



NATIONAL CERTIFIED TESTING LABORATORIES

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

AAMA/WDMA/CSA 101/I.S.2/A440-08
AAMA/WDMA/CSA 101/I.S.2/A440-05

TEST REPORT SUMMARY

Rendered to:

AluminTechno LLC.
12 Selitskog Street, Room 211
FEZ Minsk, Minsk District, Minsk Region 220075
Republic of Belarus

PRODUCT TYPE: Dual Action (Inswing)

SERIES/ MODEL: Tilt and Turn

Title	Summary of Results
Primary Product Designator AAMA/WDMA/CSA 101/I.S.2/A440-08 AAMA/WDMA/CSA 101/I.S.2/A440-05	Class AW-PG40: Size tested 1524 x 2515 mm (60 x 99 in) - Type DAW DAW-AW40 1524 x 2515 (60 x 99)
Positive Design Pressure	+1920 Pa (+40.00 psf)
Negative Design Pressure	-1920 Pa (-40.00 psf)
Air Infiltration	0.1 L/s/m ² (0.02 cfm/ft ²) – Prior to Cycling 0.2 L/s/m ² (0.04 cfm/ft ²) – After Cycling
Water Penetration Resistance Test Pressure	580 Pa (12.0 psf)
Uniform Load Structural Test Pressure	±2880 Pa (60.00 psf)
Forced Entry Resistance	ASTM F588-07 - Grade 10 Pass
Life Cycle	Pass

Test Completed: 12/08/14

Reference must be made to Report No. NCTL-110-16389-1 dated 12/10/14 for complete test specimen description and data.

For National Certified Testing Laboratories

Justin L. Bupp
Laboratory Manager



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**AAMA/WDMA/CSA 101/I.S.2/A440-08
AAMA/WDMA/CSA 101/I.S.2/A440-05**

STRUCTURAL TEST REPORT

NCTL-110-16389-1

REPORT TO:
ALUMINTECHNO LLC.
12 SELITSKOG STREET, ROOM 211
FEZ MINSK, MINSK DISTRICT, MINSK REGION 220075
REPUBLIC OF BELARUS

REPORT NUMBER: NCTL-110-16389-1
REPORT DATE: 12/10/14

PRODUCT:
**DUAL ACTION (INSWING)
TILT AND TURN**



NATIONAL CERTIFIED TESTING LABORATORIES

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Report Number NCTL-110-16389-1

Report Date 12/10/14

Report To AluminTechno LLC.
12 Selitskog Street, Room 211
FEZ Minsk, Minsk District, Minsk Region 220075
Republic of Belarus

Test Date 12/08/14

Specification AAMA/WDMA/CSA 101/I.S.2/A440-08
NAFS North American Fenestration Standard/Specification for windows, doors, and skylights
AAMA/WDMA/CSA 101/I.S.2/A440-05
Standard/Specification for Windows, Doors, and Unit Skylights

Performance Results AAMA/WDMA/CSA 101/I.S.2/A440-08
Class AW-PG40: Size tested 1524 x 2515 mm (60 x 99 in)-Type DAW
AAMA/WDMA/CSA 101/I.S.2/A440-05
DAW-AW40 1524 x 2515 (60 x 99)

Description of Specimen Tested

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

Model/ Series Tilt and Turn

Configuration Dual Action (Inswing)

Frame Size Overall
1524 mm x 2514.6 mm (60" x 99")

Vent Size 1435.1 mm x 2425.7 mm (56.5" x 95.5")

Viewing Area 1238.25 mm x 2228.85 mm (48.75" x 87.75")

Frame & Vent Type Extruded aluminum with reinforced nylon thermal breaks

Joint Construction Frame & Vent
Mitered with staked-in-place metal corner keys

Glazing Components

- Overall 24.89 mm (0.980") nominal
- Glass Thickness (2) Lites of 6 mm (0.220") nominal tempered glass
- Spacer Type/Size 13.72 mm (0.540") Desiccant-filled aluminum spacer (Type A1-D)
- Glazing System Interior glazed with a multi-fin gasket back-bedding and a snap-in extruded aluminum glazing bead with wedge gasket.

