

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

**Rendered to:
NORTH EAST WINDOWS USA, INC.**

**SERIES/MODEL:
PD 400**

**Report Number: H6190.01-116-45
Report Date: 11/09/17**



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

Rendered to:
NORTH EAST WINDOWS USA, INC.
One Kees Place
P O Box 159
Merrick, New York 11566

Report Number: H6190.01-116-45
Simulation Date: 11/09/17
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Project Summary:

Architectural Testing, Inc., an Intertek Company (Intertek-ATI) 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
**NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.*

Standards:

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

Software:

Frame and Edge Modeling: THERM 7.4.4
Center-of-Glass Modeling: WINDOW 7.4.14
Total Product Calculations: WINDOW 7.4.14
Spectral Data Library: IGDB 57.0

Simulations Specimen Description:

Series/Model: PD 400
Type: Sliding Glass Door, Sliding Glass Door (XX or OX)
Frame Material: VY Vinyl
Sash Material: VY Vinyl
Standard Size: 2000mm x 2000mm

Modeling Assumptions/Technical Interpretations:

- 1) To prevent air infiltration, tape was applied to all interior sash crack locations.

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 7.4.14. 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	0.003978	0.007118	0.010042
SHGC1	0.746802	0.654676	0.568867
VT0	0.000000	0.000000	0.000000
VT1	0.742824	0.647559	0.558825

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

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

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>	
Intercept Spacer Standard	Butyl Rubber	Butyl Rubber	CU-D

Grid Option Description

<i>Grid Size</i>	<i>Grid Type</i>	<i>Grid Pattern</i>
0.188" x 0.625"	Aluminum Rectangular Grid (Painted)	NFRC Standard

Reinforcement Option Description

<i>Location</i>	<i>Material</i>
N/A	N/A

Gas Filling Technique Description

<i>Fill Type</i>	<i>Method</i>
90% Argon	Dual probe

Edge-of-Glass Construction

<i>Interior Condition</i>	Silicone between sash leg and glass
<i>Exterior Condition</i>	PVC glazing bead with flexibly vinyl strip against glass

Weatherstripping

<i>Type</i>	<i>Quantity</i>	<i>Location</i>
Finpile	2 rows	Sash perimeter

Frame/Sash Materials Finish

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

**NFRC 100/200/500 Summary Sheet
PD 400**

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	CS36/ARG90/CLR (DS/DS) 7/8"											
	0.128	0.625	0.123					ARG90	0.027(#2)	CL	CU-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.27 / 0.24				VT (N / <1) 0.49 / 0.43			CR 56	
	CLR/ARG90/CS36 (DS/DS) 7/8"											
	0.123	0.625	0.128					ARG90	0.027(#3)	CL	CU-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.35 / 0.31				VT (N / <1) 0.49 / 0.43			CR 56	
2	CS36/ARG90/CLR-Lami (DS/DS 030PVB DS) 7/8"											
	0.128	0.470	0.276					ARG90	0.027(#2)	CL	CU-D	N,G
	U-Factor 0.28			SHGC (N / <1) 0.27 / 0.24				VT (N / <1) 0.48 / 0.42			CR 56	
3	CS28/ARG90/CLR (DS/DS) 7/8"											
	0.125	0.625	0.123					ARG90	0.021(#2)	CL	CU-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.21 / 0.19				VT (N / <1) 0.47 / 0.41			CR 56	
	CLR/ARG90/CS28 (DS/DS) 7/8"											
	0.123	0.625	0.125					ARG90	0.021(#3)	CL	CU-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.29 / 0.26				VT (N / <1) 0.47 / 0.41			CR 56	

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.

Intertek-ATI is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The values included in this report are not considered in compliance with ANSI/NFRC 100, ANSI/NFRC 200, and/or NFRC 500 unless the associated validation test requirements have been satisfied, as applicable.

