

PROJECT NUMBER: 180-6127

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DATE: 3/8/00**STORK® TWIN CITY TESTING**
723 S. 72nd AVE STE B
Wausau, WI 54401

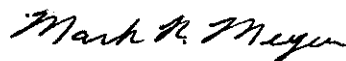
**LABORATORY TESTING OF
MONUMENT VINYL AWNING UNIT
MANUFACTURED BY
HURD MILLWORK COMPANY****Prepared for:**
HURD MILLWORK COMPANY
Attn: Mr. Art Kuss
520 South Whelen Street
Medford, WI 54451

Client Purchase Order Number: Verbal

Prepared By:

John R. Bordagaray
Engineering Technician
Product Testing Department
Telephone: (715) 848-3935

Reviewed By:

Mark R. Meyer
Project Manager
Product Testing Department
Telephone: (715) 848-3935

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

LABORATORY TESTING OF A 4-0 X 3-0 VAWN WINDOW

INTRODUCTION:

This report presents the results of laboratory testing conducted on a vinyl awning window manufactured by Hurd Millwork Company. This work was requested and authorized by Mr. Art Kuss of Hurd Millwork with testing conducted on March 7, 2000.

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 AP/LC25 48" x 36".

AP/LC40 48" x 36" (with 2 sash locks)

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: 47-1/2" wide by 35-1/2" high

Unit Area: 11.71 sqft

Finish: White vinyl

Glazing: The window utilized nominal 1" insulating glass fabricated from two nominal 1/8" annealed sheets. The glass was set from the exterior against foam glazing tape, with the corners sealed with silicone and vinyl glazing beads were used on the exterior.

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
0.270" high pile with center fin by 0.187" backing	1 row	Sash vent perimeter
1/4" Qlon bulb	2 rows	Frame perimeter

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SAMPLE DESCRIPTION (cont.):

Frame Construction: Frame corners were miter cut and welded.

Sash Construction: Corners were miter cut and welded.

Hardware:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Roto operator	1	Midspan on sill
Metal hinges	2	Top corners of each jamb
Metal snubbers	2 pair	Vent top rail, 12" from each end with match on frame head
Lock with plastic keepers (used only for LC-40 testing)	2	Jambs, 3" from bottom rail with keeper on vent stile

Drainage:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
3/8" diameter weep hole	2	Bottom of rail at corners
3/8" by 1/4" weep hole	4	Sill exterior and inner sill cavity leg, 1-1/2" from each end
5/8" by 1/4" weep hole	2	Sill to hollow below, 3" from each end

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>Air Infiltration</u>		
Chamber Pressure, psf	+1.57	+1.57
Unit Area, ft ²	11.71	
Air Infiltration, cfm	1.00	
cfm/ft ²	.09	0.30 maximum
Chamber Pressure, psf	+6.24	---
Unit Area, ft ²	11.71	
Air Infiltration, cfm	2.30	
cfm/ft ²	.20	---
<u>Water Penetration Test for LC-25</u>		
Chamber Pressure, psf	6.00	3.75
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>Water Penetration Test for LC-40</u>		
Chamber Pressure, psf	6.00	6.00
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>Structural Load Test Without sash locks (LC25)</u>		
Chamber Pressure, psf	+37.5	+37.5
Duration, sec.	10.00	10.00
Permanent Set, in.	Negligible	<0.4%L = 0.382 maximum
Chamber Pressure, psf	-37.5	-37.5
Duration, sec.	10.00	10.00
Permanent Set, in.	Negligible	<0.4%L = 0.382 maximum

TEST RESULTS (cont.):

Structural Load Test With sash

locks (LC40)

Chamber Pressure, psf	+60.00	+60.00
Duration, sec.	10.00	10.00
Permanent Set, in.	Negligible	<0.4%L = 0.382 maximum
Chamber Pressure, psf	-60.00	-60.00
Duration, sec.	10.00	10.00
Permanent Set, in.	Negligible	<0.4%L = 0.382 maximum

Hardware Load Test

Concentrated Load	17 lbs	17 lbs
Deflection	.5"	3.5"

TEST RESULTS (CON'T): Forced Entry Resistance (ASTM F588-97, performance grade 10)

<u>Test</u>	<u>Load (lbs)</u>	<u>Duration (min)</u>	<u>Performance</u>
Lock Manipulation	---	5	Satisfactory (PASS)
B1	75	5	Satisfactory (PASS)
B2	75, 150	5	Satisfactory (PASS)
B3	75, 150	5	Satisfactory (PASS)
Lock Manipulation	---	5	Satisfactory (PASS)

Corner Weld Test

Break corners of test unit	Pass	Breakage not to extend along entire weld line
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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 and 6.24psf 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 6.00 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 37.5 psf test chamber pressure with out sash locks and 60.00 psf test chamber pressure with sash locks in place.

Forced Entry Resistance

ASTM: F588-97, Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact. Performed in accordance with Type B Windows.

Hardware Load Test

ANSI/AAMA/WDMA 101/I.S.2.97, Section 2.2.4.5.1

Corner Weld Test

ANSI/AAMA/WDMA 101/I.S.2.97, Section 2.1,7 and APPENDIX A

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.