

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

(Revised)

**Rendered to:
REMODELERS SUPPLY CENTER**

**SERIES/MODEL:
Platinum 7000 Series DS**

<i>Baseline Product for Validation Testing</i>	
Simulated Thermal Transmittance (U-Factor)	0.270
Unit Size:	59.00 inches wide by 47.25 inches high
Glazing Layer 1:	SS Comfort Ti-R (e=0.034,#2)
Gap 1:	0.370 inch Intercept Spacer (CU-D) - 92% Argon Fill
Glazing Layer 2:	SS Clear
Gap 2:	0.370 inch Intercept Spacer (CU-D) - 92% Argon Fill
Glazing Layer 3:	SS Clear
Notes:	

Report Number: 79457.04-116-45
Original Report Date: 02/01/08
Expiration Date: 02/01/12
Revised Report Date: 06/03/10

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

(Revised)

Rendered to:
REMODELERS SUPPLY CENTER
26622 N. Paulaski Road
Chicago, IL 60639

Report Number: 79457.04-116-45
Simulation Date: 02/01/08
Original Report Date: 02/01/08
Expiration Date: 02/01/12
Revised Report Date: 06/03/10

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 100-2004: Procedure for Determining Fenestration Product U-Factors
NFRC 200-2004: Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence
NFRC 500-2004: Procedure for Determining Fenestration Product Condensation Resistance Values

Software:

Frame and Edge Modeling: THERM 5.2.14
Center-of-Glass Modeling: WINDOW 5.2.17
Total Product Calculations: WINDOW 5.2.17
Spectral Data Library: 17.3

Simulations Specimen Description:

Series/Model: Platinum 7000 Series DS
Type: Horizontal Slider , Operable/Operable
Frame Material: VY Vinyl
Sash Material: VI Vinyl w/ Reinforcement - Interlock
Standard Size: 1500mm x 1200mm

Technical Interpretations:

- 1) None

Modeling Assumptions:

- 1) None

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 5.2. 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	0.004087	0.006784	0.009323
SHGC1	0.744480	0.664937	0.590074
VT0	0.000000	0.000000	0.000000
VT1	0.740393	0.658153	0.580752

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

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

Validation Matrix:

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

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

Spacer Option Description

<i>Spacer Type</i>	<i>Sealant</i>		
	<i>Primary</i>	<i>Secondary</i>	<i>Desiccant</i>
Intercept Spacer	Butyl Rubber	Butyl Rubber	Yes

Grid Option Description

<i>Grid Size</i>	<i>Grid Type</i>	<i>Grid Pattern</i>
0.188" x 0.610"	Aluminum Rectangular Grid	NFRC Standard

Reinforcement Option Description

<i>Location</i>	<i>Material</i>
Keeper Stile, Lock Stile	Aluminum

Gas Filling Technique Description

<i>Fill Type</i>	<i>Method</i>
92% Argon	Single probe timed
95% Argon	Two Probe with Concentration Sensor

Edge-of-Glass Construction

<i>Interior Condition</i>	Foam weather stripping on pvc sash against glass
<i>Exterior Condition</i>	PVC glazing bead on vinyl sash against glass

Weatherstripping

<i>Type</i>	<i>Quantity</i>	<i>Location</i>
Finpile	2 rows	Top Rail, Bottom Rail, Jamb Stile, Lock Stile
Finpile	1 row	Lock Stile

Frame/Sash Materials Finish

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

**NFRC 100/200/500 Summary Sheet
Platinum 7000 Series DS**

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) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)			Condensation Resistance	
1	clr / air / clr											
	0.086	0.828	0.086					AIR		CL	CU-D	N,G
	U-Factor 0.47			SHGC (N / <1 / >1) 0.59 / 0.52 / 0.47				VT (N / <1 / >1) 0.61 / 0.54 / 0.48			CR 42	
	clr / air / clr											
	0.123	0.754	0.123					AIR		CL	CU-D	N,G
	U-Factor 0.47			SHGC (N / <1 / >1) 0.59 / 0.52 / 0.47				VT (N / <1 / >1) 0.61 / 0.54 / 0.48			CR 42	
2	204 / air / clr											
	0.086	0.828	0.086					AIR	0.204(#2)	LE	CU-D	N,G
	U-Factor 0.38			SHGC (N / <1 / >1) 0.49 / 0.44 / 0.39				VT (N / <1 / >1) 0.56 / 0.50 / 0.44			CR 48	
	204 / air / clr											
	0.122	0.754	0.123					AIR	0.204(#2)	LE	CU-D	N,G
	U-Factor 0.38			SHGC (N / <1 / >1) 0.49 / 0.44 / 0.39				VT (N / <1 / >1) 0.56 / 0.50 / 0.44			CR 48	
3	204 / arg / clr											
	0.086	0.828	0.086					ARG91.99999	0.204(#2)	LE	CU-D	N,G
	U-Factor 0.35			SHGC (N / <1 / >1) 0.49 / 0.44 / 0.39				VT (N / <1 / >1) 0.56 / 0.50 / 0.44			CR 51	
	204 / arg / clr											
	0.122	0.754	0.123					ARG91.99999	0.204(#2)	LE	CU-D	N,G
	U-Factor 0.35			SHGC (N / <1 / >1) 0.49 / 0.44 / 0.39				VT (N / <1 / >1) 0.56 / 0.50 / 0.44			CR 51	
4	clr / air / clr / air / clr											
	0.086	0.371	0.086	0.371	0.086			AIR		CL	CU-D	N
	U-Factor 0.36			SHGC (N) 0.55				VT (N) 0.57			CR 53	
5	204 / air / clr / air / clr											
	0.086	0.371	0.086	0.371	0.086			AIR	0.204(#2)	LE	CU-D	N
	U-Factor 0.32			SHGC (N) 0.46				VT (N) 0.52			CR 56	
6	204 / arg / clr / arg / clr											
	0.086	0.371	0.086	0.371	0.086			ARG91.99999	0.204(#2)	LE	CU-D	N
	U-Factor 0.29			SHGC (N) 0.46				VT (N) 0.52			CR 58	
7	034 / arg / clr											
	0.087	0.828	0.086					ARG91.99999	0.034(#2)	LE	CU-D	N,G
	U-Factor 0.31			SHGC (N / <1 / >1) 0.35 / 0.32 / 0.28				VT (N / <1 / >1) 0.53 / 0.47 / 0.41			CR 54	

