

Architectural Testing

ANSI/AAMA/WDMA STRUCTURAL TEST REPORT

Rendered to:

HURD MILLWORK COMPANY, INC.
520 South Whelen Avenue
Medford, Wisconsin 54451

ATI Report No: 06-30373.01
Test Dates: 03/14/02
and: 03/19/02
Report Date: 03/20/02
Expiration Date: 03/14/06

Series/Model: Premium Double Hung
Type: Aluminum Clad Double Hung Window

Test Procedure:

The test specimen was evaluated in accordance with ANSI/AAMA/WDMA 101/I.S. 2-97, "Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors," for conformance to the **Class H-LC30 46 x 93** performance requirements. Uniform load structural testing was also performed per North Carolina Building Code 613.2-Mullions.

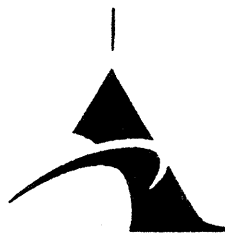
Test Specimen Description:

Overall Size: 45 -1/2" wide by 92 -3/4" high
Upper Sash Size: 42 -3/8" wide by 44 -11/16" high
Lower Sash Size: 42 -3/8" wide by 46" high
Overall Area: 29.31 ft²

Finish: Interior was natural wood and exterior aluminum cladding was painted white.

Glazing: The sash were glazed using nominal 3/4" thick sealed insulating glass composed of two sheets of double strength clear annealed glass separated by a 1/2" metal spacer. The glass was set from the interior against a continuous silicone backbed and wood glazing beads were employed at the interior which was secured with 3/4" wire brads spaced 6" to 8" on center.

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Test Specimen Description:(con't)

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
0.170" high pile w/center fin	1 row	Upper and lower sash stiles
0.200" dia. hollow vinyl bulb	1 row	Upper sash, meeting rail
0.300" foam filled bulb	1 row	Lower sash, bottom rail
0.230" high pile w/center fin	1 row	Frame head
Foam pad	4	Vinyl jamb liner ends
0.500" backed by 0.250" high pile w/center fin, 1.250" long air pad	2	Center of vinyl jamb liners

Frame Construction: The frame head and sill utilized molded pine sections and the vertical jambs consisted of timber-strand lumber. The corners were dadoed, sealed with silicone and were secured with two (2) 1/2" by 2" crown staples per corner. Wood liners were employed at interior frame members and were secured to the frame with 1/8" by 1 -1/8" crown staples spaced 8" to 10" on center. The interior wood sill liner utilized a continuous seal of silicone sealant between frame and liner. Vinyl jamb liners with foam backing were employed and secured to frame jambs with one (1) #8 by 1 -1/4" metal screw per end. A vinyl snap-in frost barrier was applied at the sill, as well as a wood parting stop at the head which were secured to the frame with 1/8" by 1/2" crown staples spaced approximately 6" on center. The frame utilized extruded aluminum cladding which employed mitered, sealed, corner keyed and foam gasket construction. The mitered corners also utilized one (1) #6 by 5/8" screw per corner. Frame cladding is snap fit and secured with 1/8" by 1/2" staples spaced approximately 8" to 10" on center.

Sash Construction: The sash members consisted of molded pine sections with extruded aluminum cladding at the exterior. The corners were of mortise and tenon construction and were secured with two (2) 1 -1/8" T-nails per corner. The aluminum cladding was square cut, and snap-fit to wood sash members.

Hardware:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Sash lock	2	Lower sash, meeting rail located 5 -1/4" from tip of sash ends



Test Specimen Description:(con't)

Hardware:(con't)

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Lock keeper	2	Upper sash, meeting rail adjacent to sash locks
Block and tackle with vinyl jamb liner	2	Frame side jambs
Tilt latch	4	Upper sash, top rail and lower sash, meeting rail at ends
Tilt pin	4	Sash stiles at bottom ends

Installation: The test specimen was installed into a nominal 2" x 4" wood buck/wall utilizing the applied nailing flange/fin on all four sides. The unit was set into the continuous bed of silicone sealant. The Flange/fin was secured to the wood buck/wall with 2" long roofing nails, spaced approximately 4" on center. Silicone was applied over the nail heads and the perimeter of the nailing flange/fin.

