

NORTH EAST WINDOWS USA THERMAL PERFORMANCE TEST REPORT

SCOPE OF WORK

CW390 CASEMENT

REPORT NUMBER

M9798.01-116-46 R0

TEST DATE

11/17/21

ISSUE DATE

01/14/22

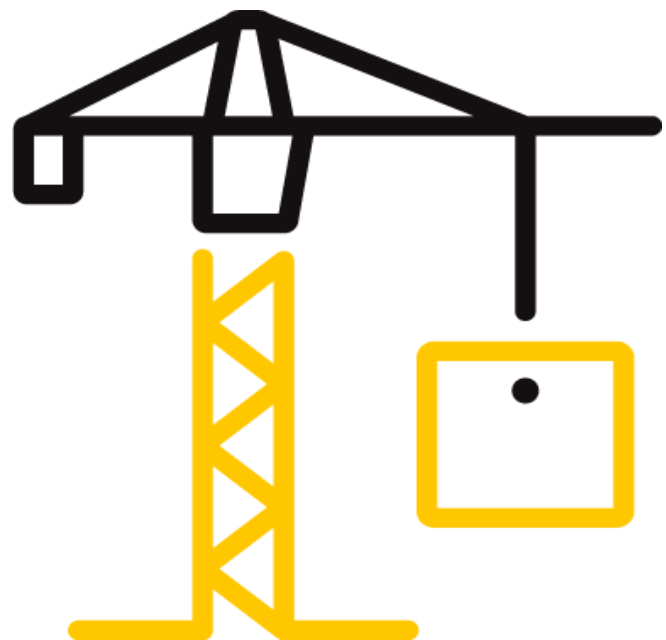
PAGES

19

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-2822(a) (08/16/21)

©2017 INTERTEK



TEST REPORT FOR NORTH EASST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0
Date: 01/14/22

REPORT ISSUED TO

NORTH EASST WINDOWS USA, INC.
One Kees Place P.O. Box 159
Merrick, New York 11566

SECTION 1

SCOPE

SERIES/MODEL: CW390 Casement
TYPE: Casement

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by North East Windows USA, INC. to evaluate the thermal performance per NFRC 102-2020. Results obtained are tested values and were secured by using the designated test method. Testing was conducted at Intertek B&C test facility in York, Pennsylvania.

Intertek B&C will service this report for the entire test record retention period. The test record retention period ends five years after the test date. Test records, such as detailed drawings, datasheets, or other pertinent project documentation, will be retained for the entire test record retention period. Representative samples of the test specimen will be retained by Intertek B&C for a minimum of two and a half years from the submittal date to the Inspection Agency and no more than five years from the test date.

For INTERTEK B&C:

COMPLETED BY	Ryan P. Moser
TITLE	Senior Technician
SIGNATURE	
DATE	01/14/22

REVIEWED BY	Shon W. Einsig
TITLE	Technician Team Leader, IIRC
SIGNATURE	
DATE	01/14/22

RPM:pan

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample(s) tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0

Date: 01/14/22

SECTION 2

SUMMARY OF TEST RESULTS

Standardized U-factor (Ust): 0.23 Btu/hr-ft²·F (CTS Method)

SECTION 3

TEST SPECIMEN SUMMARY

SERIES/MODEL	CW390 Casement
TYPE	Casement
OVERALL SIZE	24-1/2" x 59-1/2" (622 mm x 1511 mm) (Non-Standard Size)
NFRC STANDARD SIZE	23.6" x 59.1" (600 mm wide x 1500 mm high)
TEST SAMPLE SUBMITTED BY	Client
TEST SAMPLE SUBMITTED FOR	Validation for Recertification (Production Line Unit) & Plant Qualification

SECTION 4

TEST METHOD

The specimens were evaluated in accordance with the following:

NFRC 102-2020, Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems

SECTION 5

MATERIAL SOURCE/INSTALLATION

The test specimen was provided by the client.

The test sample was installed in a vertical orientation, the exterior of the specimen was exposed to the cold side.

SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Shon W. Einsig	Intertek B&C
Ryan P. Moser	Intertek B&C

TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0

Date: 01/14/22

SECTION 7

TEST SAMPLE DESCRIPTION

Frame

MATERIAL	VY: Vinyl		
SIZE	24-1/2" x 59-1/2" (Non-Standard Size)		
DAYLIGHT OPENING	N/A	GLAZING METHOD	N/A
EXTERIOR COLOR	White	EXTERIOR FINISH	Vinyl
INTERIOR COLOR	White	INTERIOR FINISH	Vinyl
CORNER JOINERY	Mitered / Welds / Unsealed		

Vent

MATERIAL	VY: Vinyl		
SIZE	23-3/8" x 58-3/8"		
DAYLIGHT OPENING	18-3/8" x 53-1/4"	GLAZING METHOD	Interior
EXTERIOR COLOR	White	EXTERIOR FINISH	Vinyl
INTERIOR COLOR	White	INTERIOR FINISH	Vinyl
CORNER JOINERY	Mitered / Welds / Unsealed		

