



# NATIONAL CERTIFIED TESTING LABORATORIES

FIVE LEIGH DRIVE • YORK, PENNSYLVANIA 17406 • TELEPHONE (717) 846-1200  
FAX (717) 767-4100  
[www.nctlinc.com](http://www.nctlinc.com)

## NORTH EAST WINDOWS USA, INC. NFRC THERMAL TEST SUMMARY REPORT

Report No: NCTL-110-17840-3S

Test Specimen	<u>NFRC Code</u>	
Manufacturer:	North East Windows USA, Inc.	
Series/Model:	Series "CW 390"	
Window Type:	Casement- Single Vent	CSSV
Frame Composition:	Vinyl	VY
Sash/Vent/Panel Composition:	Vinyl	VY
Thermal Break Mat'l:	Not Applicable	N
Overall Size:	610 mm (24") wide by 1499 mm (59") high	
Glazing Description		
No. of Glazing Layers (including films):	2	2
Primary Glazing:	Double Glazed	DG
Spacer Type:	Polycarbonate-Butyl Composite	P1-S
Gap Fill 1:	Air (100% Single Probe)	AIR
Gap Fill 2:	Not Applicable	
Glass/Film Thicknesses (ext to int):	0.124", 0.124"	
Air Gap 1:	0.654"	
Air Gap 2:	Not Applicable	
Secondary Glazing:	Not Applicable	
Low Emissivity Coatings:		
Surface 2:	0.021	

**Procedure:** Standardized Thermal Transmittance ( $U_{st}$ ) was determined using the NFRC 102-2014 procedure with a temperature of  $69.8 \pm 0.5^\circ\text{F}$  on the room side of the specimen and  $-0.4 \pm 0.5^\circ\text{F}$  on the weather side of specimen. The net air leakage across the test specimen was 0.0 cfm.

**Test Results:** Results of the test period 0657-1057 on 08/30/16 using the Equivalent CTS Method:

Thermal transmittance at test conditions ( $U_s$ ): 0.29 BTU/hr/ft<sup>2</sup>/°F

Standardized thermal transmittance of test specimen ( $U_{st}$ ): 0.29 BTU/hr/ft<sup>2</sup>/°F

Reference should be made to Thermal Performance Test Report Number NCTL-110-17840-3 for complete specimen description and test data.

## National Certified Testing Laboratories

Performed By:

Daniel Glatfelter  
Technician

Reviewed By:

Raymond W. Lamb, PE  
Person In Responsible Charge



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Report Number	NCTL-110-17840-3
Report Date	09/26/2016
Report To	North East Windows USA, Inc. P.O Box 159 Merrick, NY 11566
Test Start Date	08/28/2016
Test End Date	08/30/2016
Specification	NFRC 102-2014 "Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems"

## Description of Sample Tested

Note: All dimensions are in the order (Width x Height x Thickness) unless otherwise noted.

Model/ Series	"CW 390"
Configuration	Casement
Frame Size	<u>Overall</u> 610 mm x 1499 mm (24" x 59")
Vent Size	581 mm x 1470 mm (22.875" x 57.875")
Viewing Area	451 mm x 1346 mm (17.75" x 53")
Frame and Vent Type	Extruded vinyl
Joint Construction	<u>Frame &amp; Vent</u> Mitered, welded
Glazing Components	
Overall	23 mm (0.902") Nominal
Glass Thickness	(2) Lites of 3 mm (0.124") annealed glass
Coating	An AGC "Comfort Select 28" sputter-type low emissivity coating ( $\epsilon=0.037$ per client) was applied to glazing surface no. 2.
Spacer Type/ Size	17 mm (0.654") Polycarbonate-Butyl composite spacer (Type P1-S)
Fill	Air 100% single probe per client
Glazing System	Interior glazed with silicone back-bedding and a single-leaf dual durometer rigid vinyl glazing bead.
Weatherstrip	
Type	(1) Strip bulb-vinyl
Location	Vent and frame perimeter

**Weatherstrip (continued)**

Type	(1) Strip center fin
Size	8.89 mm (0.350") high
Location	Vent perimeter

**Operating Hardware****Locks**

Type	Single handle 3-point integrated lock system
Location	387 mm (15.25") From the bottom of the lock jamb with lock points 279.4mm (11"), 787.4 mm (31") and 1295.4 mm (51") from the bottom

**Keeper**

Type	Metal
Location	Lock stile at the locations

**Roto-Operator**

Type	Standard
Location	330 mm (13") From the lock jamb on the sill

**Hinge Hardware**

Type	(4)-Bar
Location	Head/ top rail and sill/ bottom rail

**Auxiliary** No auxiliary items employed**Reinforcement** No reinforcement employed**Weep Description**

Size	3.89 mm (0.153") Diameter
Location	292 mm (11.50") From each end of the bottom rail

Size	3.89 mm (0.153") Diameter
Location	234.95 mm (9.25") From each end of the bottom rail glazing channel

**Interior/ Exterior****Surface Finish** White vinyl (PVC)**Sealant** No apparent sealant applied**Insect Screen** No screen employed**Nail Fin** Nail fin with nominal 1x4 applied over nail fin**SPECIMEN PREPARATION PRIOR TO TEST**

The test specimen was pre-conditioned at ambient laboratory conditions prior to the test. The surround panel-to-specimen interfaces were sealed with a non-reflective tape. The specimen was sealed on the interior with a caulk sealant resulting in a measured net air leakage of 0.0 cfm per square foot.

**TEST PARAMETERS**

Tests to determine the Standardized Thermal Transmittance ( $U_s$ ) of the specimen were performed in the guarded hot box apparatus located at the York, PA facility. The most recent calibration of the hot box apparatus was in March 09, 2016. The thermal performance evaluations were completed in accordance with the NFRC 102 procedure using a dynamic wind perpendicular to the specimen on the weather side and simulated natural convection on the room side. A zero static pressure differential ( $0.00" \pm 0.04" H_2O$ ) was maintained across the specimen during the test by pressurizing the metering box on the room side. Data was collected over two successive 2 hour periods after 4 hours of steady state conditions as defined in section 6.1.2 of the NFRC 102 procedure were achieved. The test was considered completed when the data of the successive 2 hour periods also satisfied the criteria defined in section 6.1.2 of the NFRC 102 procedure.

