
Drawing For:		
DESIGNED	计军荣	计军荣
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Drawing No.	AWN2025.7	
Scale	1:1	
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Stage	Design	
CUSTOMER	2025/08/03	
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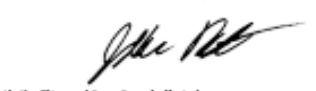
Report #:

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Verified by:


Digitally Signed by: Jinhua Zhang

Precautions:

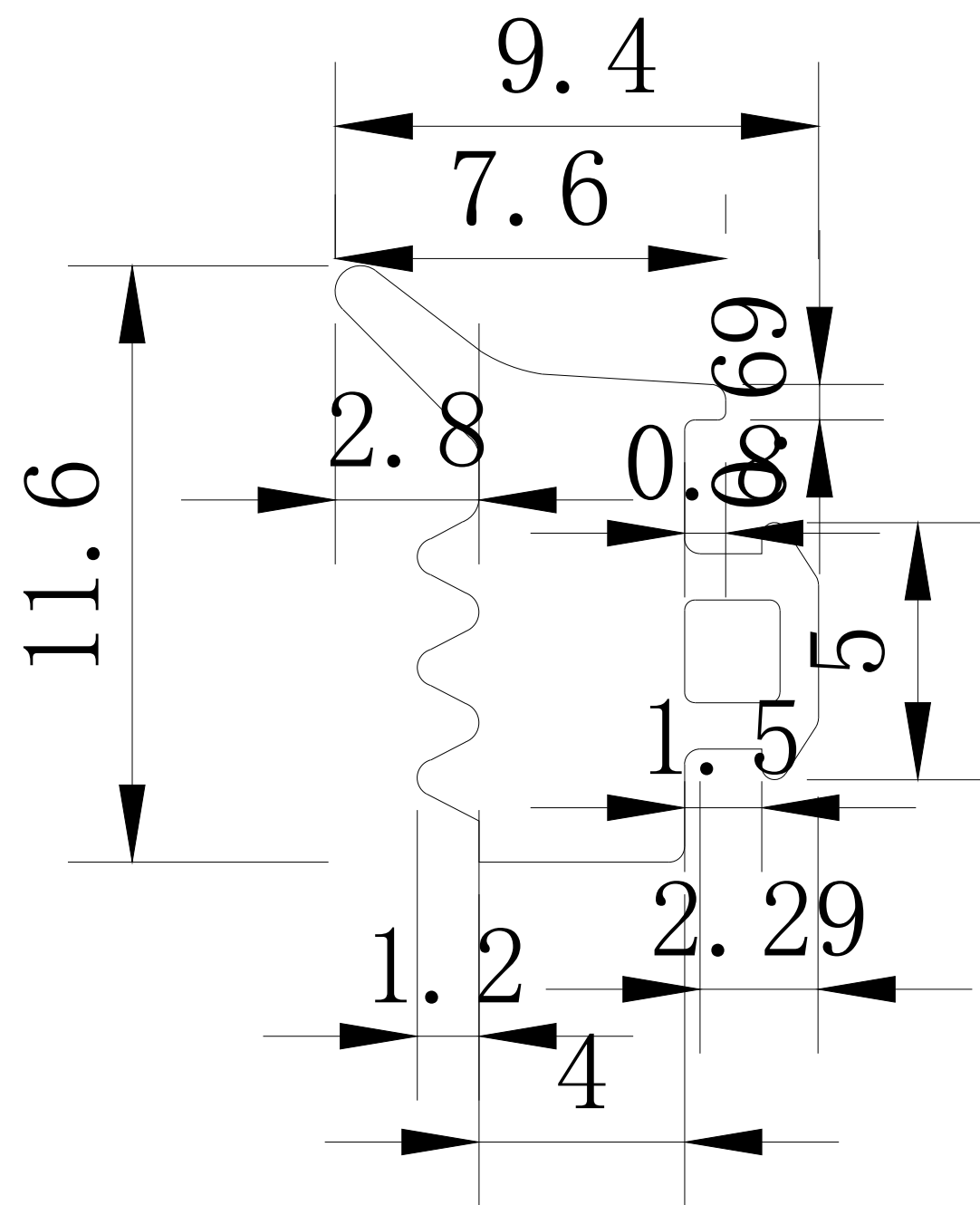
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Customer:		
Project:		
Drawing For:		
DESIGNED	计军荣	计军荣
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Drawing No.	AWN2025.7	
Scale	1:1	
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A10