Glazing Information

LAYER 1	DS	AGC Comfort Select 28 (e=0.023*, #2)	
GAP 1	0.63"	P1-S: Duralite Spacer	90% Argon*
LAYER 2	DS	AGC Comfort Select 73 (e=0.148*, #4)	
GAS FILL METHOD	Single-Probe Method*		

**Stated per the client/manufacturer and can affect the validity of results*

N/A Non-Applicable

TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0

Date: 01/14/22

SECTION 7 (CONTINUED)

TEST SAMPLE DESCRIPTION (CONTINUED)

Weatherstripping

DESCRIPTION	QUANTITY	LOCATION
Flexible hollow bulb gasket	1 Row	Frame and vent perimeter
Polypile with center fin	1 Row	Vent perimeter

Hardware

DESCRIPTION	QUANTITY	LOCATION
Multi-point lever lock assembly	1	Lock jamb
Metal keeper	3	Lock stile
Single-arm hinge	2	Head/top rail, sill/bottom rail
Roto-operator	1	Sill/bottom rail

Drainage

DRAINAGE METHOD	SIZE	QUANTITY	LOCATION
No visible weeps			

TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0

Date: 01/14/22

SECTION 8

THERMAL TRANSMITTANCE (U-FACTOR): MEASURED TEST DATA

Heat Flows

1. Total Measured Input into Metering Box (Qtotal)	265.77 Btu/hr
2. Surround Panel Heat Flow (Qsp)	82.01 Btu/hr
3. Surround Panel Thickness	4.00 inches
4. Surround Panel Conductance	0.0475 Btu/hr·ft ² ·F
5. Metering Box Wall Heat Flow (Qmb)	4.08 Btu/hr
6. EMF vs Heat Flow Equation (equivalent information)	0.0117*EMF + 0.015
7. Flanking Loss Heat Flow (Qfl)	9.37 Btu/hr
8. Net Specimen Heat Loss (Qs)	170.30 Btu/hr

Areas

1. Test Specimen Projected Area (As)	10.12 ft ²
2. Test Specimen Projected Frame Area (Af)	3.33 ft ²
3. Test Specimen Projected Glazing Area (Ag)	6.79 ft ²
4. Metering Box Opening Area (Amb)	36.11 ft ²
5. Metering Box Baffle Area (Ab1)	33.94 ft ²
6. Surround Panel Interior Exposed Area (Asp)	25.99 ft ²

Test Conditions

1. Average Metering Room Air Temperature (th)	69.80 F
2. Average Cold Side Air Temperature (tc)	-0.39 F
3. Average Guard/Environmental Air Temperature	71.26 F
4. Metering Room Average Relative Humidity	3.98 %
5. Metering Room Maximum Relative Humidity	4.32 %
6. Metering Room Minimum Relative Humidity	3.65 %
7. Measured Cold Side Wind Velocity (Perpendicular Flow)	12.66 mph
8. Measured Warm Side Wind Velocity (Parallel Flow)	NA mph
9. Measured Static Pressure Difference Across Test Specimen	0.00" ± 0.04" H ₂ O

Average Surface Temperatures

1. Metering Room Surround Panel	66.55 F
2. Cold Side Surround Panel	0.09 F

Results

1. Thermal Transmittance of Test Specimen (Us)	0.24 Btu/hr·ft ² ·F
2. Standardized Thermal Transmittance of Test Specimen (Ust)	0.23 Btu/hr·ft ² ·F

TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0
Date: 01/14/22

SECTION 9

THERMAL TRANSMITTANCE (U-FACTOR): CALCULATED TEST DATA

CTS Method Results

1. Warm Side Surface Emittance of CTS (e1)	0.84
2. Warm Side Area-Weighted Surface Emittance of Specimen Frame (ef1)	0.90
3. Warm Side Area-Weighted Surface Emittance of Specimen Glazing (eg1)	0.15
4. Warm Side Surface Emittance of Surround Panel (esp1)	0.90
5. Warm Side Area-Weighted Surface Emittance in View of the Baffle (es1)	0.76
6. Warm Side Baffle Emittance (eb1)	0.92
7. Cold Side Baffle Emittance (eb2)	N/A
8. Equivalent Warm Side Surface Temperature (t1)	56.18 F
9. Equivalent Cold Side Surface Temperature (t2)	2.60 F
10. Warm Side Baffle Surface Temperature	69.26 F
11. Cold Side Baffle Surface Temperature	N/A F
12. Measured Warm Side Surface Conductance (hh)	1.24 Btu/hr·ft ² ·F
13. Measured Cold Side Surface Conductance (hc)	5.62 Btu/hr·ft ² ·F
14. Test Specimen Thermal Conductance (Cs)	0.31 Btu/hr·ft ² ·F
15. Convection Coefficient (Kc)	0.30 Btu/(hr·ft ² ·F ^{1.25})
16. Radiative Test Specimen Heat Flow (Qr1)	91.98 Btu/hr
17. Conductive Test Specimen Heat Flow (Qc1)	78.32 Btu/hr
18. Radiative Heat Flux of Test Specimen (qr1)	9.09 Btu/hr·ft ² ·F
19. Convective Heat Flux of Test Specimen (qc1)	7.74 Btu/hr·ft ² ·F
20. Standardized Warm Side Surface Conductance (hsth)	1.13 Btu/hr·ft ² ·F
21. Standardized Cold Side Surface Conductance (hstc)	5.28 Btu/hr·ft ² ·F
22. Standardized Thermal Transmittance (Ust)	0.23 Btu/hr·ft ² ·F