Weatherstrip

Type	(1) Strip single-leaf flexible vinyl
Location	Vent perimeter
Type	(1) Strip "gooseneck" vinyl
Location	Frame perimeter

Operating Hardware**Locks**

Type	Single handle (17)-point integrated lock system with (5) lock points at the hinge stile, (5) lock points at the lock stile, (4) lock points at the sill and (3) lock points at the head.
Location	996.95 mm (39.25") From the bottom of the lock stile

Keeper

Type	Metal
Location	Frame perimeter at the lock points

Hinge Hardware

Type	Dual action tilt and turn hardware
Location	Each end of the hinge stile/ hinge jamb

Auxiliary

Type	Extruded aluminum drip cap
Location	Exterior face of the bottom rail

Reinforcement

No reinforcement employed

Weep Description

Size	6.35 mm (0.25") Diameter
Location	69.85 mm (2.75") from each end of the bottom rail glazing channel
Size	4.78 mm (0.188") Diameter
Location	279.4 mm, 457.2 mm, and 685.8 mm (11", 12", and 27") from each end and midspan of the exterior sill face

Interior/ Exterior Surface Finish

White painted aluminum

Sealant

Location	Frame corners, vent corners, glazing corners and sill weatherstrip to sill
Material	Silicone

Insect Screen

No screen employed

Installation Method

The window was installed in a 50.8 mm x 254 mm (2" x 10") spruce-pine-fir lumber test buck and the window was fastened metal installation straps. The strap was fastened to the buck with (2) #12 x 38.1 mm (1.5") flat head screw and to the frame with (4) #8 x 31.75 mm (1.25") flat head tek screws. The exterior perimeter was sealed with silicone sealant.

Test Results - AAMA/WDMA/CSA 101/I.S.2/A440-2008 & 2005

<u>Paragraph</u>	<u>Test</u>
5.3.2.1	Air Leakage Resistance
3.1.2/ 3.1.11	ASTM E283-04(12)
	The tested specimen meets or exceeds the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-2008, and 2005 for air infiltration at 300 Pa (6.2 psf).
	<u>Prior to cycling</u>
	Maximum Allowable = 1.5 L/s/m ² (0.3 cfm/ft ²)
	Extraneous Air Leakage = 1.23 L/s (2.6 cfm)
	Total Air Leakage = 0.03 L/s (0.7 cfm)
	Air Infiltration Rate = 0.1 L/s/m ² (0.02 cfm/ft ²)
	<u>After cycling</u>
	Maximum Allowable = 1.5 L/s/m ² (0.3 cfm/ft ²)
	Extraneous Air Leakage = 0.99 L/s (2.1 cfm)
	Total Air Leakage = 0.85 L/s (1.8 cfm)
	Air Infiltration Rate = 0.2 L/s/m ² (0.04 cfm/ft ²)

<u>Paragraph</u>	<u>Test</u>
5.3.3	Water Penetration Resistance
3.1.3/ 3.1.12	ASTM E547-00(09) and ASTM E331-00(09)
	3.4 L / (min • m ²) (5.0 gph/ft ²)
	<u>Prior to and After cycling</u>
	No Leakage after 4 cycles of 5 minutes at 580 Pa (12.0 psf)
	No Leakage after 1 cycles of 15 minutes at 580 Pa (12.0 psf)
	NOTE: Tested with and without insect screen

<u>Paragraph</u>	<u>Test</u>
5.3.4.2	Uniform Load Deflection at Design Pressure
3.1.14	ASTM E330-14
	No damage after positive 1920 Pa (40.00 psf) held for 10 seconds
	No damage after negative 1920 Pa (40.00 psf) held for 10 seconds
	Measured Deflection _{Positive} = 1.42 mm (0.056 inches)
	Measured Deflection _{Negative} = 0.18 mm (0.007 inches)
	Maximum Allowed (L/175) = 3.81 mm (0.150 inches)

<u>Paragraph</u>	<u>Test</u>
5.3.4.3	Uniform Load Structural Test
3.1.17	ASTM E330-14
	No damage after positive 2880 Pa (60.00 psf) held for 10 seconds
	No damage after negative 2880 Pa (60.00 psf) held for 10 seconds
	Measured Permanent Set _{Positive} = 0.46 mm (0.018 inches)
	Measured Permanent Set _{Negative} = 0.23 mm (0.009 inches)
	Maximum Allowed (0.2%) = 1.35 mm (0.053 inches)
	NOTE: Deflection and Permanent Set measurements taken on the lock stile over a 666.75 mm (26.25") span.