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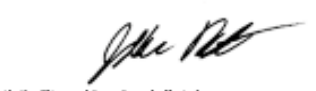
Report #:

T1052-116-45

Date:

11/17/25

Verified by:


Digitally Signed by: Jinhua Zheng

Precautions:

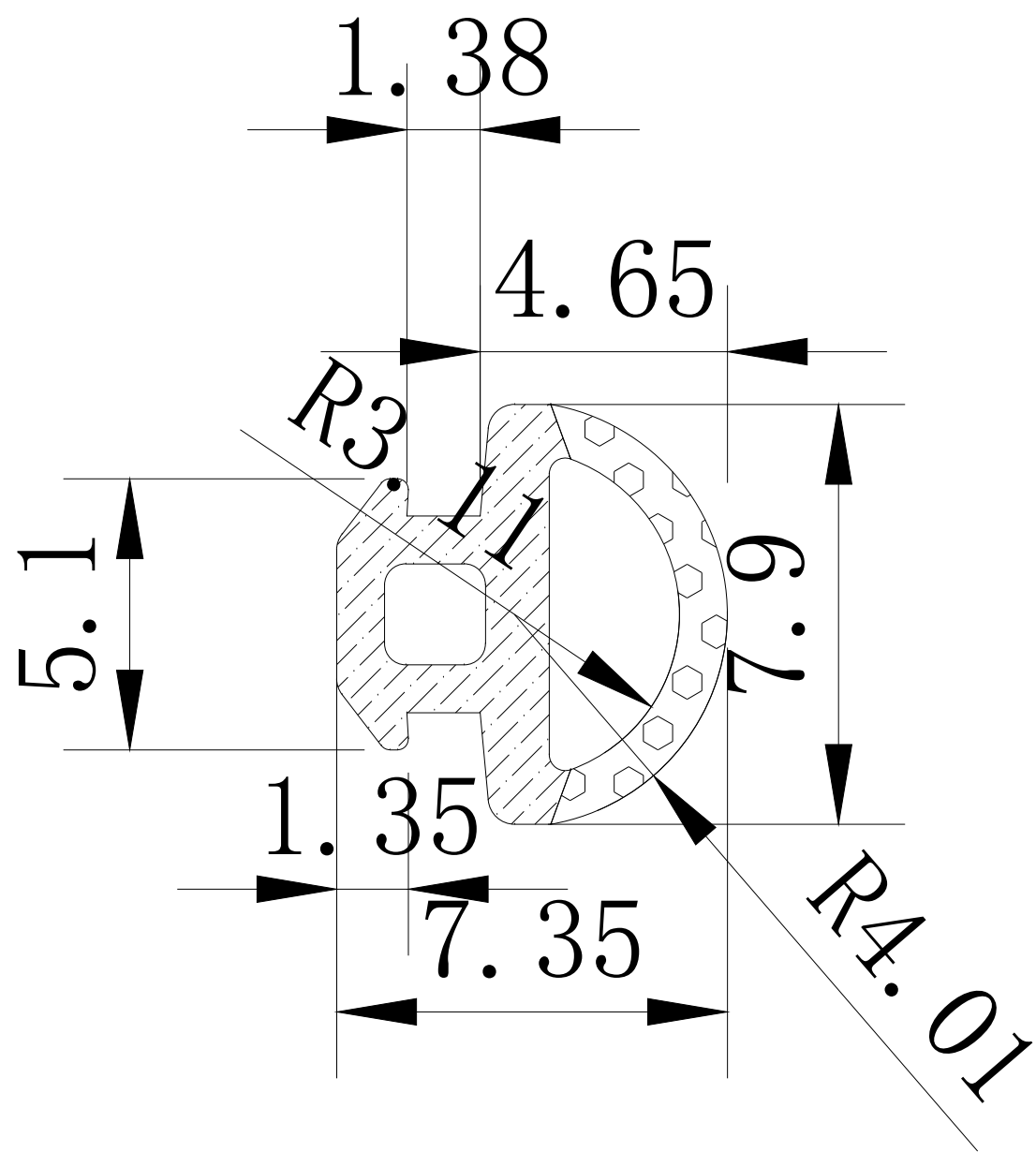
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Customer:		