SECTION 10

TEST DURATION

1. The environmental systems were started at 17:19 hours, 11/16/21.
2. The test parameters were considered stable for two consecutive four hour test periods from 21:40 hours, 11/16/21 to 05:40 hours, 11/17/21.
3. The thermal performance test results were derived from 01:40 hours, 11/17/21 to 05:40 hours, 11/17/21.

TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0

Date: 01/14/22

SECTION 11

GLAZING DEFLECTION

	VENT
EDGE GAP WIDTH	0.63"
ESTIMATED CENTER GAP WIDTH upon receipt of specimen in laboratory (after stabilization)	0.63"
CENTER GAP WIDTH at laboratory ambient conditions on day of testing	0.63"
CENTER GAP WIDTH at test conditions	0.50"

Glass collapse determined using a digital glass and air space meter

The sample was inspected for the formation of frost or condensation, which may influence the surface temperature measurements. The sample showed no evidence of condensation/frost at the conclusion of the test.

“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 are expected from field installations due to not accounting for solar radiation, air leakage effects, and the thermal bridge effects that have the potential to occur due to the specific design and construction of the fenestration system opening. The latter can only be determined by in-situ measurements. Therefore, it is important to recognize 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.”

Required annual calibrations for the Intertek B&C, 'thermal test chamber' (ICN 000001) in York, Pennsylvania were last conducted in May 2021 in accordance with Intertek B&C calibration procedure. A CTS Calibration verification was performed October 2021. A Metering Box Wall Transducer and Surround Panel Flanking Loss Characterization was performed August 2021.

The reported Standardized Thermal Transmittance (Ust) was determined using CTS Method, per Section 9.2(A) of NFRC 102.

TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0

Date: 01/14/22

SECTION 12

CTS CALIBRATION DATA

1. CTS Test Date	10/02/20
2. CTS Size	9.69 ft ²
3. CTS Glass/Core Conductance	0.42 Btu/hr·ft ² ·F
4. Warm Side Air Temperature	69.80 F
5. Cold Side Air Temperature	-0.40 F
6. Warm Side Average Surface Temperature	53.75 F
7. Cold Side Average Surface Temperature	3.35 F
8. Convection Coefficient (Kc)	0.30 Btu/(hr·ft ² ·F ^{1.25})
9. Measured Cold Side Surface Conductance (hc)	5.62 Btu/hr·ft ² ·F
10. Measured Thermal Transmittance	0.30 Btu/hr·ft ² ·F

ANSI/NCSL Z540-2-1997 type B uncertainty for this test was 5.20%.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule also called "Shared Risk Approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

"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 options identified on a valid Certificate of Authorization (CA) are to be used for labeling purposes."

The direction of heat transfer was from the interior (warm side) to the exterior (cold side) of the specimen. The ratings were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy. The data acquisition frequency is 5 minutes.

