

PROJECT NUMBER: 180-6239

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STORK® TWIN CITY TESTING
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The test results contained in this report pertain only to the specimens tested and not necessarily to all similar products.

LABORATORY TESTING OF A 75X99 WHITE CLAD DIRECT SET WINDOW

INTRODUCTION:

This report presents the results of laboratory testing conducted on a clad direct set window manufactured by Hurd Millwork Company. This work was requested and authorized by Mr. Art Kuss of Hurd Millwork with testing conducted on April 17, 2001.

The purpose of the testing was to determine the performance of the window for air infiltration, water resistance, and structural integrity when tested in accordance with ASTM procedures included in ANSI/AAMA/WDMA 101/I.S.2-97 "Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors".

TEST RESULTS SUMMARY:

The window described herein meets performance specifications for ANSI/AAMA/WDMA 101/I.S.2-97 F-C55 75X99

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.

SAMPLE DESCRIPTION:

Overall Size: 74-3/4" wide by 98-3/4" high
Unit Area: 51.26 sqft
Finish: Aluminum exterior unfinished wood interior

Glazing: The window utilized nominal 1" insulated glass comprised of two nominal 1/4" thick clear tempered sheets. The glass was set on 1/8" X 11/16" glazing tape against the frame on the exterior and 1/16" X 9/16" glazing tape on the interior. Silicone cap was applied at the glazing tape along the sill and up 2" along the stiles from the sill corners on the exterior. Silicone sealant was applied to the glazing tape corners on exterior. Glass setting blocks were used.

Frame Construction: Wood framing members consisted of finger jointed pine. The frame corners were dadoed, sealed with silicone and secured with three 16 gauge x 1-1/2" staples per corner. The exterior aluminum cladding was mitered and secured with two #6 x 1-1/2" screws per corner then stapled on with 1/2" x 18 gauge staple. Wood stops were stapled on with 1-1/8" x 18 gauge staples 12" on center. The wood extender was T-nailed to the frame with 2-1/2" T-nails then used a 3/8" x 1" corrugated staple 12" on center.

SAMPLE DESCRIPTION (Cont):

Installation: The test specimen was installed within a 1 1/2" by 6" wood buck. The window frame was secured to the wood buck by utilizing the vinyl nailing fin with 2" galvanized roofing nails spaced 4" on center and sealed with a quality silicone sealant. Frame perimeter was shimmed.

TEST RESULTS:

		<u>ACTUAL</u>	<u>PERFORMANCE REQUIREMENTS</u>
<u>2.1.2 Air Infiltration</u>			
Chamber Pressure, psf		+1.57	+1.57
Unit Area, ft ²		51.26	
Air Infiltration, cfm		0.1	
	cfm/ft ²	.002	0.30 maximum
<u>2.1.3 Water Penetration Test</u>			
Chamber Pressure, psf		12	8.25
Water Flow Rate, gal/hr/ft ²		5.00	5.00 minimum
Pressurized Duration, min.		5.0	5.0
Unpressurized Duration, min.		1.0	1.0
Cycles		4	4
Water Penetration		NONE	No water shall flow over the interior face.
<u>2.1.4.2 Structural Load Test</u>			
Chamber Pressure, psf		+82.5	+82.5
Duration, sec.		10.00	10.00
Permanent Set, in.		Negligible	<0.4%L = 0.395maximum
Chamber Pressure, psf		-82.5	-82.5
Duration, sec.		10.00	10.00
Permanent Set, in.		Negligible	<0.4%L = 0.395maximum
<u>2.1.8 Forced Entry Resistance</u>			
<u>Test</u>	<u>Load (lbf)</u>	<u>Duration (min)</u>	<u>Performance</u>
Hand and Tool Manipulation	---	5.00	No Entry

TEST PROCEDURE:

The tests were conducted in accordance with ASTM and ANSI/AMMA/WDMA 101/I.S.2-97 test procedures and the results were compared to the performance requirements.

Air Infiltration

ASTM:E283-91, *Standard Test Methods for Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors*. Testing was conducted at 1.57psf test chamber static pressure.

Water Penetration

ASTM:E547-96, *Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Difference*. Testing was conducted at 12 psf, test chamber static pressure while water was applied continuously to the entire window at a rate greater than or equal to 5 gal/hr/sq ft for four cycles consisting of 5 minutes pressurized and 1 minute unpressurized.

Physical Load Testing

ASTM:E330-96, *Standard Test Methods for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Differences*. Permanent set measurements were recorded at positive/ negative 82.5psf test chamber pressure.

Forced Entry Resistance

ASTM:F588-97, *"Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact"*. Tests were conducted in accordance with Grade 10 for Type D windows

REMARKS:

The tested window remained in the custody of the manufacturer after testing was completed. Twin City Testing will retain detailed drawings and a copy of this report. The above results were obtained by using the designated test methods and they indicate compliance with the performance requirements of the above referenced guidelines. Certification of this product may only be granted by a certification administrator.