FENESTRATION
TESTING
LABORATORY

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TESTED FOR

Fleetwood Aluminum Products, Inc.
2485 Railroad Street
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1.0 PURPOSE

The purpose of this report is to present the testing methods employed and the test results obtained during the performance testing of one (1) **Thermally Broken Aluminum Horizontal Sliding Window** described in paragraph 4.0 of this report.

2.0 TEST REFERENCES

2.1 Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors AAMA/NWWDA 101/I.S.2 - 97:

HS - HC 40	204 x 80 (With High Load Stiles & ¼" Annealed Glass)
HS - C 30	204 x 80 (With Standard Stiles)

2.2 CAWM 301 - 90 Forced Entry Resistance Tests For Windows.

3.0 SUMMARY

The test results in paragraphs 5.0 and 6.0 indicate that the test sample described in paragraph 4.0 of this report complied with the performance requirements of the above referenced specifications.

4.0 SAMPLE SUBMITTED

SERIES: **ASPEN 530 T**

CONFIGURATION: **XXOX**

FRAME SIZE: 204.00" x 79.63"

ACTIVE SASH SIZES: 49.13" x 75.50", 48.88" x 75.50", 48.25" x 75.50"

FIXED SIZE: 61.94" x 75.50"

GLASS: For the C 30 Rating, the following was used:

a) 1" overall insulated glass with 3/16" annealed glass on both sides
b) A 5/8" aluminum air spacer.

For the HC 40 Rating, the following was used:

a) 1" overall insulated glass with ¼" annealed glass on both sides
b) A 1/2" aluminum air spacer.

GLAZING: The fixed and sliding panels were all channel glazed with vinyl gasket.

WEEPAGE: The standard sill was weeped as follows:

a) On the outside face, five (5) 1" x 3/16" weeps evenly distributed along the sill. PVC flap covers were applied over these weeps.

b) On the fixed channel a 1/4" x 1" vertical weep every 6 inches along the sill.

c) 1/4" x 1" vertical weeps, three (3) under each sliding panel

d) When using the sub sill, three (3) 1/4" x 1" vertical weeps drain down and out of the standard sill sliding channel to the sub sill.

The sub sill was weeped as follows:

a) Four (4) 316" x 1" weeps with PVC flap weep covers on the outside face.

WEATHERING: For a full description of the weathering used and location, please refer to the attached cross section drawing (1 Page) which has been verified for accuracy and forms part of the report. Without this drawing, this report becomes null and void.

HARDWARE: The locking panel contained a spring loaded latch lock fastened with a pair of screws at midspan. When locked, the lock bolt engaged a steel keeper fastened to the midspan of the fixed interlock. Each "X" panel contained an adjustable tandem steel roller at each end of the bottom rail.

CONSTRUCTION: The standard sill sat on the sub sill and was sealed full length on the outside and inside running joints and was mechanically joined with #8 x 1" screws every 16 inches on the inside length and every 3 inches on the outside contact.

The frame and sash corners were mechanically joined with a pair of screws.

The parting stop was a PVC extrusion that slid into the standard sill and was mechanically joined to the sill with #6 x 3/8" screws every 12 inches.

The fixed "O" panel was fastened to the frame at each end with a screw and an aluminum "T" clip that fit in the interlock extrusion.

The false jamb was fastened to the interlock with five (5) #6 screws.

CAULKING: The ends of the sub sill were caulked shut.

The frame corners were sealed full perimeter.

The fixed interlock stile was sealed to the false jamb along the vertical seam along a 2 inch length from the bottom. The sill to sub sill running joints were sealed full length on the inside and outside.

ANCHORING: The frame was fastened to a 2" x 6" wooden buck with screws every 12 inches on all sides.

For a detailed description of the window assembly and additional PVC inserts used, refer to the attached cross section drawings which have been verified for accuracy and form a part of this report.

5.0 TEST PROCEDURES AND RESULTS

5.1 All testing procedures were performed in accordance with the performance requirements of the test specifications referenced in paragraph 2.0 of this report.

5.2 TEST RESULTS

PARAGRAPH	TEST DESCRIPTION	MEASURED	ALLOWED
With Standard Stiles			
2.2.2.5.1	Operating Force	8 lbf.	20 lbf.
2.2.1	Air Infiltration (ASTM E 283)		
	1.57 PSF	0.18 CFM/Ft^2	0.3 CFM/Ft^2
	The tested specimen exceeds the performance requirements specified in AAMA/NWWDA 101/I.S.2-97 for Air Infiltration.		
2.1.3	Water Penetration (ASTM E 547)		
	4.50 PSF	No Leakage	No Leakage
	Standard Sill. With/without screens.		
2.1.4	Uniform Load Structural (ASTM E 330)		
	45.0 PSF POS	0.08"	.30" Set
	45.0 PSF NEG	0.10"	.30" Set
2.2.2.5.2	Deglazing (ASTM E 987)		
	70 lbf. Stiles	5%	Less than 100%
	50 lbf. Rails	4%	Less than 100%

5.3 OPTIONAL PERFORMANCE GRADES

With High Load Stiles & 1/4" Annealed

4.3	Water Penetration (ASTM E 547 & ASTM E 331)		
	6.00 PSF	No Leakage	No Leakage
	Standard Sill. With/without screens.		
4.4.2	Uniform Load Structural (ASTM E 330)		
	60.0 PSF POS	.005"	.30" Set
	60.0 PSF NEG	.006"	.30" Set

5.4 ADDITIONAL TESTING

With Sub Sill

	Water Penetration (ASTM E 547 & ASTM E 331)		
	11.0 PSF	No Leakage	No Leakage
	With/without screens		

6.0 2.1.8 **CAWM 301 - 90 FORCED ENTRY TEST RESULTS**

2.4.1 Type "I" Window

	TEST	RESULTS	DESCRIPTION
5.1.1		Passed	Disassembly
5.1.2	**A**	Passed	200# in direction parallel to the plane of the glass that tends to open the window.
5.1.3	**B**	Passed	Test A & 75# in direction perpendicular to the plane of the glass toward the interior.
5.1.4	**C**	Passed	Test A & 75# in direction perpendicular to the plane of the glass toward the exterior.
5.1.5	**E**	Passed	Hand and Tool Manipulation
5.1.6.1	**D**	Passed	With sliding sash lifted upward to the full limit within the confines of the window frame, Test B while simultaneously applying concentrated load of 25# inward at the corner of the operating sash near the interlock stile.
5.1.7	**E**	Passed	Hand and Tool Manipulation

For a complete description of the tested sample refer to the attached cross section drawings.

Assembly and die drawings of frame members are on file and have been compared to the sample submitted. Test sample sections, drawings and a copy of this report will be retained at the test laboratory for four years.

The above test results were obtained by using the applicable ASTM & CAWM Test Methods. This report does not constitute Certification of this product. Certification can only be granted by an approved Administrator/Validator.

Testing Completed: July 8, 1998
Report Completed: July 9, 1998

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