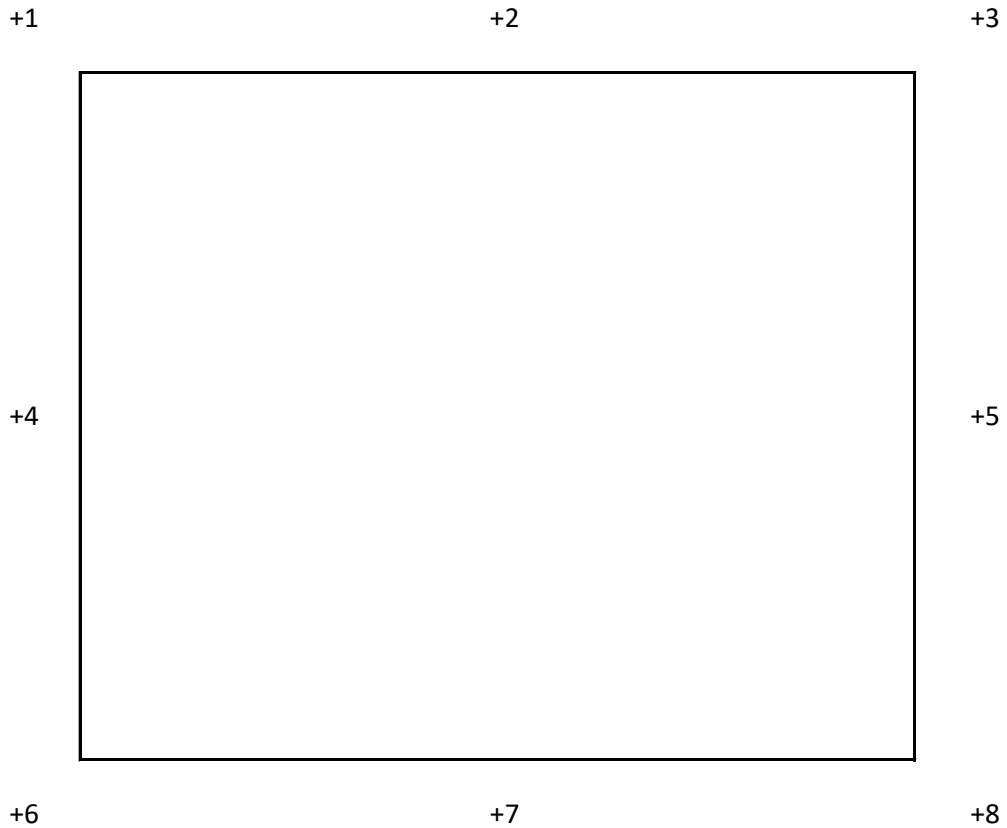
TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0

Date: 01/14/22

SECTION 13

SURROUND PANEL WIRING DIAGRAM



TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0

Date: 01/14/22

SECTION 14

BAFFLE WIRING DIAGRAM



TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0

Date: 01/14/22

SECTION 15

SUBMITTAL FORM AND DRAWINGS

The test specimen drawings which follow have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

NFRC PRODUCT CERTIFICATION PROGRAM

Submission Form for Test Samples



For use by Manufacturers, Lineal Suppliers and Fabricators

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

Manufacturer: Northeast Windows USA, INC. Date of sample manufacture: 9/30/2021

Plant Address where manufactured: 1 KEES PLACE

City: MERRICK State: NEW YORK Zip Code: 11566

Name of IA: ALI - FGIA Phone: 516-458-7465 Fax: 516-868-3577

2. Product Information (complete **APPLICABLE** fields):

Existing Product Line ID (CPD) No.: NEW-A-16 Product/Operator Type (Table 4-3 of NFRC 100): CSSV

Series/Model: CASEMENT - CW390

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

- a. Validation for Initial Certification (prototype only) no plant qualification
- b. Validation for Initial Certification or Recertification (production line unit) & plant qualification
- c. Plant Qualification Only (production line unit)
- d. Test Only Alternative (production line unit) & plant qualification

I, ALEX KAISERMAN, as the designated agent for NORTHEAST WINDOWS USA 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: ALEX KAISERMAN Digitally signed by ALEX KAISERMAN Date: 2021.10.15 12:35:08 -04'00' Date: 10/15/2021