Project:		
Drawing For:		
DESIGNED	计军荣	计军荣
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Drawing No.	AWN2025.7	
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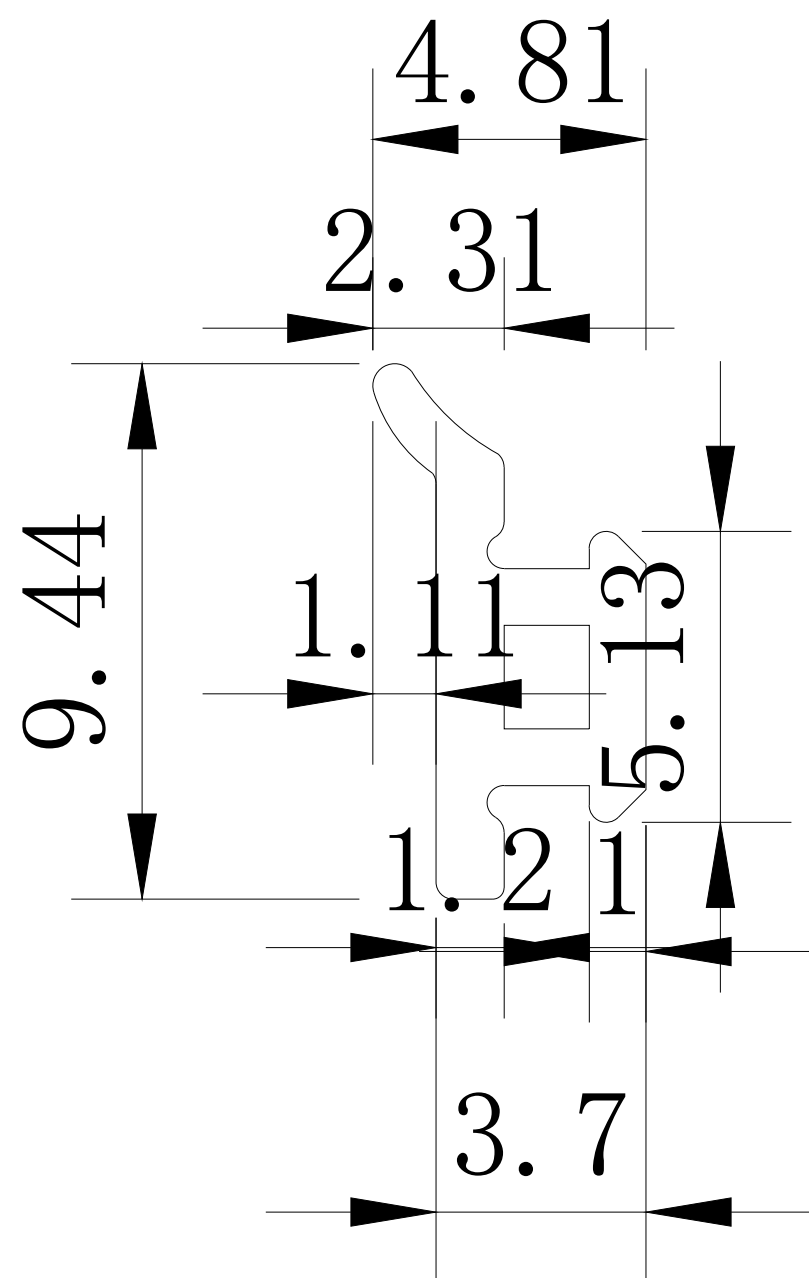
- Precautions:**
