

FOSHAN WANSLEY INDUSTRIAL CO., LTD

THERMAL PERFORMANCE TEST REPORT

SCOPE OF WORK

90 SERIES CASEMENT

REPORT NUMBER

T9229.01-301-46 R0

TEST DATE

06/19/26

ISSUE DATE

08/12/26

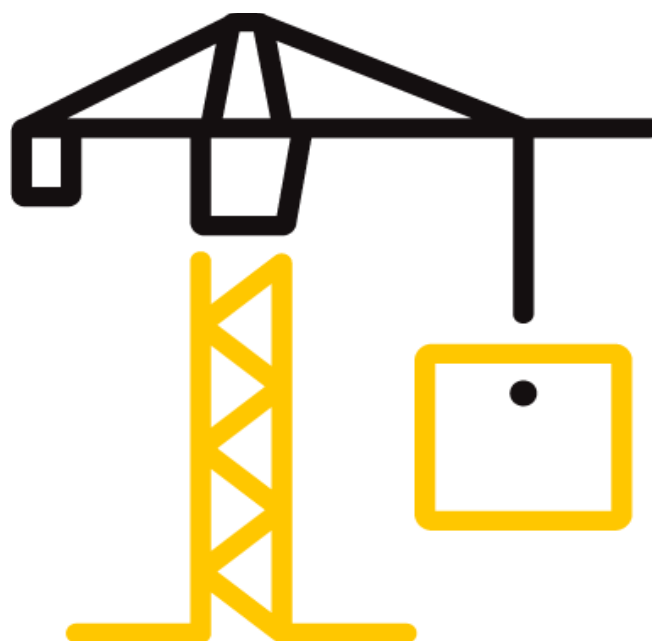
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18

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-8197(a) (09/15/25)

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TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD

Report No.: T9229.01-301-46 R0

Date: 06/24/26

REPORT ISSUED TO

FOSHAN WANSLEY INDUSTRIAL CO., LTD

No. 11, Luocun Avenue North, Lutang Community, Shishan Town,
Nanhai District, Foshan, Guangdong, China, 528226

SECTION 1

SCOPE

SERIES/MODEL: 90 Series Casement

TYPE: Casement (Single Vent)

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Foshan Zhenyi Doors & Windows Co., Ltd to evaluate the thermal performance per NFRC 102-2026. Results obtained are tested values and were secured by using the designated test method. Testing was conducted at Intertek B&C test facility in Fresno, California.

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, or other pertinent project documentation, will be retained for the entire test record retention period. Representative samples of the test specimen will be retained by Intertek B&C for a minimum of two and a half years from the submittal date to the Inspection Agency and no more than five years from the test date.

For INTERTEK B&C:

COMPLETED BY Brandon Hill

TITLE Technician

SIGNATURE

DATE 08/12/26

BH:gr

REVIEWED BY Kenny C. White

TITLE Business Process

SIGNATURE

DATE 08/12/26

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TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 2

SUMMARY OF TEST RESULTS

Standardized U-factor (Ust): 0.35 Btu/hr·ft²·F (CTS Method)

SECTION 3

TEST SPECIMEN SUMMARY

SERIES/MODEL	90 Series Casement
TYPE	Casement (Single Vent)
OVERALL SIZE	23-5/8" x 59-1/8" (600 mm x 1502 mm) (Model Size)
NFRC STANDARD SIZE	23.6" x 59.1" (600 mm wide x 1500 mm high)
TEST SAMPLE SUBMITTED BY	Client
TEST SAMPLE SUBMITTED FOR	Validation for Initial Certification (Prototype only) no Plant Qualification

SECTION 4

TEST METHOD

The specimens were evaluated in accordance with the following:

NFRC 102-2026, Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems

SECTION 5

MATERIAL SOURCE/INSTALLATION

The test specimen was provided by the client.

The test sample was installed in a vertical orientation, the exterior of the specimen was exposed to the cold side.

SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Jimmy Miguel	Intertek B&C
Brandon Hill	Intertek B&C

TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 7

TEST SAMPLE DESCRIPTION

FRAME

MATERIAL	AT (1.09"): Aluminum w/ Thermal Breaks		
SIZE	23-5/8" x 59-1/8" (Model Size)		
DAYLIGHT OPENING	N/A	GLAZING METHOD	N/A
EXTERIOR COLOR	Black	EXTERIOR FINISH	Paint
INTERIOR COLOR	Black	INTERIOR FINISH	Paint
CORNER JOINERY	Mitered / Keys / Sealed		

VENT

MATERIAL	AT (1.20"): Aluminum w/ Thermal Breaks		
SIZE	20-7/8" x 56-3/8"		
DAYLIGHT OPENING	14-1/8" x 49-3/4"	GLAZING METHOD	Interior
EXTERIOR COLOR	Black	EXTERIOR FINISH	Paint
INTERIOR COLOR	Black	INTERIOR FINISH	Paint
CORNER JOINERY	Mitered / Keys / Sealed		

GLAZING INFORMATION

LAYER 1	1/4"	SYP Glass Group Co., LTD YNE0168 (e=0.035*, #2)	
GAP 1	0.51"	A1-D: Aluminum Spacer	100% Air*
LAYER 2	1/4"	SYP Glass Group Co., LTD YNE0168 (e=0.035*, #4)	
GAP 2	0.50"	A1-D: Aluminum Spacer	100% Air*
LAYER 3	1/4"	Clear	
GAS FILL METHOD	N/A*		

**Stated per the client/manufacturer and can affect the validity of results*

N/A Non-Applicable

TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD.

