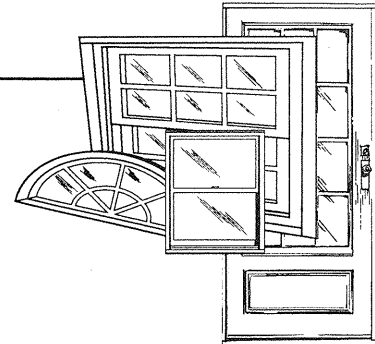


# CERTIFIED TESTING LABORATORIES

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**Report Number:** CTLA-361W-10 & W-11  
**Report Date:** January 11, 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:** SERIES 950 ALUMINUM SINGLE HUNG DHC-45 (54" x 90") and  
SERIES 950 ALUMINUM SINGLE HUNG DHC-55 (53" x 76"  
DOWNSIZE)

**Test Specification:** AAMA/NWWDA 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 54" x 90" overall. Coped and butted corner construction, each frame corner secured with two (2) #8 x .750" P.H., S.H. fasteners. Fixed meeting rail secured to frame jamb with one (1) #8 x .750" P.H., S.H. fastener. Downsize frame measured 53.125" x 76" overall.

**Configuration:** Fixed lite in top, operable sash in bottom.

**Ventilator:** The operable sash measured 53.5" x 45.50" overall. Coped and butted corner construction, each sash corner secured with one (1) #8 x 1" P.H. fastener. Downsize operable sash measured 50" x 38" overall

### Weatherstripping:

<u>Quantity</u>	<u>Description</u>	<u>Location</u>
One (1) strip	Bulb vinyl .300 o.d.	Sash bottom rail
One (1) strip	Wool pile with integral plastic fin .300" high	Fixed meeting rail
One (1) strip	Wool pile with integral plastic fin .300" high	Each sash stile
One (1) strip	.375" long wool pile with integral plastic fin .300" high	Each top rail sash guide

### Hardware & Location:

<u>Quantity</u>	<u>Description</u>	<u>Location</u>
Two (2)	Block and tackle balances	One (1) per frame jamb
Two (2)	Plastic sash guides	One (1) per sash jamb top rail
Two (2)	Cam locks 8.50" from each end	Sash top rail
Two (2)	Vinyl sash stops	One (1) per frame jamb

**Glazing:** 3/16" Annealed glass, exterior glazed with adhesive back bedding compound and roll formed aluminum glazing bead.

*Handwritten signature:* [Signature]  
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**Sealant:** A narrow joint sealant was used on all frame corners, fixed meeting rail and vent corners

**Weep System:** One (1) weep notch 1.5" x lg. ht. in the screen retaining leg, each corner of sill.

**Reinforcement:** One (1) piece of aluminum angle 5/8" x 7/16" x 3/16" in the frame meeting rain and one (1) piece of aluminum as per drawing #AF-11316A in the sash top rail.

**Additional Description:** N/A

**Screen:** Roll formed aluminum frame with plastic corners keys, vinyl spline and fiberglass mesh. Two (2) plastic pull tab and two (2) spring retainer clips.

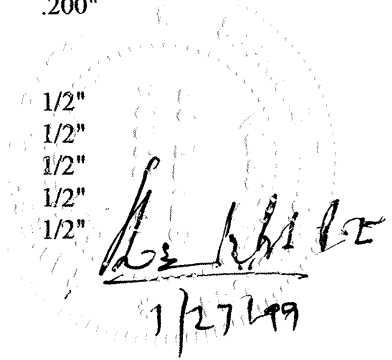
**Installation:** Ten (10) #10 x 1" P.H. fasteners were used to secure the specimen to the pressure treated wooden test buck in the following locations: Four (4) in the head 2", 16", 36" and 51" measuring from left to right. Three (3) in each jamb 1", 46" and 86" measuring from head to sill. The downsize frame had nine (9) #10 x 1" P.H. fasteners. Three (3) in the head at 3", 26", and 48" measuring from left to right. Three (3) in each jamb 3", 38" and 71" measuring from head to sill.

**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	ASTM E 283-91	.11 cfm/ft <sup>2</sup>	.30 cfm/ft <sup>2</sup>
<b>GATEWAY UNIT</b>	@ 1.57psf			
54" X 90"	The specimen tested exceeds the performance levels specified in AAMA/NWWDA101/I.S.2-97 for air infiltration.			
*2.1.3/4.3	Water Resistance	ASTM E 547-93	No Entry	No Entry
<b>GATEWAY UNIT</b>	5.0 gph/ft <sup>2</sup>	Four (4) 5 min. cycles		
54" X 90"	WTP=6.75 psf	ASTM E 331-93	No Entry	No Entry
		15 min. duration		
	Testing conducted with and without insect screen.			
2.1.4./4.4.2	Uniform Load Structural	ASTM E 330-90		
	Permanent Deformation	10 second load duration		
<b>GATEWAY UNIT</b>	@ 67.5 psf Positive		.045"	.204"
54" X 90"	@ 67.5 psf Negative		.140"	.204"
<b>DOWNSIZE UNIT</b>	@ 82.5 psf Positive		.055"	.200"
53" X 76"	@ 82.5 psf Negative		.091"	.200"
*2.1.8	Forced Entry Resistance Results AAMA 1303.5-76			
	Test A		0"	1/2"
	Test B		0"	1/2"
	Test C		0"	1/2"
	Test D, E, and F		0"	1/2"
	Test G		0"	1/2"

  
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### Performance Test Results (cont.)

<u>Paragraph No.</u>	<u>Title of Test</u>	<u>Method</u>	<u>Measured</u>	<u>Allowed</u>
2.2.1.6.1	Operating Force	AAMA/NWWDA 101/L.S.2-97		
	<b>GATEWAY UNIT 54" X 90"</b>		24 lbs.	35 lbs.
	<b>DOWNSIZE UNIT 53" X 76"</b>		19 lbs.	35 lbs.
*2.2.1.6.2	Deglazing	ASTM E 987-88		
	Top Rail 70 lbs.		.012" = 2.4% <100%	
	Bottom Rail 70 lbs.		.015" = 3.0% <100%	
	Left Stile 50 lbs.		.010" = 2.0% <100%	
	Right Stile 50 lbs.		.012" = 2.4% <100%	

\*Reference CTLA-361W-5 December 27, 1998

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

**Test Date:** January 6, 1999

**Test Completion Date:** January 6, 1999

**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.

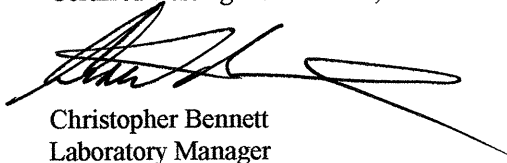
This test report does not constitute certification of this product, but only the above test results were obtained using the designated test methods and they indicate compliance with the performance requirements (paragraphs as listed) of the above referenced specifications.

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:**

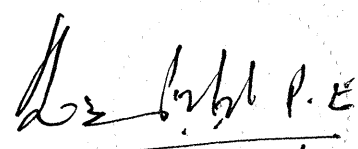
Jens Rosowski Nuair  
Ken Moran Nuair  
Chris Bennett CTL

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

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