**NFRC 100/200/500 Summary Sheet
Platinum 7000 Series DS**

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) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)			Condensation Resistance	
	034 / arg / clr											
	0.125	0.754	0.123					ARG91.99999	0.033(#2)	LE	CU-D	N,G
	U-Factor 0.31			SHGC (N / <1 / >1) 0.35 / 0.32 / 0.28				VT (N / <1 / >1) 0.53 / 0.47 / 0.41			CR 54	
8	034 / arg / clr / arg / clr											
	0.087	0.371	0.086	0.371	0.086			ARG91.99999	0.034(#2)	LE	CU-D	N
	U-Factor 0.27			SHGC (N) 0.33				VT (N) 0.49			CR 60	
9	clr / air / clr / air / clr											
	0.086	0.371	0.086	0.371	0.086			AIR		CL	CU-D	G
	U-Factor 0.36			SHGC (<1 / >1) 0.49 / 0.43				VT (<1 / >1) 0.50 / 0.44			CR 53	
10	204 / air / clr / air / clr											
	0.086	0.371	0.086	0.371	0.086			AIR	0.204(#2)	LE	CU-D	G
	U-Factor 0.32			SHGC (<1 / >1) 0.41 / 0.36				VT (<1 / >1) 0.46 / 0.41			CR 56	
11	204 / arg / clr / arg / clr											
	0.086	0.371	0.086	0.371	0.086			ARG91.99999	0.204(#2)	LE	CU-D	G
	U-Factor 0.30			SHGC (<1 / >1) 0.41 / 0.36				VT (<1 / >1) 0.46 / 0.41			CR 58	
12	034 / arg / clr / arg / clr											
	0.087	0.371	0.086	0.371	0.086			ARG91.99999	0.034(#2)	LE	CU-D	G
	U-Factor 0.27			SHGC (<1 / >1) 0.29 / 0.26				VT (<1 / >1) 0.43 / 0.38			CR 60	
13	TiAC36 / arg / clr											
	0.087	0.828	0.086					ARG91.99999	0.034(#2)	LE	CU-D	N,G
	U-Factor 0.31			SHGC (N / <1 / >1) 0.27 / 0.24 / 0.22				VT (N / <1 / >1) 0.50 / 0.45 / 0.39			CR 54	
13	TiAC36 / arg / clr											
	0.118	0.754	0.123					ARG91.99999	0.034(#2)	LE	CU-D	N,G
	U-Factor 0.31			SHGC (N / <1 / >1) 0.27 / 0.24 / 0.22				VT (N / <1 / >1) 0.50 / 0.45 / 0.39			CR 54	
14	TiAC36 / arg / clr / arg / clr											
	0.087	0.371	0.086	0.371	0.086			ARG91.99999	0.034(#2)	LE	CU-D	N
	U-Factor 0.27			SHGC (N) 0.26				VT (N) 0.47			CR 60	
15	TiAC36 / arg / clr / arg / clr											
	0.087	0.371	0.086	0.371	0.086			ARG91.99999	0.034(#2)	LE	CU-D	G
	U-Factor 0.27			SHGC (<1 / >1) 0.23 / 0.21				VT (<1 / >1) 0.42 / 0.37			CR 60	