Intertek-ATI 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 Intertek-ATI for the entire test record retention period. The test record retention end date for this report is November 9, 2022.

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 Intertek-ATI

For INTERTEK-ATI:

SIMULATED BY:

REVIEWED BY:

Jonathan P. Spencer
Project Engineer

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

JPS:jps

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Attachments (pages):

This report is complete only when all attachments listed are included.

Appendix A: Drawings and Bills of Material (7)

Revision Log

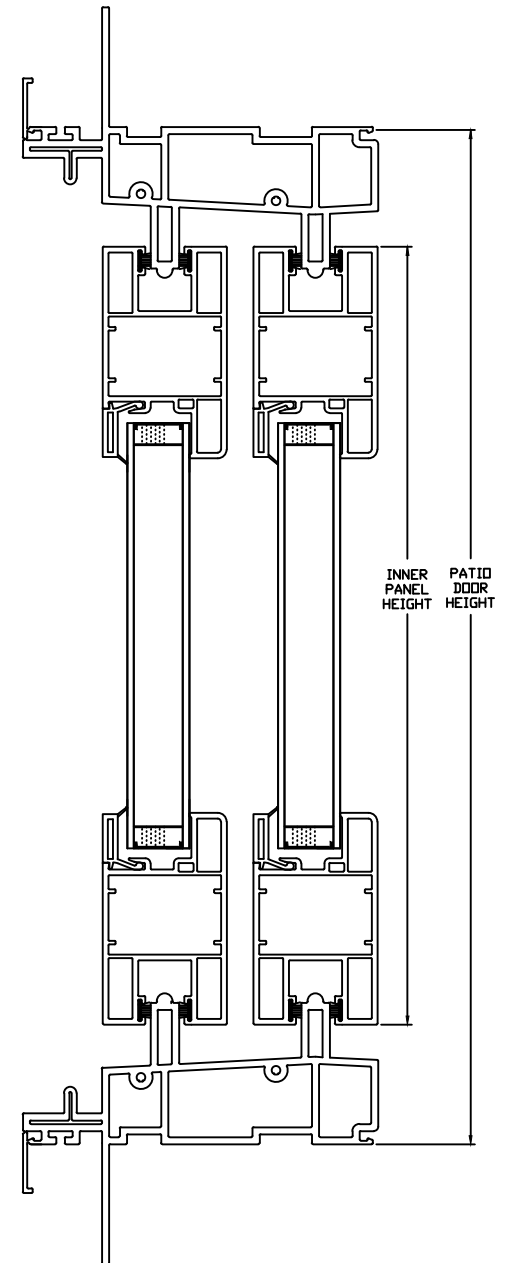
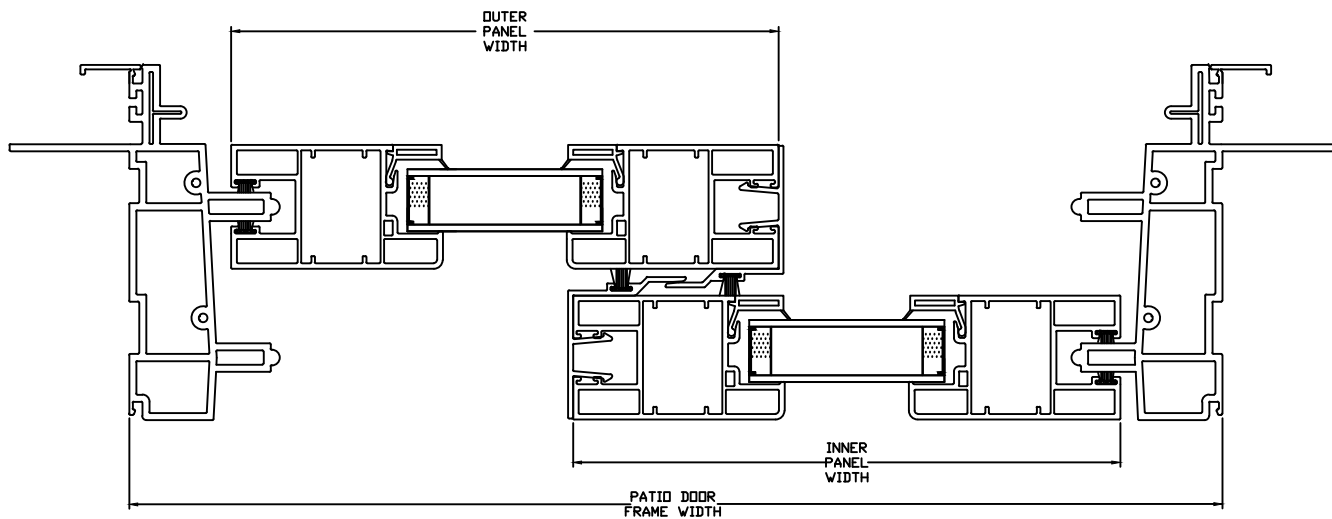
<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
.01R0	11/09/17	All	Original report issued to North East Windows USA, Inc.



