



# NATIONAL CERTIFIED TESTING LABORATORIES

FIVE LEIGH DRIVE • YORK, PENNSYLVANIA 17406 • TELEPHONE (717) 846-1200  
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www.nctlinc.com

**ASTM E283-04(12)**  
**ASTM E330-14**  
**ASTM E331-00(09)**  
**ASTM E547-00(09)**

## STRUCTURAL PERFORMANCE TEST REPORT SUMMARY

### RENDERED TO:

Alumin Techno LLC  
Silitskogo Str. 12-211 220075 FEZ Minsk  
Minsk area, Minsk region  
The Republic of Belarus

### MODEL/TYPE: "CW2" Fixed Curtain Wall

TITLE	SUMMARY OF RESULTS
Air Infiltration 75 Pa (1.57 psf)	0.10 L/s/m <sup>2</sup> (0.02 cfm/ft <sup>2</sup> measured)
Air Infiltration 300 Pa (6.24 psf)	0.15 L/s/m <sup>2</sup> (0.03 cfm/ft <sup>2</sup> measured)
Water Penetration Resistance	574.6 Pa (12.0 psf)
Design Pressure	± 3591.02 Pa (75.0 psf)
Uniform Load Structural Test	± 5386.53 Pa (112.5 psf)

**Test Completion Date:** 06/26/14

Reference must be made to Report Number NCTL-110-16401-1 dated 08/20/14 for complete test sample description and data.

### National Certified Testing Laboratories

Jay Leader  
Technician



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## STRUCTURAL PERFORMANCE TEST REPORT

**Report Number** NCTL-110-16401-1

**Report Date** 08/20/14

**Report To** Alumin Techno LLC  
Selitskogostr. 12-211220075 FEZ Minsk  
Minsk area, Minsk region  
The Republic of Belarus

**Starting Test Date** 05/20/14  
**Ending Test Date** 06/26/14

**Specification** ASTM E283-04(12), "Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen."  
ASTM E331-00(09), "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."  
ASTM E547-00(09), "Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Cyclic Static Air Pressure Difference."  
ASTM E330-14, "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference."

### Description of Sample Tested

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

**Model/Type** "CW2"

**Configuration** Fixed Curtain Wall

**Frame Size** 2438 mm x 2438 mm (96" x 96")

**Fixed Viewing Area** (2) 1149 mm x 2343 mm (45.25" x 92.25")

**Frame Type** Extruded aluminum with vinyl-wrapped foam thermal breaks

**Joint Construction** Frame/ Intermediate  
Butt-type aluminum clip (4) screw

**Glazing Components**  
Overall 25.15 mm (0.990") nominal  
Glass Thickness (2) Lites of 6 mm (0.224") nominal tempered glass  
Spacer Type/ Size 13.77 mm (0.542") Desiccant-filled aluminum spacer (Type A1-D)

**Glazing System** Exterior glazed against EPDM hollow bulb single-leaf gasket and held-in-place with silicone and (4) aluminum glazing clips evenly spaced at the verticals

**Weatherstrip**  
Type (1) Strips of EPDM hollow bulb single-leaf gasket  
Location Intermediate glazing

Type (1) Strip of EPDM hollow bulb single-leaf gasket  
 Location All frame glazing members and exterior trim

**Auxiliary**

Type Rigid vinyl insert  
 Location All frame members secured with evenly spaced screws

Type Rigid vinyl joinery cover  
 Location Frame and intermediate joinery

Type Aluminum trim  
 Location Exterior of frame

Type Aluminum shim  
 Location Evenly spaced at the glazing perimeter

Type Aluminum spacer fastened with (2) screws  
 Location Frame/ intermediate located at aluminum shims

Type Auxiliary aluminum glazing molding  
 Location Glazing track

**Reinforcement**

Type Extruded aluminum tube  
 Thickness 2.16 mm (0.085")  
 Location Jamb and intermediate

**Interior & Exterior Surface Finish**

White painted aluminum

**Installation Method**

The window was installed in a 50.8 mm by 254 mm (2" x 10") spruce-pine-fir lumber test buck with (1) 16 gauge 50.8 mm (2") by 152.4 mm (6") by 152 mm (0.060") thick steel strap located at the ends of each jamb and intermediate. Each strap was secured to the frame/ intermediate with (4) #12 x 19 mm (0.75") flat head screws and (4) #8 x 31.75 mm (1.25") drywall screws to the buck. The exterior perimeter was sealed with silicone.

