

CERTIFIED TESTING LABORATORIES

Architectural Division • 7252 Narcoossee Rd. • Orlando, FL 32822

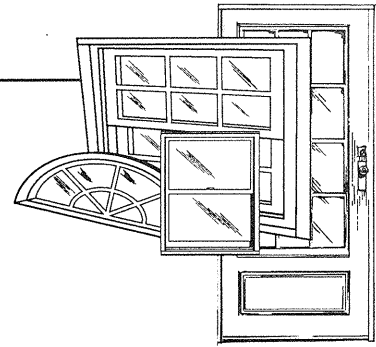
(407) 384-7744 • Fax (407) 384-7751

Web Site: www.ctlarch.com

E-mail: ctlarch.com

Report Number: CTLA-386W-W1-W2

Report Date: February 22, 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: 500 Aluminum Sliding Glass Door SGD C-45 (96" x 96")

Downsize: 500 Aluminum Sliding Glass Door SGD C60 (96" x 80")

Downsize: 500 Aluminum Sliding Glass Door SGD C-75 (72" x 80")

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 96" x 96" overall. Coped and butted corner construction, each frame corner secured with two (2) #8 x .625" Phillips pan head fasteners. The downsize frames measured 96" x 80" overall and 72" x 80" overall.

Configuration: XX

Panels: Both panels measured 49.5" x 94.5" overall. Coped and butted corner construction secured with one (1) # 8 x .750" S.H.S PH fasteners. The downsize panels measured 49.5" x 78.5" overall, and 37.375" x 78.5" overall.

Weatherstripping:

<u>Quantity</u>	<u>Description</u>	<u>Location</u>
Two (2) strip	Woolpile with integral fin .370" high	Exterior of top rail on all panels
Two (2) strip	Wool pile .350" high	Recessed into each side of bottom rail all panels
One (1) strip	Wool pile .200" high	In both interlock stiles
Four(4)strips	Woolpile .200" high	Two (2) in each jamb

Hardware & Location:

<u>Quantity</u>	<u>Description</u>	<u>Location</u>
Two (2)	Die cast lock set and pull handle	41" up from sill on lock stiles
Two (2)	Metal single roller assemblies	Each end of bottom rail all panels

Deborah P.E.
576193

Glazing: 3/16 tempered glass. Channel or Marine Glazed with wrap around vinyl glazing gasket.

Sealant: A narrow joint sealant was used on all frame corners.

Weep System: There were three (3) weep notches in each end of sill measuring .800" x leg high. Weeping to the exterior.

Reinforcement: N/A

Additional Description: N/A

Screen: Extruded aluminum screen frame, fiberglass mesh with vinyl spline, two (2) spring roller assemblies. In the top rail and two (2) springs roller assemblies in the bottom rail.

Installation: Twenty six (26) # 8 x 1" Phillips flat head fasteners were used to secure the specimen to the wooden test buck. Ten (10) in the head in two (2) parallel rows, at 6", 27", 48", 67" and 90" measuring from left jamb to right jamb. Eight (8) in each jamb, in two (2) parallel rows 4", 37", 59" and 92" measuring from head to sill. Ten (10) # 8 x 1 1/2" Phillips flat head in the sill in two (2) parallel rows 6", 27", 48", 67" and 90" measuring from left jamb to right jamb.

Downsize: 96" x 80" had twenty two (22) # 8 x 1 Phillips flat head fasteners, ten (10) in the head in two (2) parallel rows 6" 27", 48", 67" and 90". Measuring from left jamb to right jamb. Six (6) in each jamb in two (2) parallel rows 4", 42" and 76" measuring from head to sill. Ten (10) 8 x 1 1/2" Phillips flat head fasteners. In the sill in two (2) parallel rows 6", 27", 48", 67" and 90" measuring from left jamb to right jamb.