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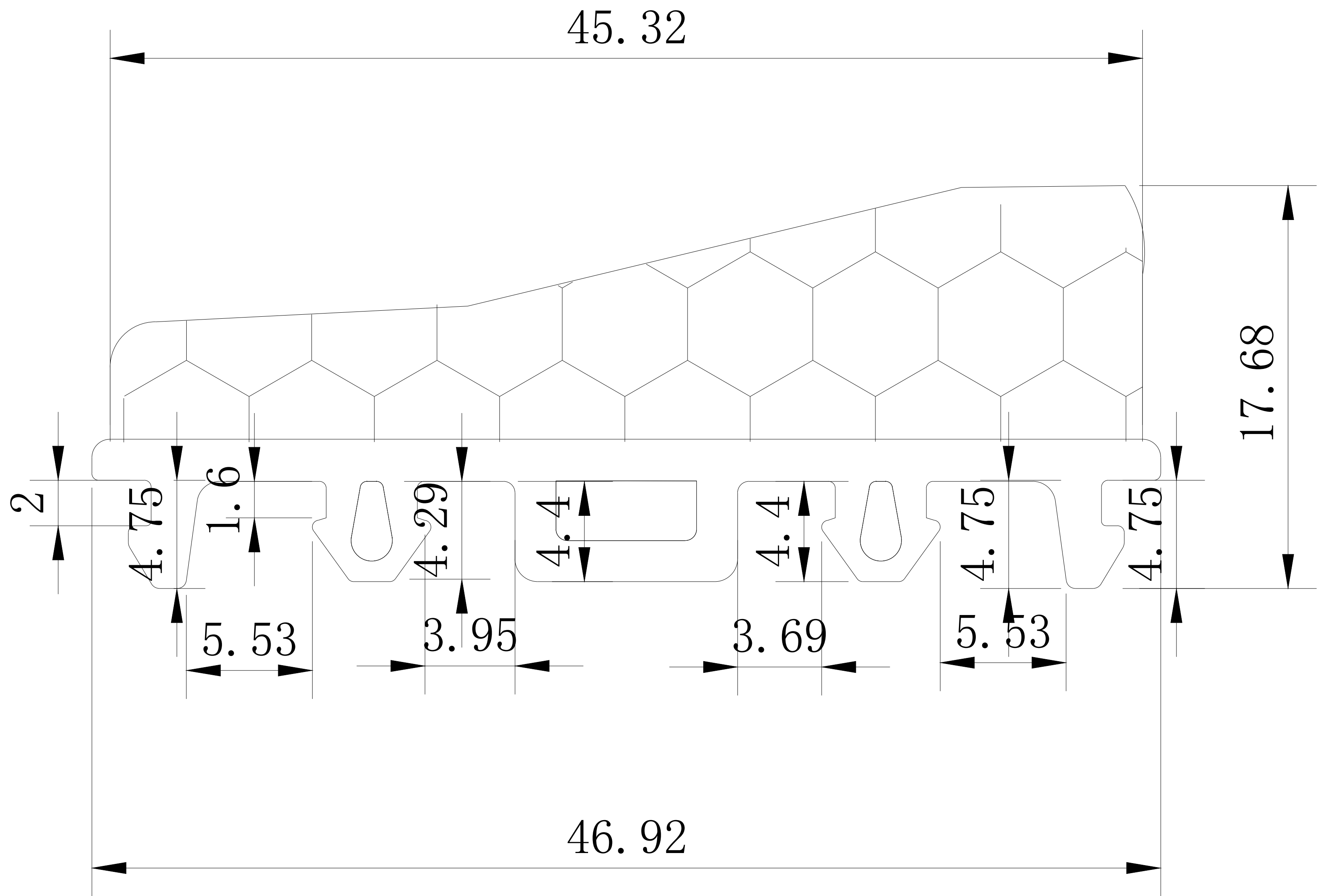
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Customer:		
Project:		
Drawing For:		
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Drawing No.	AWN2025.7	
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A13