**GLASS THICKNESS AND GLAZING DEFLECTION:**

	<u>Glass Thickness</u>	<u>Glazing Deflection Before</u>	<u>Glazing Deflection After</u>
		<u>Test</u>	<u>Test</u>
Vent:	0.124", 0.124"	0.01"	<0.01" convex

**PROJECTED FRAME DIMENSIONS OF MEMBERS:**

Member:	Head	Left Jamb	Right Jamb	Sill
Dimension:	3.125"	2.875"	3.125"	3"

**TEST DURATION:**

The test chamber environmental systems were initiated at 0718 on 08/28/16. The test conditions were considered stable for (2) consecutive (2) hour test periods from 0657-0857 and 0857-1057 on 08/30/16. The thermal performance test results were derived from the 0657-1057 test period.

**Areas:**

Test Specimen Projected Area ( $A_s$ ):	9.85	ft <sup>2</sup>
Test Specimen Interior Exposed (Wetted) Surface Area ( $A_{int}$ ):	11.48	ft <sup>2</sup>
Test Specimen Exterior Exposed (Wetted) Surface Area ( $A_{ext}$ ):	10.59	ft <sup>2</sup>
Metering Box Opening Area ( $A_{mb}$ ):	54.39	ft <sup>2</sup>
Metering Box Baffle Area ( $A_{bb}$ ):	46.44	ft <sup>2</sup>
Surround Panel Interior Exposed Area ( $A_{sp}$ ):	44.54	ft <sup>2</sup>

**Test Conditions:**

Average Room Side Air Temperature:	69.6	°F
Average Weather Side Air Temperature:	-0.5	°F
Average Guard Box Air Temperature:	71.9	°F
Average Warm Side Surround Panel Temperature:	66.4	°F
Average Cold Side Surround Panel Temperature:	-0.1	°F
Metering Box Average Relative Humidity:	18.8	%
Test Specimen Surface Average Temperature 1 on left sill	49.4	°F
Test Specimen Surface Average Temperature 2 on center sill	52.2	°F
Test Specimen Surface Average Temperature 3 on right sill	47.5	°F
Note: No condensation or frost was present		
Measured Weather Side Wind Velocity:	14.3	mph
Static Pressure Difference Across Specimen:	0.22	psf

**Heat Flows:**

Heat Input Rate to Metering Box ( $Q_{total}$ ):	379.5	BTU/hr
Surround Panel Heat Flow ( $Q_{sp}$ ):	143.3	BTU/hr
Surround Panel Thickness:	4.418	Inches
Surround Panel Conductance:	0.04839	BTU/hr/ft <sup>2</sup> /°F
Metering Box Heat Flow ( $Q_{mb}$ ):	28.2	BTU/hr
Flanking Loss Heat Flow ( $Q_f$ ):	7.0	BTU/hr
Net Test Specimen Heat Flow ( $Q_s$ ):	201.0	BTU/hr
EMF vs Heat Flow Equation:	EMF=-227.04x + 7.000	

**Test Results & Calculated Test Data:**

Emittance of Glass ( $e_g$ ):	0.84
Warm Side Baffle Emittance ( $e_{b1}$ ):	0.96
Equivalent Room Side Surface Temperature:	53.8 °F
Equivalent Weather Side Surface Temperature:	3.0 °F
Room Side Baffle Surface Temperature:	68.9 °F
Measured Room Side Surface Conductance ( $h_r$ ):	1.29 BTU/hr/ft <sup>2</sup> /°F
Measured Weather Side Surface Conductance ( $h_c$ ):	5.79 BTU/hr/ft <sup>2</sup> /°F
Test Specimen Thermal Conductance ( $C_s$ ):	0.40 BTU/hr/ft <sup>2</sup> /°F
Convection Coefficient (K):	0.269
Radiative Test Specimen Heat Flow ( $Q_{rt}$ ):	117.3 BTU/hr
Convective Test Specimen Heat Flow ( $Q_{ct}$ ):	83.7 BTU/hr
Radiative Heat Flux of Test Specimen ( $q_{rt}$ ):	11.90 BTU/hr/ft <sup>2</sup>
Convective Heat Flux of Test Specimen ( $q_{ct}$ ):	8.50 BTU/hr/ft <sup>2</sup>
Standardized Room Side Surface Conductance ( $h_{sTh}$ ):	1.22 BTU/hr/ft <sup>2</sup> /°F
Standardized Weather Side Surface Conductance ( $h_{sTc}$ ):	5.28 BTU/hr/ft <sup>2</sup> /°F
<b>Test Specimen Thermal Transmittance (<math>U_s</math>):</b>	<b>0.29 BTU/hr/ft<sup>2</sup>/°F</b>
<b>Test Specimen Standardized Thermal Transmittance (<math>U_{sT}</math>):</b>	<b>0.29 BTU/hr/ft<sup>2</sup>/°F</b>

No apparent condensation was observed on the test specimen at test conditions. This test method does not include procedures to determine the heat flow due to either air movement through the specimen or solar radiation effects. As a consequence, the thermal transmittance results obtained do not reflect performances which may be expected from field installations due to not accounting for solar radiation, air leakage effects, and the thermal bridge effects that may occur due to the specific design and construction of the fenestration system opening. Therefore, it should be recognized that the thermal transmittance results obtained from this test method are for ideal laboratory conditions and should only be used for fenestration product comparisons and as input to thermal performance analyses which also include solar, air leakage, and thermal bridge effects. An estimate of the experimental uncertainty for these results is available upon request.