For Laboratory Use Only

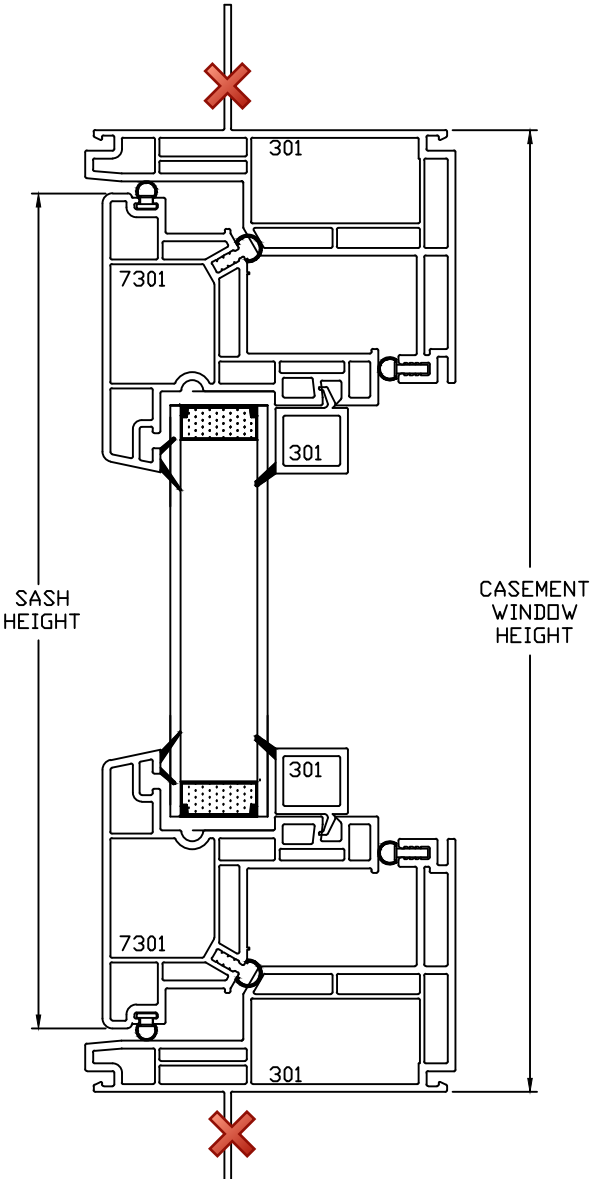
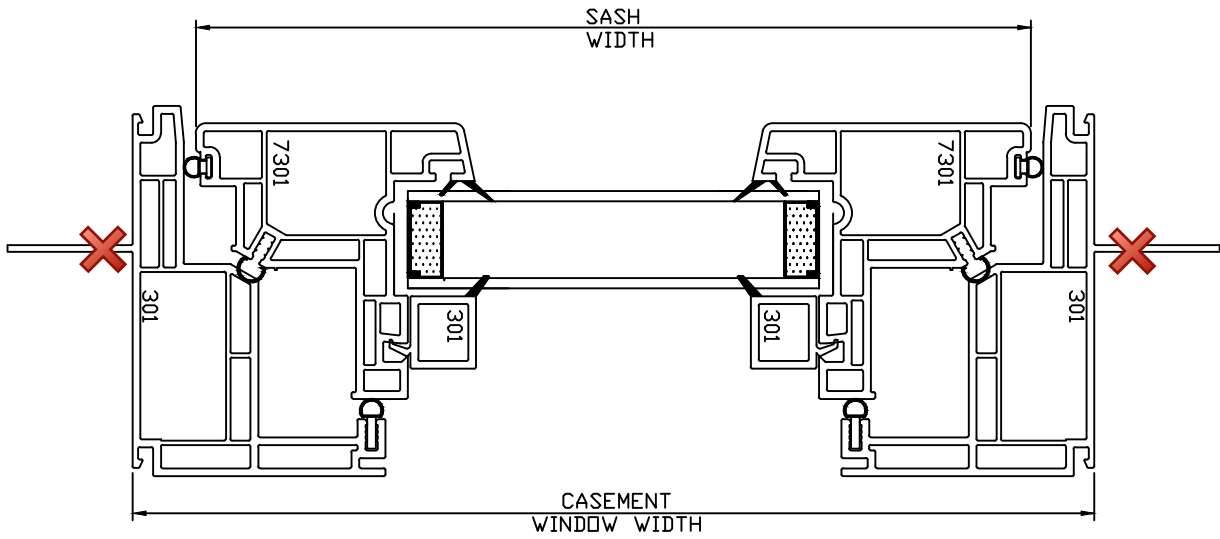
- 1. Laboratory: Tn Intek
- 2. Date Sample Received: 12/22/21 Test Report #: MA798.01
- 3. Date Sample Tested: 11/17/21 By: PJM
- 4. Modifications made: _____



Report #: M9798-116-46

Date: 11/17/2021

Verified by: *Ryan P. Moser*



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°

DRAWN FOR

BY DDS DESIGNS

"OUR NAME SAYS IT ALL"

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

TITLE CW390
WELD MAIN FRAME/WELDED SASH

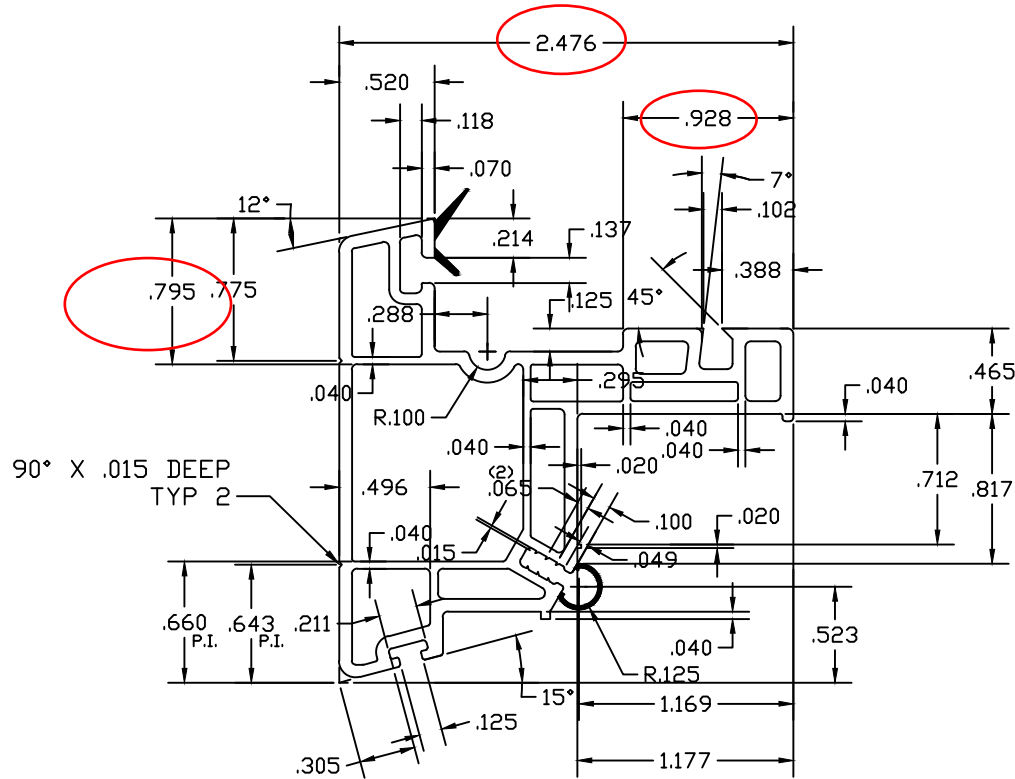
DWN BY DDS	SCALE	DATE 02/28/12	CHKD BY	APPD BY
COMPUTER NO				
DWG NO CW390 CROSS SECTION				