All drawings and Bills of Material used to simulate this product are enclosed in this Appendix

Appendix A


H6190.01-116-45








 Report #: H6190-116-45
 Date: 11/09/2017
 Verified by: *Jonathan Spencer*

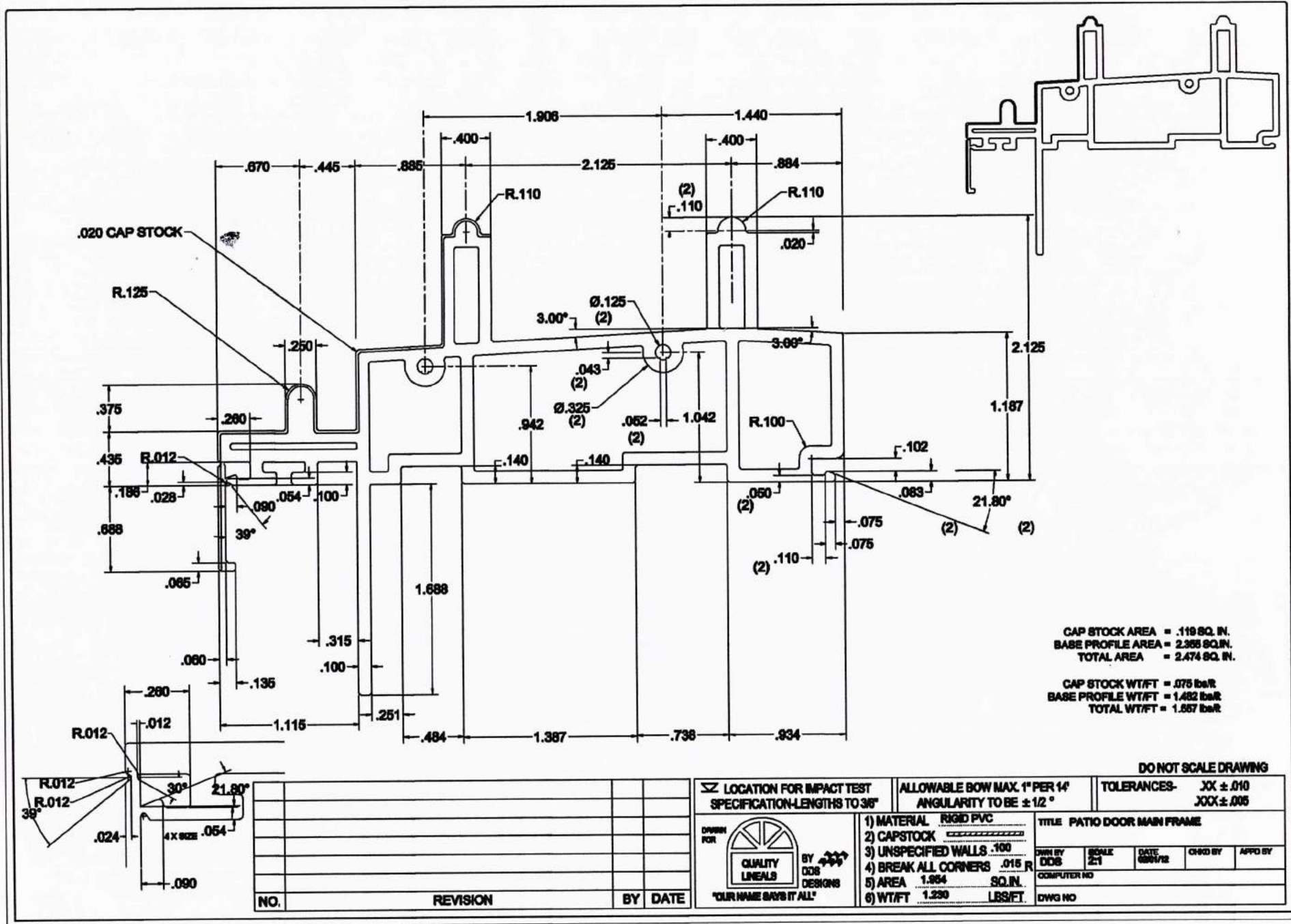
NO.	REVISION	BY	DATE

 LOCATION FOR IMPACT TEST SPECIFICATION—LENGTHS TO 3/8"

 DRAWN FOR BY DDS DESIGNS	1) MATERIAL RIGID PVC 2) CAPSTOCK 3) UNSPECIFIED WALLS 4) BREAK ALL CORNERS .015 5) AREA SQ.IN. 6) WT/FT LBS/FT	TITLE PATIO DOOR DWN BY DDS	SCALE DATE 02/01/12	CHKD BY APPD BY
	OUR NAME SAYS IT ALL	COMPUTER NO	DWG NO C-PATIO DOOR CROSS SECTION	

North East Windows USA, Inc.			
1 Kees Place			
Merrick, NY 11566			
B.O.M. PD400 Sliding Glass Door			
Part		Part#	Supplier
Master frame		PDMF	Quality Linels
Sliding & fixed panel		PDP	Quality Linels
Interlock		PDIL	Quality Linels
Glazing bead		3008	Quality Linels
Aluminum threshold		22956	Aerolite
Silicone			Silco
Lock handle (int & ext)		7000	Fasco
Keeper		CD346	Fasco
1/8" tempered glass			AGC
Woolpile weatherstripping		.270/.290	Amesbury
Woolpile pads		D5098AMW	Ultra-Fab
Roller assembly		TA8488125	Truth Hardware
Screws			Merchants
Steel reinforcement		.125x.500	Eastern Steel