Per the client, the test specimen described in this report was a production line unit submitted for initial certification and plant qualification and is described 'as tested'. Detailed drawings were available for laboratory records and compared to the test specimen at the time of this report. A copy of this report along with representative sections of the test specimen will be retained by NCTL for a period of four (4) years. The results obtained apply only to the specimen tested. This report may not be reproduced, except in full, without the written approval of National Certified Testing Laboratories. NCTL is a testing lab accredited by A2LA to ISO/IEC 17025 and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed. Testing described in this report was conducted in full compliance with NFRC requirements; any deviations are noted. ASTM C1363 and C1199 testing was performed with published NFRC deviations. Ratings included in this report are for submittal to an NFRC licensed IA for certification purposes and are not meant to be used for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) are to be used for labeling purposes.

**National Certified Testing Laboratories**

Performed By:

Daniel Glatfelter  
Technician

Reviewed By:

Raymond W. Lamb, PE  
Person In Responsible Charge

DG/ mk

**ATTACHMENT 1**

**Section 1:**

Component Drawings, with Applicable Part Numbers, Manufacturing and Modeling Details, were Reviewed (as submitted) for Product Verification  
(Reference: NCTL-110-17840-3)

See Attached Documentation;  
any deviations noted.

Note: The above referenced component drawings along with representative sections of the test specimen will be retained per procedure by NCTL. This testing facility assumes that all information provided by the client is accurate.

**Section 2:**

<u>Identification</u>	<u>Date</u>	<u>Page &amp; Revision</u>
Original Issue	09/26/16	Not Applicable

## NFRC PRODUCT CERTIFICATION PROGRAM

### Submittal Form for Test Samples

For use by manufacturers, lineal suppliers and fabricators



National Fenestration  
Rating Council®

1. Information on Production of the Test Sample (complete ALL fields):

Manufacturer: NORTH EAST WINDOWS USA, INC. Date of sample manufacture: 5/10/16

Plant Address where manufactured: 1 KEES PLACE

City: MERRICK State: NY Zip Code: 11566

Name of IA: ASSOCIATED LARG Phone: 5163786528 Fax: 5168683577

2. Product Information (complete ALL fields):

Product Line ID No.: NEW-A-24 Operator Type  
(Table 4-3 of NFRC 100): CASEMENT

Series/Model: CW 30C

3. Test sample is being submitted for (select ONE):

- Validation for Initial Certification (prototype only; Section 2.2.1.C of PCP), no plant qualification
- Validation for Initial Certification (production line unit; Section 2.2.1.B.ii of PCP) & plant qualification
- Validation for Recertification (production line unit; Section 2.2.1.B.ii of PCP) & plant qualification
- Plant Qualification Only (production line unit; Section 2.2.1.B.ii of PCP)

[Note: If the only test option is to be used, include a copy of the NFRC-certified simulator's statement and NFRC approval as required in NFRC 100 (1997) Sections 6.1 and 6.1.1.]

I, Philip Reid, as the designated agent for NORTH EAST WINDOWS USA, INC.  
do hereby attest that the foregoing information is true to the best of my information, knowledge, and belief. Further, if the unit is identified in Section 3 as a production line unit, I hereby authorize the NFRC-accredited testing laboratory to send a copy of the test report to the IA identified above for plant qualification purposes pursuant to the NFRC Product Certification Program.

Signature: P. J. Reid Date: 10/4/16

FOR LABORATORY USE ONLY

1. Laboratory

National Certified Testing Laboratories

2. Date Sample Received:

5/10/16

File number ID:

100-17840-3

3. Date Sample Tested:

8/30/16

By:

Daniel Glatfelter

4. Modifications made:

\_\_\_\_\_

5. Reason for non-testing of sample unit:

\_\_\_\_\_

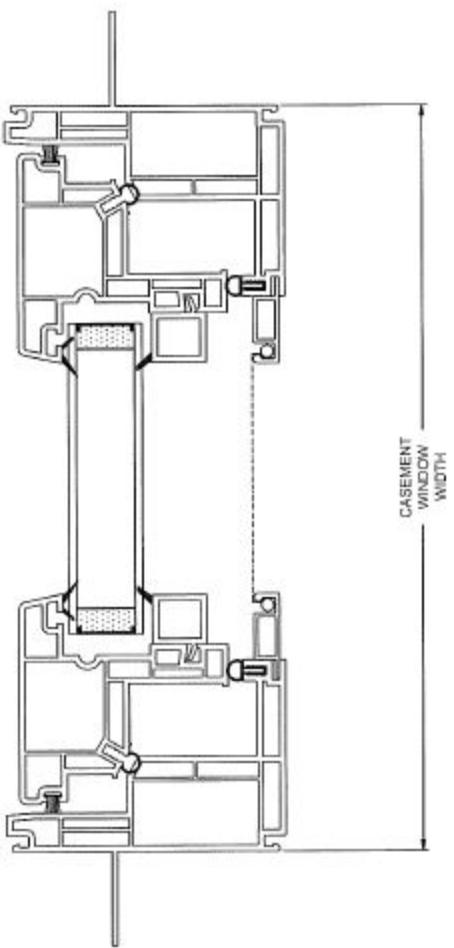
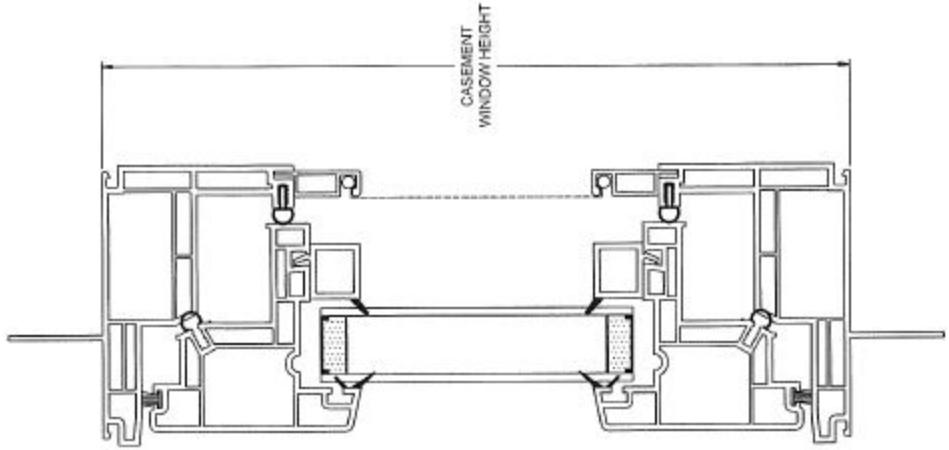
[Note: If the sample submitted can not be tested due to damage prior to testing, a new sample and new form shall be submitted to the testing laboratory. Both forms shall be submitted to the IA when the testing is completed.]

