

**NFRC U-FACTOR, SHGC, VT, &
CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT**

**Rendered to:
BAR-T WINDOWS, LLC**

**SERIES/MODEL:
SS10 Single Hung**

**Report Number: D5719.08-116-45
Report Date: 02/09/15**



NFRC U-FACTOR, SHGC, VT, & CONDENSATION RESISTANCE COMPUTER SIMULATION REPORT

Rendered to:
BAR-T WINDOWS, LLC
7714 Camp Bowie Blvd. West
Fort Worth, Texas 76116

Report Number: D5719.08-116-45
Simulation Date: 03/05/14
Report Date: 02/09/15

Project Summary:

Architectural Testing, Inc. was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance, and Condensation Resistance* computer simulations in accordance with the National Fenestration Rating Council (NFRC). The products were evaluated in full compliance with NFRC requirements to the standards listed below.

**NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.*

Standards:

NFRC 100-2014: Procedure for Determining Fenestration Product U-Factors
NFRC 200-2014: Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence
NFRC 500-2014: Procedure for Determining Fenestration Product Condensation Resistance Values

Software:

Frame and Edge Modeling: THERM 6.3.46
Center-of-Glass Modeling: WINDOW 6.3.74
Total Product Calculations: WINDOW 6.3.74
Spectral Data Library: IGDB 38.0

Simulations Specimen Description:

Series/Model: SS10 Single Hung
Type: Vertical Slider, Single Hung
Frame Material: VY Vinyl
Sash Material: VI Vinyl w/ Reinforcement - Interlock
Standard Size: 1200mm x 1500mm

Modeling Assumptions/Technical Interpretations:

- 1) To prevent air infiltration, tape was applied to all interior sash crack locations.
- 2) Dividers were not modeled per NFRC 100-2014, Section 4.2.4.1.D.ii.

Specialty Products Table:

The specialty products method allow 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 6.3.74. The method gives 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	0.004384	0.007193	0.009843
SHGC1	0.813034	0.729735	0.651117
VT0	0.000000	0.000000	0.000000
VT1	0.808650	0.722542	0.641274

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

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

Validation Matrix:

The following products are part of a validation matrix. Only one is required for validation testing.

<i>Product Line</i>	<i>Report Number</i>
None	-

Spacer Option Description

<i>Spacer Type</i>	<i>Sealant</i>		<i>Code</i>
	<i>Primary</i>	<i>Secondary</i>	
Quanex Standard Super Spacer	Butyl Rubber	-	OF-S

Grid Option Description

<i>Grid Size</i>	<i>Grid Type</i>	<i>Grid Pattern</i>
3/16" x 5/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard

Reinforcement Option Description

<i>Location</i>	<i>Material</i>
Lock and Keeper Rails	Aluminum

Gas Filling Technique Description

<i>Fill Type</i>	<i>Method</i>
90% Argon	Single Probe, Timed

Edge-of-Glass Construction

<i>Interior Condition</i>	Silicone Between PVC Sash and Glass
<i>Exterior Condition</i>	PVC Glazing Bead Against Glass

Weatherstripping

<i>Type</i>	<i>Quantity</i>	<i>Location</i>
Finpile	1 Row	Keeper Rail, Lock Rail, Sash Perimeter

Frame/Sash Materials Finish

<i>Interior</i>	Vinyl
<i>Exterior</i>	Vinyl

**NFRC 100/200/500 Summary Sheet
SS10 Single Hung**

ID	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Low-e (Surface#)	Tint	Spacer	Grid Type
	U-Factor			Solar Heat Gain Coefficient (SHGC) <small>Grids (None / <1 / >=1)</small>					Visible Transmittance (VT) <small>Grids (None / <1 / >=1)</small>		Condensation Resistance	
1	E366 / AIR / CLR (3MM/3MM) - 3/4" IG											
	0.117	0.500	0.118					AIR	0.022(#2)	CL	OF-S	N,G
	U-Factor 0.32			SHGC (N / <1) 0.23 / 0.21					VT (N / <1) 0.52 / 0.47		CR 57	
2	E270 / AIR / CLR (3MM/3MM) - 3/4" IG											
	0.118	0.500	0.118					AIR	0.037(#2)	CL	OF-S	N,G
	U-Factor 0.33			SHGC (N / <1) 0.30 / 0.28					VT (N / <1) 0.57 / 0.51		CR 56	
3	E366 / ARG90 / CLR (3MM/3MM) - 3/4" IG											
	0.117	0.500	0.118					ARG90	0.022(#2)	CL	OF-S	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.52 / 0.47		CR 58	
4	E270 / ARG90 / CLR (3MM/3MM) - 3/4" IG											
	0.118	0.500	0.118					ARG90	0.037(#2)	CL	OF-S	N,G
	U-Factor 0.29			SHGC (N / <1) 0.30 / 0.27					VT (N / <1) 0.57 / 0.51		CR 58	

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.

