

**PROJECT NUMBER:180-6124****Page 1 of 6  
DATE: 5/8/00****STORK® TWIN CITY TESTING  
723 S. 72<sup>nd</sup> AVE STE B  
Wausau, WI 54401**

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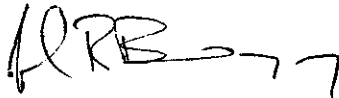
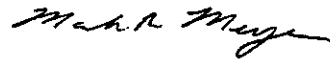
**LABORATORY TESTING OF  
MONUMENT VINYL PREMIUM SINGLE HUNG WINDOW  
MANUFACTURED BY  
HURD MILLWORK COMPANY****Prepared for:  
HURD MILLWORK COMPANY  
Attn: Mr. Art Kuss  
520 South Whelen Street  
Medford, WI 54451**

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**Client Purchase Order Number: Verbal**

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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 3-9 X 5-1 VPSH WINDOW

### INTRODUCTION:

This report presents the results of laboratory testing conducted on a Vinyl Premium Single Hung window manufactured by Hurd Millwork Company. This work was requested and authorized by Mr. Art Kuss of Hurd Millwork with testing conducted on February 14, 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 **H-R30 45 X 61**.

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: 44-1/2" wide by 60-1/2" high  
Unit Area: 18.70 sqft  
Finish: White vinyl

**Glazing:** The window utilized nominal 3/4" insulating glass comprised of two nominal 3mm thick double strength clear annealed sheets. All the glass was set on blocks, closed cell foam tape against the sash on the interior and vinyl glazing beads on the exterior. Silicone was applied at the corners.

**SAMPLE DESCRIPTION (CON'T):****Weatherstripping:**

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
.500" Vinyl-wrapped Foam hollow bulb	1 row	Lower sash bottom rail
.250" Pile	2 rows	Sash stiles
.250" Pile	1 row	Meeting rail

**Hardware:**

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Block & tackle balance	2	1 per jamb
Metal lock with keeper	2	Sash meeting rail, 6" from each end
Metal tilt pins	2	Bottom corners of sash
Plastic concealed tilt latches	2	Top corners of sash

**Drainage:**

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
3/8" by 1/4" weep hole	4	Sill exterior and inner cavity leg, 1-1/2" from each end
5/8" by 1/4" weep hole	2	Sill to hollow below, 3" from each jamb

**Frame Construction:** Frame corners were miter cut and welded. The stationary sash was snap-fit to the frame and also contained aluminum for reinforcement at the checkrail. The stationary sash top rail and stiles were set on rope foam on the frame head and jambs and silicone sealant was applied at the top corners.

**Sash Construction:** The sash corner were miter cut and welded.

**Screen Construction:** The screen Frame was roll-formed aluminum with plastic corner Keys. Fiberglass screen cloth was attached to the frame with a rubber spline.

**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.

**TEST RESULTS:**

	<b><u>ACTUAL</u></b>	<b><u>PERFORMANCE REQUIREMENTS</u></b>
<b><u>Air Infiltration</u></b>		
Chamber Pressure, psf	+1.57	+1.57
Unit Area, ft <sup>2</sup>	18.70	
Air Infiltration, cfm	3.60	
cfm/ft <sup>2</sup>	0.19	0.30 maximum
<b><u>Static Water Penetration</u></b>		
<b><u>With Screens</u></b>		
Chamber Pressure, psf	4.50	4.50
Water Flow Rate, gal/hr/ft <sup>2</sup>	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.
<b><u>Without Screens</u></b>		
Chamber Pressure, psf	4.50	4.50
Water Flow Rate, gal/hr/ft <sup>2</sup>	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.
<b><u>Structural Load Test</u></b>		
Chamber Pressure, psf	+45.00	+45.00
Duration, sec.	10.00	10.00
Permanent Set, in.	Negligible	<0.4%L = 0.382 maximum
Chamber Pressure, psf	-45.00	-45.00
Duration, sec.	10.00	10.00
Permanent Set, in.	Negligible	<0.4%L = 0.382 maximum
<b><u>Operating Force</u></b>		
Opening	15lbs	30lbs
Closing	25lbs	30lbs

**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)
A1	75	5	Satisfactory (PASS)
A2	150, 75	5	Satisfactory (PASS)
A3	150, 75	5	Satisfactory (PASS)
A4	150, 75	5	Satisfactory (PASS)
A5	150, 75	5	Satisfactory (PASS)
A7	150, 75, 25	5	Satisfactory (PASS)
Lock Manipulation	---	5	Satisfactory (PASS)

**Deglazing**

**ACTUAL**

**PERFORMANCE  
REQUIREMENTS**

Deglazing bite @ 70 lbs	0.06"	0.50"
Deglazing bite @ 50 lbs	0.03"	0.50"

**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 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 4.50 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 45.00 psf test chamber pressure.

**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 A (Single Hung) windows.

**Deglazing**

ASTM: E987-88, Standard Test Methods for Deglazing Force of Fenestration Products

**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.