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 7 (CONTINUED)

TEST SAMPLE DESCRIPTION (CONTINUED)

WEATHERSTRIPPING

DESCRIPTION	QUANTITY	LOCATION
Fin gasket	1 Row	All members of the frame and vent.
EPDM gasket	1 Row	All members of the frame.

HARDWARE

DESCRIPTION	QUANTITY	LOCATION
Multi-point lock assembly	1	Lock stile of the vent.
Keeper	4	Lock jamb.
Multi-arm hinge	2	Head, sill, and rails of the vent.

DRAINAGE

DRAINAGE METHOD	SIZE	QUANTITY	LOCATION
Oval weephole	1" x 1/4"	2	Sill track.

TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD.

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 8

THERMAL TRANSMITTANCE (U-FACTOR): MEASURED TEST DATA

HEAT FLOWS

1. Total Measured Input into Metering Box (Qtotal)	340.57 Btu/hr
2. Surround Panel Heat Flow (Qsp)	85.06 Btu/hr
3. Surround Panel Thickness	4.00 inches
4. Surround Panel Conductance	0.0483 Btu/hr·ft ² ·F
5. Metering Box Wall Heat Flow (Qmb)	-8.40 Btu/hr
6. EMF vs Heat Flow Equation (equivalent information)	$0.0222 \cdot \text{EMF} + 0.000$
7. Flanking Loss Heat Flow (Qfl)	19.62 Btu/hr
8. Net Specimen Heat Loss (Qs)	244.29 Btu/hr

AREAS

1. Test Specimen Projected Area (As)	9.70 ft ²
2. Test Specimen Projected Frame Area (Af)	4.82 ft ²
3. Test Specimen Projected Glazing Area (Ag)	4.88 ft ²
4. Metering Box Opening Area (Amb)	36.47 ft ²
5. Metering Box Baffle Area (Ab1)	32.13 ft ²
6. Surround Panel Interior Exposed Area (Asp)	26.77 ft ²

TEST CONDITIONS

1. Average Metering Room Air Temperature (th)	69.79 F
2. Average Cold Side Air Temperature (tc)	-0.09 F
3. Average Guard/Environmental Air Temperature	72.50 F
4. Metering Room Average Relative Humidity	9.68 %
5. Metering Room Maximum Relative Humidity	10.16 %
6. Metering Room Minimum Relative Humidity	9.30 %
7. Measured Cold Side Wind Velocity (Perpendicular Flow)	11.22 mph
8. Measured Warm Side Wind Velocity (Parallel Flow)	0.04 mph
9. Measured Static Pressure Difference Across Test Specimen	0.08 inches of water

AVERAGE SURFACE TEMPERATURES

1. Metering Room Surround Panel	66.06 F
2. Cold Side Surround Panel	0.31 F

RESULTS

1. Thermal Transmittance of Test Specimen (Us)	0.36 Btu/hr·ft ² ·F
2. Standardized Thermal Transmittance of Test Specimen (Ust)	0.35 Btu/hr·ft ² ·F

TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD.

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 9

THERMAL TRANSMITTANCE (U-FACTOR): CALCULATED TEST DATA

CTS METHOD RESULTS

1. Warm Side Surface Emittance of CTS (e1)	0.84
2. Warm Side Area-Weighted Surface Emittance of Specimen Frame (ef1)	0.90
3. Warm Side Area-Weighted Surface Emittance of Specimen Glazing (eg1)	0.84
4. Warm Side Surface Emittance of Surround Panel (esp1)	0.90
5. Warm Side Area-Weighted Surface Emittance in View of the Baffle (es1)	0.89
6. Warm Side Baffle Emittance (eb1)	0.92
7. Cold Side Baffle Emittance (eb2)	N/A
8. Equivalent Warm Side Surface Temperature (t1)	50.93 F
9. Equivalent Cold Side Surface Temperature (t2)	4.32 F
10. Warm Side Baffle Surface Temperature	68.66 F
11. Cold Side Baffle Surface Temperature	N/A F
12. Measured Warm Side Surface Conductance (hh)	1.33 Btu/hr·ft ² ·F
13. Measured Cold Side Surface Conductance (hc)	5.72 Btu/hr·ft ² ·F
14. Test Specimen Thermal Conductance (Cs)	0.54 Btu/hr·ft ² ·F
15. Convection Coefficient (Kc)	0.28 Btu/(hr·ft ² ·F ^{1.25})
16. Radiative Test Specimen Heat Flow (Qr1)	136.72 Btu/hr
17. Conductive Test Specimen Heat Flow (Qc1)	107.57 Btu/hr
18. Radiative Heat Flux of Test Specimen (qr1)	14.09 Btu/hr·ft ² ·F
19. Convective Heat Flux of Test Specimen (qc1)	11.09 Btu/hr·ft ² ·F
20. Standardized Warm Side Surface Conductance (hsth)	1.28 Btu/hr·ft ² ·F
21. Standardized Cold Side Surface Conductance (hstc)	5.28 Btu/hr·ft ² ·F
22. Standardized Thermal Transmittance (Ust)	0.35 Btu/hr·ft ² ·F

SECTION 10

TEST DURATION

1. The environmental systems were started at 11:56 hours, 06/18/26.
2. The test parameters were considered stable for two consecutive four hour test periods from 21:26 hours, 06/18/26 to 05:26 hours, 06/19/26.
3. The thermal performance test results were derived from 01:26 hours, 06/19/26 to 05:26 hours, 06/19/26.

TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD.

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 11

GLAZING DEFLECTION

	VENT
EDGE GAP WIDTH	0.51" / 0.50"
ESTIMATED CENTER GAP WIDTH upon receipt of specimen in laboratory (after stabilization)	0.46" / 0.48"
CENTER GAP WIDTH at laboratory ambient conditions on day of testing	0.46" / 0.48"
CENTER GAP WIDTH at test conditions	0.43" / 0.46"

Glass collapse determined using a digital glass and air space meter

The sample was inspected for the formation of frost or condensation, which may influence the surface temperature measurements. The sample showed evidence of condensation on the sill at the conclusion of the test.

"This test method does not include procedures to determine the heat flow due to either air movement through the specimen or solar radiation effects. As a consequence, the thermal transmittance results obtained do not reflect performances which are expected from field installations due to not accounting for solar radiation, air leakage effects, and the thermal bridge effects that have the potential to occur due to the specific design and construction of the fenestration system opening. The latter can only be determined by in-situ measurements. Therefore, it is important to recognize that the thermal transmittance results obtained from this test method are for ideal laboratory conditions and should only be used for fenestration product comparisons and as input to thermal performance analyses which also include solar, air leakage and thermal bridge effects."

Required annual calibrations for the Intertek B&C, 'thermal test chamber' (ICN 004287) in Fresno, California were last conducted in February 2026 in accordance with Intertek B&C calibration procedure. A CTS Calibration verification was performed April 2026. A Metering Box Wall Transducer and Surround Panel Flanking Loss Characterization was performed April 2026.

The reported Standardized Thermal Transmittance (Ust) was determined using CTS Method, per Section 9.2(A) of NFRC 102.

TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD.

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 12

CTS CALIBRATION DATA

1. CTS Test Date	06/26/25
2. CTS Size	9.69 ft ²
3. CTS Glass/Core Conductance	0.40 Btu/hr·ft ² ·F
4. Warm Side Air Temperature	69.81 F
5. Cold Side Air Temperature	-0.49 F
6. Warm Side Average Surface Temperature	54.10 F
7. Cold Side Average Surface Temperature	3.08 F
8. Convection Coefficient (Kc)	0.28 Btu/(hr·ft ² ·F ^{1.25})
9. Measured Cold Side Surface Conductance (hc)	5.72 Btu/hr·ft ² ·F
10. Measured Thermal Transmittance	0.32 Btu/hr·ft ² ·F

ANSI/NCSL Z540-2-1997 type B uncertainty for this test was 4.09%.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule also called "Shared Risk Approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

"Ratings included in this report are for submittal to an NFRC licensed IA for certification purposes and are not meant to be used for labeling purposes. Only those options identified on a valid Certificate of Authorization (CA) are to be used for labeling purposes."

The direction of heat transfer was from the interior (warm side) to the exterior (cold side) of the specimen. The ratings were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy. The data acquisition frequency is 5 minutes.

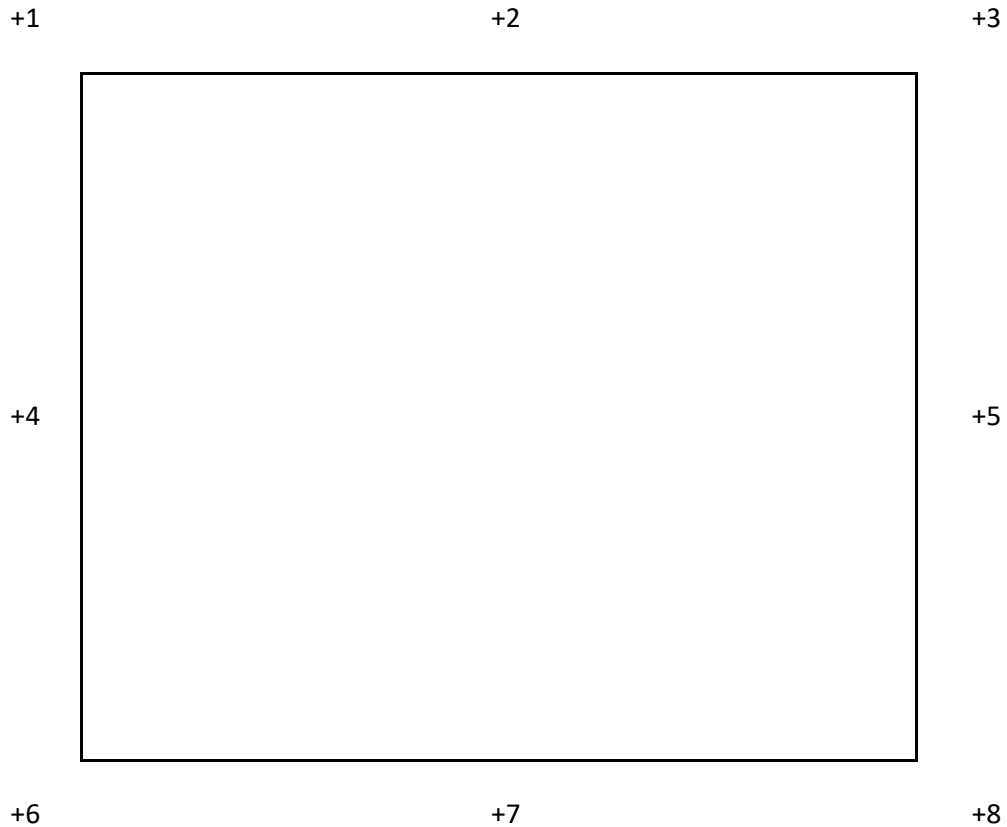
TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD.