<u>Paragraph</u>	<u>Test</u>	
5.3.5	Forced Entry Resistance ASTM F588-07	
	<u>Type B Window Assembly/ Grade 10:</u>	= Pass
	<u>Test</u>	
	Operable Panel	
	Disassembly	= No Entry
	Lock Manipulation	= No Entry
	Sash Manipulation	= No Entry
	Test B1	= No Entry
	Test B2	= No Entry
	Test B3	= No Entry
	Hardware Manipulation Test	= No Entry
	Sash Manipulation Test	= No Entry
	NOTE:	1. T1 = 5 minutes, L1 = 667 N (150 lbf), L2 = 333 N (75 lbf), L3 = 111 N (25 lbf) 2. Loads were held for 60 seconds.

<u>Paragraph</u>	<u>Test</u>	
5.3.6.4.2	Sash/ Panel Torsion Test	
	Concentrated load applied 70 N (15 lbf) held for 10 seconds	
	Maximum Allowable Deflection	= 199.90 mm (7.87 inches)
	Measured Deflection	= 171.45 mm (6.75 inches)

<u>Paragraph</u>	<u>Test</u>	
5.3.6.4.4	Sash/ Panel Concentrated Load Test on the Latch Rail	
	Concentrated load applied 270 N (60 lbf) held for 10 seconds	
	Deflection Limit	= 1.5 mm (0.06 inches)
	Maximum Horizontal Deflection	= 0.76 mm (0.03 inches)
	Concentrated load applied 400 N (90 lbf) held for 10 seconds	
	Deflection Limit	= 6.35 mm (0.25 inches)
	Maximum Vertical Deflection	= 4.57 mm (0.18 inches)
	NOTE:	Load applied in both directions and maximum deflection reported

<u>Paragraph</u>	<u>Test</u>	
5.3.6.9	Life Cycle Testing AAMA 910-93	
	1 st Half - Vent / Sash / Panel - 1250 Total Cycles	
	2.1.4 Vent/ Sash/ Panel Cycling Testing	
	2.2.4.4 Dual Action	= Pass
	2.1.5 Locking Hardware Cycle Testing	
	2.3 Locking Hardware Cycling	= Pass
	2.1.7 Misuse Testing	
	2.5.7.1 Stabilizing Arm Load	= Pass
	2.5.7.2 Vertical Load Test	= Pass
	2 nd Half - Vent / Sash / Panel - 1250 Total Cycles	
	2.1.8 Vent/ Sash/ Panel Cycling Testing	
	2.2.4.4 Dual Action	= Pass
	2.1.9 Locking Hardware Cycle Testing	
	2.3 Locking Hardware Cycling	= Pass

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. Forced entry resistance test equipment used is in compliance with Section 7 of the ASTM F588-07 test method. 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. The results in this report are actual tested values and are applicable to the specimen tested only, using the components and construction methods described herein.

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 is the joint property of National Certified Testing Laboratories Inc. and the Client to whom it is issued. Permission to reproduce this report by anyone other than National Certified Testing Laboratories Inc. and the Client must be granted in writing by both of the above parties. This report may not be reproduced, except its entirety, without the written consent of NCTL.

National Certified Testing Laboratories

A digital signature of Justin L. Bupp in cursive script, with the NCTL logo overlaid on the signature. Below the signature, the text "DIGITAL SIGNATURE" is printed in a small, sans-serif font.

