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U-Factor, Solar Heat Gain Coefficient, Visible Transmittance and Condensation Resistance Calculation Report

REPORT NO: NCTL-110-17581-1
SIMULATION DATE: 05/11/15
REPORT DATE: 05/11/15

Client: Northeast Windows USA, Inc.
1 Kees Place
Merrick, NY 11566

Product Line: Northeast Windows USA, Inc's 660 Vinyl Single Hung

Specification: NFRC 100-2014: "Procedure for Determining Fenestration Product U-Factors".
NFRC 200-2014: "Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence".
NFRC 500-2014: "Procedure for Determining Fenestration Product Condensation Resistance Values".
Technical Interpretation Manual (2010)
Therm 6.x / Window 6.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 NFRC 601-2014: "NFRC Unit and Measurement Policy". 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. Component 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 approved and identified on a valid CMA Label Certificate are to be used for labeling purposes. The component(s) values included in this report are not considered in compliance with NFRC 100 or NFRC 200 unless the associated validation test requirements have been satisfied, as applicable.

PRODUCT LINE DESCRIPTION

General: The product line modeled is Northeast Windows USA, Inc's 660 Vinyl Single Hung

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

Weatherseals:

Location	Weather Seal Description
Head	Not Applicable
Lower Jamb	(2) Strips of Mohair
Meeting Rail	(2) Strips of Mohair
Sloped Sill (F1)	(1) Strip of Mohair, (1) Vinyl Bulb Seal
Pocket Sill (F3)	(3) Strips of Mohair
Upper Jamb	Not Applicable

Gas Fillings:

Gas Type	Filling Technique	Percentage
Argon	Single probe	90%
Argon	Double probe	95%

Reinforcement: Not applicable.

Edge – of - Glass – Construction:

Fixed Lite- Glazing leg with Silicone on the exterior and vinyl glazing bead on the interior
 Active Sash- Glazing leg with silicone on the interior and vinyl glazing bead on the exterior.

Finish: Vinyl

Frame Description:

Code	Type	Definition
VF	Vinyl w/ foam-filled insulation	Extrusions are filled with a foam-type insulating material
VY	Vinyl	All members are vinyl with no reinforcements

Sash Description:

Code	Type	Definition
VF	Vinyl w/ foam-filled insulation	Extrusions are filled with a foam-type insulating material
VY	Vinyl	All members are vinyl with no reinforcements

Spacer and Sealant:

Code	Type	Definition
A1-D	Aluminum	Aluminum spacer system
A8-S	Aluminum-Butyl Composite	Exposed corrugated aluminum spacer with butyl

Code	Type	Definition
P1-S	Polycarbonate- Butyl Composite	Exposed corrugated polycarbonate spacer with butyl - single sealed.

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.

Divider Description: Not applicable

Foam fillings: Individual products contain foam filled channels (hollows) in the following extrusions:

Number of Channels	Extrusion Location	Dwg. No.
(4) Frame	Upper Jamb	Assembly Dwg.
(2) Frame (2) Sash	Sloped Sill (F2)	Assembly Dwg.
(3) Frame	Meeting Rail	Assembly Dwg.
(4) Frame (1) Sash	Lower Jamb	Assembly Dwg.
(3) Frame	Head	Assembly Dwg.
(4) Frame (2) Sash	Pocket Sill (F4)	Assembly Dwg.

Continuous Hardware Description: Not applicable

Group Leaders: The following group leaders are actual simulated individual products per NFRC 4.2.4 and the NFRC Technical Interpretations where applicable. All remaining individual products' U-factors in the corresponding groups are represented by the group leader's U-factor.

COG Group Leader: Determined by NFRC 100-2014 Section 4.2.4.1 (Only the Group Leader is shown).

Glazing ID	Glazing Description	U _{COE}
005	Clr 2m Air 11/16	0.486*
009	Clr 3m Air 5/8	0.482*
006	RLE 7138#3 2m Air 11/16	0.305*
004	RLE 7138#3 2m Air 5/8	0.301*
002	RLE 7138#3 2m Air 9/16	0.296*
015	RLE 7138#3 2m Arg 11/16	0.257*
029	RLE 7138#2 3m Arg 5/8	0.252*
032	366#2_E-PS#4_95Arg_2mm11/16	0.202*
031	SB70#2_E-PS#4_95Arg_2mm11/16	0.201*

* Group Leader

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.

Material properties:

Miscellaneous assumptions:

1. The screen extrusions were not modeled.
2. All radii are simulated at angles.
3. The modeling was performed in accordance with the manufacturer's assembly drawing.

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: HD-CU-D-F1_003.THM	
HD	Frame Section (Head)
CU-D	Spacer (Intercept)
F1	Frame Description
_003	Glazing ID #3

PRODUCT	Product Number	Pane ID #1	Pane ID #2	Pane Thickness #1	Pane Thickness #2	Gap 1	Gap Fill 1	Gap Fill 1	Emissivity Surface 1	% of Gap Fill 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 4	Trail	Spacer	Grid Type	Grid Size	U-Factor	Condensation Resistance	SHGC NO GRID		SHGC GRID<1*		SHGC GRID=1*		VT GRID<1*		VT GRID>=1*	
																					0.64	0.57	0.67	0.60	0.62	0.56	0.66	0.59	0.39	0.35
Sloped Sill	1	2 mm Clear	2 mm Clear	0.090	0.090	0.625	AIR								CL	A1-D	N,G	0.75	0.40	41	0.64	0.57	0.67	0.60						
Sloped Sill		3 mm Clear	3 mm Clear	0.129	0.129	0.625	AIR								CL	A1-D	N,G	0.75	0.49	41	0.62	0.56	0.66	0.59						
Sloped Sill	2	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.625	AIR				0.027				CL	A1-D	N,G	0.75	0.35	52	0.39	0.35	0.58	0.51						
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.625	AIR				0.027				CL	A1-D	N,G	0.75	0.35	52	0.39	0.35	0.57	0.51						
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.625	AIR				0.027				CL	A1-D	N,G	0.75	0.35	52	0.32	0.29	0.58	0.51						
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.625	AIR				0.027				CL	A1-D	N,G	0.75	0.35	52	0.32	0.29	0.57	0.51						
Sloped Sill	3	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.625	ARG	90				0.027			CL	A1-D	N,G	0.75	0.32	54	0.40	0.36	0.58	0.51						
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.625	ARG	90				0.027			CL	A1-D	N,G	0.75	0.32	54	0.39	0.35	0.57	0.51						
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.625	ARG	90			0.027				CL	A1-D	N,G	0.75	0.32	54	0.32	0.29	0.58	0.51						
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.625	ARG	90			0.027				CL	A1-D	N,G	0.75	0.32	54	0.31	0.28	0.57	0.51						
Sloped Sill	4	2 mm Clear	2 mm Clear	0.090	0.090	0.562	AIR								CL	A8-S	N,G	0.75	0.47	46	0.64	0.57	0.67	0.60						
Sloped Sill		3 mm Clear	3 mm Clear	0.129	0.129	0.562	AIR								CL	A8-S	N,G	0.75	0.47	46	0.62	0.56	0.66	0.59						
Sloped Sill	5	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.562	AIR					0.027			CL	A8-S	N,G	0.75	0.33	55	0.39	0.35	0.58	0.51						
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.562	AIR					0.027			CL	A8-S	N,G	0.75	0.33	55	0.39	0.35	0.57	0.51						
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.562	AIR				0.027				CL	A8-S	N,G	0.75	0.33	55	0.32	0.29	0.58	0.51						
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.562	AIR				0.027				CL	A8-S	N,G	0.75	0.33	55	0.32	0.29	0.57	0.51						
Sloped Sill	6	2 mm Clear	2 mm Clear	0.090	0.090	0.688	AIR								CL	A8-S	N,G	0.75	0.48	44	0.64	0.57	0.67	0.60						
Sloped Sill		3 mm Clear	3 mm Clear	0.129	0.129	0.688	AIR								CL	A8-S	N,G	0.75	0.48	44	0.62	0.56	0.66	0.59						
Sloped Sill	7	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.688	AIR					0.027			CL	A8-S	N,G	0.75	0.34	52	0.39	0.36	0.58	0.51						
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.688	AIR					0.027			CL	A8-S	N,G	0.75	0.34	52	0.39	0.35	0.57	0.51						
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.688	AIR				0.027				CL	A8-S	N,G	0.75	0.34	52	0.32	0.29	0.58	0.51						
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.688	AIR				0.027				CL	A8-S	N,G	0.75	0.34	52	0.32	0.28	0.57	0.51						
Sloped Sill	8	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.562	ARG	90				0.027			CL	A8-S	N,G	0.75	0.30	56	0.40	0.36	0.58	0.51						
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.562	ARG	90				0.027			CL	A8-S	N,G	0.75	0.30	56	0.39	0.35	0.57	0.51						
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.562	ARG	90			0.027				CL	A8-S	N,G	0.75	0.30	56	0.32	0.29	0.58	0.51						
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.562	ARG	90			0.027				CL	A8-S	N,G	0.75	0.30	56	0.31	0.28	0.57	0.51						
Sloped Sill	9	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.688	ARG	90				0.027			CL	A8-S	N,G	0.75	0.30	57	0.40	0.36	0.58	0.51						
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.688	ARG	90				0.027			CL	A8-S	N,G	0.75	0.30	57	0.39	0.35	0.57	0.51						

PRODUCT	Product Number	Pane ID #1	Pane ID #2	Pane Thickness #1	Pane Thickness #2	Gap 1	Gap Fill 1	% of Gap Fill 1	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Test	Spacer	Grid Type	Grid Size	U-factor	Condensation Resistance	SHGC NO GRID	SHGC GRID<1*	SHGC GRID=1*	VT NO GRID	VT GRID<1*	VT GRID=1*
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.688	ARG	90		0.027			CL	A8-S	N,G	0.75	0.30	57	0.32	0.29	0.58	0.51		
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.688	ARG	90		0.027			CL	A8-S	N,G	0.75	0.30	57	0.31	0.28	0.57	0.51		
Sloped Sill	10	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.562	AIR				0.027		CL	P1-S	N,G	0.75	0.32	58	0.39	0.35	0.58	0.51		
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.562	AIR				0.027		CL	P1-S	N,G	0.75	0.32	58	0.39	0.35	0.57	0.51		
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.562	AIR		0.027				CL	P1-S	N,G	0.75	0.32	58	0.32	0.29	0.58	0.51		
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.562	AIR		0.027				CL	P1-S	N,G	0.75	0.32	58	0.32	0.29	0.57	0.51		
Sloped Sill	11	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.625	AIR				0.027		CL	P1-S	N,G	0.75	0.32	58	0.39	0.35	0.58	0.51		
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.625	AIR				0.027		CL	P1-S	N,G	0.75	0.32	58	0.39	0.35	0.57	0.51		
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.625	AIR		0.027				CL	P1-S	N,G	0.75	0.32	58	0.32	0.29	0.58	0.51		
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.625	AIR		0.027				CL	P1-S	N,G	0.75	0.32	58	0.32	0.29	0.57	0.51		
Sloped Sill	12	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.688	AIR				0.027		CL	P1-S	N,G	0.75	0.32	56	0.39	0.36	0.58	0.51		
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.688	AIR				0.027		CL	P1-S	N,G	0.75	0.32	56	0.39	0.35	0.57	0.51		
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.688	AIR		0.027				CL	P1-S	N,G	0.75	0.32	56	0.32	0.29	0.58	0.51		
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.688	AIR		0.027				CL	P1-S	N,G	0.75	0.32	56	0.32	0.28	0.57	0.51		
Sloped Sill	13	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.562	ARG	90			0.027		CL	P1-S	N,G	0.75	0.28	62	0.40	0.36	0.58	0.51		
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.562	ARG	90			0.027		CL	P1-S	N,G	0.75	0.28	62	0.39	0.35	0.57	0.51		
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.562	ARG	90		0.027			CL	P1-S	N,G	0.75	0.28	62	0.32	0.29	0.58	0.51		
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.562	ARG	90		0.027			CL	P1-S	N,G	0.75	0.28	62	0.31	0.28	0.57	0.51		
Sloped Sill	14	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.625	ARG	90			0.027		CL	P1-S	N,G	0.75	0.28	62	0.40	0.36	0.58	0.51		
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.625	ARG	90			0.027		CL	P1-S	N,G	0.75	0.28	62	0.39	0.35	0.57	0.51		
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.625	ARG	90		0.027			CL	P1-S	N,G	0.75	0.28	62	0.32	0.29	0.58	0.51		
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.625	ARG	90		0.027			CL	P1-S	N,G	0.75	0.28	62	0.31	0.28	0.57	0.51		
Sloped Sill	15	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.688	ARG	90			0.027		CL	P1-S	N,G	0.75	0.28	60	0.40	0.36	0.58	0.51		
Sloped Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.688	ARG	90			0.027		CL	P1-S	N,G	0.75	0.28	60	0.39	0.35	0.57	0.51		
Sloped Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.688	ARG	90		0.027			CL	P1-S	N,G	0.75	0.28	60	0.32	0.29	0.58	0.51		
Sloped Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.688	ARG	90		0.027			CL	P1-S	N,G	0.75	0.28	60	0.31	0.28	0.57	0.51		
Sloped Sill, Foam Filled	16	2 mm Solarban® 70XL	2 mm Comfort E-PS	0.089	0.087	0.688	ARG	95		0.018		0.148	OT	P1-S	N,G	0.75	0.22	49	0.21	0.19	0.49	0.44		
Sloped Sill, Foam Filled	17	2 mm LoE® 366	2 mm Comfort E-PS	0.087	0.087	0.688	ARG	95		0.022		0.148	OT	P1-S	N,G	0.75	0.22	49	0.21	0.19	0.49	0.44		