Report #: M9798-116-46

Date: 11/17/2021

Verified by: *Bryan P. Moser*



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

DRAWN FOR

BY DDS DESIGNS

"OUR NAME SAYS IT ALL"

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

TITLE CASEMENT SASH

DWN BY DDS	SCALE 2:1	DATE 10-20-12	CHKD BY	APPD BY
---------------	--------------	------------------	---------	---------

COMPUTER NO

DWG NO 7352

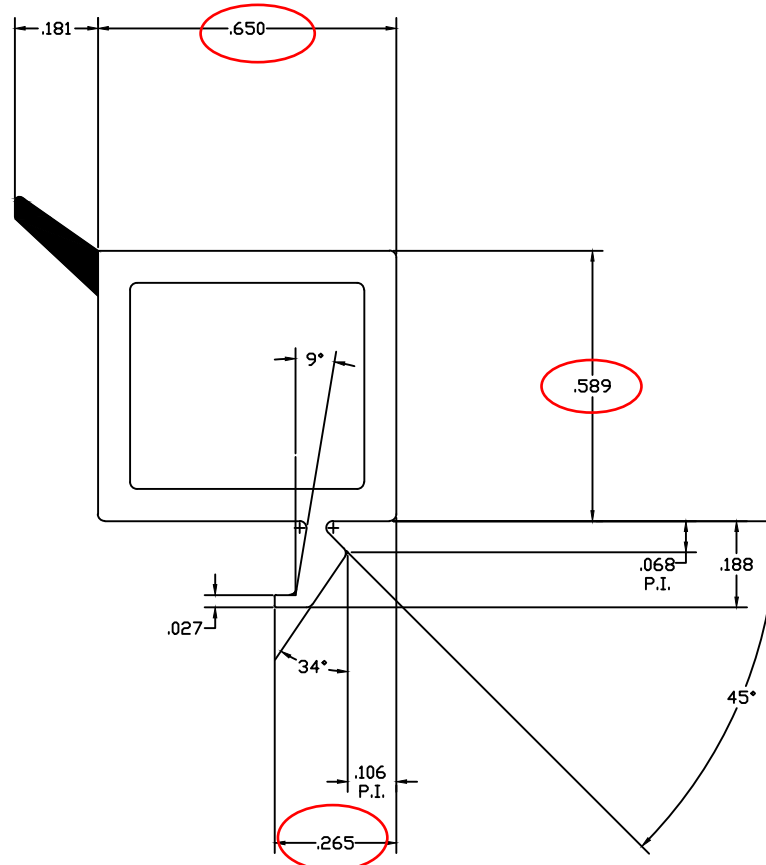
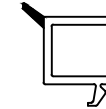
NO.	REVISION	BY	DATE



Report #: M9798-116-46

Date: 11/17/2021

Verified by: *Ryan P. Moser*



DO NOT SCALE DRAWING

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

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

DRAWN FOR

BY DDS DESIGNS

"OUR NAME SAYS IT ALL"

- 1) MATERIAL RIGID PVC
- 2) CAPSTOCK ~~2x2x2~~
- 3) UNSPECIFIED WALLS
- 4) BREAK ALL CORNERS .015
- 5) AREA SQ.IN.
- 6) WT/FT LBS/FT

TITLE GLAZING BEAD

DWN BY DDS ^R	SCALE 2:1	DATE 10/28/12	CHKD BY	APPD BY
----------------------------	--------------	------------------	---------	---------

