NATIONAL CERTIFIED TESTING LABORATORIES
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NFRC 400-2014

AIR LEAKAGE PERFORMANCE TEST REPORT SUMMARY

RENDERED TO:

NEON ENERGY
230 Park Avenue, 10th Floor
New York, NY 10169

PRODUCT TYPE: Five Lite Fixed Curtain Wall

SERIES/ MODEL: Curtain Wall

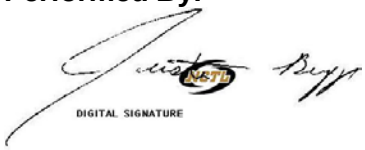
TITLE	SUMMARY OF RESULTS
Total Air Leakage	0.27 L/sec (0.58 scfm)
Extraneous (Tare) Air Leakage	<0.01 L/sec (<0.01 scfm)
Net Specimen Air Leakage	0.27 L/sec (0.58 scfm)
Air Leakage Rate	0.05 L/(sec• m^2) (0.01 scfm/ft^2) Measured

Test Completed: 07/18/16

Reference must be made to NCTL Report Number NCTL-110-19966-1 dated 03/15/17 for complete test sample description and data.

National Certified Testing Laboratories

Performed By:



Justin L. Bupp
Laboratory Manager

Reviewed By:

Raymond W. Lamb, PE
Person In Responsible Charge

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Report Number	NCTL-110-19966-1
Report Date	03/15/17
Report To	Neon Energy 230 Park Avenue, 10th Floor New York, NY 10169
Starting Test Date **Ending Test Date**	07/15/16 07/18/16
Specification	NFRC 400-2014 “Procedure for Determining Fenestration Product Air Leakage”

Description of Sample Tested

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

Model/ Series	Curtain Wall
Configuration	Five Lite Fixed Curtain Wall
Frame Size	Overall 1499 mm x 4001 mm (59” x 157.5”)
Viewing Area	(5) 1384 mm x 724 mm (54.5” x 28.5”)
Frame Type	Extruded aluminum
Joint Construction	Frame All corners were fastened together with an internal aluminum extrusion. The extrusion was fastened to the jambs with (2) screws and to the horizontals with (2) screws at each end. A rubber gasket was employed between the members.
Glazing Components	
Overall	25.91 mm (1.020”) nominal
Glass Thickness	(1) Lite of 6 mm (0.229”) nominal annealed glass to the interior and (1) lite of 6 mm (0.230”) tempered glass to the exterior
Spacer Type/ Size	14.25 mm (0.561") Desiccant-filled aluminum spacer (Type A1-D)
Glazing System	Exterior glazed with a gasket back-bedding and a screwed-in-place aluminum pressure plate. The plate employed (2) strips of multi-fin gasket. The glass was back-filled with expanded foam and silicone.
Weatherstrip	No weatherseals employed
Operating Hardware	No operating hardware employed
Auxiliary	
Type	Extruded aluminum cover/ beauty cap
Location	Snap-fitted at the pressure plates
Type	Extruded aluminum filler
Location	Exterior frame perimeter
Reinforcement	No reinforcement employed

Weep Description

Size	25.4 mm (1”) Notch
Location	51 mm (2”), 229 mm (9”), 419 mm (16.5”) and midspan of the lower pressure plate gasket at each horizontal

Interior & Exterior Surface Finish White painted aluminum

Sealant No apparent sealant applied

Screens No screen employed

Installation Method The window was installed in a 50.8 mm 203.2 mm (2” x 8”) spruce-pine-fir lumber test buck was fastened through the frame with (1) #12 x 102 mm (4”) pan head screw located 102 mm (4”) from each end and 254 mm (10”) on center thereafter at the frame perimeter. The exterior perimeter was sealed with silicone sealant.