PRODUCT	Product Number	Pane ID #1	Pane ID #2	Pane Thickness #1		Pane Thickness #2		Gap 1	Gap Fill 1	% of Gap Fill 1	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Tint	Spacer	Grid Type	Grid Size	Condensation Resistance			SHGC NO GRID	SHGC GRID<=1*	SHGC GRID>=1*	VT NO GRID	VT GRID<1*	VT GRID>=1*
				0.090	0.129	0.090	0.129												U-factor	41	51						
Pocket Sill	18	2 mm Clear	2 mm Clear	0.090	0.090	0.625	AIR								CL	A1-D	N,G	0.75	0.49	41	0.63	0.57	0.66	0.59			
Pocket Sill		3 mm Clear	3 mm Clear	0.129	0.129	0.625	AIR								CL	A1-D	N,G	0.75	0.49	41	0.61	0.55	0.65	0.58			
Pocket Sill	19	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.625	AIR					0.027			CL	A1-D	N,G	0.75	0.35	51	0.39	0.35	0.57	0.51			
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.625	AIR					0.027			CL	A1-D	N,G	0.75	0.35	51	0.38	0.35	0.56	0.50			
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.625	AIR				0.027				CL	A1-D	N,G	0.75	0.35	51	0.32	0.28	0.57	0.51			
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.625	AIR				0.027				CL	A1-D	N,G	0.75	0.35	51	0.31	0.28	0.56	0.50			
Pocket Sill	20	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.625	ARG 90					0.027			CL	A1-D	N,G	0.75	0.32	54	0.39	0.35	0.57	0.51			
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.625	ARG 90					0.027			CL	A1-D	N,G	0.75	0.32	54	0.39	0.35	0.56	0.50			
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.625	ARG 90				0.027				CL	A1-D	N,G	0.75	0.32	54	0.31	0.28	0.57	0.51			
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.625	ARG 90				0.027				CL	A1-D	N,G	0.75	0.32	54	0.31	0.28	0.56	0.50			
Pocket Sill	21	2 mm Clear	2 mm Clear	0.090	0.090	0.562	AIR								CL	A8-S	N,G	0.75	0.46	46	0.63	0.57	0.66	0.59			
Pocket Sill		3 mm Clear	3 mm Clear	0.129	0.129	0.562	AIR								CL	A8-S	N,G	0.75	0.46	46	0.61	0.55	0.65	0.58			
Pocket Sill	22	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.562	AIR					0.027			CL	A8-S	N,G	0.75	0.33	55	0.39	0.35	0.57	0.51			
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.562	AIR					0.027			CL	A8-S	N,G	0.75	0.33	55	0.38	0.35	0.56	0.50			
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.562	AIR				0.027				CL	A8-S	N,G	0.75	0.33	55	0.32	0.28	0.57	0.51			
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.562	AIR				0.027				CL	A8-S	N,G	0.75	0.33	55	0.31	0.28	0.56	0.50			
Pocket Sill	23	2 mm Clear	2 mm Clear	0.090	0.090	0.688	AIR								CL	A8-S	N,G	0.75	0.48	44	0.63	0.57	0.66	0.59			
Pocket Sill		3 mm Clear	3 mm Clear	0.129	0.129	0.688	AIR								CL	A8-S	N,G	0.75	0.48	44	0.61	0.55	0.65	0.58			
Pocket Sill	24	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.688	AIR					0.027			CL	A8-S	N,G	0.75	0.34	54	0.39	0.35	0.57	0.51			
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.688	AIR					0.027			CL	A8-S	N,G	0.75	0.34	54	0.38	0.35	0.56	0.50			
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.688	AIR				0.027				CL	A8-S	N,G	0.75	0.34	54	0.31	0.28	0.57	0.51			
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.688	AIR				0.027				CL	A8-S	N,G	0.75	0.34	54	0.31	0.28	0.56	0.50			
Pocket Sill	25	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.562	ARG 90					0.027			CL	A8-S	N,G	0.75	0.30	56	0.39	0.35	0.57	0.51			
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.562	ARG 90					0.027			CL	A8-S	N,G	0.75	0.30	56	0.39	0.35	0.56	0.50			
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.562	ARG 90				0.027				CL	A8-S	N,G	0.75	0.30	56	0.31	0.28	0.57	0.51			
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.562	ARG 90				0.027				CL	A8-S	N,G	0.75	0.30	56	0.31	0.28	0.56	0.50			
Pocket Sill	26	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.688	ARG 90					0.027			CL	A8-S	N,G	0.75	0.30	57	0.39	0.35	0.57	0.51			

PRODUCT	Product Number	Pane ID #1	Pane ID #2	Pane Thickness #1	Pane Thickness #2	Gap 1	Gap Fill 1	% of Gap Fill 1	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Tint	Spacer	Grid Type	Grid Size	U-factor	Condensation Resistance	SHGC NO GRID	SHGC GRID<1*	SHGC GRID>=1*	VT NO GRID	VT GRID<1*	VT GRID>=1*
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.688	ARG	90			0.027		CL	A8-S	N.G	0.75	0.30	57	0.39	0.35		0.56	0.50	
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.688	ARG	90	0.027				CL	A8-S	N.G	0.75	0.30	57	0.31	0.28		0.57	0.51	
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.688	ARG	90	0.027				CL	A8-S	N.G	0.75	0.30	57	0.31	0.28		0.56	0.50	
Pocket Sill	27	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.562	AIR				0.027		CL	P1-S	N.G	0.75	0.32	58	0.39	0.35		0.57	0.51	
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.562	AIR				0.027		CL	P1-S	N.G	0.75	0.32	58	0.38	0.35		0.56	0.50	
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.562	AIR		0.027				CL	P1-S	N.G	0.75	0.32	58	0.32	0.28		0.57	0.51	
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.562	AIR		0.027				CL	P1-S	N.G	0.75	0.32	58	0.31	0.28		0.56	0.50	
Pocket Sill	28	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.625	AIR				0.027		CL	P1-S	N.G	0.75	0.32	58	0.39	0.35		0.57	0.51	
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.625	AIR				0.027		CL	P1-S	N.G	0.75	0.32	58	0.38	0.35		0.56	0.50	
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.625	AIR		0.027				CL	P1-S	N.G	0.75	0.32	58	0.32	0.28		0.57	0.51	
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.625	AIR		0.027				CL	P1-S	N.G	0.75	0.32	58	0.31	0.28		0.56	0.50	
Pocket Sill	29	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.688	AIR				0.027		CL	P1-S	N.G	0.75	0.32	56	0.39	0.35		0.57	0.51	
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.688	AIR				0.027		CL	P1-S	N.G	0.75	0.32	56	0.38	0.35		0.56	0.50	
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.688	AIR		0.027				CL	P1-S	N.G	0.75	0.32	56	0.31	0.28		0.57	0.51	
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.688	AIR		0.027				CL	P1-S	N.G	0.75	0.32	56	0.31	0.28		0.56	0.50	
Pocket Sill	30	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.562	ARG	90			0.027		CL	P1-S	N.G	0.75	0.28	62	0.39	0.35		0.57	0.51	
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.562	ARG	90			0.027		CL	P1-S	N.G	0.75	0.28	62	0.39	0.35		0.56	0.50	
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.562	ARG	90	0.027				CL	P1-S	N.G	0.75	0.28	62	0.31	0.28		0.57	0.51	
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.562	ARG	90	0.027				CL	P1-S	N.G	0.75	0.28	62	0.31	0.28		0.56	0.50	
Pocket Sill	31	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.625	ARG	90			0.027		CL	P1-S	N.G	0.75	0.28	62	0.39	0.35		0.57	0.51	
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.625	ARG	90			0.027		CL	P1-S	N.G	0.75	0.28	62	0.39	0.35		0.56	0.50	
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.625	ARG	90	0.027				CL	P1-S	N.G	0.75	0.28	62	0.31	0.28		0.57	0.51	
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.625	ARG	90	0.027				CL	P1-S	N.G	0.75	0.28	62	0.31	0.28		0.56	0.50	
Pocket Sill	32	2 mm Clear	2 mm ClimaGuard RLE 71/38	0.090	0.090	0.688	ARG	90			0.027		CL	P1-S	N.G	0.75	0.28	60	0.39	0.35		0.57	0.51	
Pocket Sill		3 mm Clear	3 mm ClimaGuard RLE 71/38	0.129	0.117	0.688	ARG	90			0.027		CL	P1-S	N.G	0.75	0.28	60	0.39	0.35		0.56	0.50	
Pocket Sill		2 mm ClimaGuard RLE 71/38	2 mm Clear	0.090	0.090	0.688	ARG	90	0.027				CL	P1-S	N.G	0.75	0.28	60	0.31	0.28		0.57	0.51	
Pocket Sill		3 mm ClimaGuard RLE 71/38	3 mm Clear	0.117	0.129	0.688	ARG	90	0.027				CL	P1-S	N.G	0.75	0.28	60	0.31	0.28		0.56	0.50	
Pocket Sill, Foam Filled	33	2 mm Solarban® 70XL	2 mm Comfort E-PS	0.089	0.087	0.688	ARG	95	0.018		0.148	OT	P1-S	N.G	0.75	0.22	49		0.21	0.19		0.48	0.43	

A baseline product test in accordance with the "NFRC 102: Test Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems" is required in order to validate the "Model Size Matrix of U-Values" as previously indicated. Per Section 1.4.3 of NFRC 100-2014, "the baseline product is the individual product selected for validation testing". The individual product selected as the baseline product shall be the lowest simulated individual product or an individual product having a simulated U-factor within 0.60 W/(m²*K) (0.10 BTU/HR/ft²/*F) or 20% of the listed lowest simulated U-factor.

Note:

1. For lowest U-factor listings where multiple individual products are shown, validation testing can be conducted on any within 20% of the lowest simulated u-factor.
2. Actual simulated individual products are required for product line validation testing.

For the purposes of validation testing, production line units and sizes shall be used to represent the baseline product. Per the client, the model size is manufactured as part of their product line; therefore the previously listed model size can be used for baseline product validation testing.

For the purposes of validation testing, production line units and sizes shall be used to represent the baseline products. Representative sizes are therefore defined as the production sizes with the least deviation (D) from the model sizes, calculated per NFRC 100. The previously listed model sizes shall be used for baseline product validation testing.

Copies of this report and the detailed product drawings will be retained by NCTL for a period of four (4) years. This report may not be reproduced, except in full, without the approval of NCTL. The results only to the fenestration product simulated. The attached diskette(s) contain(s) all required NFRC data and software files.

NATIONAL CERTIFIED TESTING LABORATORIES

Performed by:

Reviewed by:


DIGITAL SIGNATURE

CHRISTOPHER PONDOLFINO
Simulator


DIGITAL SIGNATURE

MARK BENNETT
NFRC Accredited Simulator
Simulator-In-Responsible-Charge

Attachments

Report Log

Product Line: Northeast Windows USA, Inc's 660 Vinyl Single Hung

Date:
05/11/15 - Original Report issued to Company and Inspection Agency

DRAFT

ATTACHMENT A

Product Drawings

DRAFT

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.

ANY DEVIATION IS NOTED.