TEST SPECIMEN COMPLIES  
WITH THESE DETAILS.  
ANY DEVIATION IS NOTED.  
NCTL-~~11540-3~~  
TEST COMPLETE: 9/30/16

**North East CW390 Bill of Materials**

<b><u>DWG</u></b>	<b><u>Part No.</u></b>
Assembly	C- CW390 Cross Section
Casement Sash Welded	301
Casement Glazing Bead Welded	304
Casement Main Frame Welded	7301

TEST SPECIMEN COMPLIES  
WITH THESE DETAILS.  
ANY DEVIATION IS NOTED.  
NCTL-M790-3  
TEST COMPLETE: 8/20/06

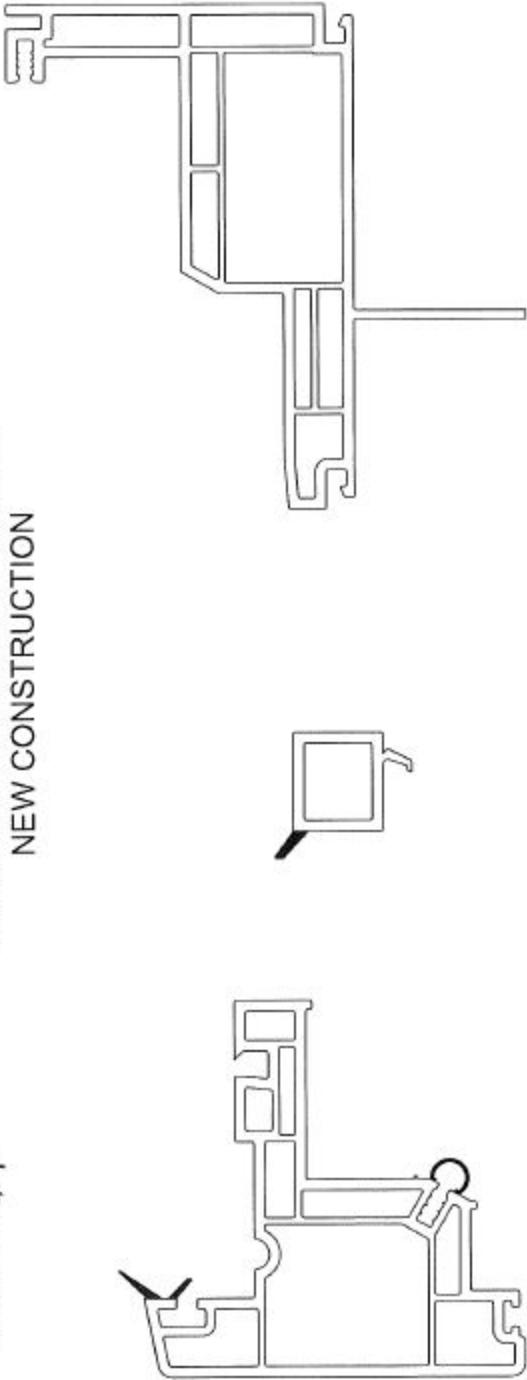


<input checked="" type="checkbox"/> LOCATION FOR IMPACT TEST SPECIFICATION LENGTHS TO 36"		ALLOWABLE BOW MAX. 1" PER 14"	TOLERANCES- $.00 \pm .010$ $.000 \pm .005$
		ANGULARITY TO BE $\pm 1/2^\circ$	
1) MATERIAL RIGID PVC		TITLE CW390 NEW CONSTRUCTION CASEMENT	
2) CAPSTOCK		PRINT NR. 005	DATE 12/21/11
3) UNSPECIFIED WALLS		SCALE 1/8	CHARTER BY [Signature]
4) BREAK ALL CORNERS		015 R	
5) AREA		SO IN.	
6) DESIGN		LBS/FT.	
7) YOUR NAME SAYS IT ALL			
NO.	REVISION	BY	DATE