**Test Results**

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Test Method  
 ASTM E283-04(12)

Test  
 Air Leakage Resistance

Information at 75 Pa (1.6 psf)

Total Air Flow = 0.76 L/s (1.6 cfm)  
 Extraneous Air Leakage <sub>Tare</sub> = 0.28 L/s (0.6 cfm)  
 Infiltration Rate/ Area = 0.10 L/s/m<sup>2</sup> (0.02 cfm/ft<sup>2</sup>)

Information at 300 Pa (6.24 psf)

Total Air Flow = 1.93 L/s (4.1 cfm)  
 Extraneous Air Leakage <sub>Tare</sub> = 1.04 L/s (2.2 cfm)  
 Infiltration Rate/ Area = 0.15 L/s/m<sup>2</sup> (0.3 cfm/ft<sup>2</sup>)

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Test Method  
 ASTM E547-00(09)  
 ASTM E331-00(09)

Test  
 Water Resistance Test

3.4 L/ (min• m<sup>2</sup>) (5.0 gph/ft<sup>2</sup>)

No Leakage after 4 cycles of 5 minutes at 574.6 Pa (12.0 psf)  
 No Leakage after 1 cycle of 15 minutes at 574.6 Pa (12.0 psf)

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Test Method  
ASTM E330-14

Test  
Uniform Load Deflection at Design Pressure

No damage after positive	3591.02 Pa (75.0 psf) held for 10 seconds
No damage after negative	3591.02 Pa (75.0 psf) held for 10 seconds
Measured Deflection <sub>Positive</sub>	= 27.54 mm (1.084 inches)
Measured Deflection <sub>Negative</sub>	= 27.64 mm (1.088 inches)

Test Method  
ASTM E330-14

Test  
Uniform Load Structural Test

No damage after positive	5386.53 Pa (112.5 psf) held for 10 seconds
No damage after negative	5386.53 Pa (112.5 psf) held for 10 seconds
Measured Permanent Set <sub>Positive</sub>	= 5.11 mm (0.201 inches)
Measured Permanent Set <sub>Negative</sub>	= 3.81 mm (0.150 inches)

**NOTE:** Deflection and Permanent Set measurements taken on the intermediate over a 2350 mm (92.5") span.

This test report was prepared by National Certified Testing Laboratory (NCTL), for the exclusive use of the above named client and it does not constitute certification of this product. The results are for the particular specimen tested and do not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. The test specimen was supplied to NCTL by the above named client. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen are to be drawn from the ASTM E330 test. Foam tape is mounted to the perimeter of the test buck prior to clamping to the test wall. NCTL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed.

Detailed drawings were available for laboratory records and compared to the test specimen at the time of this report. Component drawings were reviewed for product verification. The bill of materials contains details with any deviations noted. Ambient conditions during the referenced testing are available upon request. A copy of this report along with representative sections of the test specimen will be retained by NCTL. This report does not constitute certification or approval of the product, which may only be granted by a certification program validator or recognized approval entity. All tests were conducted in full compliance with the referenced specifications and/or test methods. This report may not be reproduced, except in full, without the written consent of NCTL.