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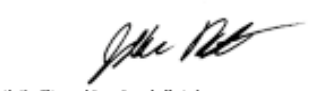
Report #:

T1052-116-45

Date:

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Verified by:


Digitally Signed by: Jinhua Zhang

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Email:info@staluminum.com

Customer:

Project:

Drawing For:

DESIGNED	计军荣	计军荣
CHECKED		
DESIGNED		
DESIGNED		

Drawing No. AWN2025.7

Scale 1:1

Map A7

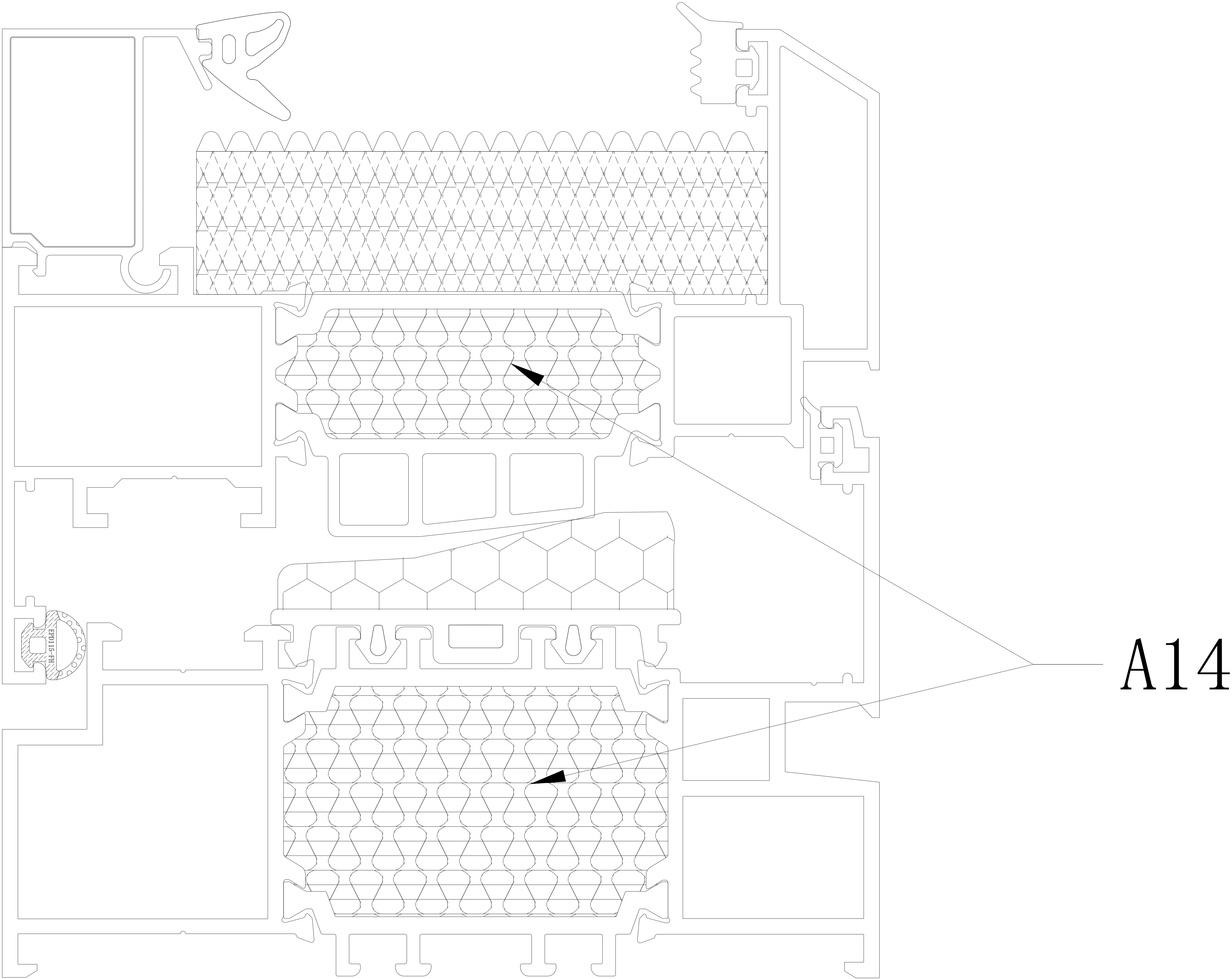
Date

Stage Design

CUSTOMER 2025/08/03

OWNER

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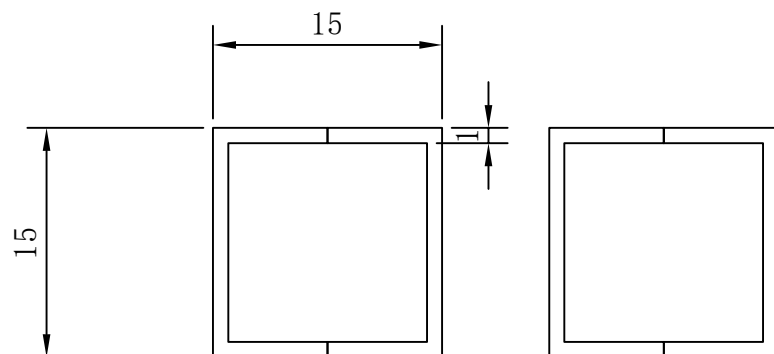




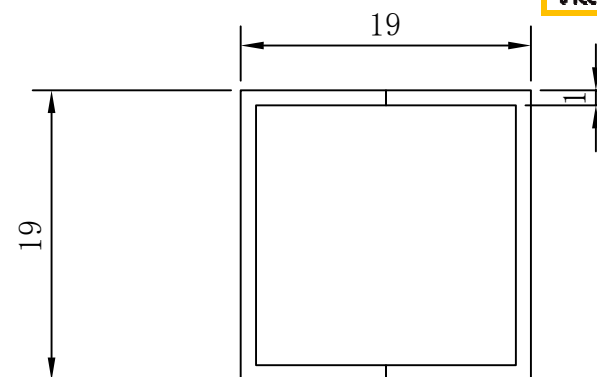
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Date: 11/17/25