QUALITY  
DESIGN  
LINEALS

TEST SPECIMEN COMPLIES  
WITH THESE DETAILS.  
ANY DEVIATION IS NOTED.  
NCTL-~~1993-3~~  
TEST COMPLETE: 13/10/11

CASEMENT WELDED MF & SASH  
NEW CONSTRUCTION



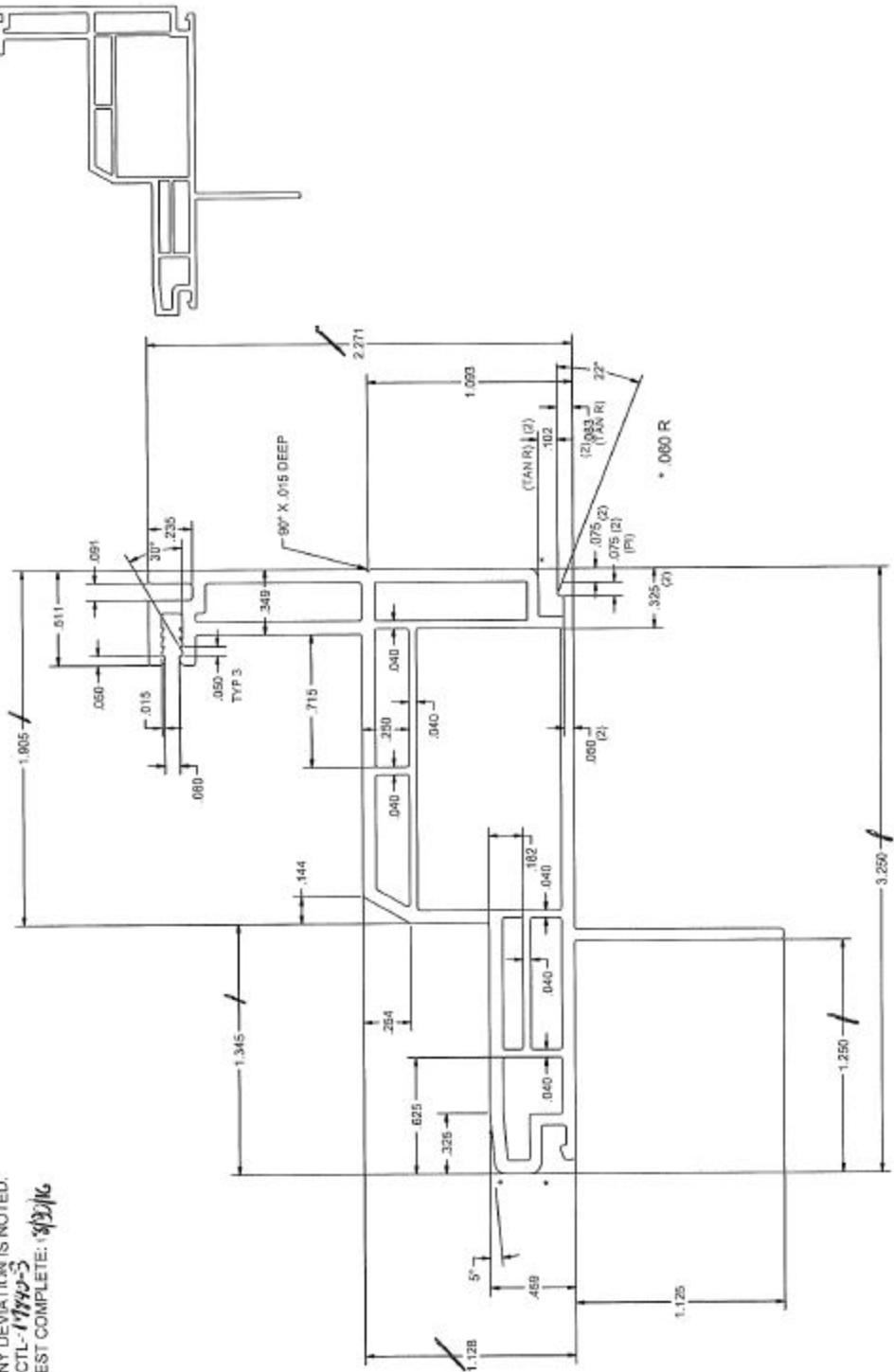
301  
CASEMENT SASH  
WELDED

304  
CASEMENT GLAZING BEAD  
WELDED

7301  
CASEMENT MAIN FRAME  
WELDED

TITLE CASEMENT NEW CONSTRUCTION			
CASEMENT WELDED MF & SASH			
DRAWN BY DDS	SCALE	DATE 09-2-11	CHKD BY
COMPUTER NO			APPRO BY
 QUALITY LINEALS DESIGNS "OUR NAME SAYS IT ALL"			DWG NO
CASEMENT NEW CONSTRUCTION			