**National Certified Testing Laboratories**



Jay Leader  
Technician



Robert H. Zeiders, P.E.  
Vice-President Engineering & Quality

NJL/ drm  
Attachments  
Appendix A – Drawing & Revision Summary

**APPENDIX A**

**Section 1:**

Component Drawings, with Applicable Part Numbers, Manufacturing and Modeling Details, were reviewed (as submitted) for Product Verification  
(Reference: NCTL-110-16401-1)

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	08/20/14	Not Applicable



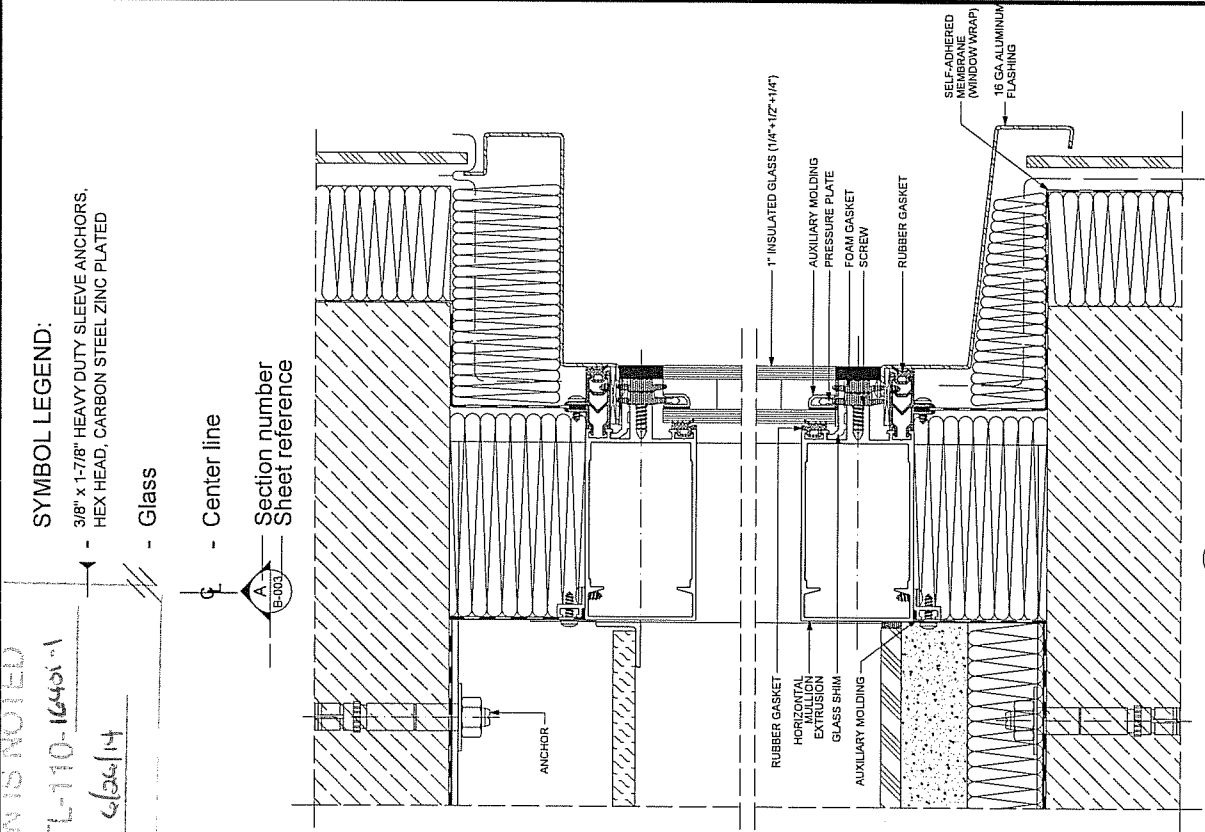


TEST SPECIMEN COMPLIES WITH THESE DETAILS.