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 13

SURROUND PANEL WIRING DIAGRAM



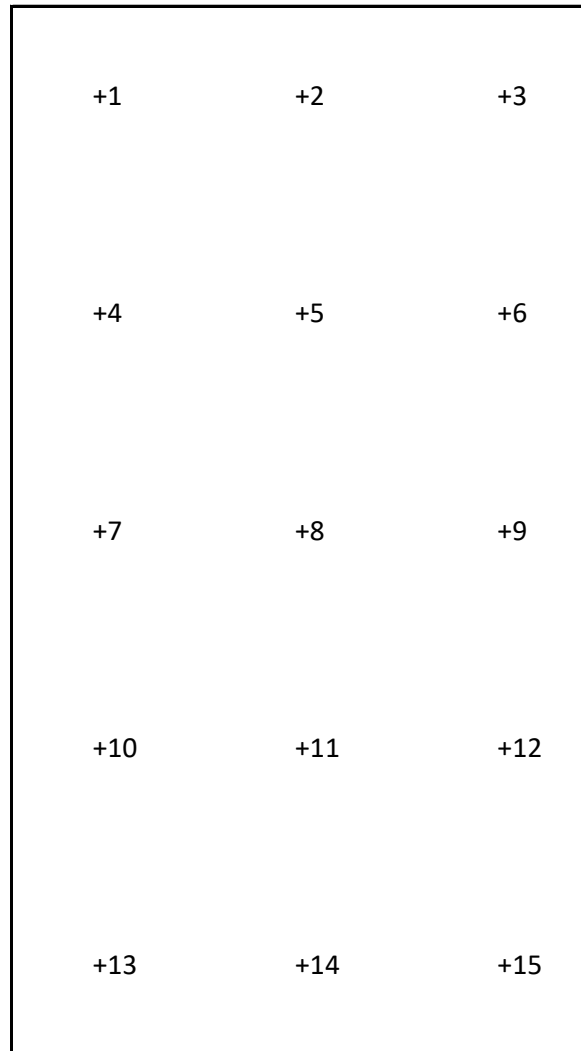
TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD.

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 14

BAFFLE WIRING DIAGRAM



TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD.

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 15

SUBMITTAL FORM AND DRAWINGS

The test specimen drawings which follow have been reviewed by Intertek B&C and are representative of the test specimen reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

NFRC PRODUCT CERTIFICATION PROGRAM

Submittal Form for Test Samples



For use by Manufacturers, Lineal Suppliers and Fabricators

1. Information on Production of the Test Sample (complete **ALL** fields):

Manufacturer: Foshan WANSLEY INDUSTRIAL Date of sample manufacture: 2026/4/15
Plant Address where manufactured: No. 11, Luocun Avenue North, Lutang Community, Town
City: Foshan City State: Guangdong Province Zip Code: 528226
Name of IA: CSA America Testing & C Phone: _____ Fax: _____

2. Product Information (complete **APPLICABLE** fields):

Existing Product Line ID (CPD) No.: 1 Product/Operator Type (Table 4-3 of NFRC 100): Casement-Sing
Series/Model: 90 Series