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 Certification Authorization Report (CAR) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes. The ratings values were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy.

Architectural Testing, Inc. is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The NFRC procedure requires that the computational results be verified through actual test results.

This report is reissued in the name of Bar-T Windows, LLC through written authorization of Veka, Inc., to whom the original report was rendered. The original Veka, Inc. report number is D5719.01-116-45.

Architectural Testing will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Architectural Testing, Inc. for the entire test record retention period. The test record retention end date for this report is March 5, 2018.

Results obtained are simulated values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the product simulated. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:

SIMULATED BY:

REVIEWED BY:

Allison M. Goodyear
Simulation Technician

Michael J. Thoman
Director - Simulations and Thermal Testing
Simulator-In-Responsible-Charge

AMG:amg

D5719.08-116-45

Attachments (pages): This report is complete only when all attachments listed are included.

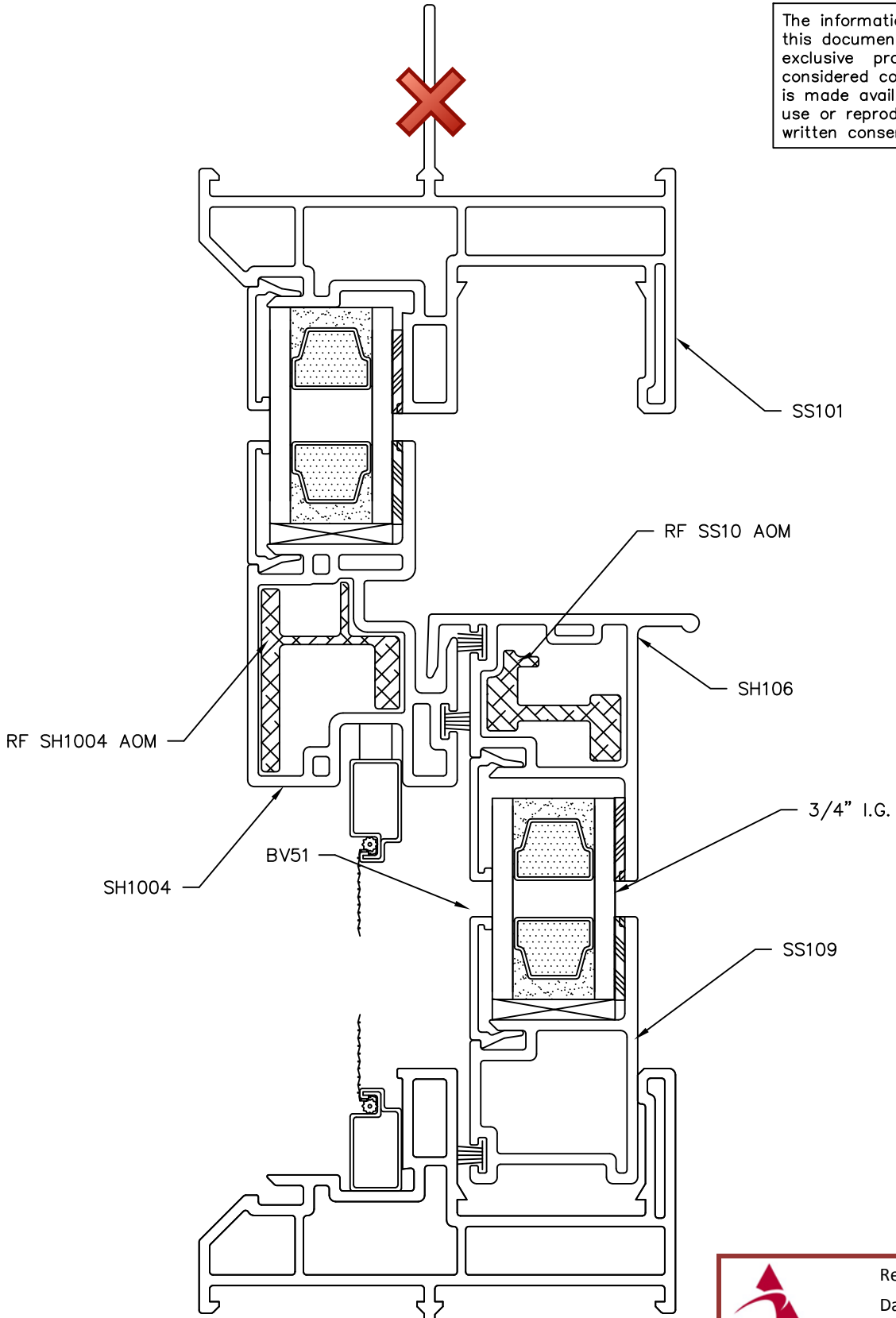
Appendix A: Drawings and Bills of Material (13)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
.01R0	03/05/14	All	Original report issued to Veka, Inc.
.08R0	02/09/15	All	Report Reissued to Bar-T Windows, LLC.

