

PROJECT NUMBER: 180-6186

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DATE: 8/31/00**

**STORK® TWIN CITY TESTING
723 S. 72nd AVE STE B
Wausau, WI 54401**

**LABORATORY TESTING OF
6-0 X 8-0 FRENCH CLAD SLIDING PATIO DOOR**

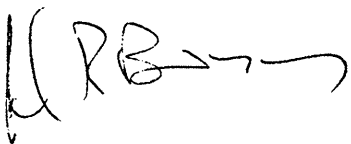
**CHES-F
MANUFACTURED BY
HURD MILLWORK COMPANY**

**Prepared for:
HURD MILLWORK COMPANY
Attn: Mr. Art Kuss
520 South Whelen Street
Medford, WI 54451**

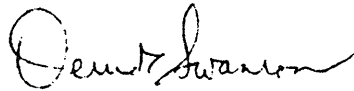
Client Purchase Order Number: Verbal

Prepared By:

Reviewed By:



**John R. Bordagaray
Office Manager (Wausau)
Product Testing Department
Telephone: (715) 848-3935**



**Derrick Swanson, P.E.
Manager
Product Testing Services
Telephone: (651) 659-7333**

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

LABORATORY TESTING OF A 6-0 X 8-0 CHES-F PATIO DOOR

INTRODUCTION:

This report represents the results of laboratory testing conducted on a CHES-F door manufactured by Hurd Millwork Company. This work was requested and authorized by Mr. Art Kuss of Hurd Millwork with testing conducted on August 30, 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 SGD-R30 70 X 96 (X,O). Also met the requirements of 6 psf for water.

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: 70-1/2" wide by 96-5/8" high
Unit Area: 47.31 ft²
Finish: Interior wood was natural and exterior was white aluminum cladding

Glazing: The panels utilized nominal 3/4" insulating glass comprised of two nominal 4mm thick double strength clear tempered sheets. The glass was set from the interior against 3/16" double-sided adhesive closed cell foam tape backed with silicone sealant. Wood glazing beads, with foam tape, were employed at the interior and secured with staples 8"-10" on center. Silicone sealant was applied in all corners of the glazing cavity.

SAMPLE DESCRIPTION (CON'T):

Frame Construction: The head and jambs consisted of molded pine sections which were made of finger jointed lumber. The upper frame corners were dadoed, sealed with silicone and secured with three #6 x 1 1/2" screws per corner. The extruded fiberglass sill was secured by three #8 x 1 3/4" screws. The lower frame corners utilized corner keys. Foam gaskets, and silicone sealant was applied between the fiberglass profile and the jamb. The head panel stop was secured to the frame head. The head stop was secured with six #6 x 1 1/4" screws. Aluminum cladding was corner-keyed and sealed with silicone at the corners. Dual extruded vinyl door seals/parting stops were utilized at the head and jambs.

Sash Construction: Wood sash members consisted of molded pine sections on the rails, LUL lock stile, timber strand Meeting stile. The corners were square cut and butted utilizing 2 wood dowels at the top and 3 wood dowels at the bottom to secure the construction. The stationary panel was sealed continuous with silicone sealant. The stationary sill stop was anchored to the sill with three #10 x 1 1/2" screws and sealed with silicone.

Hardware:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Cam lock with strike plate	1	Locking stile and adjacent frame vertical at vertical midpoint
Zinc dichromate rollers w/ steel ball bearings	2	Operable panel bottom rail
Rubber bumper	1	Sill track of operable panel
Nylon guide blocks	2	1/4 points of operable panel top rail
Anti-theft brackets	2	Top and bottom of stationary interlocking stile, 1 each

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
0.180" woolpile	1 row	Vertical interlock of operative panel
0.360" dia. PVC bulb	1 row	Vertical interlock of stationary panel
0.350" woolpile	1 row	Vertical interlock of stationary panel
Tan leaf weatherstrip	1 row	Interior panel stops at vertical jambs
Vinyl leaf	1 row	Continuous at fiberglass sill
Dust block / pad	1	Bottom of vertical interlocking stiles

Drainage:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Weep hole .500" x .276"	2	5" from each end on the fiberglass sill stop.
Weep hole .750" x .114"	1	End cap on fiberglass sill stop. Backed with open cell foam block.

Fiberglass sill, sill ends had a .300" cutout for water drainage. The stationary side is open to the exterior. The operable side had a .325"x .900"x 1.062" foam block.

TEST RESULTS:

	<u>ACTUAL</u>	<u>PERFORMANCE REQUIREMENTS</u>
<u>Air Infiltration</u>		
Chamber Pressure, psf	+1.57	+1.57
Unit Area, ft ²	47.15	
Air Infiltration, cfm	5.75	
cfm/ft ²	0.12	0.30 maximum
<u>Water Penetration Test</u>		
	With and without screens	
Chamber Pressure, psf	6.00	4.5
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</u>		
Chamber Pressure, psf	+45.00	+45.00
Duration, sec.	10.00	10.00
Permanent Set, in.	Negligible	<0.4%L = 0.375 maximum
Chamber Pressure, psf	-52.50	-45.00
Duration, sec.	10.00	10.00
Permanent Set, in.	Negligible	<0.4%L = 0.375 maximum

TEST RESULTS (Cont.):**Sliding Glass Door Specific Tests**

	<u>Results</u>	<u>Allowed</u>
Deglazing bite @ 70 lbs.	Negligible	0.500"
Deglazing bite @ 50 lbs.	Negligible	0.500"
Operating Force, lbs. (open)	6.00	20.00
Operating Force, lbs. (closed)	6.00	20.00
Breakaway Force, lbs.	25.00	30.00

Forced Entry Resistance

<u>Test</u>	<u>Load (lbs.)</u>	<u>Duration (min)</u>	<u>Performance</u>
Hand Manipulation	---	5	Satisfactory
Tool Manipulation	---	5	Satisfactory
A1	300	5	Satisfactory
A2	175, 300	5	Satisfactory
A3	175, 300	5	Satisfactory
A4	50, 175, 300	5	Satisfactory
A5	50, 175, 300	5	Satisfactory
A6	30, 50, 175, 300	5	Satisfactory
Hand Manipulation	---	5	Satisfactory
Tool Manipulation	---	5	Satisfactory

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 Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors. Testing was conducted at 1.57 psf (25 mph) test chamber static pressure.

TEST PROCEDURE (Cont.):

Water Penetration

ASTM:E547-96, Standard Test Methods for Water Penetration of Exterior Windows, Curtain Wall and Doors by Cyclic Static Air Pressure Difference. Testing was conducted at 4.5 psf (42.5 mph) and 6 psf (49.0 mph), test chamber static pressure while water was applied continuously to the entire window at the rate of 5 gal/hr/sq ft for four cycles consisting of 5 minutes pressurized and one minute unpressurized with and without screens.

Physical Load Testing

ASTM:E330-96, Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Differences. Permanent set measurements were recorded at 45.00 psf positive and 52.5 psf negative test chamber static pressure.

Deglazing Test

AAMA/WDMA:I.S.2-97(2.2.19.5.2), Deglazing Test for Sliding Glass Doors. The test was performed at 70 lbs. on vertical rails and 50 lbs. on horizontal rails.

Operating Force Test

AAMA/WDMA:I.S.2-97(2.2.19.5.1), Operating Force Test for Sliding Glass Doors. The maximum force to operate the sash in either direction was recorded, as well as the initial breakaway force.

Forced Entry Resistance

ASTM:F842-97, Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing. Tests were conducted in accordance with Grade 10 requirements for a Type A door.

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.