 	Report #:	H6190-116-45
	Date:	11/09/2017
	Verified by:	<i>Danika Brown</i>



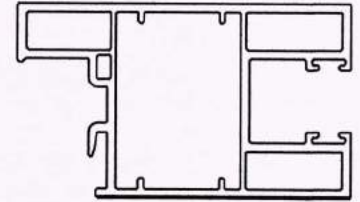
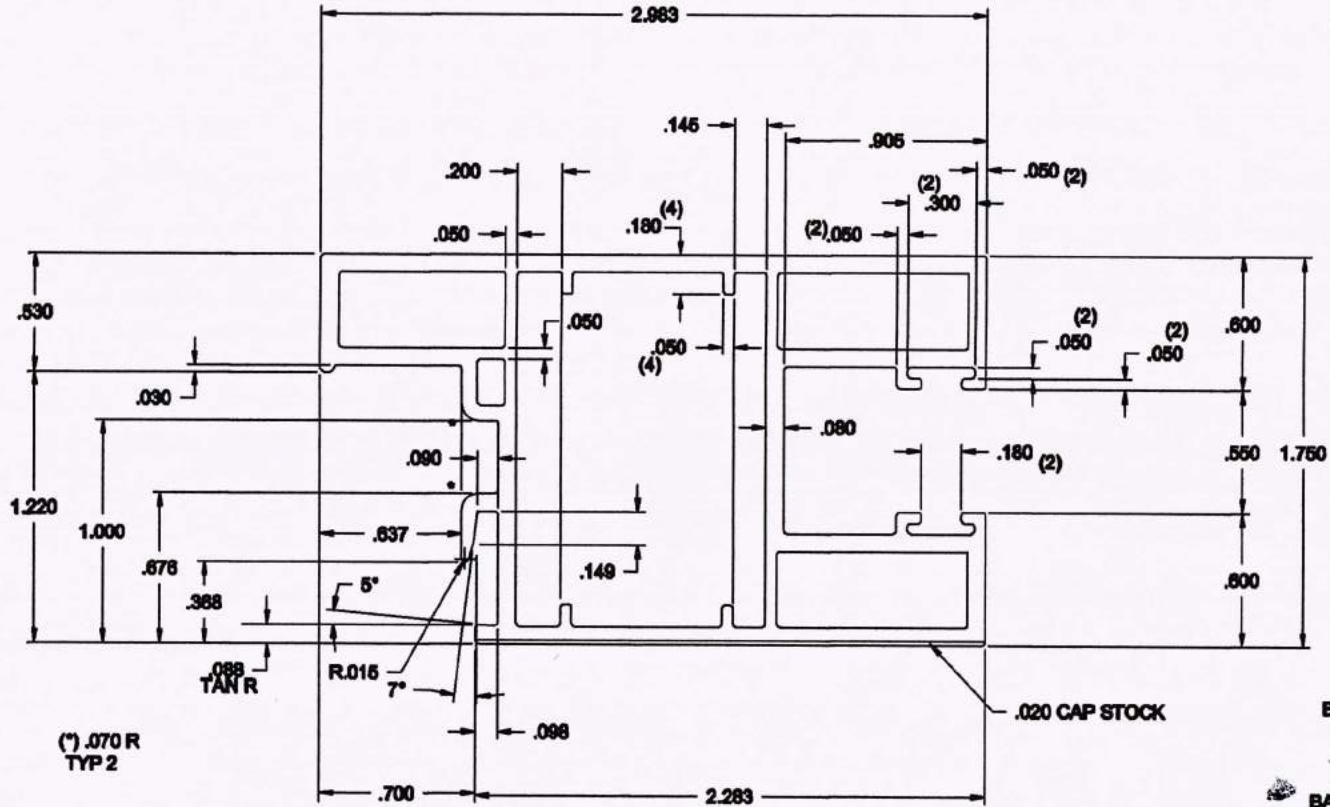
CAP STOCK AREA = .119 SQ. IN.
 BASE PROFILE AREA = 2.365 SQ. IN.
 TOTAL AREA = 2.474 SQ. IN.

CAP STOCK WT/FT = .075 lbs/ft
 BASE PROFILE WT/FT = 1.482 lbs/ft
 TOTAL WT/FT = 1.557 lbs/ft

DO NOT SCALE DRAWING

LOCATION FOR IMPACT TEST SPECIFICATION-LENGTHS TO 36"	ALLOWABLE BOW MAX. 1" PER 14'	TOLERANCES- JX ± .010
	ANGULARITY TO BE ± 1/2 °	JXX ± .005
DRAWN FOR BY DDB DESIGNS 'OUR NAME SAYS IT ALL'	1) MATERIAL RIGID PVC 2) CAPSTOCK 3) UNSPECIFIED WALLS .100 4) BREAK ALL CORNERS .015 R 5) AREA 1.964 SQ. IN. 6) WT/FT 1.230 LBS/FT.	TITLE PATIO DOOR MAIN FRAME DWG NO COMPUTER NO DATE 09/12 CHD BY APPD BY

NO.	REVISION	BY	DATE



CAP STOCK AREA = .048 SQ. IN.
 BASE PROFILE AREA = 1.908 SQ. IN.
 TOTAL AREA = 1.954 SQ. IN.