All drawings and Bills of Material used to simulate this product are enclosed in this Appendix
Some drawings may be omitted at the extruder's request.

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 Date: 3/2014
 Verified by: *[Signature]*



VEKA INC.
 100 VEKA DRIVE
 FOMBELL, PA 16123

REVISIONS	DATE

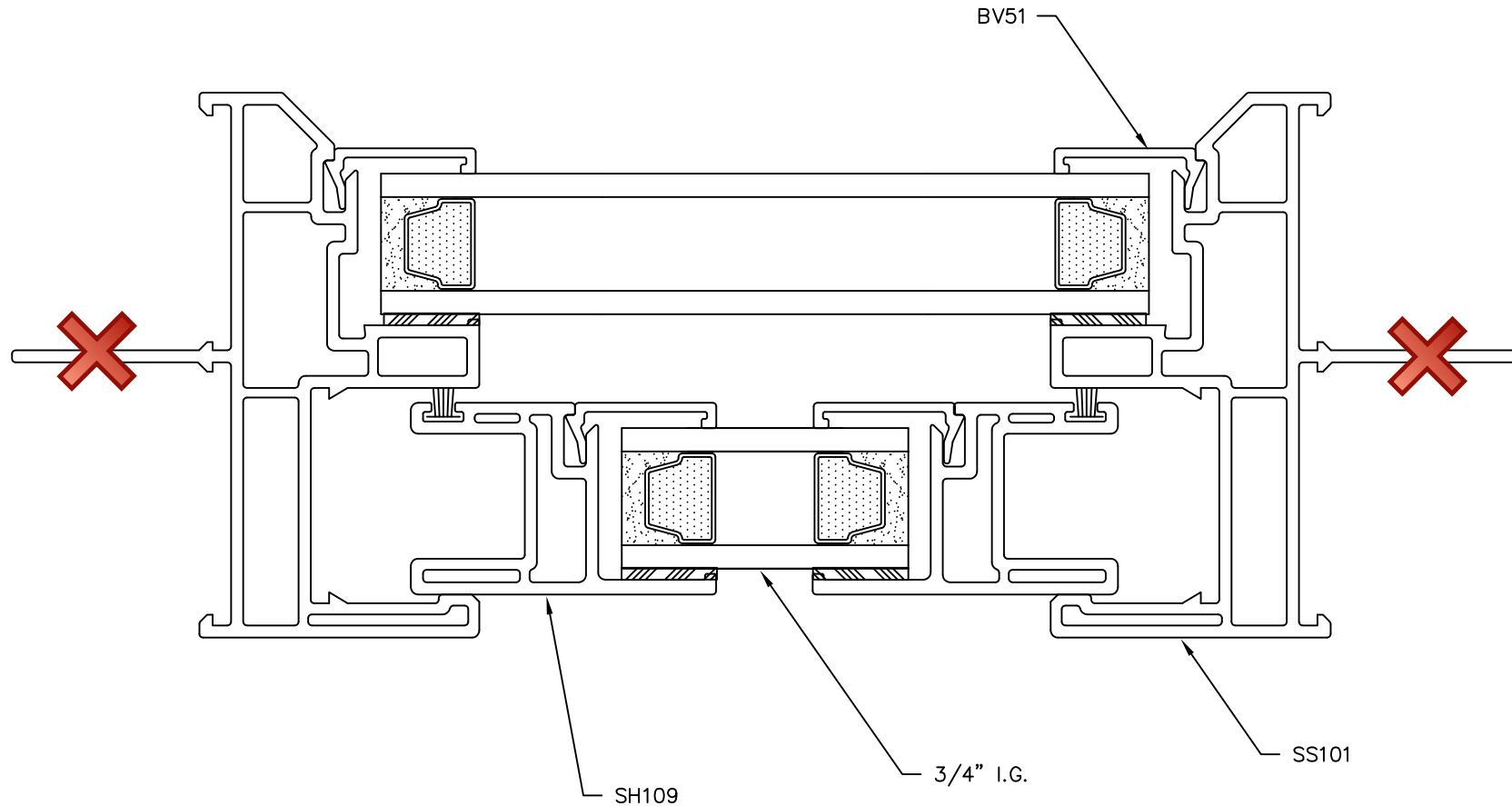
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 Date: 3/2014
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1	NOTE ADDED	13 SEPT 95 (SES)
	REVISIONS	DATE



VEKA INC.
 100 VEKA DRIVE
 FOMBELL, PA 16123

DRAWN: JMN	DATE: 18 APR 95	SCALE: FULL
CHK'D:	DATE:	APPV'D:
TITLE: SIDE LOAD SINGLE HUNG SS10WW HORIZONTAL ASSEMBLY		DWG. # SSH10WWH

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