3. Test sample is being submitted for (select **ONE**):

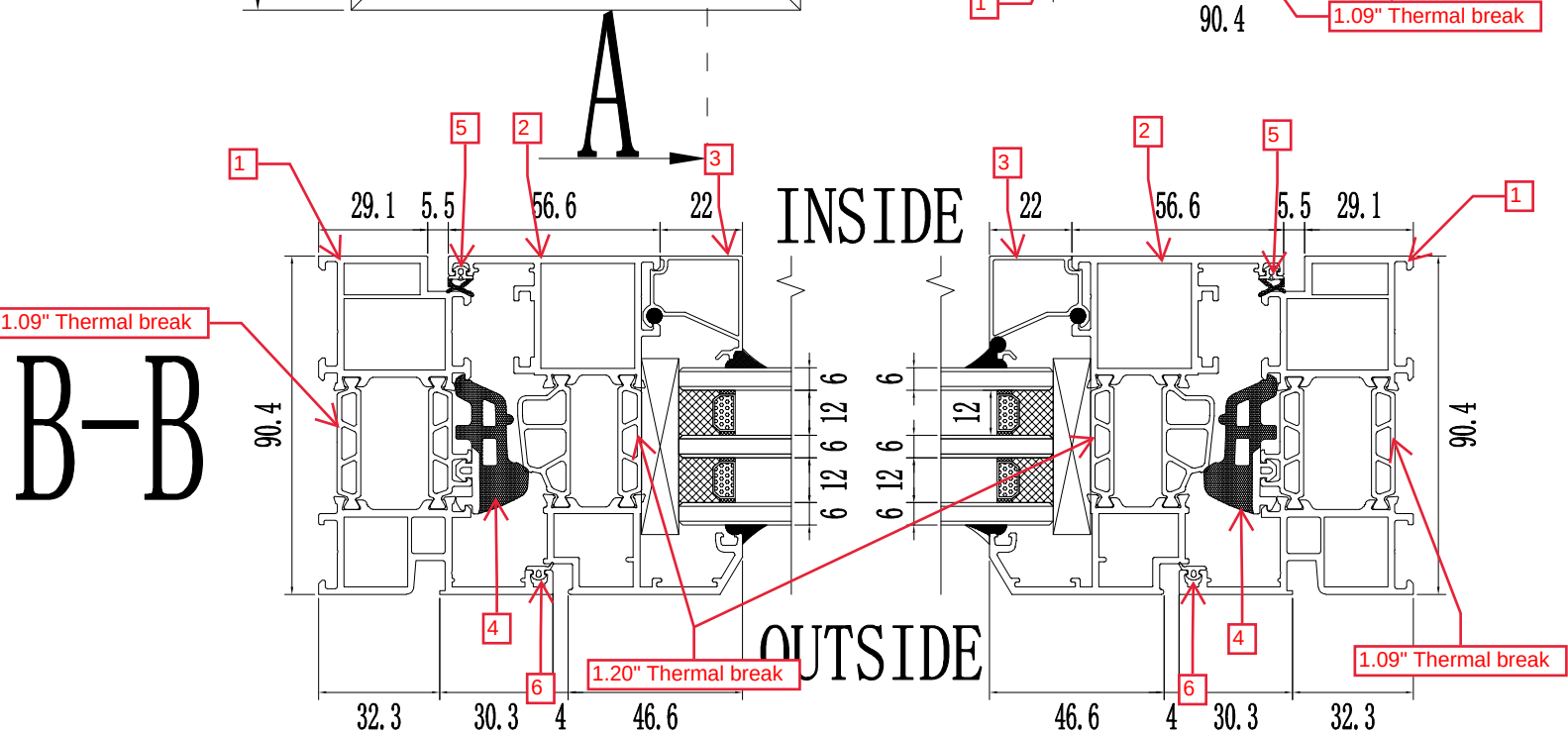
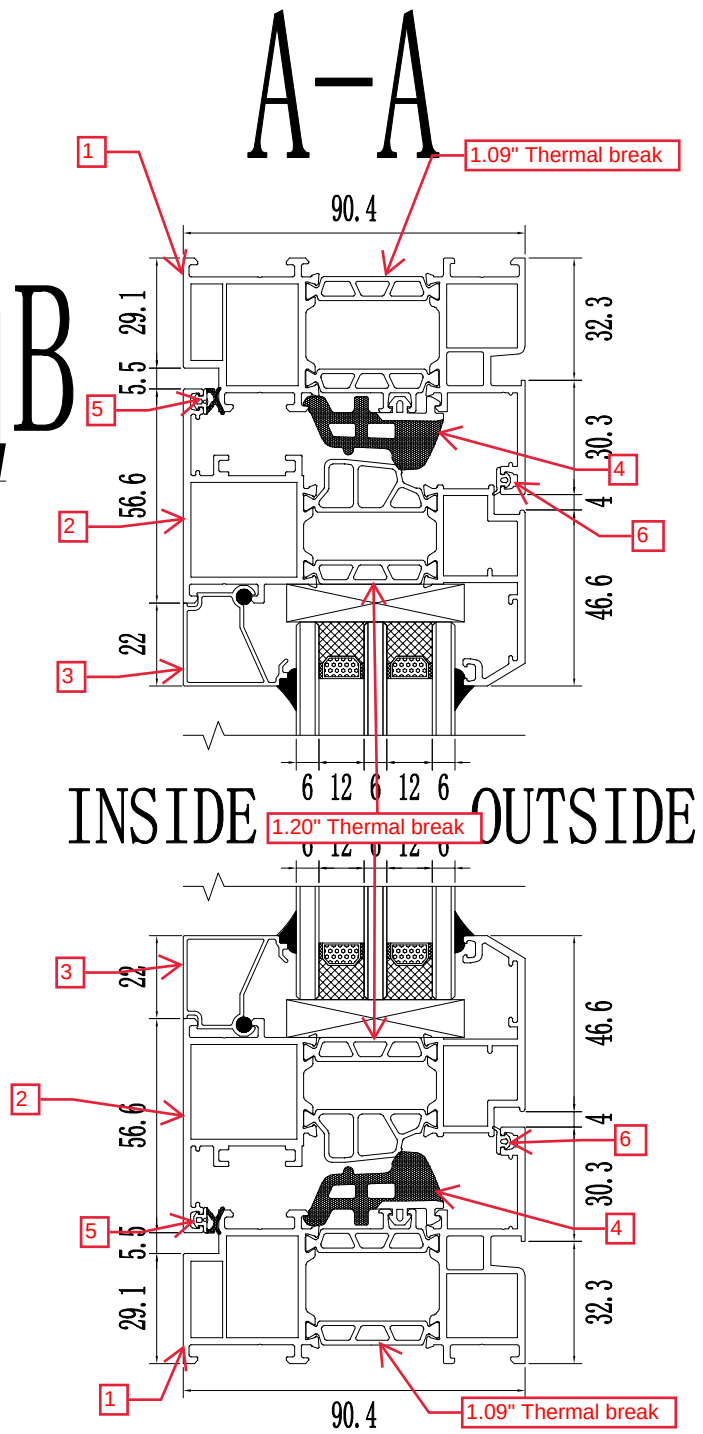
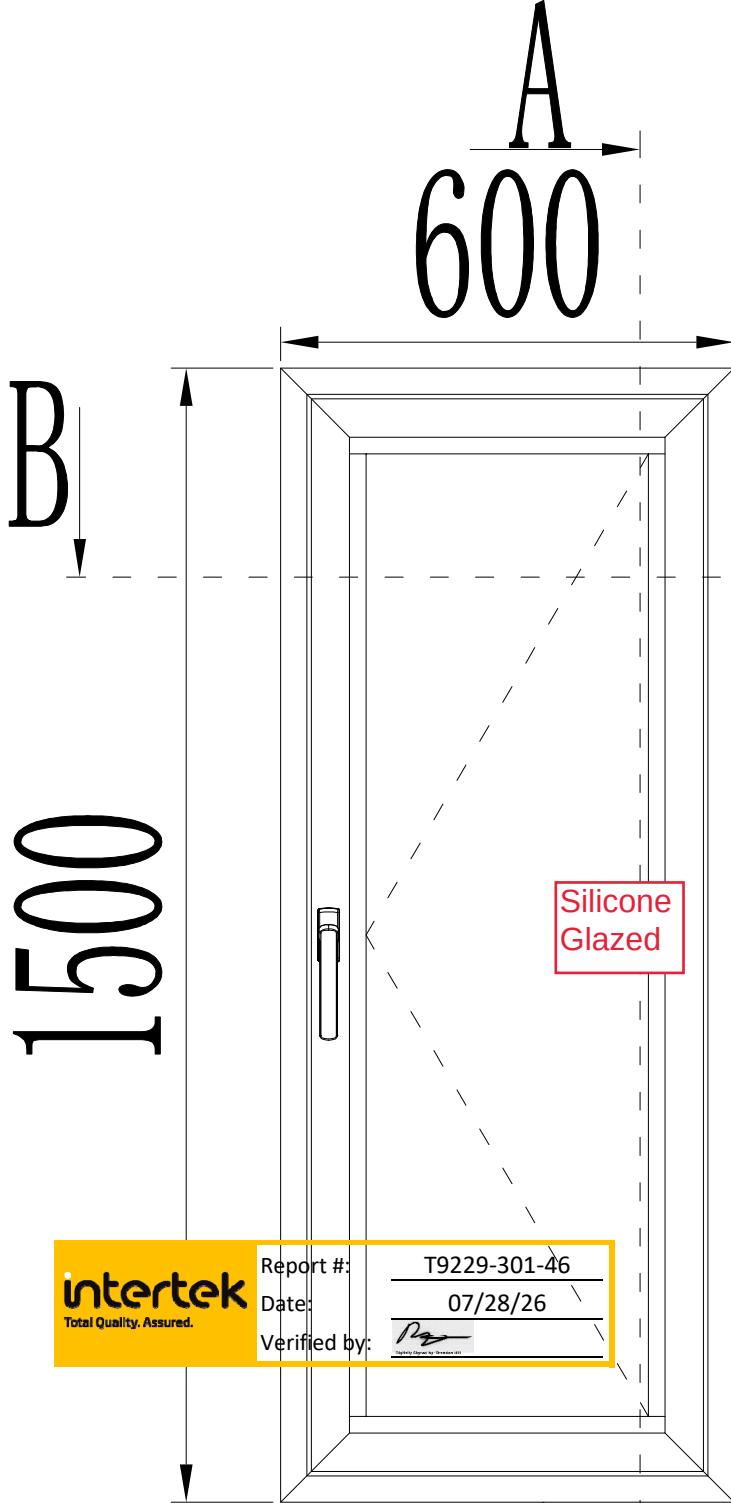
- a. ☒ Validation for Initial Certification (prototype only) no plant qualification
- b. ☐ Validation for Initial Certification or Recertification (production line unit) & plant qualification
- c. ☐ Plant Qualification Only (production line unit) Please also circle Initial or Recertification
- d. ☐ Test Only Alternative (production line unit) & plant qualification