CAP STOCK WT/FT = .029 lbs/ft
 BASE PROFILE WT/FT = 1.201 lbs/ft
 TOTAL WT/FT = 1.230 lbs/ft

DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TEST
 SPECIFICATION-LENGTHS TO 3/8"

ALLOWABLE BOW MAX. 1" PER 14'
 ANGULARITY TO BE ± 1/2°

TOLERANCES- XX ± .010
 XXX ± .005



- 1) MATERIAL RIGID PVC
- 2) CAPSTOCK
- 3) UNSPECIFIED WALLS .080
- 4) BREAK ALL CORNERS .015 R
- 5) AREA 1.954 SQ. IN.
- 6) WT/FT 1.230 LBS/FT

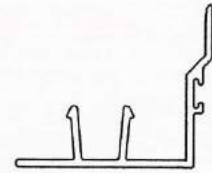
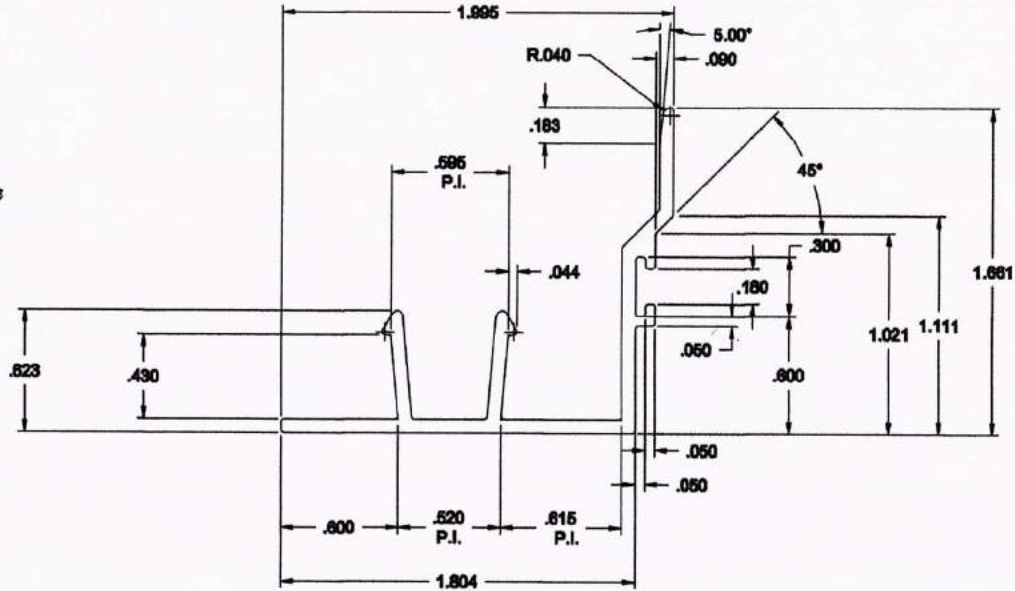
TITLE PATIO DOOR SASH				
DWN BY DDS	SCALE 2:1	DATE 02/07/12	CHD BY	APPD BY
COMPUTER NO				
DWG NO				



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Verified by: *Donalton Spencer*

