



*Superseal Manufacturing Company, Inc.*

*SIMULATION PERFORMANCE &  
SOLAR HEAT GAIN REPORT*

*"1850"  
Fixed*

*NCTL-110-12493-01*



# NATIONAL CERTIFIED TESTING LABORATORIES

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## Simulation Performance, Solar Heat Gain Coefficient, Visible Transmittance and Condensation Resistance Calculation Report

**REPORT NO:** NCTL-110-12493-01  
**SIMULATION DATE:** 12/22/09  
**REPORT DATE:** 12/22/09

**Client:** Superseal Manufacturing Company, Inc.  
125 Helen Street, P.O. Box 795  
South Plainfield, NJ 07080

**Product Line:** Superseal Manufacturing Company, Inc.'s "1850" Fixed

**Specification:** NFRC 100-2004: "Procedure for Determining Fenestration Product U-Factors".  
NFRC 200-2004: "Procedure for Determining Fenestration Product Solar Heat  
Gain Coefficients and Visible Transmittance at Normal Incidence".  
NFRC 500-2004: "Procedure for Determining Fenestration Product  
Condensation Resistance Values".  
Therm 5.x / Window 5.x NFRC Simulation Manual (Approved at test date)

**Procedures  
and  
Compliance:** All U-factor, Solar Heat Gain Coefficients, Visible Transmittance and  
Condensation Resistance values were calculated using the following  
characteristics: a default value of 0.30 solar absorptance for all products other  
than window glazed wall and sloped glazing which have a solar absorptance of  
0.50. The best glazing option was used as the configuration for SHGC and VT  
specialty products table. NCTL is a NFRC accredited simulation laboratory and  
this simulation was conducted in full compliance with NFRC requirements. This  
report does not constitute an opinion or endorsement by the laboratory. Ratings  
values included in this report are for submittal to an NFRC-licensed IA and are  
not meant to be used directly for labeling purposes. Only those values identified  
on a valid Certification Authorization Report (CAR) by an NFRC accredited  
Inspection Agency (IA) are to be used for labeling purposes. Rounding per  
IEEE/ASTM SI 10-1997 except section 5.4.1.3.

### PRODUCT LINE DESCRIPTION

**General:** The product line modeled is Superseal Manufacturing Company, Inc.'s "1850"  
Fixed.

**Model Size Simulations:** 1200mm x 1500mm (47.244" x 59.055")

**Weatherseals:** Not Applicable

**Gas Fillings:**

Gas Type	Filling Technique	Percentage
Argon	Single probe	90%

**Reinforcement:** Not Applicable.

**Edge – of - Glass – Construction:** Exterior silicone back bedding and Interior Vinyl Glazing Bead.

**Spacer and Sealant:** Coated Steel U-Shaped with Butyl Primary and Secondary Seal.

**Finish:** Vinyl

**Dividers:** Where applicable, dividers were not modeled because the gap between dividers and lites were greater than 3mm. For Solar Heat Gain and Visual Light Transmittance default dividers less than 1” and greater or equal to 1” and default patterns were used for simulations.

**Modeling Assumptions and Comments Deemed Important:**

**Sealing Rules:**

All cavities that are opened to the exterior within a frame section shall be modeled according to ISO 15099, Section 6.7.1, which states that cavities greater than 2mm but equal to or less than 10 mm shall be modeled as “slightly ventilated air cavities”. For physical testing purposes the product is sealed at the inside surface with tape or equivalent to prevent air infiltration. Air cavities created by this sealing technique must be simulated with the standard NFRC “Frame Cavity” material. If cavities on the frame are sealed (covered) to the surround panel with tape or equivalent, those cavities are also filled with NFRC “Frame Cavity” material within the simulation model. If the frame is not covered or sealed, those areas are left hollow or opened within the simulation model.

**Continuous elements:**

All elements continuous within the product line are identified from the Bill-of-Materials and detailed drawings via the referenced dimensions and cut lengths as compared to the overall size of the product.

**General Notes:**

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.

**Modeling assumptions:**

The product was modeled with a nominal 1” x 4” wood stud attached to the exterior flange.

*Miscellaneous assumptions:*

1. *The screen extrusions were not modeled.*
2. *All radii are simulated at angles.*
3. *Any spacer simulated using a spacer system from the Frame Spacer Library match the required configurations for this manufacturer's spacer system.*
4. *The modeling was performed in accordance with the manufacturer's assembly drawing from a DXF file.*

*Component Area and Frame Heights:*

*Frame heights, calculated areas, area weighted values for U-factor, SHGC, and VT, and center -of-glazing are located in approved NFRC simulation programs for all individual products.*

**NCTL Therm Section Filename Methodology**

Filename Codes Example: CU_HD2_003.THM	
CU	Spacer (Intercept)
HD	Frame Section (Head)
2	Glass Size (2.5mm)
_003	Glazing ID #3

***Individual Product Descriptions and Model Size Matrix of U-Factors, SHGC, VT & CR***

*All U-factors are given in BTU/HR/ft<sup>2</sup>/°F*

Product Description	Product Number	Pane ID 1	Pane ID 2	Pane Thickness 1	Pane Thickness 2	Gap	Gap Fill	% of Gap Fill	Emissivity Surface 2	Tint	Spacer	Grid Type	U-factor	Condensation Resistance	Solar Heat Gain Coefficient (ND)	Visual Transmittance (ND)	Solar Heat Gain Coefficient (<1")
Clr_2mm_Air	001	885	885	0.098	0.098	0.553	AIR			CL	CU-D	N,G	0.47	45	0.67	0.70	0.61
72#2_2mm_Air	002	2010	885	0.098	0.098	0.553	AIR		0.042	LE	CU-D	N,G	0.33	56	0.35	0.61	0.32
72#2_2mm_Arg	003	2010	885	0.098	0.098	0.553	ARG	90	0.042	LE	CU-D	N,G	0.29	59	0.35	0.61	0.32
70XL#2_3mm_Air	004	5432	887	0.118	0.118	0.514	AIR		0.018	LE	CU-D	N,G	0.32	56	0.24	0.54	0.21
70XL#2_3mm_Arg	005	5432	887	0.118	0.118	0.514	ARG	90	0.018	LE	CU-D	N,G	0.28	59	0.23	0.54	0.21
70XL#2_3mm_Air	006	5432	887	0.118	0.118	0.514	AIR		0.018	LE	ZE-D	N,G	0.31	60	0.24	0.54	0.21
70XL#2_3mm_Arg	007	5432	887	0.118	0.118	0.514	ARG	90	0.018	LE	ZE-D	N,G	0.27	64	0.23	0.54	0.21