TESTED FOR

FLEETWOOD ALUMINUM PRODUCTS, INC.
2485 Railroad Street
Corona, CA 91720

Report No. : A04H-023
Date : June 5, 2004

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 101/1.S.2 - 97: **HS – R15** 240 x 80

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: **XOO**

FRAME SIZE: 240.00" x 80.00"

SASH SIZE: 60.87" x 77.43"

PRIMARY FIXED SIZE: 57.37" x 73.06"

DEAD FIXED SIZE: 116.81" x 73.06"

GLASS: The operable panel and each fixed portion of the frame was glazed with a 1" overall insulated glass unit which contained a lite of 3/16" clear annealed glass and a 5/8" metal box spacer.

GLAZING: The fixed lites and operable panel were each channel glazed with vinyl gasket.

WEEPAGE: The sill exterior face contained eight (8) 1" x 3/16" weeps slots equally spaced throughout the sill span. Each weep also contained a PVC weep gate on the exterior.

WEEPAGE (cont'd): The fixed channel contained a 1" x 1/4" weep slot every 8 inches along the sill span draining directly down and out of the frame.

The operable channel contained a 1/2" x 3/8" weep slot at each end allowing water to drain to the exterior.

WEATHERING: The following contained a strip of 0.220" overall poly pile with a center fin:

Window Frame

1) The frame sill center retaining leg contained one strip facing out and one strip facing in.
2) The fixed jamb contained a strip full length weathering against the exterior face of the stile.
3) The operable jamb contained a strip full length weathering against the interior face of the stile.
4) The frame head center retaining leg contained one strip facing out and one strip facing in.

Panels

1) The top and bottom rails of the fixed panel contained a strip full length facing out.
2) The top and bottom rails of the operable panel contained a strip full length facing in.

The fixed interlock contained a full length strip of 0.300" overall poly pile with a center fin weathering against its respective interlock. The bottom notched section of the interlock also contained a 3" strip of self adhered 0.300" overall bunny tail weatherstrip.

The operable panel interlock contained a full length strip of 0.500" overall poly pile with a center fin weathering against its respective interlock.

HARDWARE: At each end, the operable panel bottom rail contained an adjustable tandem steel roller in a metal housing.

The operable interlock contained one (1) metal tongue latch lock in a PVC housing placed 17" up from the bottom rail of vent; the lock was fastened with a pair of screws. When closed and locked, the tongue of the lock engaged its own metal keeper fastened to the fixed interlock with two (2) screws.

CONSTRUCTION: The frame and sash corners were mechanically joined with a pair of #8 x 3/4" Ph Pan Head screws.

The panels were each mechanically joined with a pair of #8 x 2" screws. The stiles were joined to the top and bottom rails with Ph Pan Head screws and the interlocks were each fastened with Ph Flat Head screws.

A center muntin bar was fastened to the top and bottom rail of the fixed panel using a pair of screws at each end.

The center retaining leg was a PVC extruded stop that slid into the standard sill and was mechanically joined with #6 x 3/8" screws every 12 inches.

CAULKING: The following were sealed:

1) The frame corners were sealed full profile.
2) The vinyl gasket glazing corners prior to assembly.

ANCHORING: The frame was mounted into a 2" x 6" wooden rough opening with and fastened through the frame with #8 x 1½" Ph Flat Head screws every 16" on center.

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
2.2.2.5.1	Operating Force (ASTM E 2068)		
	Motion	11.5 lbf.	20 lbf.
2.2.1	Air Infiltration (ASTM E 283)		
	1.57 PSF	0.04 CFM/Ft²	0.3 CFM/Ft²
	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)		
	2.86 PSF	No Leakage	No Leakage
	With/without screen		
2.1.4.1	Uniform Load Deflection (ASTM E 330)		
	For Interlock Stile		
	22.5 PSF POS	0.69"	No Damage
	22.5 PSF NEG	0.83"	No Damage
2.1.4.1	Uniform Load Deflection (ASTM E 330)		
	For Fixed Muntin		
	22.5 PSF POS	1.53"	No Damage
	22.5 PSF NEG	1.65"	No Damage
2.1.4.2	Uniform Load Structural (ASTM E 330)		
	For Interlock Stile		
	22.5 PSF POS	0.02"	0.31" Set
	22.5 PSF NEG	0.04"	0.31" Set
2.1.4.2	Uniform Load Structural (ASTM E 330)		
	For Fixed Muntin		
	22.5 PSF POS	0.11"	0.32" Set
	22.5 PSF NEG	0.14"	0.32" Set
2.2.2.5.2	Deglazing (ASTM E 987)		
	70 lbf. Stiles	7%	Less than 100%
	50 lbf. Rails	3%	Less than 100%

5.3 ADDITIONAL TESTING

TEST DESCRIPTION	MEASURED	ALLOWED
Water Penetration (ASTM E 547)		
3.75 PSF	No Leakage	No Leakage
With/without screen		

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	Apply a concentrated load of 200 pounds in direction parallel to the plane of the glass which tends to open the window.
5.1.3	**B**	Passed	Repeat Test A while simultaneously applying a concentrated load of 75 pounds in direction perpendicular to the plane of the glass toward the interior.
5.1.4	**C**	Passed	Repeat Test A while simultaneously applying a concentrated load of 75 pounds 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, Repeat Test B while simultaneously applying concentrated load of 25 pounds 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.

This test report may not be modified in any way without the written consent of Fenestration Testing Laboratory.

The above test results were obtained by using the applicable ASTM and CAWM Test Methods. This report does not constitute Certification of this product. An approved Administrator and / or Validator can only grant certification.

Testing Completed: June 1, 2004
Report Completed: June 5, 2004

Pete Cruz
Test Engineer

Melchor Ordaz
Test Technician