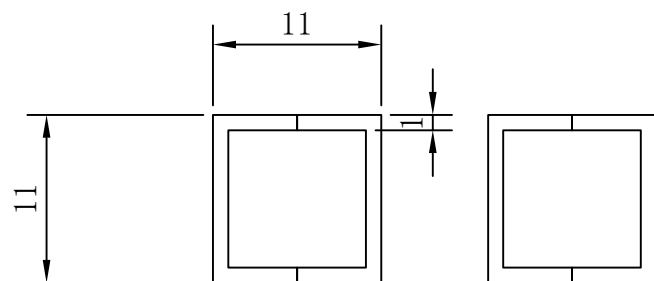
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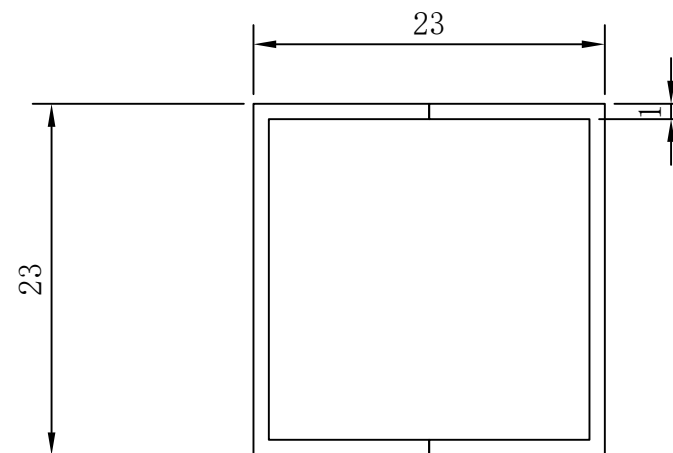
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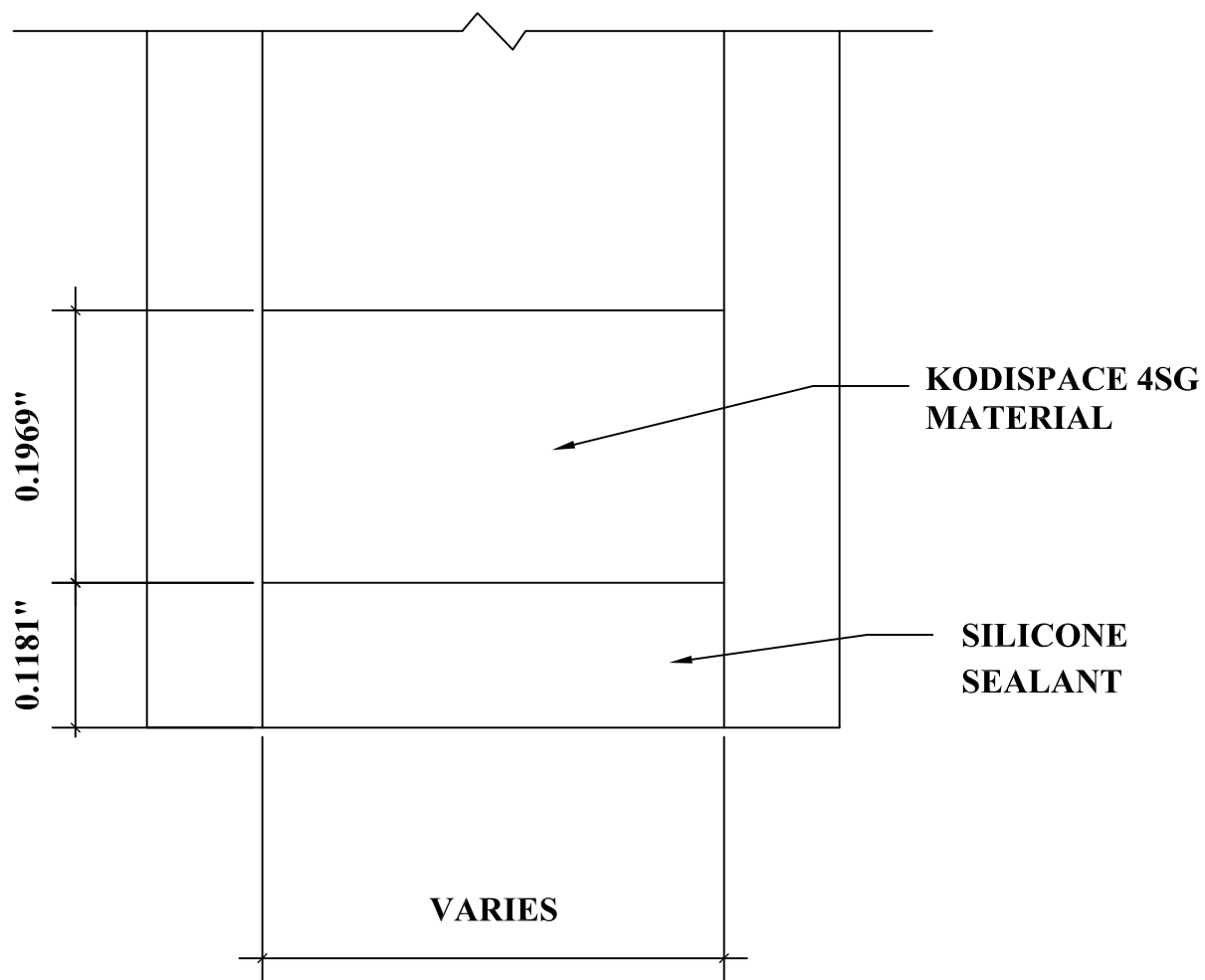
Painted Aluminum