I, Chunfa Ma, as the designated agent for Foshan WANSLEY INDUSTRIAL do hereby attest that the foregoing information is true to the best of my information, knowledge, and belief. Further, if the unit is identified in Section 3 as a production line unit, I hereby authorize the NFRC-accredited testing laboratory to send a copy of the test report to the IA identified above for plant qualification purposes pursuant to the NFRC Product Certification Program.

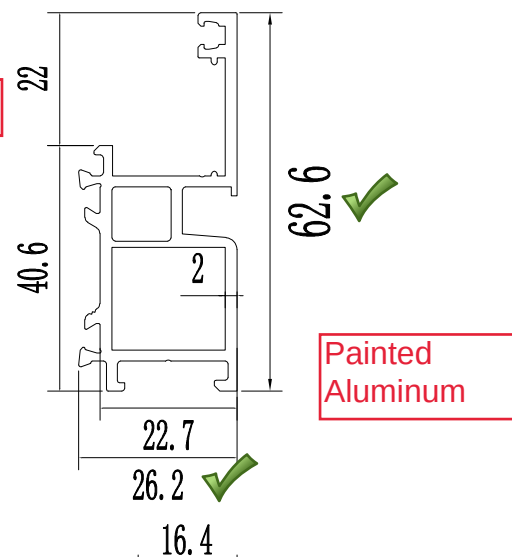
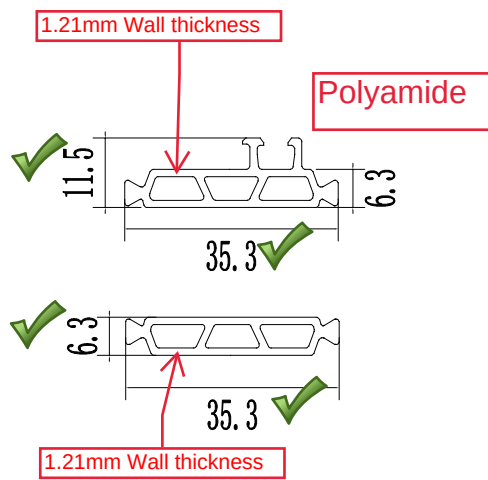
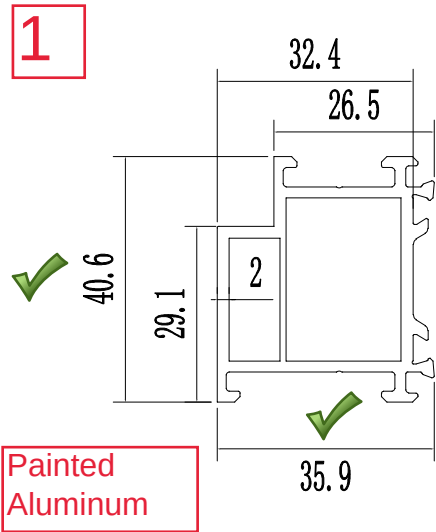
Signature: 马春发 Date: Aug 12, 2026