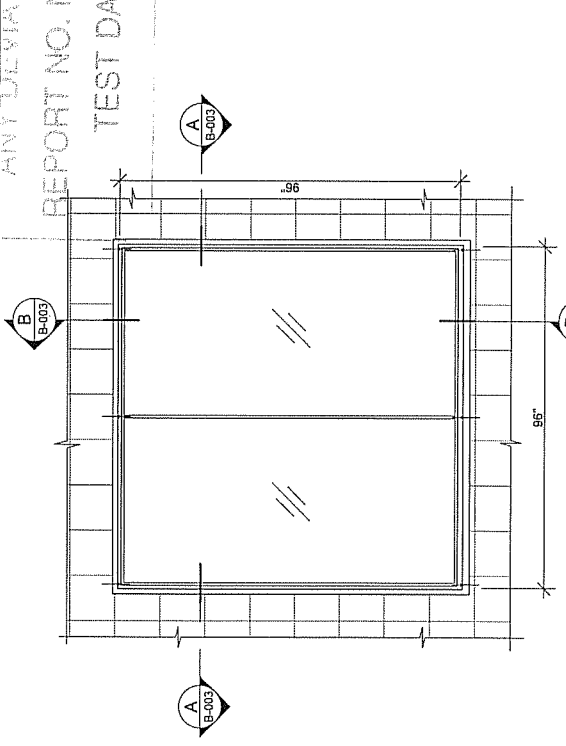
ANY DEVIATION IS NOTED  
 REPORT NO. NCTL-110-1649x-1  
 TEST DATE 6/24/14

CLIENT: <b>ALUTECH SRO</b>	PREPARED BY: <b>Professional Grade CONSTRUCTION GROUP, INC</b> 703 39th St., Bingham, NY 13322 PH: 716.382.8001	PROJECT ADDRESS: <b>5 Leigh Drive York, PA 1740</b>	DATE	REVISION #
APPROVED			ALL RIGHTS RESERVED ALL DRAWINGS, SPECIFICATIONS AND NOTES HEREON ARE THE PROPERTY OF PROFESSIONAL GRADE CONSTRUCTION GROUP AND SHALL REMAIN THEIR PROPERTY. THEY ARE NOT TO BE USED ON THIS OR ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF PROFESSIONAL GRADE CONSTRUCTION GROUP.	
REGULATORY INDEX: DO NOT SCALE DRAWINGS ALLOW DIMENSIONS TO BE FIELD VERIFIED PRIOR TO ANY FABRICATION.			DRAWING TITLE: <b>INSTALLATION DRAWINGS</b>	
DATE: 12.12.2013			DRAWN BY: AG	
CHECKED BY: AA			DRAWING No: <b>B-003</b>	
SIZE: B			03 OF 04	

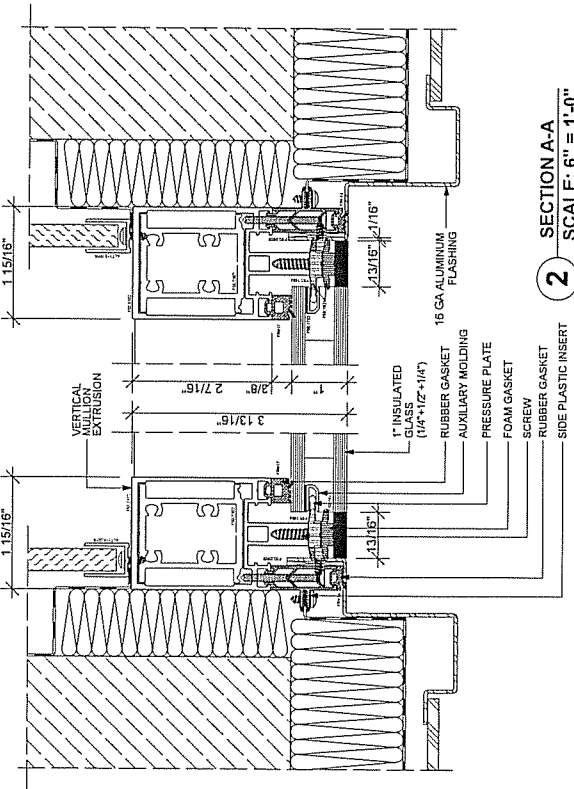
SYMBOL LEGEND:  
 3/8" x 1-7/8" HEAVY DUTY SLEEVE ANCHORS,  
 HEX HEAD, CARBON STEEL ZINC PLATED  
 - Glass  
 - Center line  
 Section number  
 Sheet reference



**3** SECTION B-B  
 SCALE: 6" = 1'-0"



**1** SCHEME OF ANCHORING  
 SCALE: 3/8" = 1'-0"



**2** SECTION A-A  
 SCALE: 6" = 1'-0"