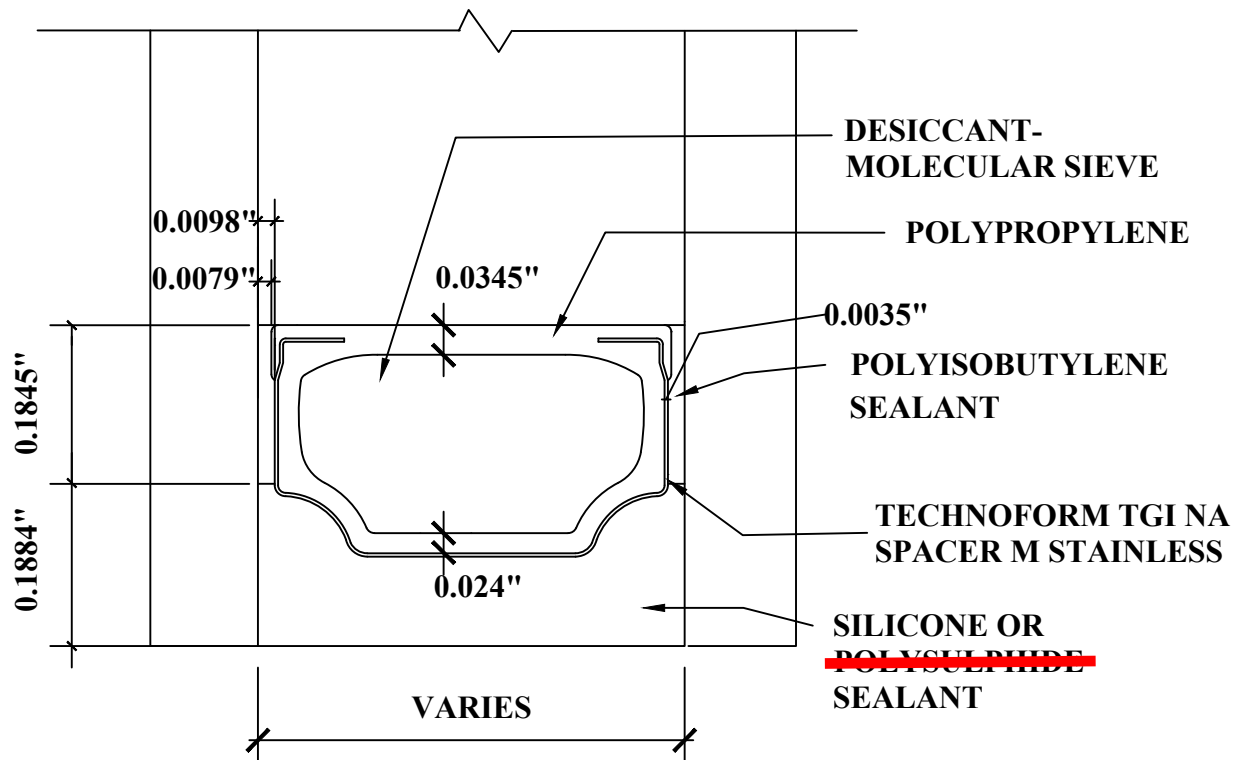
Report #: T1052-116-45

Date: 11/17/25

Verified by: *[Signature]*
Digital Signature for: David P. [Name]



DETAIL FOR THERMAL MODELING OF
H.B. FULLER/KOMMERLING KODISPACE 4SG SPACER (TP-S)



DETAIL FOR THERMAL MODELING OF
TECHNOFORM SP13 SPACER - M (TS-D)



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TEST REPORT FOR TAIXING SAINTY INDUSTRY CO., LTD.

Report No: T1052.01-116-45 R0

Date: 11/17/25

SECTION 8

REVISION LOG

REVISION #	DATE	PAGES	REVISION
.01 R0	11/17/25	N/A	Original report issue.