Test Results - NFRC 400

Paragraph	Test
4	Air Leakage Resistance ASTM E283-04(12)

Air Infiltration at 75 Pa (1.6 psf)

Air Temperature	=	23.83 ºC	(74.9º F)
Atmospheric Pressure	=	762 mm Hg	(30 ”Hg)
Relative Humidity	=	52 %	
Total Air Leakage	=	0.27 L/sec	(0.58 scfm)
Extraneous $_{(Tare)}$ Air Leakage	=	<0.01 L/sec	(<0.01 scfm)
Net Specimen Air Leakage	=	0.27 L/sec	(0.58 scfm)
Air Leakage Rate	=	0.05 L/(sec• m²)	
	=	(0.01 scfm/ft²)	Measured

This report is a reissued report. All information has been reviewed prior to re-submission. It is reissued via authorization from Section 2 of NFRC 400 and no test sample was submitted for this test report. This test report was prepared by National Certified Testing Laboratories (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 client. 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. A copy of this report will be retained by NCTL per applicable retention requirements. 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. 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. Tests were performed in the order set forth by the applicable standard or specification. This report is the joint property of NCTL and the Client to whom it is issued. Permission to reproduce this report by anyone other than NCTL and the Client must be granted in writing. This report may not be reproduced, except its entirety, without the written consent of NCTL.

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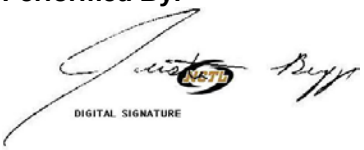

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Person In Responsible Charge

JLB/ dro
Ref. Original NCTL Report 110-19251-5

APPENDIX A

Section 1:

Modifications to the Test Specimen to Achieve the Listed Results

Any modifications (if applicable) are included in the test specimen description listed in this report.

Section 2:

Component Drawings, with Applicable Part Numbers, Manufacturing and Modeling Details, were reviewed (as submitted) for Product Verification
(Reference: NCTL-110-19966-1)

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 3:

Identification	Date	Page & Revision
Original Issue	03/15/17	Air data from original NCTL report 110-19251-5 and is being used to comply with NFRC 400.

Description of test specimen Curtain Wall:

Product	Curtain wall
Manufacturer	Alco Hellas S.A.
Date of manufacture	3/6/2016
System	Alousystem Curtain Wall Standard
Type of opening / Opening directions	No opening
Frame material	Aluminum profiles with thermal break
Overall frame dimensions (WxH)	4' 11 1/16" x 13' 1 31/64"
Mullion member	Profile No Y-502
Transom member	Profile No Y-502
Holding plate of glass panes	Profile No Y-506
Decorative cover	Profile No Y-511
Infill panel	Glass Unit
Configuration	from inside to outside: 15/64" glass, 35/64" airspace, 15/64" glass

Incorporation of infill panel

Glazing gasket

Internal:

Material	Sealing material – EPDM
Item No	Y 103
Corner design	mitred and bonded

External:

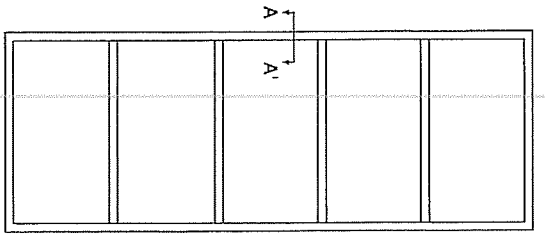
Material	Sealing material – EPDM
Item No	Y 105
Corner design	mitred and bonded

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.

ANY DEVIATION IS NOTED.