For Laboratory Use Only

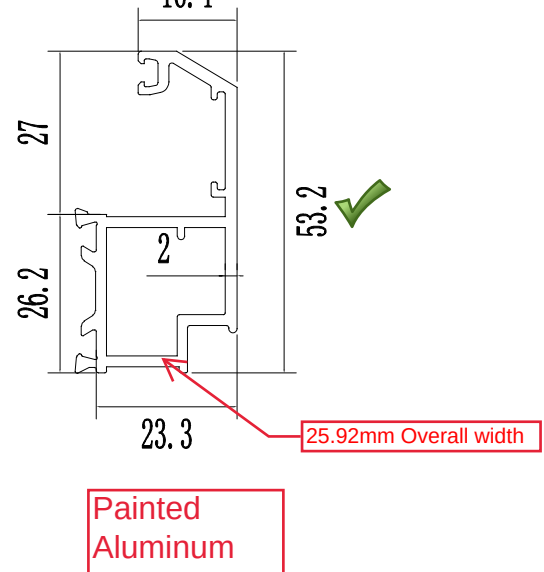
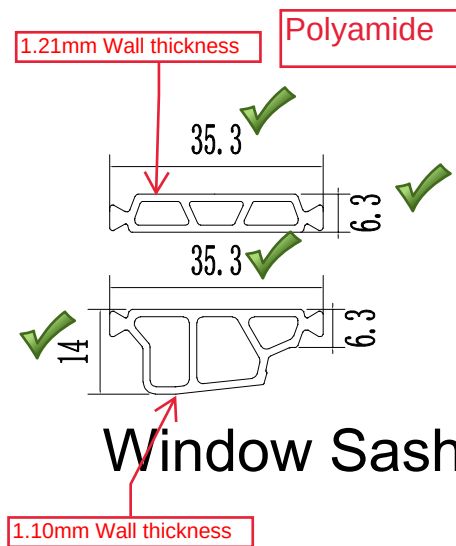
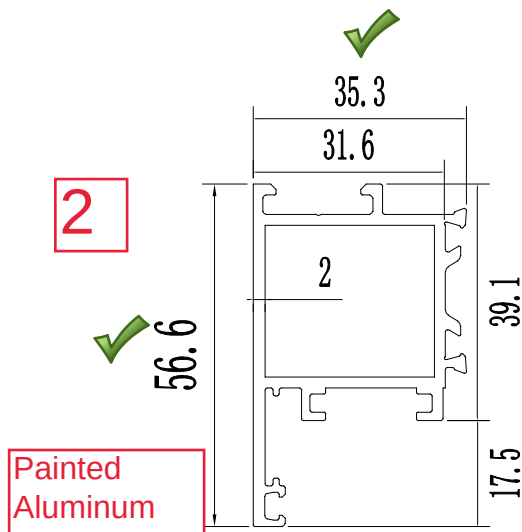
1. Laboratory	<u>Intertek</u>	
2. Date Sample Received:	<u>05/29/2026</u>	Test Report #: <u>T9229.01-301-46</u>
3. Date Sample Tested:	<u>06/19/2026</u>	By: <u>Brandon Hill</u>
4. Modifications made:	<u>None</u>	



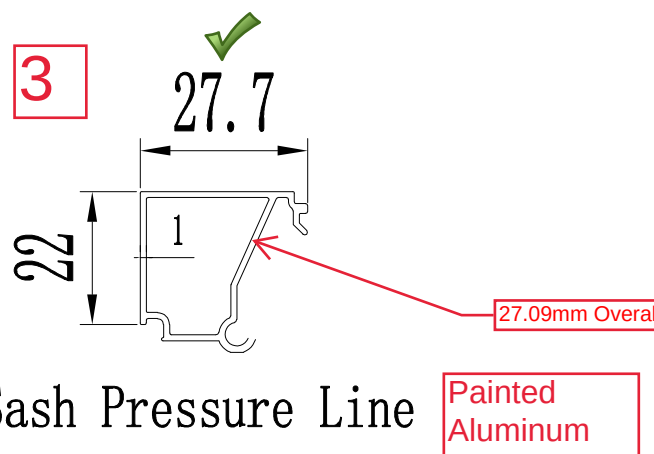
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	Date:	07/28/26
	Verified by:	