COMPUTER NO

DWG NO 304

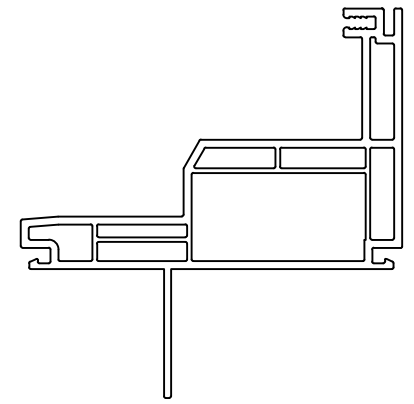
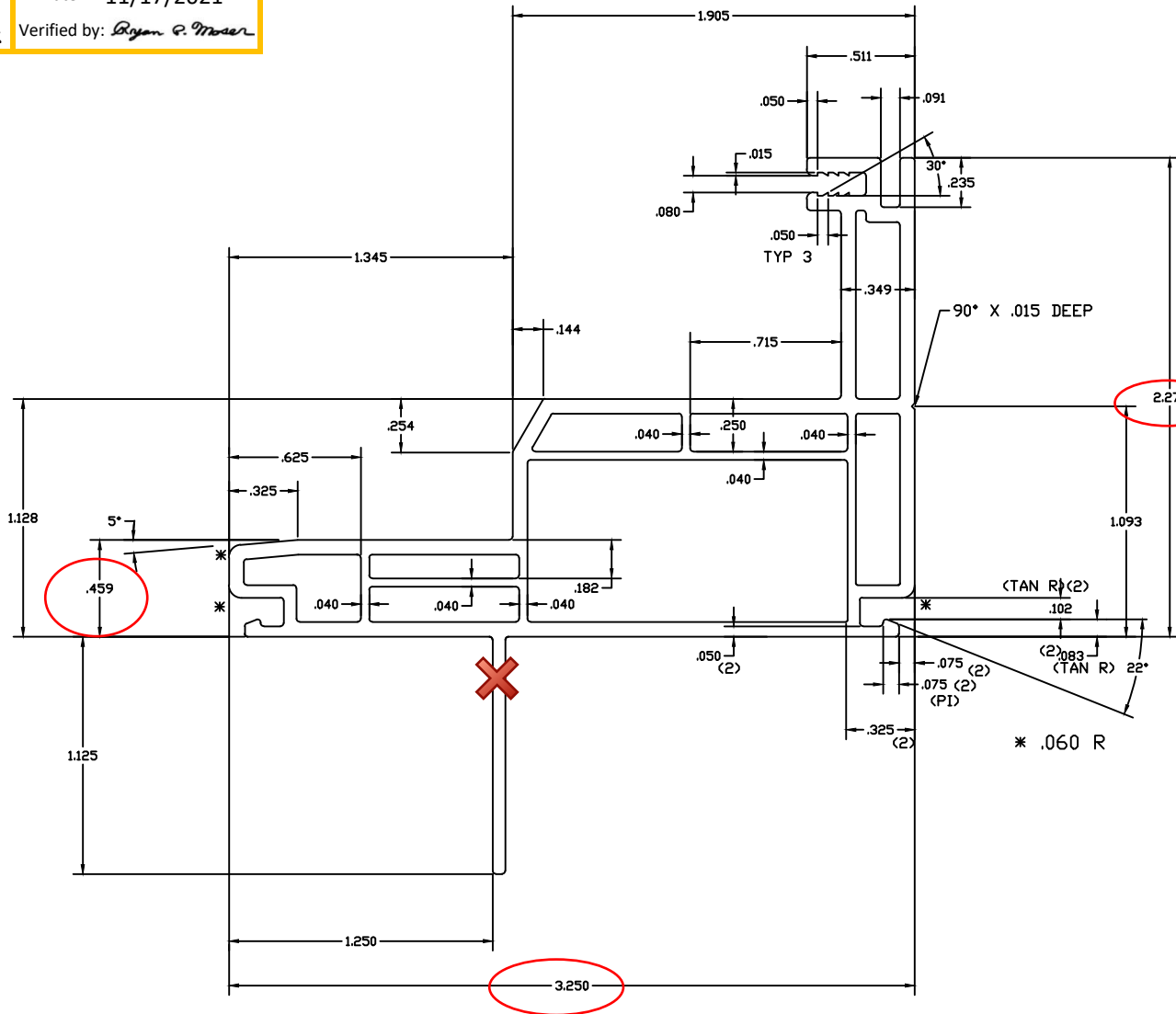
NO.	REVISION	BY	DATE