NCTL-110-17581-01

TEST COMPLETE: 05/11/15

North East Windows

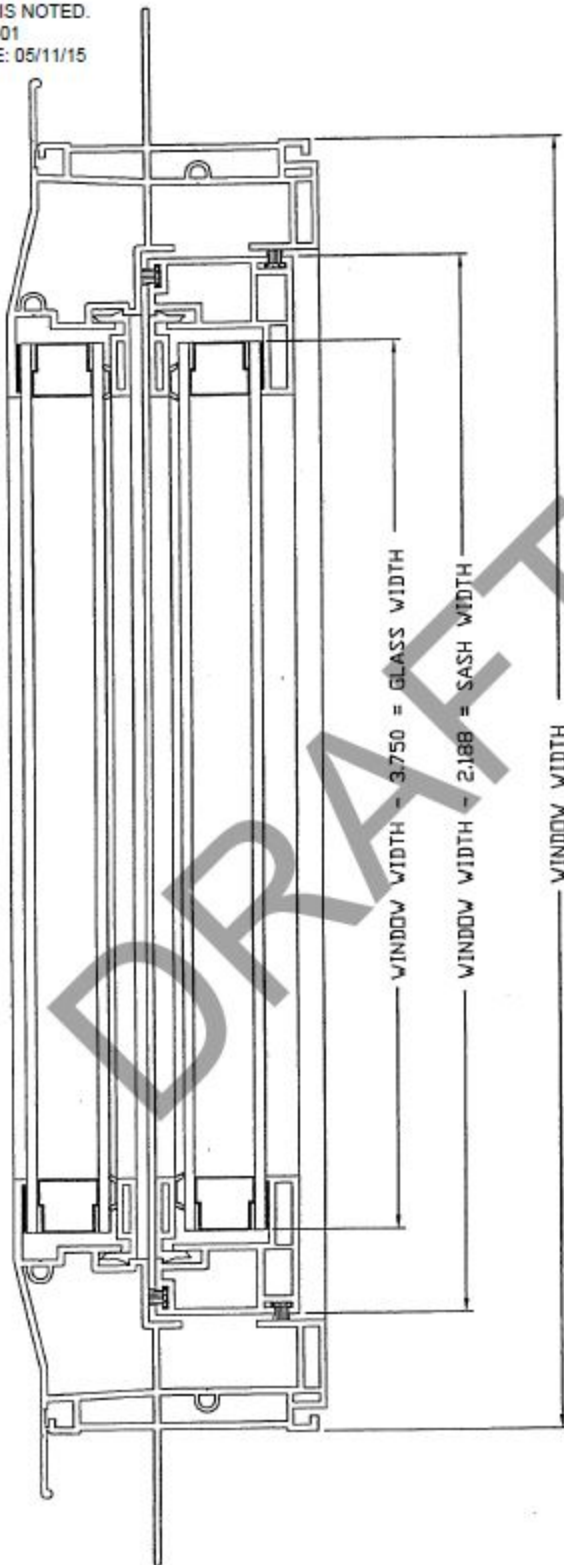
600/660 Single Hung

Bill of Materials

Part #	Name	Material
B-1008 QC	Glazing Bead	Vinyl
1	Interlock Glazing Bead	Vinyl
B-1512 QC	Jamb	Vinyl
B-1511 QC	Head	Vinyl
B-1000 QC	Sash	Vinyl
B-1002 QC	Handle Sash	Vinyl
B-1003 QC	Fixed Meeting Rail	Vinyl
B-1004 QC	Lock Rail	Vinyl
B-1014	Sill Insert	Vinyl

DRAFT

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15



DRAWN FOR	QUALITY LINEALS	TITLE SERIES 1010 SH HORIZONTAL ASSEMBLY			
		ISSN BY DDS	SCALE FULL	DATE 2-5-99	CHKD BY APPD BY
		COMPUTER NO	REV		
		DWG NO B-SH-HORIZONTAL ASSEMBLY			

BY
MCLAREN
DESIGNS

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15

WINDOW HEIGHT / 2 - 1.75 = GLASS HEIGHT

WINDOW HEIGHT / 2 - .187 = SASH HEIGHT

WINDOW HEIGHT

DRAWN FOR



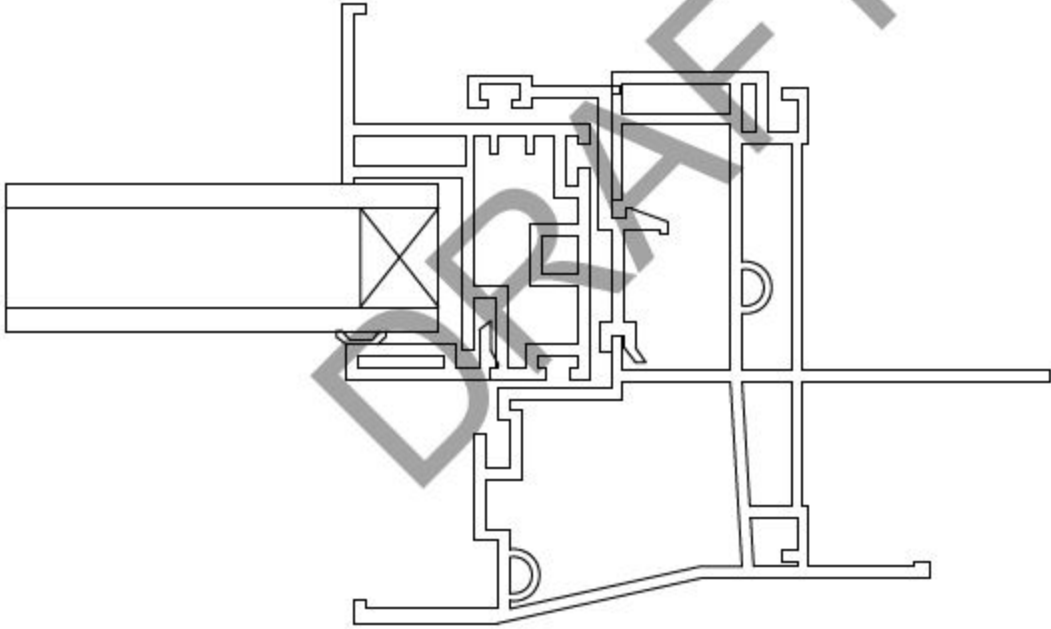
QUALITY
LINEALS

BY
MCLAREN
DESIGNS

TITLE 560 Series SH
VERTICAL ASSEMBLY

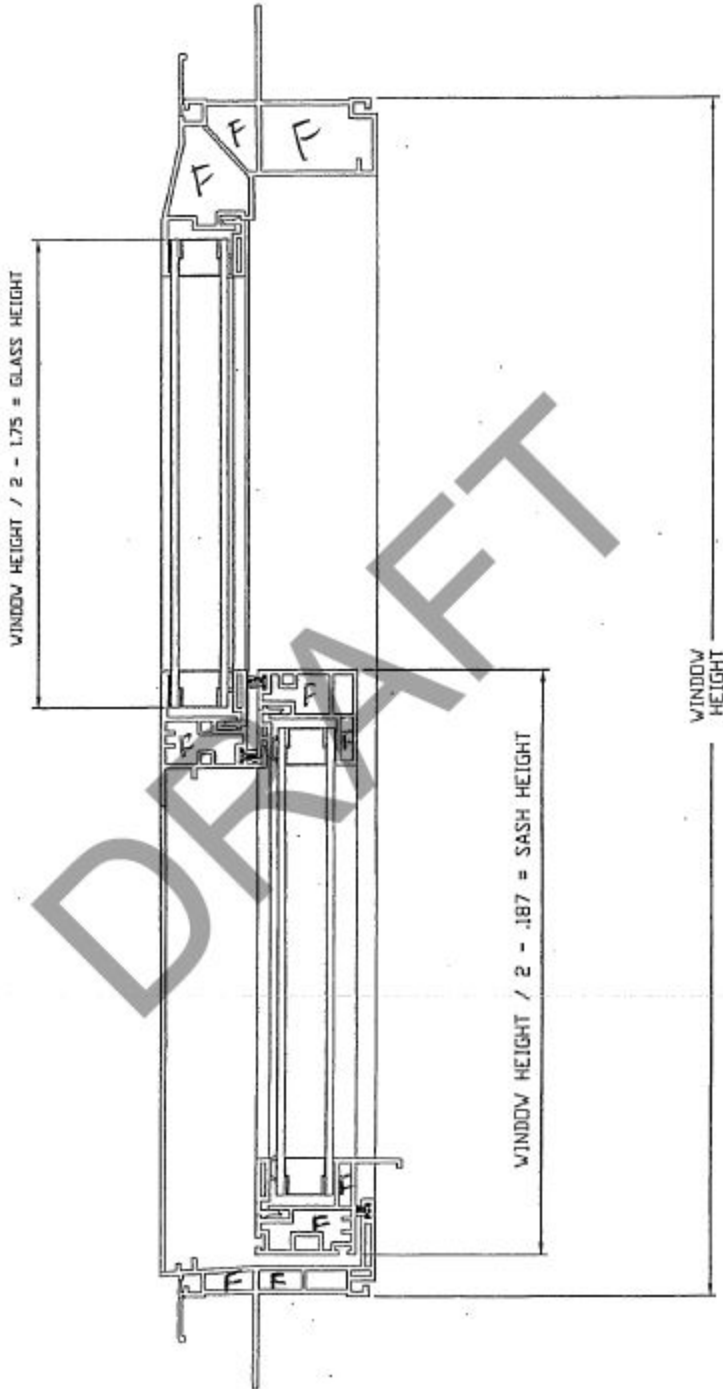
DESIGNED BY	SCALE	DATE	CHKD BY	APPD BY
DJS		3-3-99		
COMPUTER NO				REV
DWG NO B-SH-VERTICAL ASSEMBLY				

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15



#660 Single Hung w/ Pocket Sill

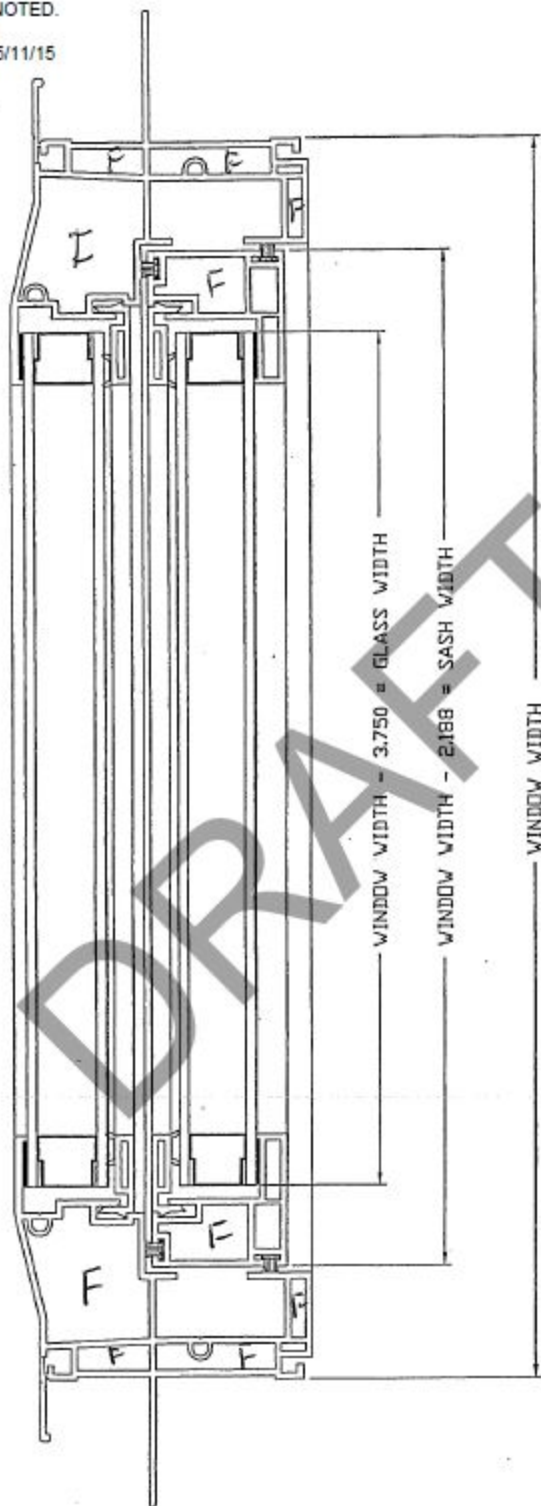
TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15



DRAWN FOR QUALITY LINEALS	TITLE 1560 Series SH VERTICAL ASSEMBLY		
	DESIGNED BY DDS	SCALE 3-3-99	DATE 3-3-99
BY MCLAREN DESIGNS	COMPUTER NO.	CHKD BY	APPD BY
	DWG. NO. B-SH-VERTICAL ASSEMBLY		REV