REPORT NO. NCTL-110- 1996G-1

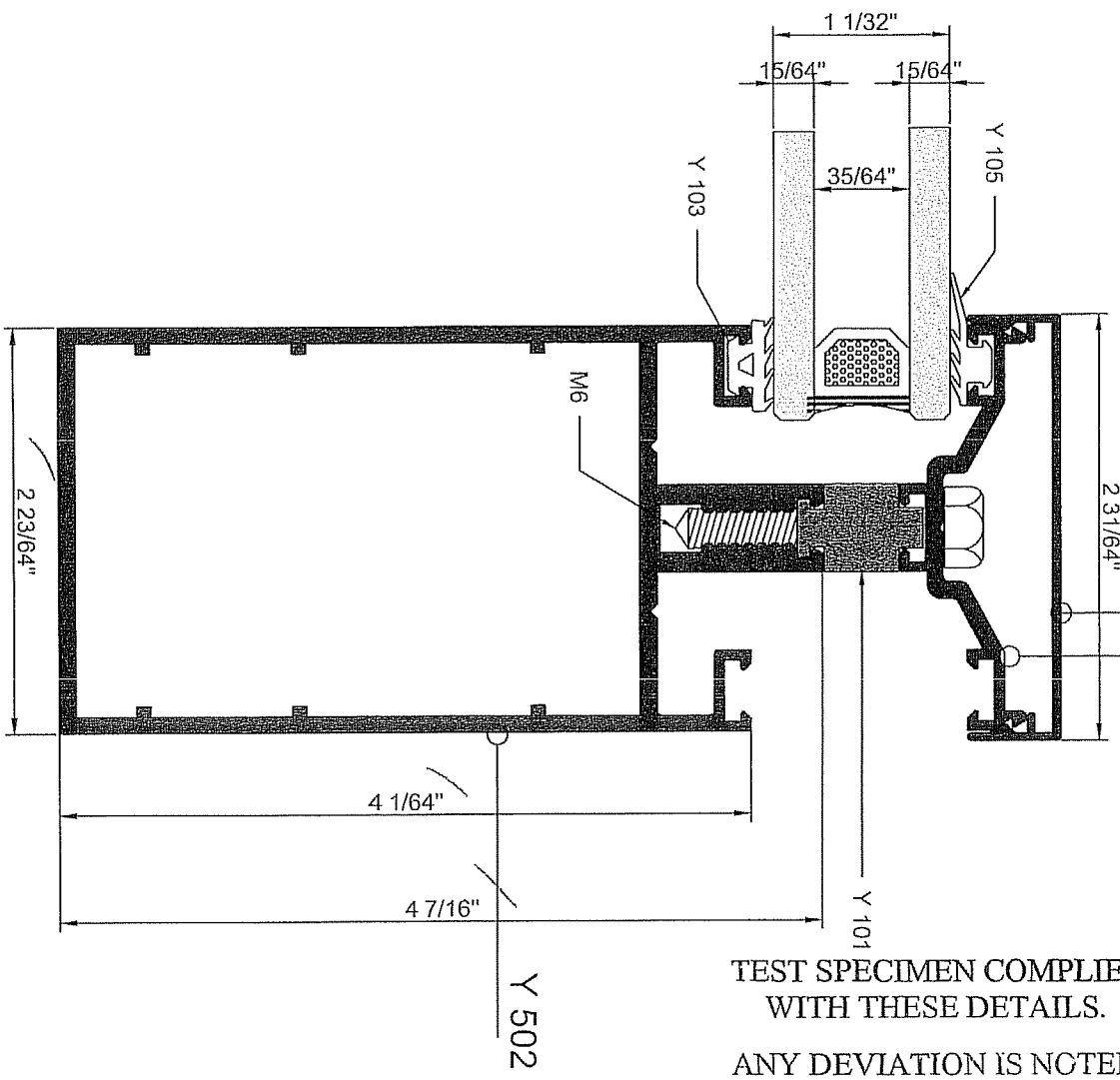
TEST DATE: 7-18-16



HORIZONTAL SECTION A-A'