Justin L. Bupp
Laboratory Manager

A digital signature of Robert H. Zeiders in cursive script, with the NCTL logo overlaid on the signature. Below the signature, the text "DIGITAL SIGNATURE" is printed in a small, sans-serif font.

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

JLB/ drm

Attachments

Appendix A – Revision Summary

Appendix B – Drawings

Appendix A

Section 1:

Component Drawings, with Applicable Part Numbers, Manufacturing and Modeling Details, were Reviewed (as submitted) for Product Verification
(Reference: NCTL-110-16389-1)

See Attached Documentation;
any deviations noted.

Note: The above referenced component drawings (if applicable) 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 & Revision</u>
Original Issue	12/10/14	Not Applicable

Appendix B

Drawings

CLIENT: **ALUTECH SRO**

PREPARED BY:
Professional Grade Construction Group Inc.
 701 39th St., Broomfield, NY 11833
 Tel: 845.583.3333 Fax: 845.583.3331

PROJECT ADDRESS:
5 Leigh Drive,
York, PA 17406

DATE	REVISION #

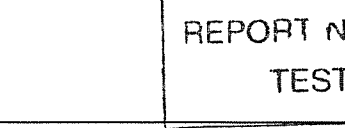
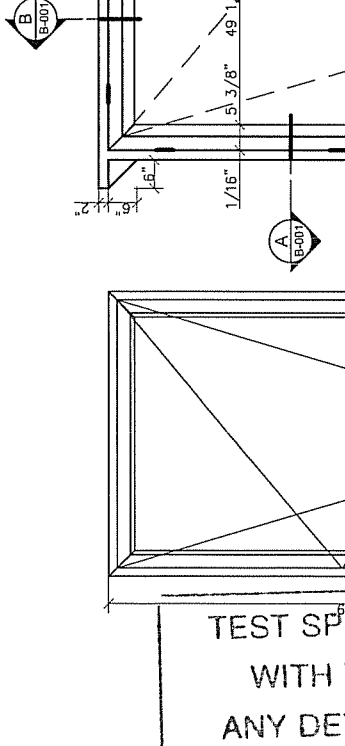
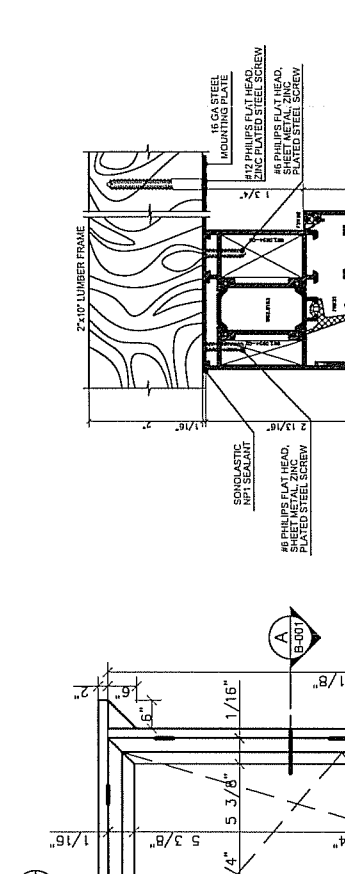
APPROVED

ALL DIMENSIONS SPECIFIED UNLESS OTHERWISE NOTED
 ALL DIMENSIONS TO BE SPAN UNLESS OTHERWISE NOTED
 PERMANENT MARKING
 PERMANENT MARKING
 PERMANENT MARKING
 PERMANENT MARKING

DRAWING TITLE:
ASSEMBLY DRAWING

DATE: 12.05.2013
 DRAWN BY: PS
 CHECKED BY: AA
 DRAWING NO.: **B-001**
 SIZE: B

PROJECT: **5 LEIGH DR. AND LUMBER ROW**
 GROUP: **17042013**



1 HANDLE LOCATION INSIDE VIEW
 SCALE: 1/2" = 1'-0"

2 WINDOW ELEVATION
 SCALE: 1/2" = 1'-0"

3 SECTION A-A
 SCALE: 6" = 1'-0"

4 SECTION B-B
 SCALE: 6" = 1'-0"

SYMBOL LEGEND:
 - - - 16 GA STEEL MOUNTING PLATE

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED REPORT NO. NCTL-110-11032897 TEST DATE 12-8-14