F = Foam
Filled

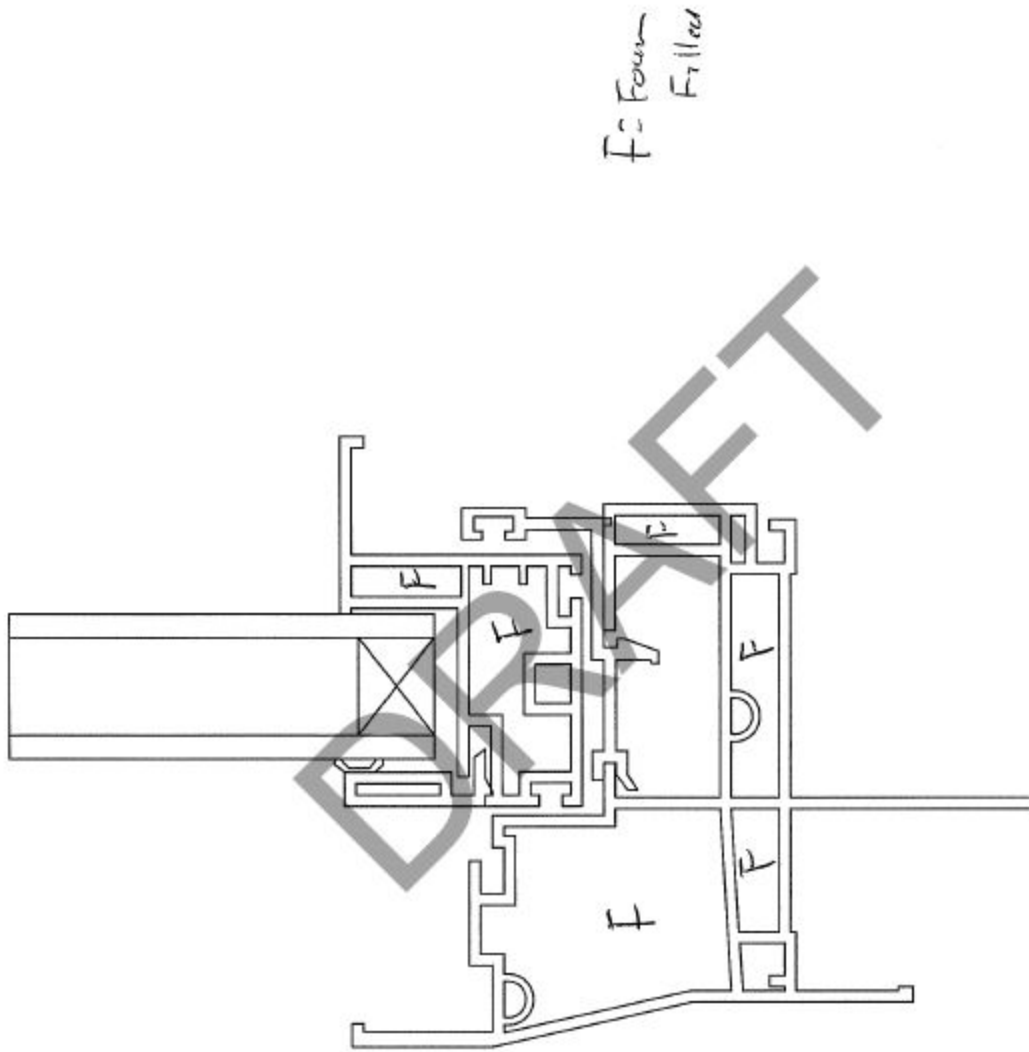
TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 NCTL-110-17581-01
 TEST COMPLETE: 05/11/15



F = Foam Filled

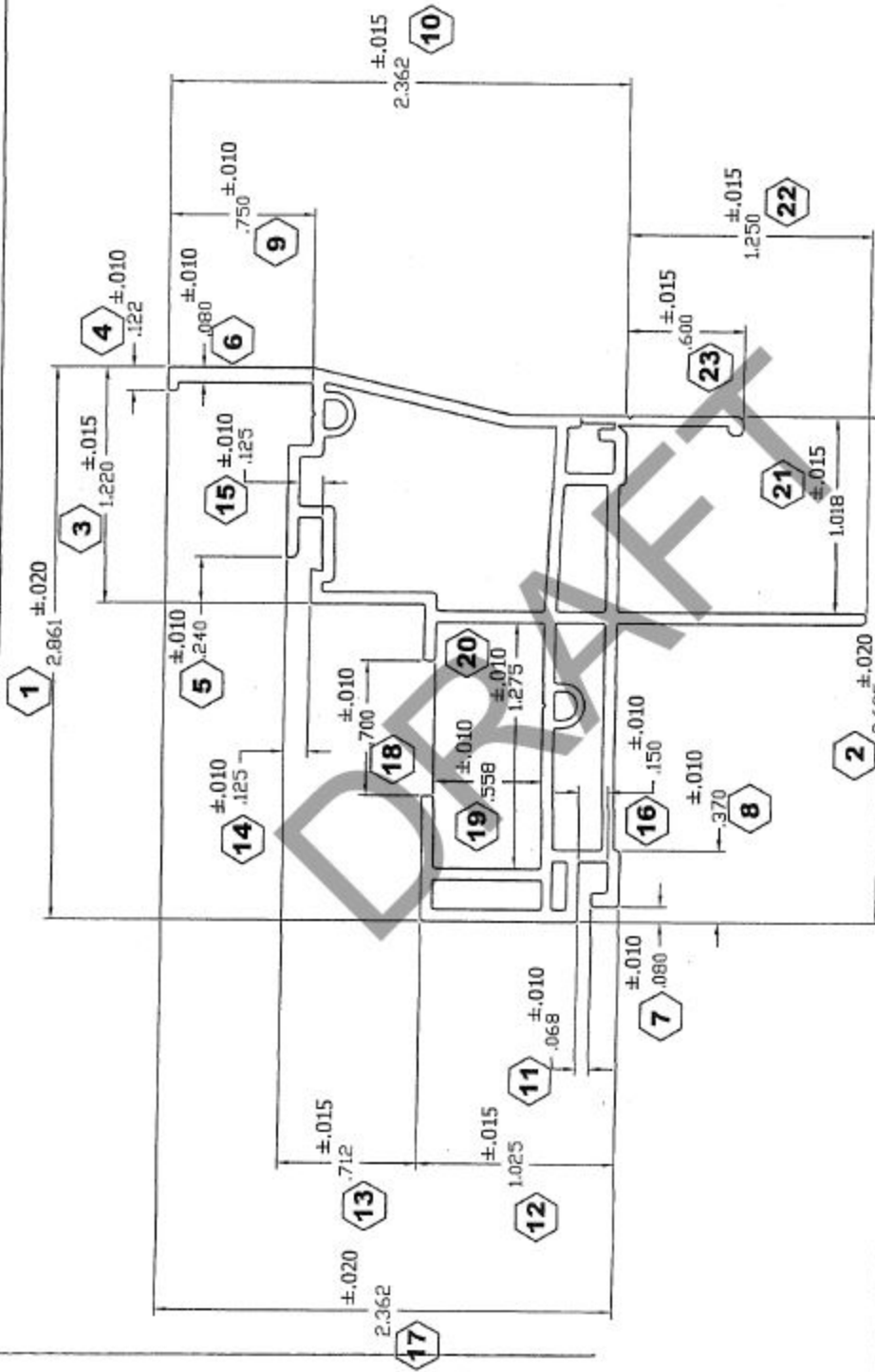
DRAWN FOR		BY		DATE		CHKD BY		APPD BY	
QUALITY LINEALS		MCLAREN DESIGNS		2-5-99					
TITLE SERIES 1010 SH HORIZONTAL ASSEMBLY		SCALE FULL		DATE		CHKD BY		APPD BY	
COMPUTER NO		DWG NO		B-SH-HORIZONTAL ASSEMBLY		REV			

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15



#660 Single Hung w/ Pocket Sill

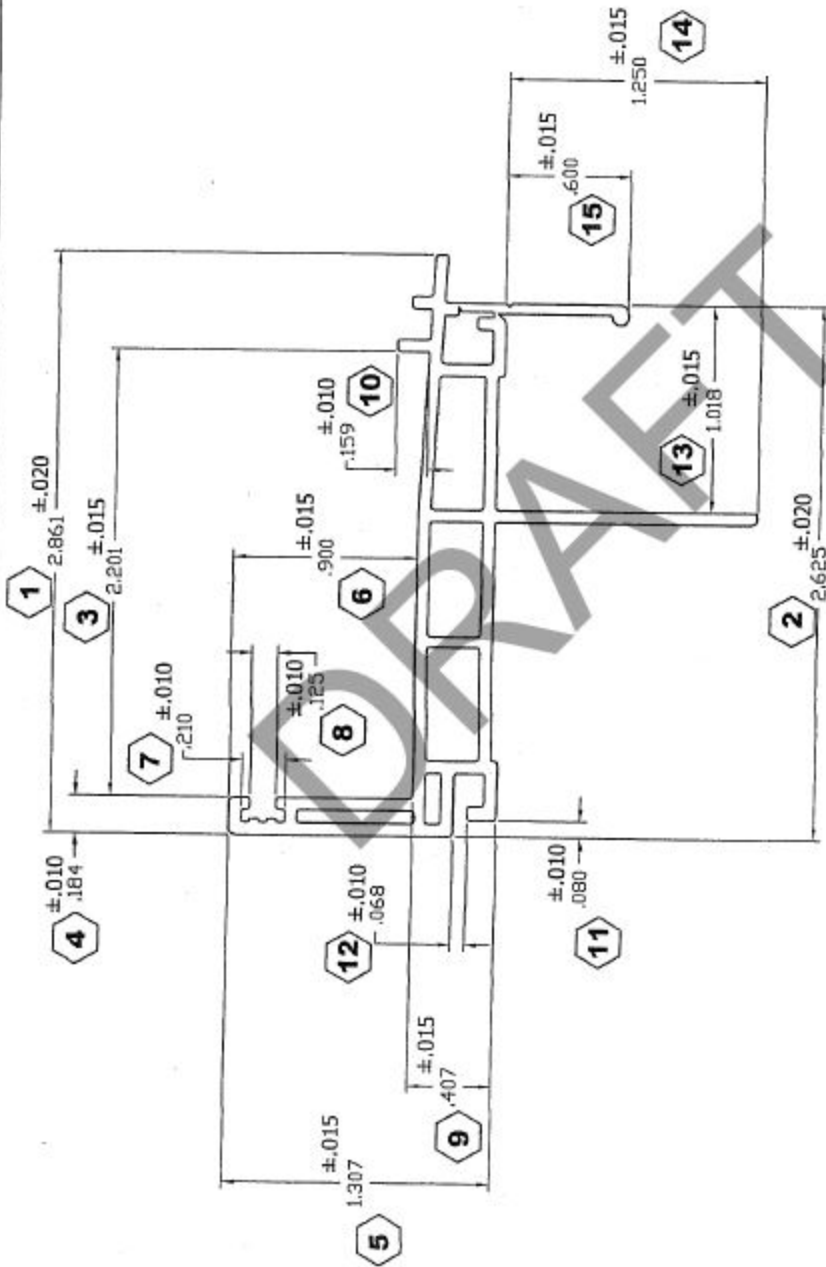
TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15



NO.		REVISION	BY	DATE

	BY DDS	TITLE BUILDERS WINDOW JAMB WITH J FLANGE/FIN
"OUR NAME SAYS IT ALL"	DRAWN FOR	1) MATERIAL RIGID PVC 2) CAJSTOCK 3) UNSPECIFIED WALLS .060 4) BREAK ALL CORNERS .015 R 5) AREA 1.121 SQ. IN. 6) WT/FT. LIB/FT.
LOCATION FOR IMPACT TEST SPECIFICATION LENGTHS TO ± 3/8"	ALLOWABLE BOW MAX. 1" PER 14' ANGLARITY TO BE ± 1/2°	DO NOT SCALE DRAWING WALL TOLER. .050/.070 WT/FT. MIN. .635 MAX. .776
SCALE NONE	DATE 1/31/08	DWG NO B-1512 QC
COMPUTER NO	CHG BY	APPD BY