Downsize: 72" x 80" had twenty (20) 8 x 1" Phillips flat head fasteners eight (8) in the head in two (2) parallel rows 6" 26" 46" 66" measuring from left jamb to right jamb. Six (6) in two (2) parallel rows 4" 43" 76" measuring from head to sill. Eight (8) # 8 x 1 1/2" Phillips flat head fasteners. In two (2) parallel rows 6", 26", 46" and 66" measuring from left jamb to right jamb.

Surface: 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	.32 cfm/ft ²	.34 cfm/ft ²
* 2.1.3/4.3	Water Resistance 5.0 gph/ft ²	ASTM E 547-93 Four (4) 5 min. cycles ASTM E 331-93 15 min. duration	No Entry	No Entry

The specimen tested exceeds the performance levels specified in AAMA/NWDA 101/I.S.2-97 for air infiltration.

Handwritten signature and date:
5/16/90

1½" sill height overall	WTP=4.5	No Entry	No Entry
2" sill height overall	WTP=6.7	No Entry	No Entry
2½" sill height overall	WTP=9.0	No Entry	No Entry
3" sill height overall	WPT=11.25	No Entry	No Entry

Testing conducted with and without insect screen.

2.1.4./4.4.2	Uniform Load Structural ASTM E 330-90		
Gateway Unit	Permanent Deformation 10 second duration		
96" x 96"	@ 67.5 psf Positive	.312"	.378"
	@ 67.5 psf Negative	.320"	.378"

Downsize:	@ 90 psf Positive	.237"	.314"
96" x 80"	@ 90 psf Negative	.268"	.314"

Downsize:	@ 120 psf Positive	.185"	.314"
72" x 80"	@ 120 psf Negative	.240"	.314"

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/I.S.2-97**

Gateway Unit:	To open left panel	9 lbs	30 lbs
96" x 96"	To open right panel	11 lbs	30 lbs
	To keep in motion left	6 lbs	20 lbs
	To keep in motion right	5 lbs	20 lbs

Downsize:	Operating force AAMA/NWWDA 101/I.S.2-97		
96" x 80"	To open left panel	8 lbs	30 lbs
	To open right panel	10 lbs	30 lbs
	To keep in motion	5 lbs	20 lbs
	To keep in motion	5 lbs	20 lbs

Downsize:	Operating Force AAMA/NWWDA 101/I.S.2-97		
72" x 80"	To open left panel	10 lbs	30 lbs
	To open right panel	9 lbs	30 lbs
	To keep in motion	5 lbs	20 lbs
	To keep in motion	4 lbs	20 lbs

2.2.1.6.2

De-glazing:	ASTME 987-88		
	Top rail	.005=	1.0% < 100%
	Bottom rail	.004=	0.8% < 100%
	Left stile	.010=	2.0% < 100%
	Right stile	.008=	1.6% < 100%

* Reference CTLA 361W

Testing done at NUAIR facility in Tampa, FL.

NUAIR Aluminum Windows and Doors
 [Signature]
 5/6/99

Test Date: February 16, 1999

Test Completion Date: February 17, 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.

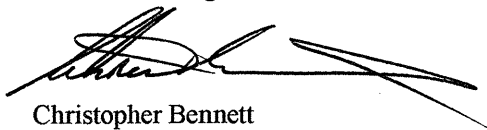
This test report does not constitute certification of this product, but only the above test results were obtained using the designated test methods and they indicate compliance with the performance requirements (paragraphs as listed) of the above referenced specifications.

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:

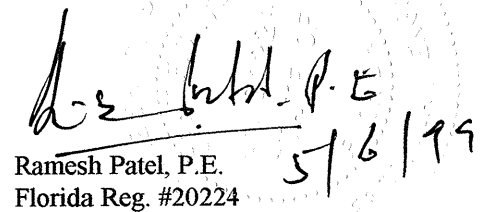
Jens Rosowski Nuair
Ken Moran Nuair
Chris Bennett CTL

Certified Testing Laboratories, Inc.



Christopher Bennett
Laboratory Manager
Architectural Division

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



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