CLIENT:
ALUTECH SRO

PREPARED BY:
Professional Grade
CONSTRUCTION GROUP INC
701 39th St., Brooklyn, NY 11232
Tel: 718.382.2000
Fax: 718.382.2001

PROJECT ADDRESS:
**5 Leigh Drive,
York, PA 17406**

DATE	REVISION	#

APPROVED

ALL DIMENSIONS
UNLESS OTHERWISE SPECIFIED
ARE IN INCHES AND FRACTIONS
OF AN INCH. DIMENSIONS IN
PARENT UNITS SHALL PRECEDE
DIMENSIONS IN PARENT UNITS
WHEN BOTH UNITS ARE WRITTEN
TOGETHER.

SIGNAL NOTES:
DO NOT SCALE DRAWINGS
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TO ANY FABRICATION.

DRAWING TITLE:
**INSTALLATION
DRAWINGS**

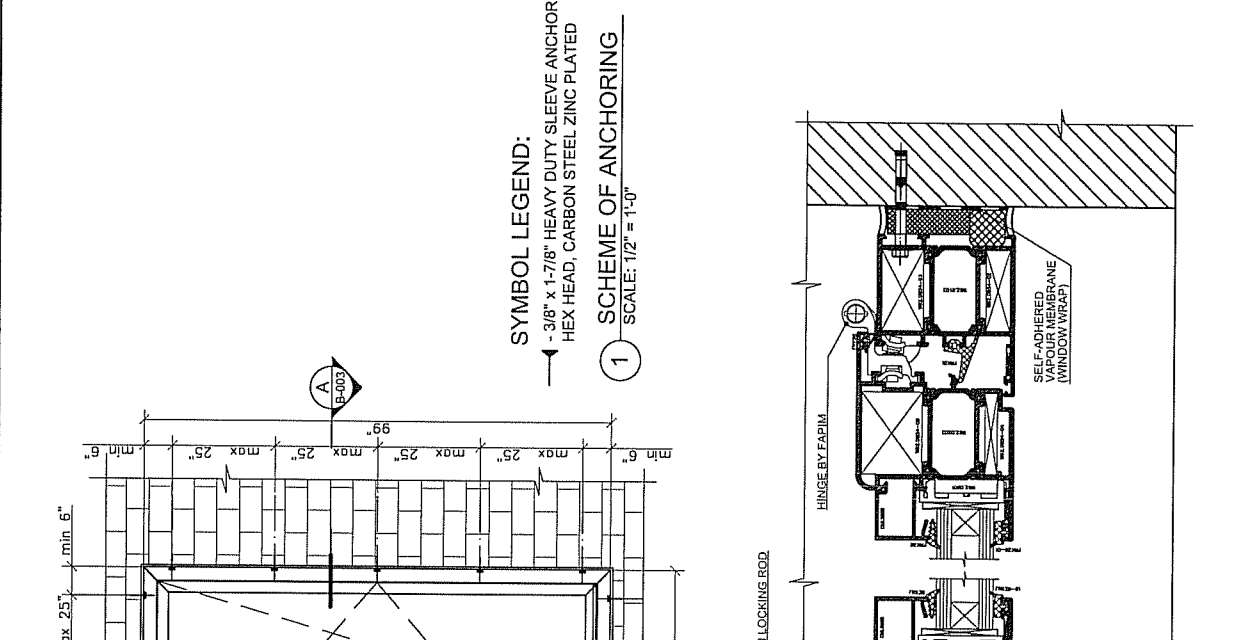
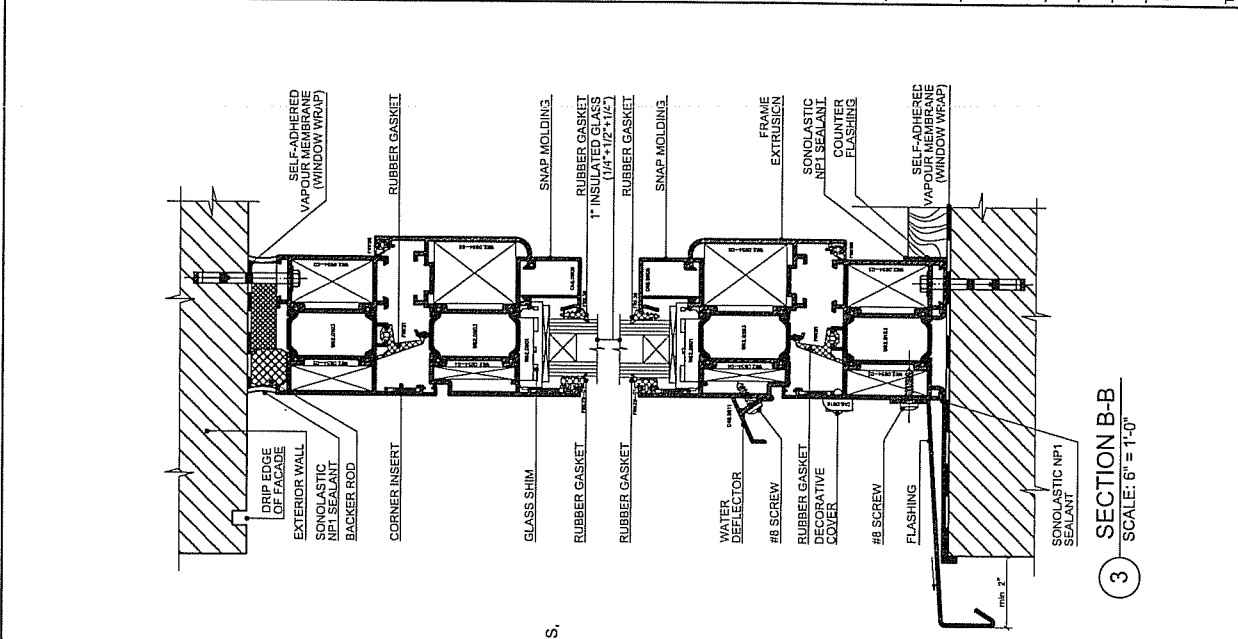
DATE: 12.05.2013