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15

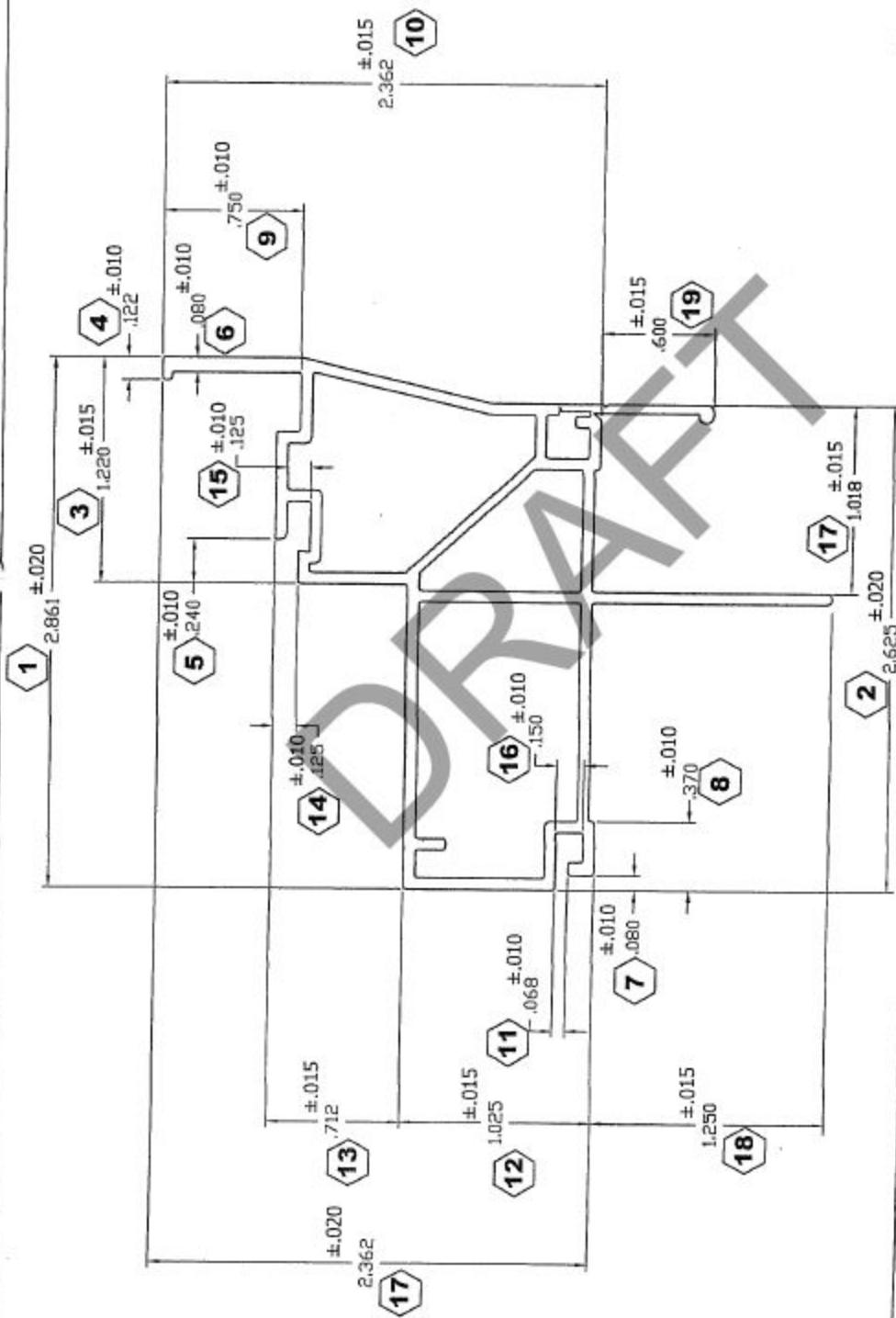


DO NOT SCALE DRAWING

LOCATION FOR IMPACT TEST SPECIFICATION LENGTHS TO ± 3/8"	ALLOWABLE BOW MAX. 1" PER 14"	WALL TOLER. .050/.070
	ANGULARITY TO BE ± 1/2 °	WT/FT. MIN. .369 MAX. .451
 DRAWN FOR BY DOS DESIGNS "OUR NAME SAYS IT ALL"	1) MATERIAL RIGID PVC 2) CAPSTOCK 3) UNSPECIFIED WALLS .060 4) BREAK ALL CORNERS .015R 5) AREA .663 SQ. IN. 6) WT/FT. LBS/FT.	TITLE BUILDERS WINDOW SILL WITH J FLANGE/FIN DRAWN BY DATE 1/30/03 SCALE NONE CHECKED BY APPR BY
NO.	REVISION	BY DATE

DWG NO B-1513 QC

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15



NO.		REVISION		BY		DATE	

DO NOT SCALE DRAWING		WALL TOLER. .050/.070
ALLOWABLE BOW MAX. 1" PER 14"	WT/FT. MIN. .601	MAX. .735
SPECIFICATION LENGTHS TO ± 3/8"	ANGULARITY TO BE ± 1/2 °	
DRAWN FOR	TITLE BUILDERS WINDOW HEAD WITH J FLANGE/FIN	
BY DIS DESIGNS	SCALE NONE	CHKD BY
QUALITY LINEALS	DATE 1/31/03	APPD BY
"OUR NAME SAYS IT ALL"	COMPUTER NO	
	DWG NO B-1511 QC	

TEST SPECIMEN COMPLIES

WITH THESE DATA

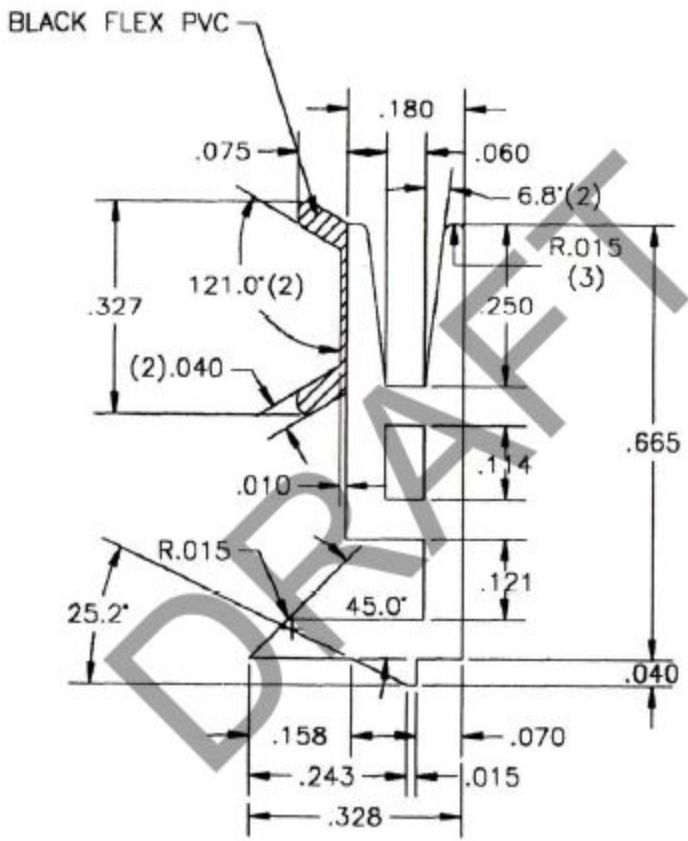
ANNOVATION IS NOTED

NCTL-110-17581-01

TEST COMPLETE: 05/11/15

DIE NO.	MATERIAL	WALL THICKNESS	UNSPECIFIED RADII	AREA	... / FT.
1009		.060	.015	R.085 F.008	

INSPECTION METHOD



ACCEPTABLE LIMITS		
DIM	LOW TOL.	HIGH TOL.

SH 660 Part #1009 Glazing Bead

DO NOT SCALE

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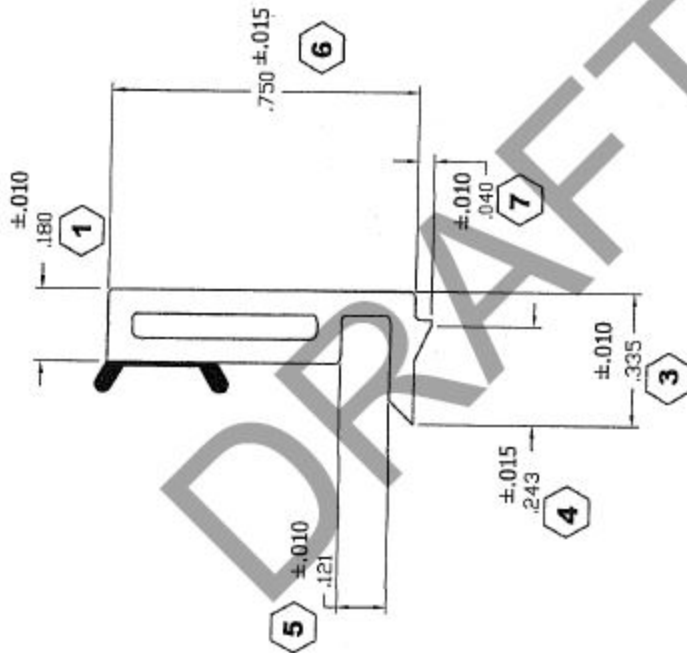
ANNUAL USAGE	
1st YEAR	
2nd YEAR	
3rd YEAR	

10/31/98	DRAWN IN AUTOCAD	WTB
DATE	REVISION RECORD	DRAWN BY



TITLE: INTERLOCK GLAZING BEAD	
PROJECT: 1010 SERIES SH	
DATE: 10/31/98	SCALE: 4 : 1 A
DRAWN BY: W. Burkel	DWG NO: 1009
CHECKED BY:	

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15



DO NOT SCALE DRAWING
WALL TOLER. .050/.070
WT/FT. MIN. .064 MAX. .078

1" PER 14'
ANGULARITY TO BE $\pm 1/2^\circ$
TITLE BUILDERS WINDOW
GLAZING HEAD

DWN BY
JDS
SCALE
NONE
DATE
1/29/03
CHKD BY
APPD BY

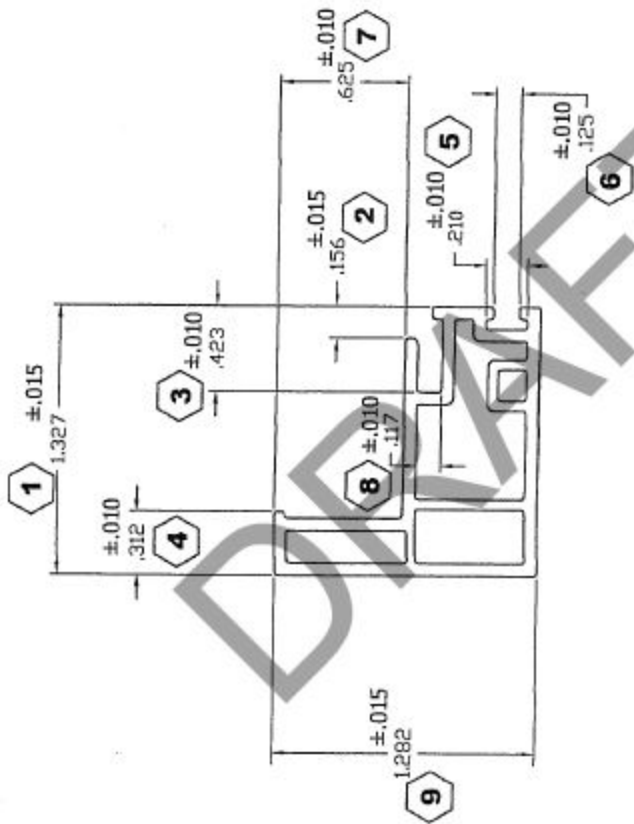
COMPUTER NO
DIVG NO B-1008 QC

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .060
4) BREAK ALL CORNERS .015 R
5) AREA .113 SQ. IN.
6) WT/FT. LIBS/FT.