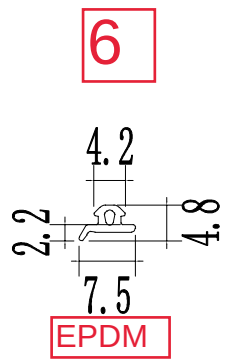
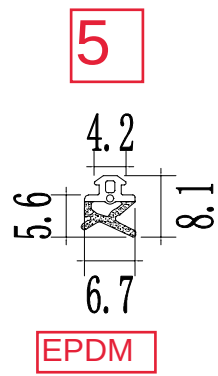
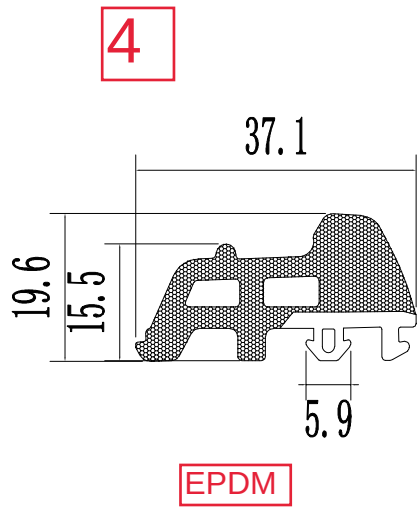


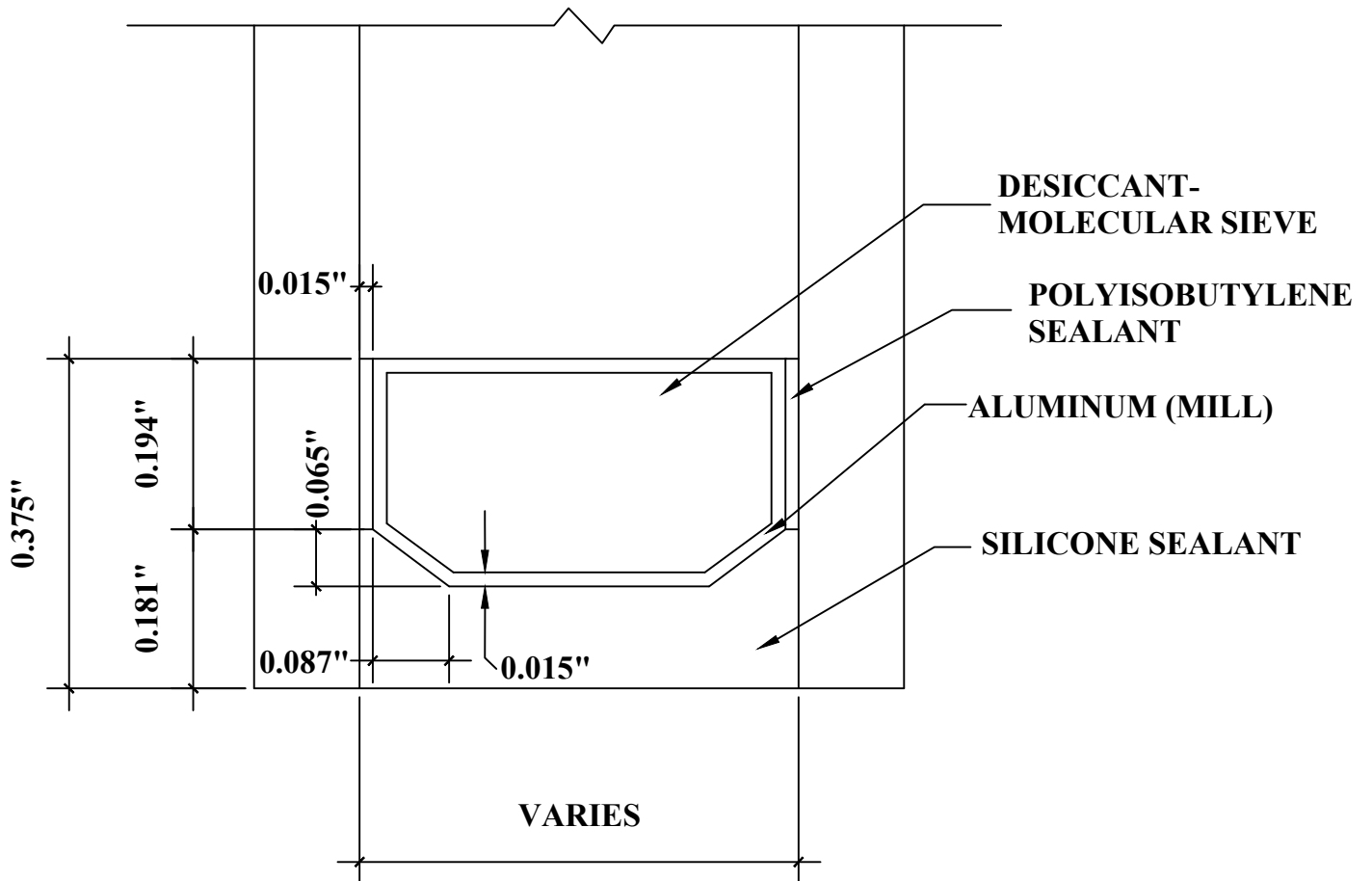
Total Quality. Assured.

Report #: T9229-301-46

Date: 07/28/26

Verified by: 





DETAIL FOR THERMAL MODELING OF
OLDCASTLE STANDARD LOW PROFILE ALUMINUM SPACER (A1-D)

TEST REPORT FOR FOSHAN WANSLEY INDUSTRIAL CO., LTD.

Report No.: T9229.01-301-46 R0

Date: 06/24/26

SECTION 16

REVISION LOG

REVISION #	DATE	PAGES	REVISION
.01 R0	08/12/26	N/A	Original Report Issue