DRAWN BY: PS

CHECKED BY: AA

DRAWING No: **B-003**

SIZE: B
103 OF 04



SYMBOL LEGEND:
 - 3/8" x 1-7/8" HEAVY DUTY SLEEVE ANCHORS,
HEX HEAD, CARBON STEEL ZINC PLATED

1 SCHEME OF ANCHORING
SCALE: 1/2" = 1'-0"

TEST SPECIMEN COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED
REPORT NO. NCTL-110-16389-
TEST DATE 12-8-14

CLIENT:
ALUTECH SRO

PREPARED BY:
Professional Grade CONSTRUCTION GROUP INC
703 39th St, Bushykill, PA 17322
TEL: 718.382.6000 FAX: 718.382.6001

PROJECT ADDRESS:
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York, PA 17406**

DATE	REVISION	#

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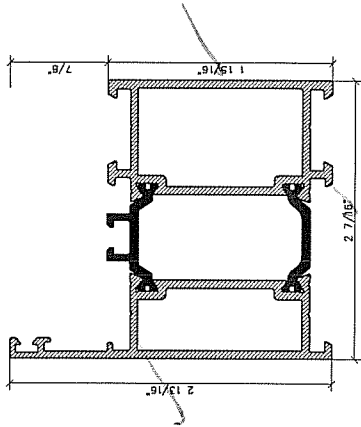
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DRAWING TITLE:
WINDOW EXTRUSIONS

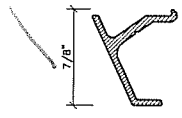
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CHECKED BY: AA
DRAWING No: **B-002** SIZE: B