LOCATION FOR IMPACT TEST
SPECIFICATION LENGTHS TO $\pm 3/8"$
DRAWN FOR
BY
JDS
DESIGNS
LINEALS
"OUR NAME SAYS IT ALL"

NO.	REVISION	BY	DATE

WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 NCTL-110-17581-01
 TEST COMPLETE: 05/11/15

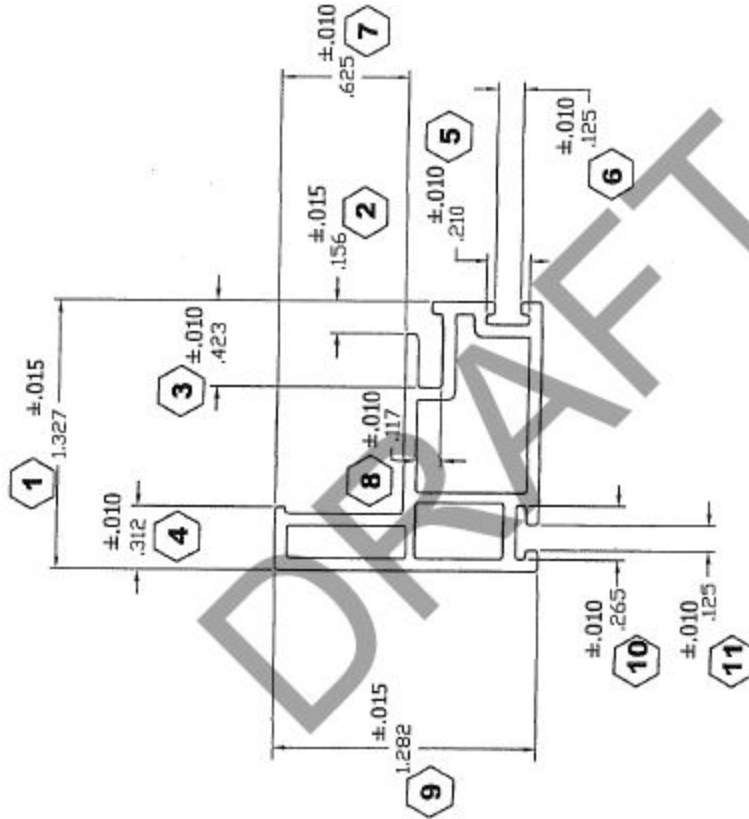


DO NOT SCALE DRAWING

LOCATION FOR IMPACT TEST SPECIFICATION LENGTHS TO = 3/8"	ALLOWABLE BOW MAX. 1" PER 14' ANGLARITY TO BE $\pm 1/2^\circ$	WALL TOLER. .055/.075 WT/FT- MIN. .230 MAX. .282
	1) MATERIAL RIGID PVC 2) CAPSTOCK 3) UNSPECIFIED WALLS .065 4) BREAK ALL CORNERS .015 R 5) AREA .407 SQ. IN. 6) WT/FT. LBS/FT.	TITLE BUILDERS WINDOW FEMALE
DRAWN FOR BY DDS DESIGNS "OUR NAME SAYS IT ALL"	SCALE NONE DATE 1/29/03 CHKD BY APPD BY	
NO.	REVISION	BY DATE

LOCK RAIL

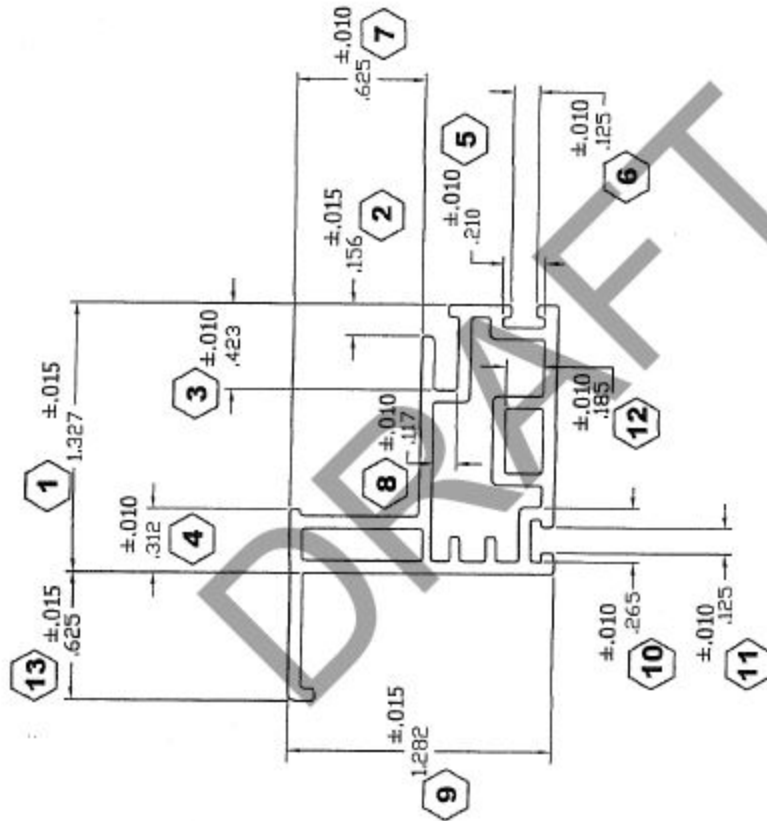
TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 NCTL-110-17581-01
 TEST COMPLETE: 05/11/15



DO NOT SCALE DRAWING

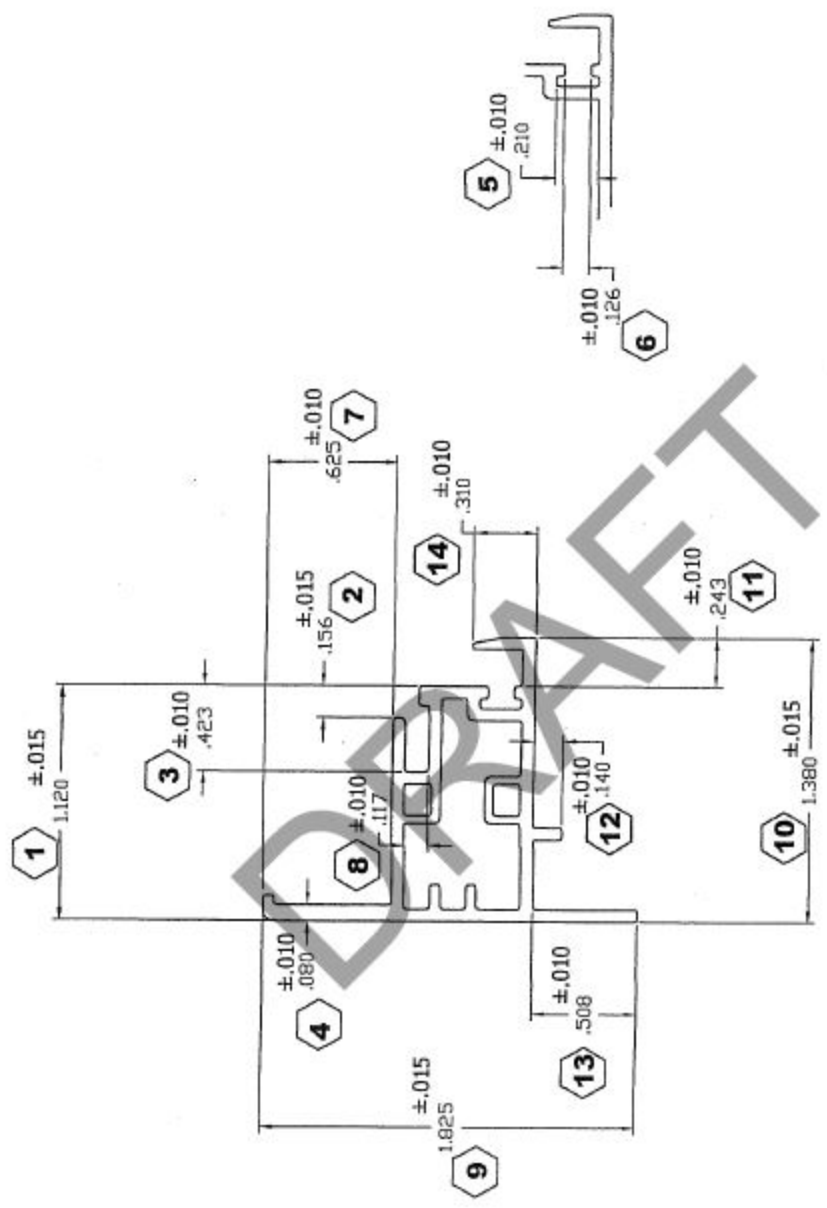
	ALLOWABLE BOW MAX. 1" PER 14" ANGLARITY TO BE $\pm 1/2^\circ$	WALL TOLER. .055/.075 WT./FT. MIN. .223 MAX. .273	
LOCATION FOR IMPACT TEST SPECIFICATION LENGTHS TO $\pm 3/8"$		TITLE BUILDERS WINDOW REGULAR SASH	
DRAWN FOR BY DOS DESIGNS "OUR NAME SAYS IT ALL"		MATERIAL RIGID PVC 1) CARSTOCK 2) UNINSPECIFIED WALLS .065 3) BREAK ALL CORNERS .015 R 4) AREA .394 SQ. IN. 5) WT./FT. LBS./FT.	
NO.		DATE	
REVISION		BY	
DATE		CHKD BY	
APPD BY		DATE	
COMPUTER NO		SCALE	
DWG NO B-1000 QC		NONE	

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15



		DO NOT SCALE DRAWING	
		LOCATION FOR IMPACT TEST SPECIFICATION LENGTHS TO $3/8$ "	ALLOWABLE BOW MAX. $1"$ PER $4'$ ANGULARITY TO BE $+1/2$ °
		MATERIAL RIGID PVC	WALL TOLER. $.055/075$ WT/FT. MIN. $.256$ MAX. $.312$
DRAWN FOR:		TITLE BUILDERS WINDOW HANDLE SASH	APP'D BY:
BY DIS DESIGNS		DRAW BY:	DATE:
"OUR NAME SAYS IT ALL"		SCALE: NONE	CHK'D BY:
		COMPUTER NO:	DWG NO. B-1002 QC
		WT/FT. $.452$ SQ. IN.	
REVISION		LBS/FT.	
NO.	BY	DATE	

TEST SPECIMEN COMPLIES WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 NCTL-110-17581-01
 TEST COMPLETE: 05/11/15



DO NOT SCALE DRAWING

ALLOWABLE BOW MAX. 1" PER 14'	WALL TOLER. .055/.075
ANGULARITY TO BE ± 1/2 °	WT/FT. MIN. .247 MAX. .301
MATERIAL RIGID PVC	TITLE BUILDERS WINDOW FIXED MEETING RAIL
1) CAPSTOCK	OWN BY SCALE DATE CHKD BY APPD BY
2) UNSPECIFIED WALLS .065	DDS NONE 1/29/03
3) BREAK ALL CORNERS .015 R	COMPUTER NO
4) AREA .436 SQ. IN.	DWG NO B-1003 QC
5) WT/FT. .185/FT.	
6) WT/FT. .185/FT.	

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

BY DDS
 QUALITY LINEALS
 DESIGNS
 "OUR NAME SAYS IT ALL"

NO. REVISION BY DATE

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15

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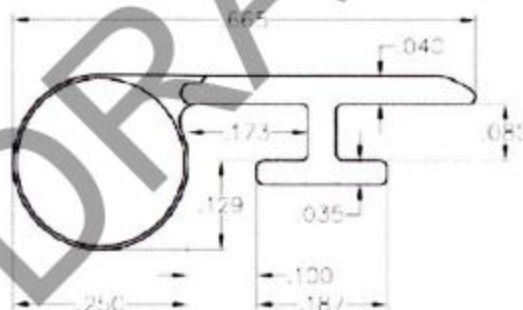
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Part # : 32614

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Available Colors

Black

White

Bronze

Beige

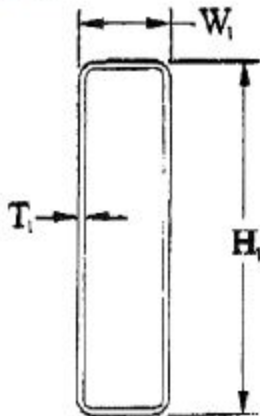
Grey

Compression: Recommend 25% Minimum 10%
Maximum 50%

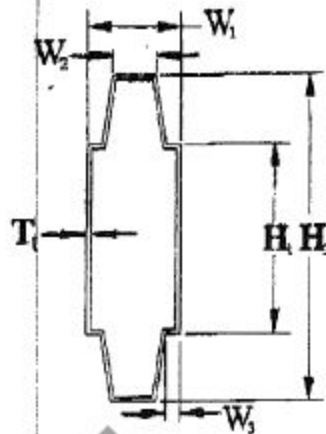
Standard Pack: 2,500'/box

Special Features: Seamless compression seals are
nearly 100% closed cell to prevent water from

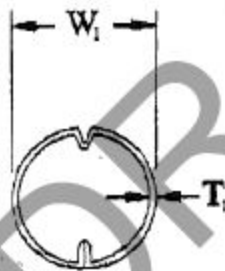
- WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 NCTL-110-17581-01
 TEST COMPLETE: 05/11/15



