

Report Date: 04/14/2020
 Simulation Date: 04/13/2020
 Expiration Date: 04/13/2025
 Report Number: 12073
 Project Number: 20-1074
 Revision Number: 0

Thermal Simulation Report

Manufacture: Shanghai Superhouse Bldg, Co. Ltd

Address: No. 10 Hangfan RD, Pudong
 New Area, Shanghai, China

Specifications: ANSI/NFRC 100-2017: Procedure for Determining Fenestration Product U-Factor
ANSI/NFRC 200-2017: Procedure for Determining Fenestration Product Solar Heat Gain
 Coefficients and Visible Transmittance at Normal Incidence.
NFRC 500-2017: Procedure for Determining Fenestration Product Condensation Resistance Values

Software: Therm 7.4.4.0, Window v7.4.14, Simulation Manual, Optics 6
Spectral Data Library: IGDB v68.0

Baseline Product Validation

The baseline product must be tested in accordance with NFRC 102 "Test Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems" to validate the U Values indicated. NFRC 100-2017 states "The baseline product is the individual product selected for validation testing". The individual product selected as the baseline product shall have a simulated U-factor within 0.10 Btu/h·ft²·F or 20% of the lowest simulated U-factor, whichever is greater.

Product Description	Product Number	Pane Thickness #1	Pane Thickness #2	Gap	Gap Fill	Emissivity Surface #	Spacer	U Factor

Window Test Size: 1500 mm (59") by 600 (24") high

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Model Designation:	Aluminum Awning Window
Operator Code:	PRAW
Simulated Model Size:	1500 mm (59") by 600 (24") high

Frame Construction	
Frame Material and Finish:	(AT) painted aluminum alloy with thermally broken members

Spacer Type	Sealant Primary	Sealant Secondary	Desiccant
Duralite Spacer	Butyl	Butyl	None

Edge of Glass Construction	
Interior Condition:	Extruded aluminum glazing bead with EPDM wedge
Exterior Condition:	EPDM gasket

Gas Type	Filling Technique	Gas Fill Percentage
Argon	Single Probe	90%

Weather Stripping		
Quantity	Description	Location
Single row	EPDM flap	Perimeter of frame on the interior
Single row	EPDM gasket	Perimeter of vent on the exterior

Hardware		
Quantity	Description	Location
None	None	None

Only continuous elements which require modeling are listed

Reinforcement	
Material	Location
None	None

Dividers/Grids		
Grid Size	Material	Grid Pattern
None	None	None
<i>Note: any deviations in grid pattern are noted here</i>		

Modeling Assumptions: None

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Simulated Data

Product Description	Product ID Number	Pane Thickness #1	Pane Thickness #2	Pane Thickness #3	Gap #1 & Gap 2	Gap Fill #1 & #2	Emissivity Surface #2	Emissivity Surface #3	Emissivity Surface #4	Emissivity Surface #5	Tint	Grid Type	Total Product U-Factor	Condensation Resistance	Total Product SHGC NG	Total Product VT NG
6mm SB70XL-ARG-6mm SB70XL	01	0.236	0.236		0.750	ARG	0.018	0.018			CL	N	0.34	59	0.14	0.27
6mm SB70XL-ARG-6mm SG460	02	0.236	0.236		0.750	ARG	0.018	0.055			CL	N	0.34	59	0.15	0.31
6mm SB70XL-ARG-SB70XL-ARG-6mm SG460	03	0.236	0.236	0.236	0.500	ARG	0.018		0.018	0.055	CL	N	0.26	67	0.11	0.22
6mm SB70XL-ARG-SG460-ARG-6mm SG460	04	0.236	0.236	0.236	0.500	ARG	0.018		0.055	0.055	CL	N	0.26	67	0.13	0.25

Low E Coatings Used:
 Vitro formerly PPG Solarban 70XL e=0.018
 Vitro formerly PPG Sungate 460 e=0.055

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Remarks
<p>“Ratings values 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 values identified on a valid Certification Authorization Report (CA) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes.”</p> <p>“The values included in this report are not considered in compliance with NFRC 100, NFRC 200, and/or NFRC 500 unless the associated validation test requirements have been satisfied, as applicable.”</p> <p>“The 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.”</p> <p>Simulations were conducted in full compliance with NFRC requirements. Simulation relates only to the simulated Fenestration product.</p> <p>Rounding is per requirements of NFRC 601, NFRC Unit and Measurement Policy.</p> <p>U factors, Solar Heat Gain Coefficients, Visible Transmittance and Condensation Resistance values are calculated with a default frame absorption of 0.30 for all products other than glazed walls and slope glazing which have a frame absorption of 0.50.</p> <p>Drawings referenced in this document are an integral part of this report, therefore, are required when distributing this test report. Simulation results obtained represent the actual value of the simulated specimen and does not constitute opinion, endorsement or certification by this laboratory.</p> <p>This test report is considered the exclusive property of the client named herein and is applicable to the specimen simulated. This report may not be reproduced without the approval of Fenestration Testing Laboratory, Inc and if so must be in full.</p>

Revision History Table			
Revision	Description	Author	Effective Date
0	Initial Release	Monika Sanchez	04/13/2020

Simulation Conducted by

Monika Sanchez

NFRC Certified Simulator

Jose Sanchez

Simulator- in- Responsible- Charge

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Appendix

Fenestration Simulated Product Drawings and Bill of Material