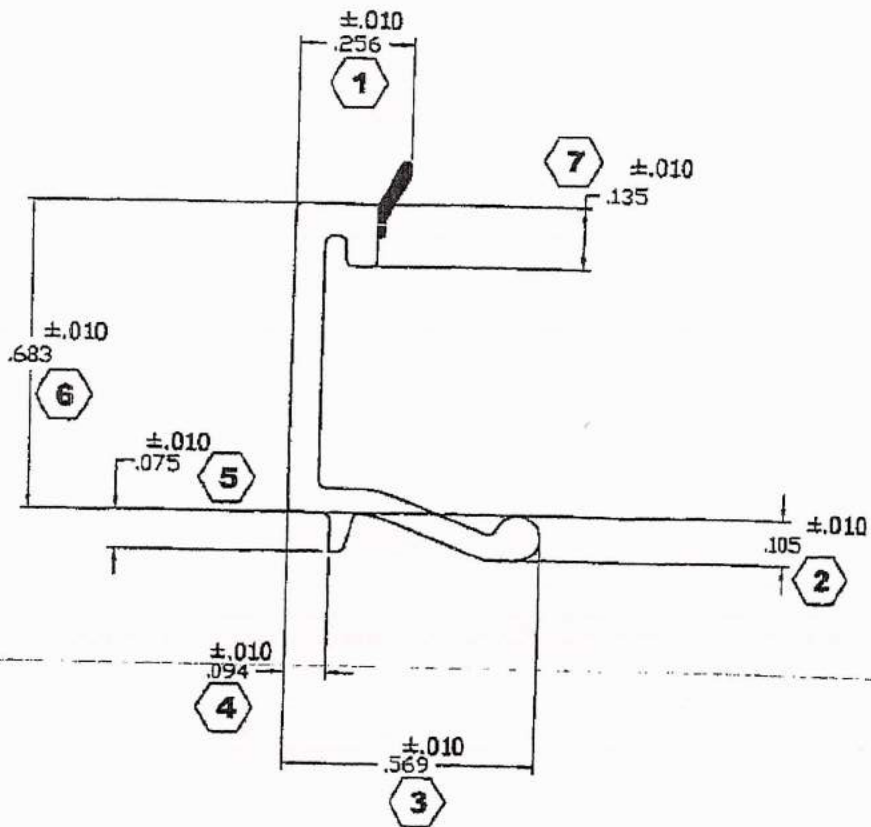


1 of 1

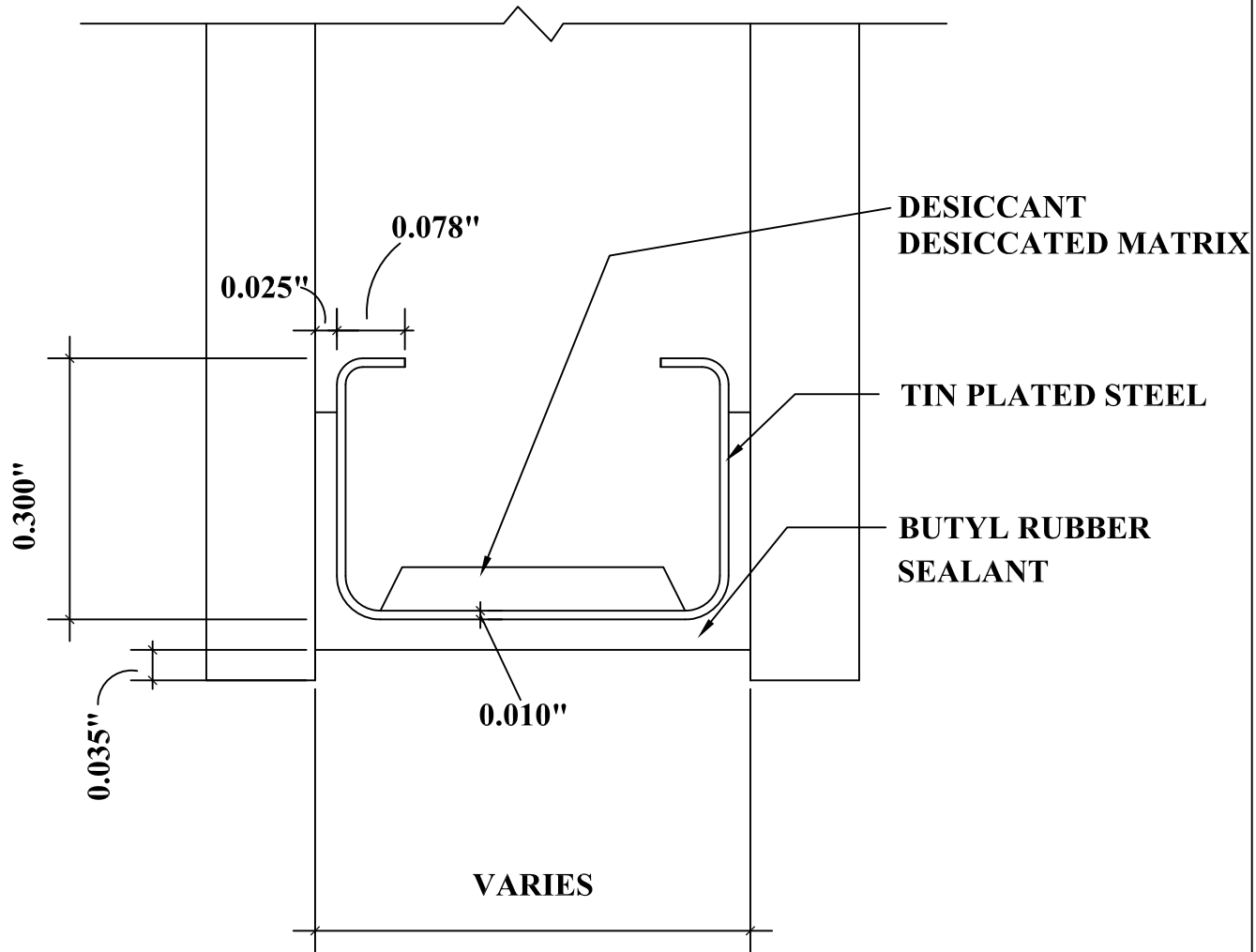
PANEL INTERLOCK.pdf

				DO NOT SCALE DRAWING	
				LOCATION FOR IMPACT TEST SPECIFICATION-LENGTHS TO 3/8"	
				ALLOWABLE BOW MAX. 1" PER 14' ANGULARITY TO BE ± 1/2°	
				TOLERANCES- XX ± .010 .XXX ± .005	
				1) MATERIAL RIGID PVC 2) CAPSTOCK 3) UNSPECIFIED WALLS .070 4) BREAK ALL CORNERS .015R 5) AREA .320 SQ.IN. 6) WT/FT .201 LBS/FT	
				TITLE PATIO DOOR INTERLOCK	
DWN BY DDS		SCALE 2:1		DATE 01/27/12	
		CHKD BY		APPD BY	
				COMPUTER NO	
				DWG NO	
NO.		REVISION		BY DATE	





				DO NOT SCALE DRAWING		
				LOCATION FOR IMPACT TEST SPECIFICATION LENGTHS TO $\pm 3/8"$	ALLOWABLE BOW MAX. 1" PER 14' ANGULARITY TO BE $\pm 1/2^\circ$	WALL TOLER. .060/.080 WT/FT. MIN. .056 MAX. .068
				DRAWN FOR QUALITY LINEALS BY DDS DESIGNS "OUR NAME SAYS IT ALL"	1) MATERIAL RIGID PVC 2) CAPSTOCK 3) UNSPECIFIED WALLS .070 4) BREAK ALL CORNERS .015 R 5) AREA .098 SQ. IN. 6) WT/FT LBS/FT.	TITLE WELDED DOUBLE HUNG GLAZING BEAD DWN BY DDS SCALE NONE DATE 1/26/03 C-HO BY APP'D BY COMPUTER NO. DWG NO B-3008 QC
NO.	REVISION	BY	DATE			



DETAIL FOR THERMAL MODELING OF
GED INTERCEPT SPACER - STANDARD (CU-D)