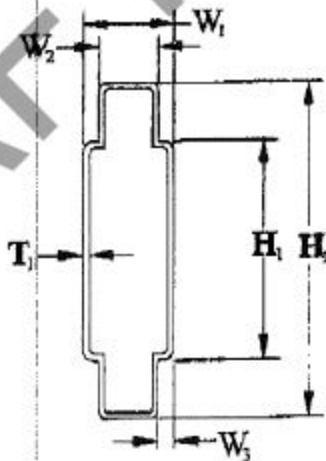
✱ Rectangular



Decorative



Pencil

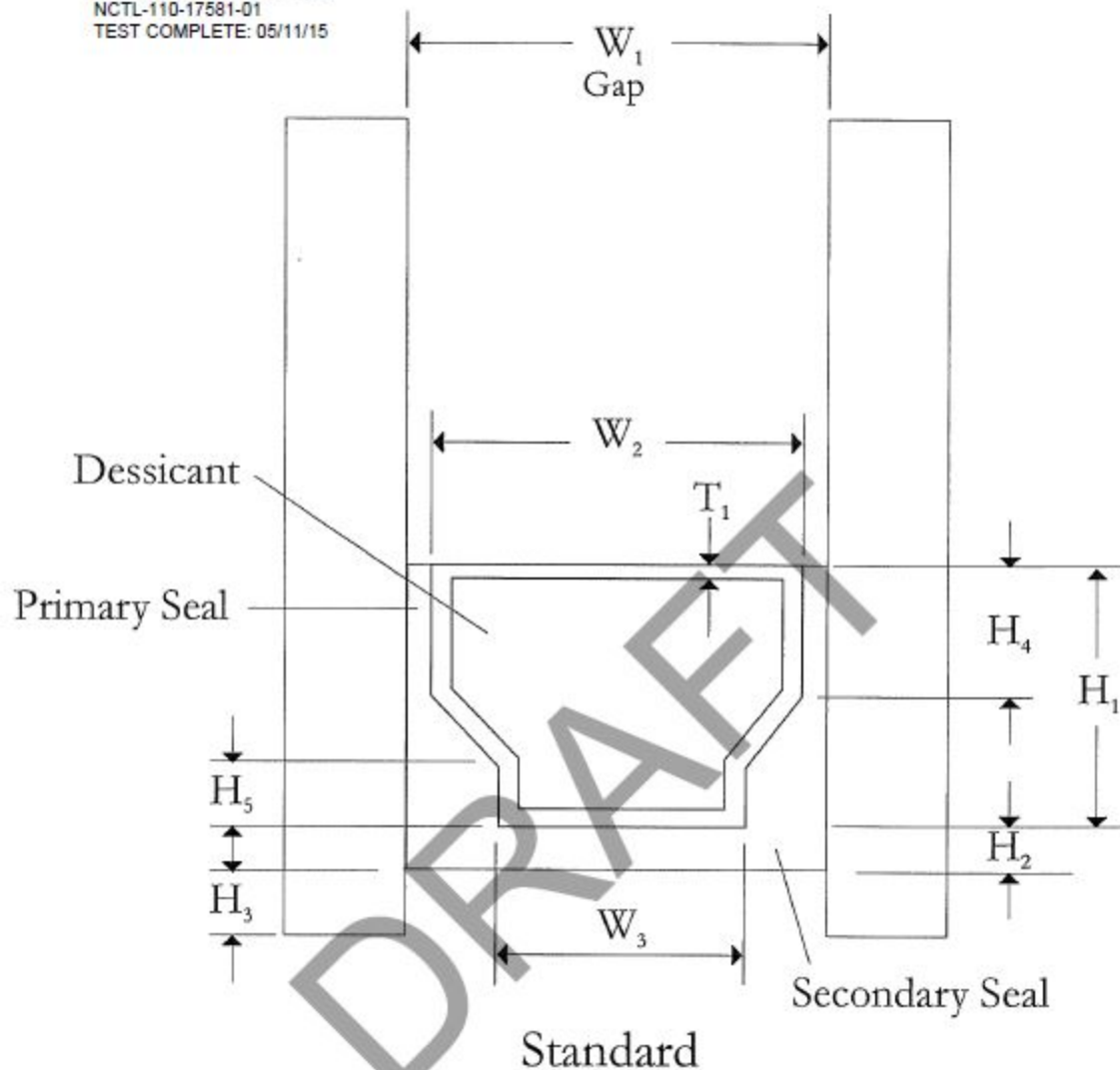


Decorative

Divider Dimensions - Fill dimensions where applicable - Please fill out a divider sheet for each divider size used.

Dimensions			Material		
<input type="checkbox"/> W ₁ <u>3/16</u> "	<input type="checkbox"/> W ₂ _____ "	<input type="checkbox"/> W ₃ _____ "	<input checked="" type="checkbox"/> Aluminum	<input type="checkbox"/> Steel - Galvanized	<input type="checkbox"/> Other _____
<input type="checkbox"/> H ₁ <u>5/8</u> "	<input type="checkbox"/> H ₂ _____ "	<input type="checkbox"/> T ₁ _____ "	<input type="checkbox"/> Steel - Mild	<input type="checkbox"/> Steel - Stainless	

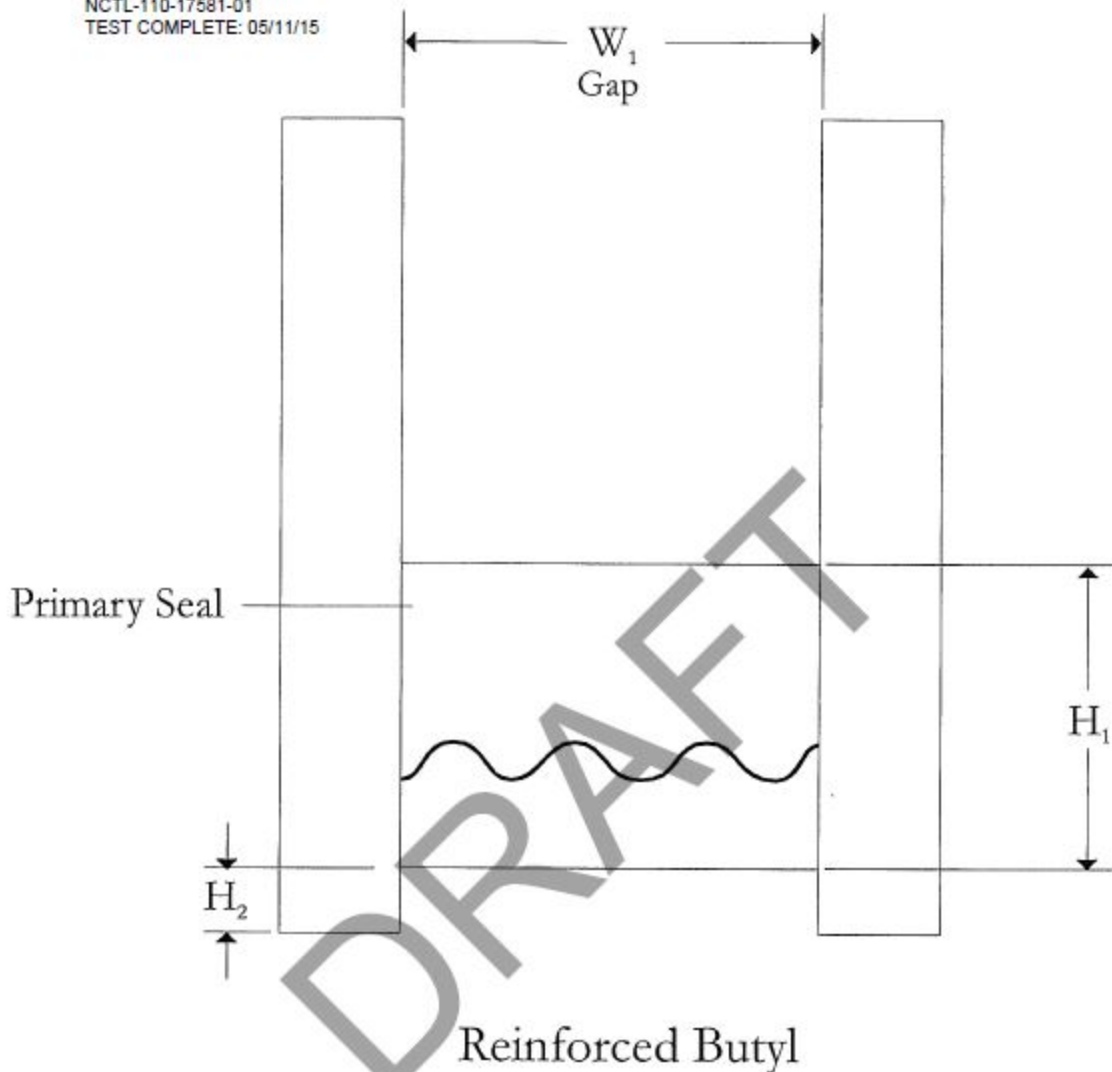
TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15



Spacer Dimensions - Fill dimensions where applicable - Please fill out a spacer sheet for each spacer used whether spacer type or size.

Gap	Primary Seal	Secondary Seal	Material	Fill
<input type="checkbox"/> W_1 <u>VARIES</u> "	<input checked="" type="checkbox"/> Butyl	<input checked="" type="checkbox"/> Butyl	<input checked="" type="checkbox"/> Aluminum	<input checked="" type="checkbox"/> Dessicant
<input type="checkbox"/> W_2 <u>VARIES</u> "	<input type="checkbox"/> PIB	<input type="checkbox"/> PIB	<input type="checkbox"/> Steel - Mild	<input type="checkbox"/> Air
<input type="checkbox"/> W_3 <u>VARIES</u> "	<input type="checkbox"/> Polysulphide	<input type="checkbox"/> Polysulphide	<input type="checkbox"/> Steel - Stainless	<input type="checkbox"/> Other _____
<input type="checkbox"/> W_4 _____"	<input type="checkbox"/> Silicone	<input type="checkbox"/> Silicone	<input type="checkbox"/> Steel - Galvanized	
<input type="checkbox"/> H_1 <u>.35</u> "	<input type="checkbox"/> Urethane	<input type="checkbox"/> Urethane	<input type="checkbox"/> Vinyl	
<input type="checkbox"/> H_2 <u>.03</u> "	<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> Foam _____	
<input type="checkbox"/> H_3 _____"	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	
<input type="checkbox"/> H_4 <u>.12</u> "				
<input type="checkbox"/> H_5 <u>.12</u> "				
<input type="checkbox"/> T_1 <u>.016</u> "				

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15

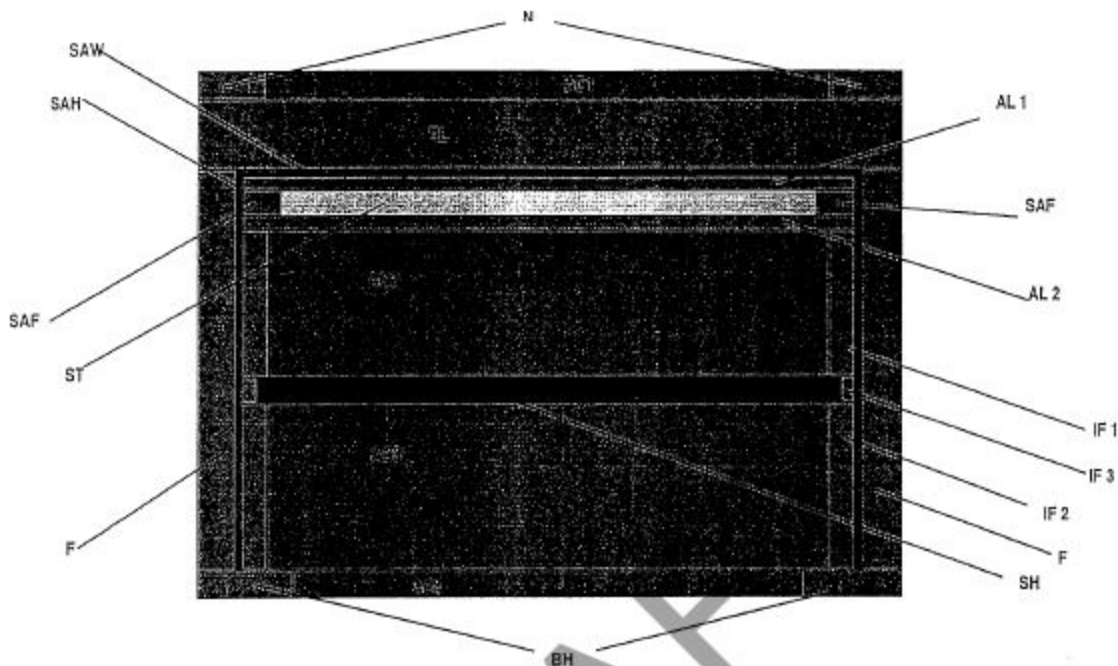


Spacer Dimensions - Fill dimensions where applicable - Please fill out a spacer sheet for each spacer used whether spacer type or size.