Test Results:

<u>Paragraph</u>	<u>Title of Test</u>	<u>Results</u>	<u>Allowed</u>
2.2.1.6.1	Operating Force Upper Sash Lower Sash	28 lbs. 28 lbs.	35 lbs. 35 lbs.
2.1.2	Air Infiltration ASTM E 283-91 @ 1.57 psf	0.16 cfm/ft ²	0.3 cfm/ft ²
<i>The test specimen meets the performance levels specified in ANSI/AAMA/WDMA 101/I.S.2-97 for a H-LC30 window, for air infiltration.</i>			
2.1.3	Water Resistance ASTM E 547-96 with and without screen @ 3.75 psf	No entry	No entry @ 3.75 psf
2.1.4.2	Uniform Load Structural ASTM E 330-97 Stile @ 37.50 psf (positive) @ 37.50 psf (negative)	0.003" 0.033"	0.4% of L = 0.184" 0.4% of L = 0.184"



Test Results:(con't)

<u>Paragraph</u>	<u>Title of Test</u>	<u>Results</u>	<u>Allowed</u>
2.2.1.6.2	Deglazing Test ASTM E 987-88		
	Top rail @ 70 lbs.(U)	Negligible (<0.01")	0.50"/100%
	Bottom rail @ 70 lbs.(U)	Negligible (<0.01")	0.50"/100%
	Left stile @ 50 lbs.(U)	Negligible (<0.01")	0.50"/100%
	Right stile @ 50 lbs.(U)	Negligible (<0.01")	0.50"/100%
	Top rail @ 70 lbs.(L)	Negligible (<0.01")	0.50"/100%
	Bottom rail @ 70 lbs.(L)	Negligible (<0.01")	0.50"/100%
	Left stile @ 50 lbs.(L)	Negligible (<0.01")	0.50"/100%
	Right stile @ 50 lbs.(L)	Negligible (<0.01")	0.50"/100%
2.1.8	Forced Entry Resistance ASTM F 588-97 Grade 10	No entry	No entry @ Grade 10

Optional Performance:

<u>Paragraph</u>	<u>Title of Test</u>	<u>Results</u>	<u>Allowed</u>
4.3	Water Resistance ASTM E 547-96 with and without screen @ 4.50 psf	No entry	No entry @ 4.50 psf
4.4.1	Uniform Load Deflection at Design Pressure* ASTM E 330-97 (60 seconds) Stile		
	@ 30.00 psf (positive)	0.330"	No damage
	@ 30.00 psf (negative)	0.290"	No damage
4.4.2	Uniform Load Structural ASTM E 330-97 Stile		
	@ 45.00 psf (positive)	0.020"	0.4% of L = 0.184"
	@ 45.00 psf (negative)	0.035"	0.4% of L = 0.184"

* Not required for ANSI/AAMA/WDMA 101/I.S.2-97

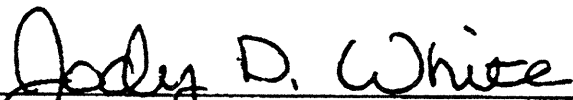
Design Pressure Rating: For use in locations adhering to the S.B.C.C.I., S.F.B.C., S.F.B.C. Broward Edition, and where the pressure requirements as determined by ASCE 7 minimum design loads for buildings and other structures does not exceed design pressure ratings listed above.



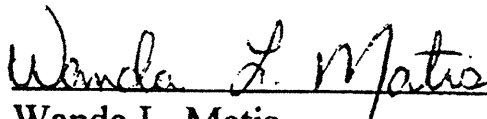
Detailed drawings and a copy of this report will be retained by ATI for a period of four years. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product which may only be granted by the certification program Administrator.

ARCHITECTURAL TESTING, INC.

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WLM/sjw