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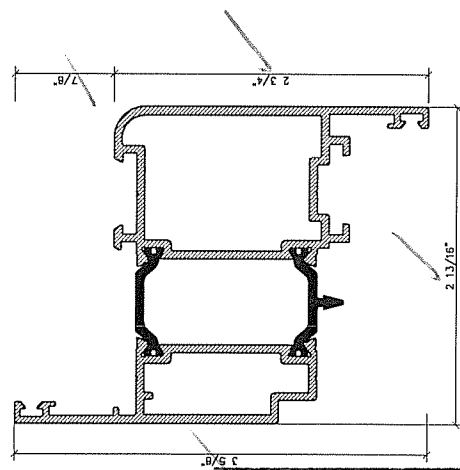
02 OF 04



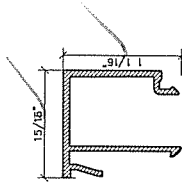
2 THERMALLY BROKEN WINDOW PANEL EXTRUSION W62.0103
SCALE: 1'-0" = 1'-0"



4 WATER DEFLECTOR EXTRUSION C48.0611
SCALE: 1'-0" = 1'-0"



3 THERMALLY BROKEN WINDOW FRAME EXTRUSION W62.0203
SCALE: 1'-0" = 1'-0"



3 SNAP MOLDING EXTRUSION C48.0606
SCALE: 1'-0" = 1'-0"

TEST SPECIMEN COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED
REPORT NO. NCTL-110-16782-1
TEST DATE 12-8-14

Illustration	Article	Description	Qty
	0760B1	NEFER Nylon transmission rods by FAPIM HC=39.3/8"	1
	1558	Connecting flange by FAPIM	1
	1405H	High quality gaskets by FAPIM	1
	1481I	T&T basic sill by FAPIM	1
	1451I	Long compass arm by FAPIM	1
	1495A4	Additional corner by FAPIM	2
	1585	Additional locking point by FAPIM	2
	1597I	Universal keeper by FAPIM	2
	1536	Anti-lift keeper by FAPIM	10
	W62.0603	Window panel extensor L= 85 1/2" Z45°	2
	W62.0603	Window panel extensor L= 85 1/2" Z45°	2
	W62.0103	Frame extrusion L= 80" Z45°	2
	W62.0103	Frame extrusion L= 99" Z45°	2
	FRK39	Rubber gasket L= 275"	1
	FRK29-01	Rubber gasket L= 275"	1
	FRK98	Rubber gasket L= 303"	1
	FRK51	Rubber gasket L= 287"	1
	IG unit	1" Insulated glass (1/4" CLTPx1/2" AIRx1/4" CL TP) 93 1/4" x 89 7/4"	1
	C48.0811	Water deflector L= 54"	1
	C48.0919	Decorative cover	2
	W62.0954-02	Corner insert	4
	W62.0954-03	Corner insert	4
	W62.0954-04	Corner insert	4
	W62.0954-05	Corner insert	4
	C48.0606	Snap molding 90° L= 51"	2
	C48.0606	Snap molding 90° L= 88 7/4"	2
	W62.0601	Glass shim	6
	FRK52	Rubber angle	4
	W62.0607	Corner insert	8
	5428A	Nylon transmission rods by FAPIM	7
	11213400	Glass shim 3 15/16" x 1 1/4" x 1/16"	6
	11213000	Glass shim 3 15/16" x 1 1/4" x 1/16"	6
	N/A	2" x 6" 16 GA steel mounting plate	10
	2428	#6 5/16" Phillips flat head zinc plated steel screw	40
	2458	#12 1-3/4" Phillips flat head, zinc plated steel screw	20
	2482	#8 1/2" Phillips pan head zinc plated steel screw	6

CLIENT: **ALUTECH SRO**

PREPARED BY: **Professional Grade CONSTRUCTION GROUP INC.**
701 39th St. Brooklyn, NY 11232
Tel: 718.318.8400 Fax: 718.318.8401

PROJECT ADDRESS: **5 Leigh Drive, York, PA 17406**

DATE	REVISION	#

APPROVED: _____

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DATE: 12.05.2013
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CHECKED BY: AA
DRAWING NO: _____ SIZE: B
B-004

SCALE: _____

DATE: 12.05.2013