Gap	Primary Seal	Secondary Seal	Material	Fill
<input type="checkbox"/> W_1 <u>VARIES</u> "	<input checked="" type="checkbox"/> Butyl	<input checked="" type="checkbox"/> Butyl	<input checked="" type="checkbox"/> Aluminum	<input type="checkbox"/> Dessicant
<input type="checkbox"/> W_2 _____"	<input type="checkbox"/> PIB	<input type="checkbox"/> PIB	<input type="checkbox"/> Steel - Mild	<input type="checkbox"/> Air
<input type="checkbox"/> W_3 _____"	<input type="checkbox"/> Polysulphide	<input type="checkbox"/> Polysulphide	<input type="checkbox"/> Steel - Stainless	<input type="checkbox"/> Other _____
<input type="checkbox"/> W_4 _____"	<input type="checkbox"/> Silicone	<input type="checkbox"/> Silicone	<input type="checkbox"/> Steel - Galvanized	
<input type="checkbox"/> H_1 <u>3</u> "	<input type="checkbox"/> Urethane	<input type="checkbox"/> Urethane	<input type="checkbox"/> Vinyl	
<input type="checkbox"/> H_2 _____"	<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> Foam _____	
<input type="checkbox"/> H_3 _____"	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	
<input type="checkbox"/> H_4 _____"				
<input type="checkbox"/> H_5 _____"				
<input type="checkbox"/> T_1 _____"				

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15

Legend



Description		Material and Conductivity	
		Imp	SI
N	71X	Butyl 1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
BH	71X	Butyl 1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
TL	71X	Butyl 1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
SAW	Moisture vapour barrier	Default polyethylene	Default polyethylene
SAH	Moisture vapour barrier	Default polyethylene	Default polyethylene
ST	Stiffener	Default polypropylene	Default polypropylene
SH	Shim	Default aluminum	Default aluminum
AL 1 2	Adhesive	Butyl 1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
AL 2	still air	still air – default conductivity	default still air
AC 1 3 4	link to respective adjacent air cavities		
SAF	Adhesive	Butyl 1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
IF 1 2 3	Adhesive	Butyl 1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
F	Adhesive	Butyl 1.603 Btu in/hr ft ² °F	0.231 W/m ² °C

If there are questions regarding this document please call

Werner Lichtenberger
Technical Service
TruSeal Technologies
905 522 9058
888 257 7605 voicemail

Duraseal™ Thermal Model Information Rev 8 July 1, 2005 for DuraSeal™ Model Rev 2.03

Attached is a drawing and dimension table of Duraseal™ for thermal simulations. This document is useful for simulators and as a draft NFRC document. The dimensions found here are of the compressed product. Customers who want their windows simulated with Duraseal™ should refer to this document to the simulation laboratory. This should be used with the predrawn spacer drawing DS.dxf. Watch conductivity assignments closely to prevent confusion among the various polymers in use. **All dimensions are in inches**

Gap	Code	N	BH	TL	SAW	SAH	ST	SH	AC1	AC2	AC3	AC4	AL1 AL 2	SAF	IF 1	IF 2	IF 3	F													
1/4	No. of rectangles	2	2	1	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2												
																				0.250	0.227	0.170	0.194	0.134	0.168	0.110	0.198	0.015	0.015	0.002	0.022
																				0.313	0.269	0.253	0.256	0.196	0.230	0.172	0.260	X	X	X	X
																				0.375	0.331	0.295	0.319	0.259	0.293	0.235	0.323	0.062	0.072	0.011	0.197
5/16	31H	↑	↑	0.438	0.394	0.004	0.358	X	0.322	X	X	0.298	0.386	0.015	X	0.015	X	0.002	X	0.022											
																					0.011	0.062	0.072	0.011	0.197						
3/8	37H	↑	↑	0.438	0.394	0.004	0.358	X	0.322	X	X	0.298	0.386	0.015	X	0.015	X	0.002	X	0.022											
																					0.011	0.062	0.072	0.011	0.197						
7/16	43H	↑	↑	0.438	0.394	0.004	0.358	X	0.322	X	X	0.298	0.386	0.015	X	0.015	X	0.002	X	0.022											
																					0.011	0.062	0.072	0.011	0.197						
1/2	50H	0.058	X	0.070	0.456	0.004	0.421	X	0.444	0.384	0.418	0.360	0.448	0.014	0.015	X	0.015	X	0.002	X	0.022										
																						0.022	0.007	0.048	0.209	0.012	0.022	0.069	0.080	0.007	0.015
9/16	56H	↓	↓	0.583	0.519	↓	0.483	0.507	0.447	0.481	0.481	0.423	0.511	0.018	0.069	↓	↓	↓	↓	↓	↓										
																						0.625	0.581	0.545	0.569	0.509	0.543	0.485	0.573	0.018	0.018
5/8	62H	↓	↓	0.688	0.644	↓	0.608	0.632	0.572	0.606	0.606	0.548	0.636	↓	↓	↓	↓	↓	↓	↓	↓										
																						0.688	0.644	0.606	0.632	0.572	0.606	0.606	0.548	0.636	↓
11/16	68H	↓	↓	0.688	0.644	↓	0.608	0.632	0.572	0.606	0.606	0.548	0.636	↓	↓	↓	↓	↓	↓	↓	↓										
																						0.688	0.644	0.606	0.632	0.572	0.606	0.606	0.548	0.636	↓

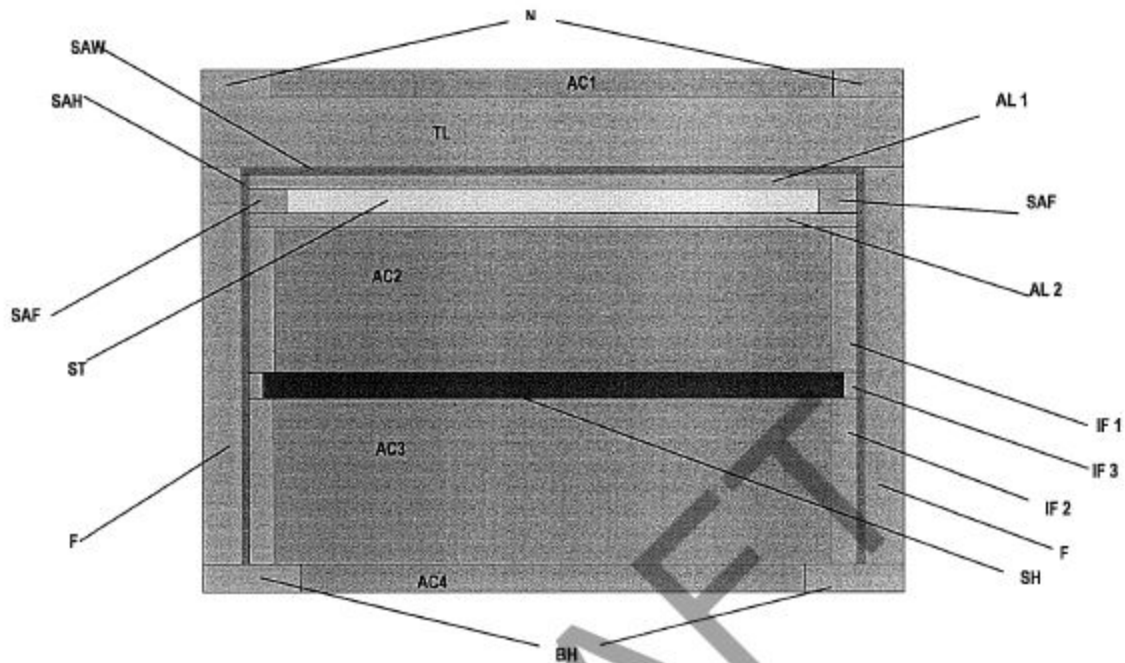
Notes to this table

1. The arrows indicate that the dimension remains the same in that direction. For example SAF is the same dimension in all sizes.
2. Dimensions in **bold** are constant for a group of sizes as indicated.
3. Use this dimension to complete the rectangle in boxes that show only one dimension.
4. Boxes with two numbers shown, the upper number is in the airspace dimension. The lower number is parallel to the glass.
5. If you have any questions about this chart please call:

Werner Lichtenberger, TruSeal Technologies, Inc. 905 522 9058 or 888 257 7605 voice mail. Or E-mail lichtenberger@truseal.com

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-17581-01
TEST COMPLETE: 05/11/15

Legend



Description

Material and Conductivity

Imp

SI

	Description	Material	Conductivity Imp	Conductivity SI
N	71X	Butyl	1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
BH	71X	Butyl	1.803 Btu in/hr ft ² °F	0.231 W/m ² °C
TL	71X	Butyl	1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
SAW	Moisture vapour barrier	Default polyethylene		Default polyethylene
SAH	Moisture vapour barrier	Default polyethylene		Default polyethylene
ST	Stiffener	Default polypropylene		Default polypropylene
SH	Shim	Default polycarbonate		Default polycarbonate
AL 1 2	Adhesive	Butyl	1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
AC 2	still air		still air – default conductivity	default still air
AC 1 3 4	link to respective adjacent air cavities			
SAF	Adhesive	Butyl	1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
IF 1 2 3	Adhesive	Butyl	1.603 Btu in/hr ft ² °F	0.231 W/m ² °C
F	Adhesive	Butyl	1.603 Btu in/hr ft ² °F	0.231 W/m ² °C

If there are questions regarding this document please call

Werner Lichtenberger

Technical Service
TruSeal Technologies
905 522 9058
888 257 7605 voicemail

DuraLite™ Model Rev 1.02 Thermal Model Information Rev 1.01 July 28, 2005

Attached is a drawing and dimension table of DuraLite™ for thermal simulations. This document is useful for simulators and as a draft NFRC document. The dimensions found here are of the compressed product. Customers who want their windows simulated with DuraLite™ should provide this document to the simulation laboratory. This should be used with the predrawn spacer drawing DS.dxf. Watch conductivity assignments closely to prevent confusion among the various polymers in use. **All dimensions are in inches**

TEST SPECIMEN COMPLIES WITH THESE DETAILS. AN OMISSION OR VARIATION IS NOTED. NO. 10-17581-01 TRU COMPLETE: 05/11/15

Gap	Code	N	BH	TL	SAW	SAH	ST	SH	AC1	AC2	AC3	AC4	AL1 AL 2	SAF	IF 1	IF 2	IF 3	F									
¼	No. of rectangles	2	2	1	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2								
																				0.250	0.227	0.170	0.194	0.134	0.168	0.110	0.198
																				0.313	0.269	0.233	0.256	0.196	0.230	0.172	0.260
																				0.375	0.331	0.295	0.319	0.259	0.293	0.235	0.323
5/16	31H	↑	↑	0.438	0.394	0.004	0.358	X	0.322	X	0.356	0.298	0.386	0.015	X	0.015	X	0.002	X	0.022							
																					0.057	0.066	0.057	0.066			
3/8	37H	↑	↑	0.438	0.394	0.004	0.358	X	0.322	X	0.356	0.298	0.386	0.015	X	0.015	X	0.002	X	0.022							
																					0.057	0.066	0.057	0.066			
7/16	43H	↑	↑	0.438	0.394	0.004	0.358	X	0.322	X	0.356	0.298	0.386	0.015	X	0.015	X	0.002	X	0.022							
																					0.057	0.066	0.057	0.066			
½	50H	0.058	X	X	0.500	0.456	0.421	0.444	X	0.384	0.418	0.360	0.448	0.014	0.015	0.015	X	0.002	X	0.022							
																					0.022	0.007	0.018	0.023	0.064	0.074	0.007
9/16	56H	↑	↑	0.563	0.519	0.483	0.507	0.447	X	0.481	0.481	0.423	0.511	0.018	0.018	0.018	0.074	0.023	0.213	0.213							
																					0.625	0.581	0.545	0.569	0.509	0.543	0.485
5/8	62H	↑	↑	0.688	0.644	0.608	0.632	0.572	0.606	0.606	0.606	0.548	0.636	0.018	0.018	0.018	0.074	0.023	0.213	0.213							
																					0.625	0.581	0.545	0.569	0.509	0.543	0.485
11/16	68H	↑	↑	0.688	0.644	0.608	0.632	0.572	0.606	0.606	0.606	0.548	0.636	0.018	0.018	0.018	0.074	0.023	0.213	0.213							
																					0.625	0.581	0.545	0.569	0.509	0.543	0.485

Notes to this table

1. The arrows indicate that the dimension remains the same in that direction. For example SAF is the same dimension in all sizes.
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