TEST SPECIMEN COMPLIES  
WITH THESE DETAILS.  
ANY DEVIATION IS NOTED.  
NCTL-17740-5  
TEST COMPLETE: 3/2/06

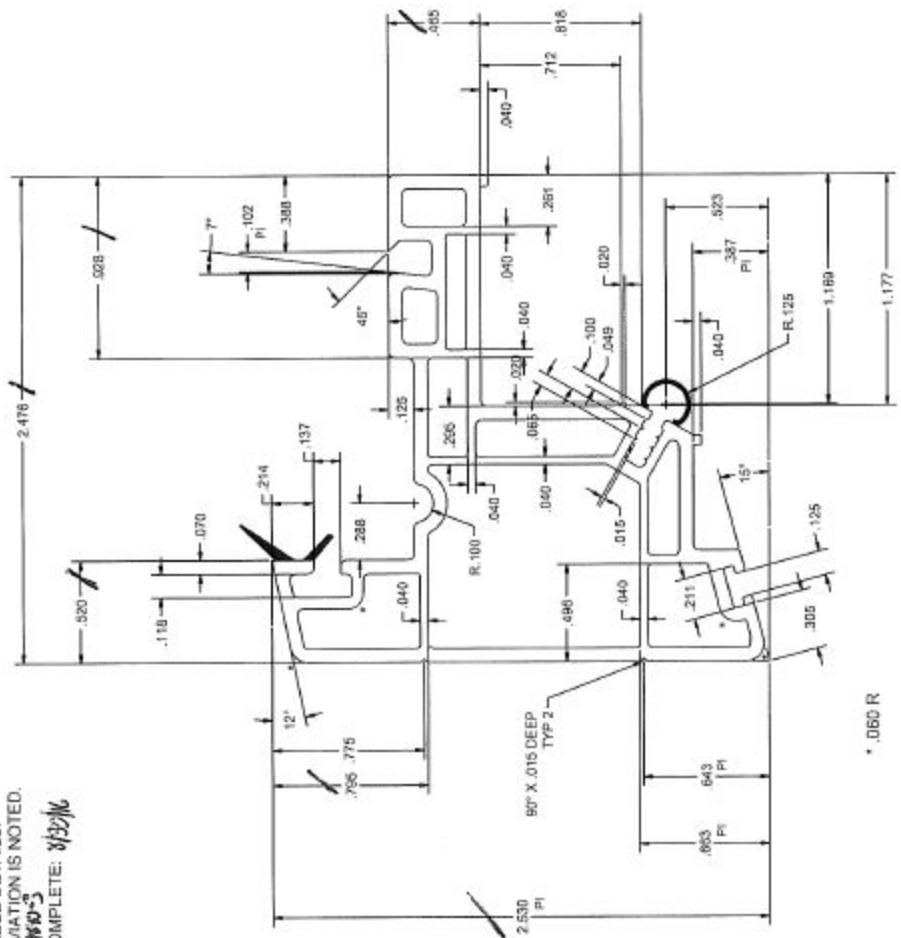


DO NOT SCALE DRAWING		TOLERANCES- $.0X \pm .010$ $.XXX \pm .005$	
SPECIFICATION LENGTHS TO 3/8"		TITLE CASEMENT MAIN FRAME	
<input checked="" type="checkbox"/> LOCATION FOR IMPACT TESTABLE BOW MAX. 1" PER 14' <input type="checkbox"/> ANGULARITY TO BE $\pm 1/2^\circ$			
1) MATERIAL RIGID PVC			
<input type="checkbox"/> 2) CAPSTOCK <input type="checkbox"/> 3) UNSPECIFIED WALLS <input type="checkbox"/> 4) BREAK ALL CORNERS <input type="checkbox"/> 5) AREA 951 SQIN. <input type="checkbox"/> 6) WT/F			
DRAWN BY	SCALE	DATE	APPROVED
DDS	2:1	10/20/02	CHIEF ENGR
COMPUTER NO.			
DWG NO.	283FT		
NO.	REVISION	BY	DATE

QUALITY  
CONTROLS  
DESIGNS

\*OUR NAME SAYS IT ALL\*

TEST SPECIMEN COMPLIES  
WITH THESE DETAILS.  
ANY DEVIATION IS NOTED.  
NCTL-111605  
TEST COMPLETE: 03/06/06



DO NOT SCALE DRAWING		TOLERANCES-	
		XX ± .010	XXX ± .005
SPECIFICATION FOR IMPACT TESTS TO 3/8"		ANGULARITY TO BE ± 12°	
<input checked="" type="checkbox"/> LOCATION FOR IMPACT TESTS		FLEXIBLE BOW MAX. 1" PER 14"	
<input type="checkbox"/> SPECIFICATION LENGTHS TO 3/8"		TITLE CASEMENT SASH	
1) MATERIAL RIGID PVC		DRAWN BY DDS DATE 10/20/12 APPROVED BY	
2) CAPSTOCK		COMPUTER NO. 051 SD IN.	
3) UNSPECIFIED WALLS		DWG NO. 1861FT	
4) BREAK ALL CORNERS		NO. 1	
5) AREA		REVISION 0	
6) WT/FIT		DATE	
*OUR NAME SAYS IT ALL*		BY DATE	

DRAWN FOR  
QUALITY LINEALS  
DDS DESIGNS

1861FT

## Duralite™ Window Model Information Rev 1.5 Jan 14, 2014 for Duralite™ design model Rev 1.02

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 pre-drawn spacer drawing DS.dxf. Watch conductivity assignments closely to prevent confusion among the various polymers in use. Tables A & B are imperial units, Tables C & D are metric dimensions.

**Table A: Dimensions in inches for airspaces up to 22/48" (0.458").**

Gap	Code	N	BH	TL	SAW	SAH	ST	SH	AC 1	AC 2	AC 3	AC 4	All 1/2	SAF	IF 1	IF 2	IF 3	F
No. of blocks		2	2	1	1	2	1	1	1	1	1	1	1	2	2	2	2	2
1/4	25H		0.260	0.227		0.192	0.215	0.134	0.189	0.189	0.111	0.219					0.012	
13/48	27H		0.271	0.227		0.192	0.215	0.155	0.189	0.189	0.131	0.219					0.022	
14/48	29H		0.292	0.248		0.213	0.236	0.176	0.210	0.210	0.152	0.240					0.022	
5/16	31H		0.313	0.269		0.234	0.257	0.197	0.231	0.231	0.173	0.261					0.022	
16/48	33H		0.333	0.289		0.254	0.277	0.217	0.251	0.251	0.193	0.281					0.022	
17/48	35H		0.354	0.310		0.275	0.298	0.238	0.272	0.272	0.214	0.302					0.022	
3/8	37H		0.375	0.331		0.296	0.319	0.259	0.293	0.293	0.235	0.323					0.022	
19/48	39H		0.396	0.352		0.317	0.340	0.280	0.314	0.314	0.256	0.344					0.022	
20/48	41H		0.417	0.373		0.338	0.361	0.301	0.335	0.335	0.277	0.365					0.022	
7/16	43H		0.438	0.394		0.359	0.382	0.322	0.356	0.356	0.298	0.386					0.022	
22/48	45H	<b>0.058</b>	<b>.070</b>	0.458	0.414	<b>0.004</b>	0.379	0.402	0.342	0.376	0.318	0.406	<b>0.014</b>	<b>0.015</b>	<b>0.002</b>	<b>0.022</b>		
Fixed for all		<b>x</b>	<b>0.018</b>	<b>0.024</b>	<b>0.022</b>	<b>0.024</b>	<b>0.197</b>											
		<b>0.022</b>	<b>0.007</b>	<b>0.048</b>	<b>0.004</b>	<b>0.194</b>	<b>0.018</b>	<b>0.024</b>	<b>0.022</b>	<b>0.057</b>	<b>0.015</b>	<b>0.018</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>		

Notes to Tables A, B, C & D:

1. Dimensions in **bold** are constant for all gap sizes in the column or group.
2. Use this dimension to complete the rectangle in boxes that show only one dimension.
3. In boxes with two numbers shown, the upper number is in the airspace dimension, the lower number is parallel to the glass.
4. 25H and 27H use the same spacer assembly -- the difference in spacer width is created by using less bondline adhesive (Dimension F).
5. If you have any questions about this chart please email Douglas Hauck, Quanex Building Products, Inc. douglas.hauck@quanex.com