KA. 1:1

TEST SPECIMENT CURTAIN WALL

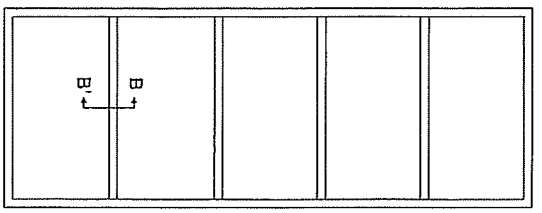


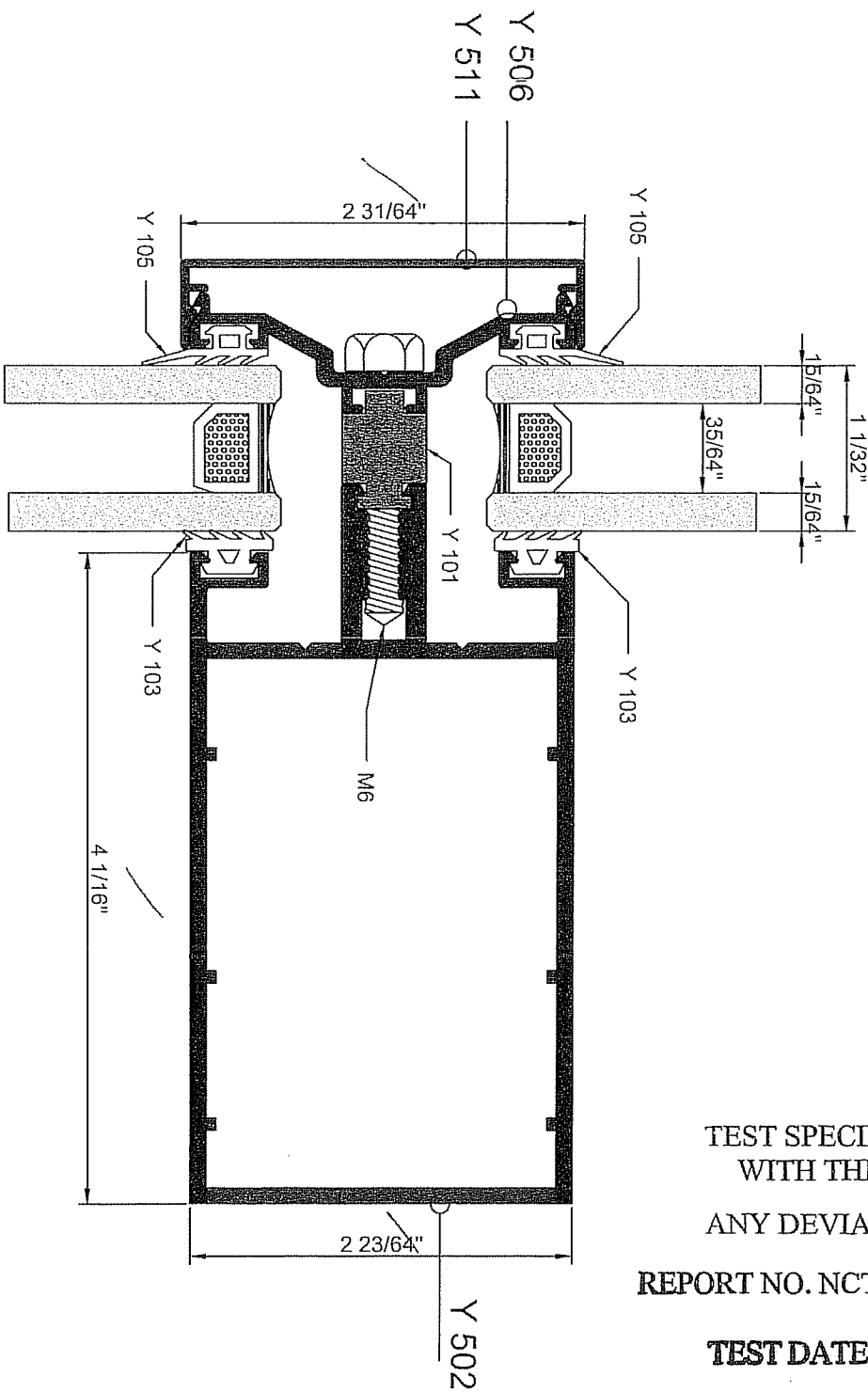
TEST SPECIMEN COMPLIES WITH THESE DETAILS.

ANY DEVIATION IS NOTED.

REPORT NO. NCTL-110- 19966-1

TEST DATE: 2-18-16





VERTICAL L SECTION B-B'

KA. 1:1

TEST SPECIMENT CURTAIN WALL

TEST SPECIMEN COMPLIES WITH THESE DETAILS.

ANY DEVIATION IS NOTED.

REPORT NO. NCTL-110- 19916-1

TEST DATE: 2-18-16