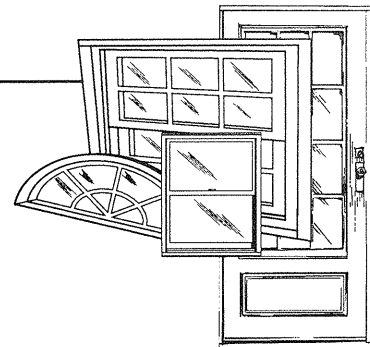


CERTIFIED TESTING LABORATORIES

Architectural Division • 7252 Narcoossee Rd. • Orlando, FL 32822
(407) 384-7744 • Fax (407) 384-7751
Web Site: www.ctlarch.com
E-mail: ctlarch.com



Report Number: CTLA-361W-15 & W-12
Report Date: January 14, 1999

STRUCTURAL PERFORMANCE TEST REPORT

Client: NUAIR ALUMINUM WINDOW AND DOORS
8105 ANDERSON ROAD
P.O. BOX 15436
TAMPA, FLORIDA 33684

Product Type and Series: A02-A03 SIX (6) VENT ALUMINUM AWNING WINDOW AP-R45 (53" x 97") and A02-A03 THREE (3) VENT ALUMINUM AWNING WINDOW AP-R30 (53" x 67" DOWNSIZE)

Test Specification: AAMA/NWDA 101/I.S.2-97 "Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Window and Glass Doors"

Test Specimen

Frame: The extruded aluminum flange frame measured 53.125" x 96.750" overall. Tab and staked corner construction. The downsize frame measured 53.125" x 66.875" overall.

Configuration: Six (6) vent awning. Three (3) vent awning (Downsize)

Ventilator: The extruded aluminum vents measured 52" x 16" overall. tab and stake corner construction. The downsize vents measured 52" x 22" overall. tab and stake corner construction.

Weatherstripping:	<u>Quantity</u>	<u>Description</u>	<u>Location</u>
	One (1) strip	Bulb vinyl .175" o.d.	Bottom rail of each vent
	One (1) strip	Bulb vinyl .175" o.d.	Frame head sill and jamb

Hardware & Location: The awning rotary activated open and close mechanism conformed to the drawing provided by the client, stamped and dated by this laboratory.

Glazing: SSB annealed glass, exterior glazed with adhesive back bedding compound and roll formed glazing bead.

Sealant: All hairline joinery and frame / vent corners were sealed with small joint sealant.

Weep System: N/A

[Handwritten Signature]
2/2/99

Reinforcement: N/A

Additional Description: Vent lock pins were located 4" from vent bottom rail in the vent stiles.

Screen: N/A

Installation: Ten (10) #10 x 1" P.H., C.S., S.M.S. fasteners were used to secure the specimen to the pressure treated wooden test buck. Two (2) in the head 6" from each end. Four (4) in each jamb 6", 34.6", 62.5" and 90.75" measuring from top to bottom.
The 53" x 67" (downsize specimen) eight (8) #10 x 1" P.H., C.S., S.M.S. fasteners were used to secure the specimen to the pressure treated wooden test buck. Two (2) in the head 6" from each end. Three (3) in each jamb 6" from top to bottom and mid-span.

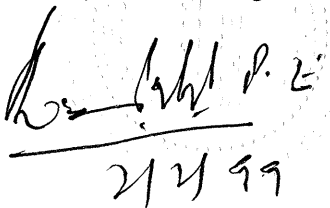
Surface Finish: White

Comment: Nominal 2 mil polyethylene film was used to seal against air leakage during structural loads. The film was used in a manner that did not influence the test results.

Performance Test Results

<u>Paragraph No.</u>	<u>Title of Test</u>	<u>Method</u>	<u>Measured</u>	<u>Allowed</u>
*2.1.2	Air Infiltration @ 1.57psf	ASTM E 283-91	.20 cfm/ft ²	.30 cfm/ft ²
The specimen tested exceeds the performance levels specified in AAMA/NWWDA101/I.S.2-97 for Air Infiltration results required.				
*2.1.3/4.3	Water Resistance 5.0 gph/ft ² WTP=7.5 psf	ASTM E 547-93 Four (4) 5 min. cycles ASTM E 331-93 15 min. duration	No Entry	No Entry
2.1.4./4.4.2	Uniform Load Structural Permanent Deformation	ASTM E 330-90 10 second load duration		
Gateway 53" x 97"	@ 67.5 psf Positive @ 67.5 psf Negative		.028" .039"	.208" .208"
Downsize 53" x 67"	@ 45 psf Positive @ 45 psf Negative		.005" .014"	.208" .208"
2.1.8	Forced Entry Resistance Paragraph A	AAMA 1303.5-76		Passed
2.2.4.5.1	Hardware Load Test	AAMA/NWWDA 101/I.S.2-97		Passed
2.2.12.5.1	Hardware Load Test	AAMA/NWWDA 101/I.S.2-97		Passed

* Gateway Air Infiltration and Water Resistance Testing was conducted on Specimen 53" x 97" , 6 Vent Awning.


2/2/99

Testing conducted at NUAIR Aluminum Window and Doors Co. in Tampa, FL.

Test Date: December 9, 1998

Test Completion Date: December 9, 1998

Remarks: Detail drawings were available for laboratory records and comparison 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 CTL for a period of four (4) years. The results obtained apply only to the specimen tested.

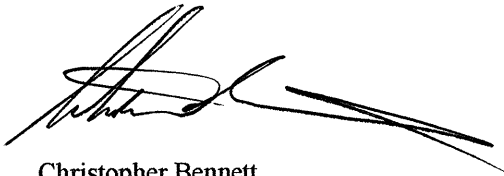
This test report does not constitute certification of this product, but only the above test results were obtained using the designated test methods and they indicate compliance with the performance requirements (paragraphs as listed) of the above referenced specifications.

Certified Testing Laboratories assumed that all information provided by the client is accurate and that the physical and chemical properties of the components are as stated by the manufacturer.

All Tests Witnessed by:

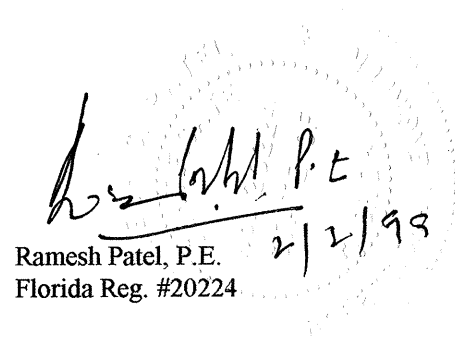
Jens Rosowski Nuair
Ken Moran Nuair
Chris Bennett CTL

Certified Testing Laboratories, Inc.



Christopher Bennett
Laboratory Manager

cc: NUAIR (2)
NAMI (2)
Ramesh Patel P.E.
File



Ramesh Patel, P.E.
Florida Reg. #20224