**Table B: Dimensions in inches for airspaces 23/48" (0.479") and larger.**

Gap	Code	N	BH	TL	SAW	SAH	ST	SH	AC 1	AC 2	AC 3	AC 4	AL1 / 2	SAF	IF 1	IF 2	IF 3	F
No. of blocks	2	2	1	1	2	1	1	1	1	1	1	1	2	2	2	2	2	
23/48	48H		0.479	0.435		0.400	0.423	0.363	0.397	0.397	0.339	0.427						
1/2	50H		0.500	0.456		0.421	0.444	0.384	0.418	0.418	0.360	0.448						
25/48	52H		0.521	0.477		0.442	0.465	0.405	0.439	0.439	0.381	0.469						
26/48	54H		0.542	0.498		0.463	0.486	0.426	0.460	0.460	0.402	0.490						
9/16	56H		0.563	0.519		0.484	0.507	0.447	0.481	0.481	0.423	0.511						
28/48	58H		0.583	0.539		0.504	0.527	0.467	0.501	0.501	0.443	0.531						
29/48	60H		0.604	0.560		0.525	0.548	0.488	0.522	0.522	0.464	0.552						
5/8	62H		0.626	0.581		0.546	0.569	0.509	0.543	0.543	0.485	0.573						
31/48	64H		0.646	0.602		0.567	0.590	0.530	0.564	0.564	0.506	0.594						
32/48	66H		0.667	0.623		0.588	0.611	0.551	0.585	0.585	0.527	0.615						
11/16	68H	0.058	0.070	0.688	0.004	0.609	0.632	0.572	0.606	0.606	0.548	0.636						
Up to 68:		0.022	0.007	x	x	x	x	x	x	x	x	x	0.014	0.015	0.015	0.002	0.022	
						0.048	0.004	0.209	0.018	0.023	0.022	0.064	0.007	0.015	0.018	0.064	0.074	
34/48	70H		0.709	0.665		0.63	0.653	0.593	0.627	0.627	0.569	0.657						
35/48	73H		0.729	0.685		0.65	0.673	0.613	0.647	0.647	0.589	0.677						
34	75H		0.75	0.706		0.671	0.694	0.634	0.668	0.668	0.610	0.698						
37/48	77H		0.77	0.726		0.691	0.714	0.654	0.688	0.688	0.630	0.718						
38/48	79H		0.792	0.748		0.713	0.736	0.676	0.710	0.710	0.652	0.740						
13/16	81H	0.058	0.070	0.813	0.769	0.004	0.734	0.757	0.697	0.731	0.673	0.761						
70 and above:		0.022	0.007	x	x	x	x	x	x	x	x	x	0.007	0.015	0.015	0.002	0.022	
						0.043	0.004	0.244	0.018	0.024	0.022	0.079	0.088	0.007	0.018	0.079	0.088	

Notes to Tables A, B, C & D:

- Dimensions in **bold** are constant for all gap sizes in the column or group.
- Use this dimension to complete the rectangle in boxes that show only one dimension.
- In boxes with two numbers shown, the upper number is in the airspace dimension; the lower number is parallel to the glass.
- 25H and 27H use the same spacer assembly – the difference in spacer width is created by using less bondline adhesive (Dimension F).
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TEST SPECIMEN COMPLIES  
WITH THESE DETAILS.  
ANY DEVIATION IS NOTED.  
NCTI 1730-3

## Duralite™ Complete Glazing Information Rev 1.5 Jan 14, 2014 for Duralite™ design model Rev 1.02

**Table C: Dimensions in mm for airspaces up to 11.5 mm. Gaps are nominal – TL value is exact pane spacing.**

Gap	Code	N	BH	TL	SAW	SAH	ST	SH	AC 1	AC 2	AC 3	AC 4	AL1 / 2	SAF	IF 1	IF 2	IF 3	F
No. of blocks		2	2	1	1	2	1	1	1	1	1	1	1	2	2	2	2	
6.5	25H			6.35	5.77				4.88	5.46	3.40	4.80	4.80	2.82	5.56			0.30
7.0	27H			6.88	5.77				4.88	5.46	3.94	4.80	4.80	3.33	5.56			0.56
7.5	29H			7.42	6.30				5.41	5.99	4.47	5.33	5.33	3.86	6.10			0.56
8.0	31H			7.94	6.82				5.93	6.52	4.99	5.85	5.85	4.38	6.62			0.56
8.5	33H			8.46	7.34				6.45	7.04	5.51	6.38	6.38	4.90	7.14			0.56
9.0	35H			8.99	7.87				6.99	7.57	6.05	6.91	6.91	5.44	7.67			0.56
9.5	37H			9.53	8.41				7.52	8.10	6.58	7.44	7.44	5.97	8.20			0.56
10.0	39H			10.06	8.94				8.05	8.64	7.11	7.98	7.98	6.50	8.74			0.56
10.5	41H			10.59	9.47				8.59	9.17	7.65	8.51	8.51	7.04	9.27			0.56
11.0	43H			11.11	9.99				9.11	9.69	8.17	9.03	9.03	7.56	9.79			0.56
11.5	45H			1.47	1.78	11.63	10.52	0.10	9.63	10.21	8.69	9.55	9.55	8.08	10.31	0.36	0.38	0.05
		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	0.56	
Fixed for all		0.56	0.18	1.22	0.10	4.93	0.46	0.61	0.56	1.45	1.68	0.18	0.38	0.46	1.45	1.68	0.61	5.00

Notes to Tables A, B, C & D:

- Dimensions in **bold** are constant for all gap sizes in the column or group.
- Use this dimension to complete the rectangle in boxes that show only one dimension.
- In boxes with two numbers shown, the upper number is in the airspace dimension; the lower number is parallel to the glass.
- 25H and 27H use the same spacer assembly – the difference in spacer width is created by using less bonding adhesive (Dimension F).
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NCTI TH52-D-2

Duralite™ Spacer Model Information Rev 1.5 Jan 14, 2014 for Duralite™ design model Rev 1.02