**NFRC 100/200/500 Summary Sheet
Platinum 7000 Series DS**

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) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)			Condensation Resistance	
16	TiAC36/ARG/CLR/ARG/TiAC36											
	0.087	0.422	0.086	0.422	0.087			ARG95	0.034(#2) / 0.034(#5)	CL	CU-D	N
	U-Factor 0.22			SHGC (N) 0.23				VT (N) 0.39			CR 65	
17	TiAC36/ARG/CLR/ARG/TiAC36											
	0.087	0.422	0.086	0.422	0.087			ARG95	0.034(#2) / 0.034(#5)	CL	CU-D	G
	U-Factor 0.22			SHGC (<1 / >1) 0.21 / 0.19				VT (<1 / >1) 0.35 / 0.30			CR 65	
18	E366/ARG/CLR/ARG/E366											
	0.087	0.422	0.087	0.422	0.087			ARG95	0.022(#2) / 0.022(#5)	CL	CU-D	N
	U-Factor 0.21			SHGC (N) 0.18				VT (N) 0.35			CR 65	
19	E366/ARG/CLR/ARG/E366											
	0.087	0.422	0.087	0.422	0.087			ARG95	0.022(#2) / 0.022(#5)	CL	CU-D	G
	U-Factor 0.22			SHGC (<1 / >1) 0.16 / 0.15				VT (<1 / >1) 0.31 / 0.27			CR 65	
20	EPS/ARG/CLR											
	0.087	0.813	0.086					ARG95	0.148(#2)	CL	CU-D	N,G
	U-Factor 0.34			SHGC (N / <1 / >1) 0.51 / 0.45 / 0.40				VT (N / <1 / >1) 0.57 / 0.51 / 0.45			CR 52	
	EPS/ARG/CLR											
21	E366/ARG/CLR											
	0.087	0.813	0.086					ARG95	0.022(#2)	CL	CU-D	N,G
	U-Factor 0.31			SHGC (N / <1 / >1) 0.21 / 0.19 / 0.17				VT (N / <1 / >1) 0.48 / 0.43 / 0.38			CR 54	
	E366/ARG/CLR											
22	E270/ARG/CLR											
	0.087	0.813	0.086					ARG95	0.037(#2)	CL	CU-D	N,G
	U-Factor 0.31			SHGC (N / <1 / >1) 0.28 / 0.25 / 0.22				VT (N / <1 / >1) 0.52 / 0.47 / 0.41			CR 54	
	E270/ARG/CLR											
22	E270/ARG/CLR											
	0.118	0.750	0.123					ARG95	0.037(#2)	CL	CU-D	N,G
	U-Factor 0.31			SHGC (N / <1 / >1) 0.28 / 0.25 / 0.22				VT (N / <1 / >1) 0.52 / 0.46 / 0.41			CR 54	

**NFRC 100/200/500 Summary Sheet
Platinum 7000 Series DS**

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) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)			Condensation Resistance	
23	EPS/ARG/CLR/ARG/CLR											
	0.087	0.359	0.086	0.359	0.086			ARG95	0.148(#2)	CL	CU-D	N
	U-Factor 0.28			SHGC (N) 0.47				VT (N) 0.53			CR 59	
24	EPS/ARG/CLR/ARG/CLR											
	0.087	0.359	0.086	0.359	0.086			ARG95	0.148(#2)	CL	CU-D	G
	U-Factor 0.29			SHGC (<1 / >1) 0.42 / 0.37				VT (<1 / >1) 0.47 / 0.41			CR 59	
25	E366/ARG/CLR/ARG/CLR											
	0.087	0.359	0.086	0.359	0.086			ARG95	0.022(#2)	CL	CU-D	N
	U-Factor 0.26			SHGC (N) 0.19				VT (N) 0.44			CR 60	
26	E366/ARG/CLR/ARG/CLR											
	0.087	0.359	0.086	0.359	0.086			ARG95	0.022(#2)	CL	CU-D	G
	U-Factor 0.27			SHGC (<1 / >1) 0.18 / 0.16				VT (<1 / >1) 0.40 / 0.35			CR 60	
27	E270/ARG/CLR/ARG/CLR											
	0.087	0.359	0.086	0.359	0.086			ARG95	0.037(#2)	CL	CU-D	N
	U-Factor 0.27			SHGC (N) 0.26				VT (N) 0.48			CR 60	
28	E270/ARG/CLR/ARG/CLR											
	0.087	0.359	0.086	0.359	0.086			ARG95	0.037(#2)	CL	CU-D	G
	U-Factor 0.27			SHGC (<1 / >1) 0.23 / 0.21				VT (<1 / >1) 0.43 / 0.38			CR 60	

This report is reissued in the name of Remodelers Supply Center through written authorization of Veka Inc., to whom the original report was rendered. The original Veka Inc. report number is 79457.01-116-45.

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 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.

Detailed drawings, simulation data files, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire. 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:

Jason A. Mitzel
Simulation Technician

Kristen L. Livelsberger
Senior Simulation Technician
Simulator-In-Responsible-Charge

JAM:jam
79457.04-116-45

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix A: Drawings and Bills of Material (17)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
.01R0	2/1/2008	All	Original report issued
.02R0	2/1/2008	All	Reissued report to Remodelers
.03R0	2/1/2008	All	Added TiAC36 options (#13-15)
.04R0	6/3/2010	All	Added Options (#16-28)