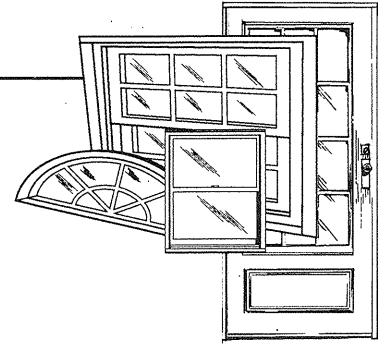


# CERTIFIED TESTING LABORATORIES

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**Report Number:** CTLA-361W-8 & W-6  
**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:** SERIES 900 ALUMINUM SINGLE HUNG DHC-30\* (53" x 91") and  
SERIES 900 ALUMINUM SINGLE HUNG DHC-40\* (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 53.125" x 91" 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 50.5" x 46" overall. Coped and butted corner construction, each sash corner secured with one (1) #8 x 1" P.H. fastener. Downsize operable sash measured 50.5" x 32" 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 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

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- Glazing:** 3/16" Annealed glass, exterior glazed with adhesive back bedding compound and roll formed aluminum glazing bead.
- 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:** N/A
- 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 manner: 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", 46" and 86" 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 @ 1.57psf	ASTM E 283-91	.06 cfm/ft <sup>2</sup>	.30 cfm/ft <sup>2</sup>
The specimen tested exceeds the performance levels specified in AAMA/NWWDA 101/I.S.2-97 for air infiltration.				
*2.1.3/4.3	Water Resistance 5.0 gph/ft <sup>2</sup> WTP=7.5 psf	ASTM E 547-93 Four (4) 5 min. cycles ASTM E 331-93 15 min. duration	No Entry	No Entry
Testing conducted with and without insect screen.				
2.1.4./4.4.2	Uniform Load Structural Permanent Deformation	ASTM E 330-90 10 second load duration		
<b>GATEWAY UNIT</b> 54" X 90"	@ 45 psf Positive @ 45 psf Negative		.005" .040"	.200" .200"
<b>DOWNSIZE UNIT</b> 53" X 76"	@ 60 psf Positive @ 60 psf Negative		.020" .055"	.200" .200"

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1/27/20

*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, & F	0"	1/2"
	Test G	0"	1/2"
*2.2.1.6.1	Operating Force AAMA/NWWDA 101/L.S.2-97	15 lbs.	35 lbs.
*2.2.1.6.2	Deglazing ASTM E 987-88		
	Top Rail 70 lbs.	.008" = 1.6% <100%	
	Bottom Rail 70 lbs.	.016" = 3.2% <100%	
	Left Stile 50 lbs.	.018" = 3.6% <100%	
	Right Stile 50 lbs.	.015" = 3.0% <100%	

\* Reference CTLA-261W-1 Air, Water, Forced Entry and Deglazing.

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

**Test Date:** December 7, 1998

**Test Completion Date:** December 7, 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:**

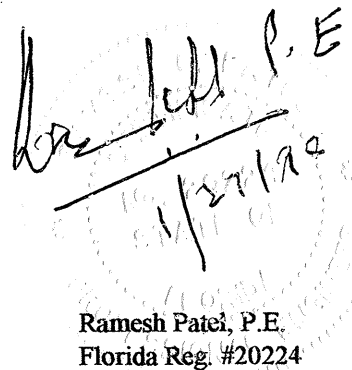
Jens Rosowski Nuair  
Ken Moran Nuair  
Chris Bennett CTL

Certified Testing Laboratories, Inc.



Christopher Bennett  
Laboratory Manager

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



Ramesh Patel, P.E.  
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