Report #: M9798-116-46

Date: 11/17/2021

Verified by: *Bryan G. Moser*



DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

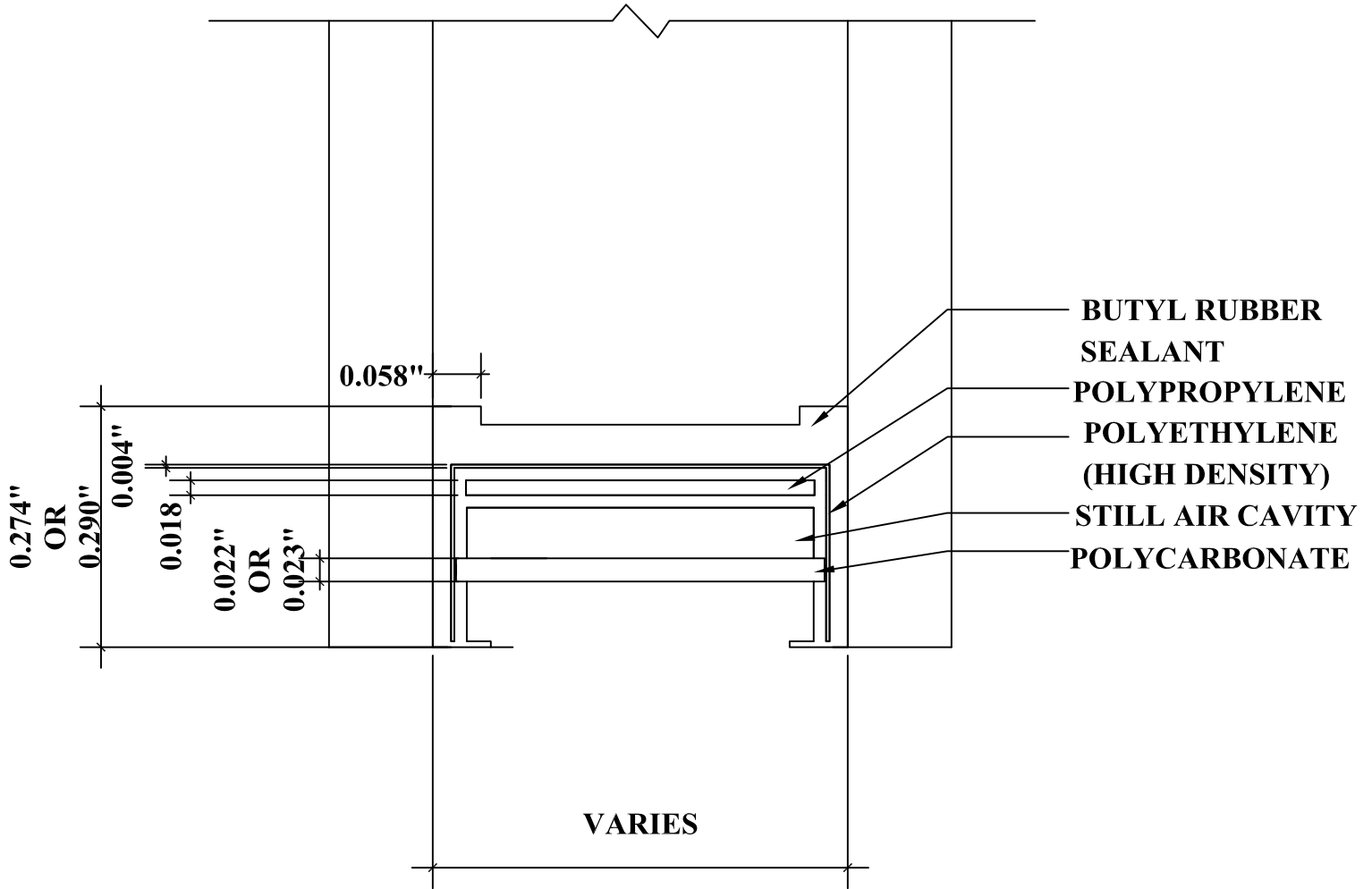
<p>BY DDS DESIGNS</p> <p>"OUR NAME SAYS IT ALL"</p>	<p>1) MATERIAL RIGID PVC</p> <p>2) CAPSTOCK </p> <p>3) UNSPECIFIED WALLS</p> <p>4) BREAK ALL CORNERS .015 R</p> <p>5) AREA SQ. IN.</p> <p>6) WT/FT LBS/FT</p>	<p>TITLE CASEMENT MAIN FRAME</p>			
	<p>LOCATION FOR IMPACT TEST SPECIFICATION—LENGTHS TO 3/8"</p> <p>ALLOWABLE BOW MAX. 1" PER 14' ANGULARITY TO BE ± 1/2°</p>	<p>DWN BY DDS</p> <p>SCALE 2:1</p> <p>DATE 10/20/12</p> <p>COMPUTER NO</p> <p>DWG NO 7301</p>	<p>CHKD BY</p>	<p>APPD BY</p>	



Report #: M9798-116-46

Date: 11/17/2021

Verified by: *Bryan P. Moser*



DETAIL FOR THERMAL MODELING OF
QUANEX DURALITE SPACER (P1-S)

TEST REPORT FOR NORTH EAST WINDOWS USA, INC.

Report No.: M9798.01-116-46 R0

Date: 01/14/22

SECTION 16

REVISION LOG

REVISION #	DATE	PAGES	REVISION
.01 R0	01/14/22	N/A	Original Report Issue