**Table D: Dimensions in mm for airspaces 12.0 mm and larger. Gaps are nominal – TL value is exact pane spacing.**

Gap	Code	N	BH	TL	SAW	SAH	ST	SH	AC 1	AC 2	AC 3	AC 4	AL1 / 2	SAF	IF 1	IF 2	IF 3	F
No. of blocks		2	2	1	1	2	1	1	1	1	1	1	2	2	2	2	2	
12.0	48H		12.17	11.05			10.16	10.74	9.22	10.08	10.08	8.61	10.85					
12.7	50H		12.7	11.58			10.69	11.28	9.75	10.62	10.62	9.14	11.38					
13.0	52H		13.23	12.12			11.23	11.81	10.29	11.15	11.15	9.68	11.91					
14.0	54H		13.75	12.64			11.75	12.33	10.81	11.67	11.67	10.20	12.43					
14.5	56H		14.30	13.18			12.29	12.88	11.35	12.22	12.22	10.74	12.98					
15.0	58H		14.81	13.69			12.80	13.39	11.86	12.73	12.73	11.25	13.49					
15.5	60H		15.34	14.22			13.34	13.92	12.40	13.26	13.26	11.79	14.02					
16.0	62H		15.88	14.76			13.87	14.45	12.93	13.79	13.79	12.32	14.55					
16.5	64H		16.41	15.29			14.40	14.99	13.46	14.33	14.33	12.85	15.09					
17.0	66H		16.94	15.82			14.94	15.52	14.00	14.86	14.86	13.39	15.62					
17.5	68H		1.47	1.78	17.46	16.34	0.10	15.46	16.04	14.52	15.38	13.91	16.14	0.36	0.38	0.05	0.56	
Up to 68:		0.56	0.18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
									0.46	0.58	0.56	1.63	1.88	0.18	0.38	0.46	1.63	0.58
18.0	70H				18.01	16.89		16.00	16.59	15.06	15.93	15.93	14.45	16.69				
18.5	73H				18.52	17.40		16.51	17.09	15.57	16.43	16.43	14.96	17.20				
19.0	75H				19.05	17.93		17.04	17.63	16.10	16.97	16.97	15.49	17.73				
19.5	77H				19.56	18.44		17.55	18.14	16.61	17.48	17.48	16.00	18.24				
20.0	79H				20.12	19.00		18.11	18.69	17.17	18.03	18.03	16.56	18.80				
20.5	81H				1.47	1.78	20.65	19.53	0.10	18.64	19.23	17.70	18.57	17.09	19.33	0.36	0.38	0.05
70 and above:		0.56	0.18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
									0.46	0.61	0.56	2.01	2.24	0.18	0.46	2.01	2.24	0.61

Notes to Tables A, B, C & D:

- Dimensions in **bold** are constant for all gap sizes in the column or group.
- Use this dimension to complete the rectangle in boxes that show only one dimension.
- In boxes with two numbers shown, the upper number is in the airspace dimension; the lower number is parallel to the glass.
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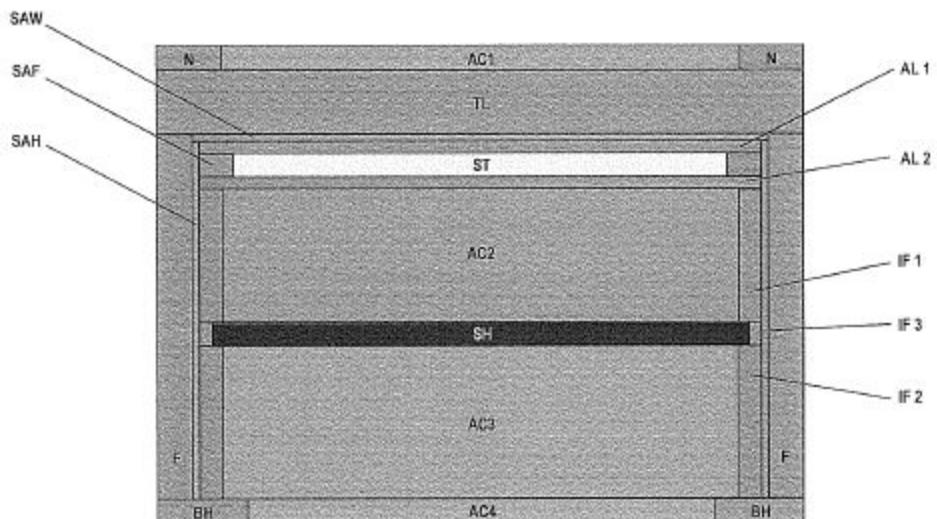
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NCTL-~~1700-3~~ <sup>TM</sup> TEST COMPLETE: 5/20/14

Thermal Model Information Rev 1.5 Jan 14, 2014

### Legend



Description		Material and Conductivity	
	Imp	SI	
N	71X	Butyl 1.23 Btu in/hr ft <sup>2</sup> °F	0.177 W/m°C
BH	71X	Butyl 1.23 Btu in/hr ft <sup>2</sup> °F	0.177 W/m°C
TL	71X	Butyl 1.23 Btu in/hr ft <sup>2</sup> °F	0.177 W/m°C
SAW	Moisture vapor barrier	Default polyethylene	Default polyethylene
SAH	Moisture vapor barrier	Default polyethylene	Default polyethylene
ST	Stiffener	Default polypropylene	Default polypropylene
SH	Shim	Default polycarbonate	Default polycarbonate
AL 1 2	Adhesive	Butyl 1.23 Btu in/hr ft <sup>2</sup> °F	0.177 W/m°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 1.23 Btu in/hr ft <sup>2</sup> °F	0.177 W/m°C
IF 1 2 3	Adhesive	Butyl 1.23 Btu in/hr ft <sup>2</sup> °F	0.177 W/m°C
F	Adhesive	Butyl 1.23 Btu in/hr ft <sup>2</sup> °F	0.177 W/m°C

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