TESTED FOR

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

Report No. : A98H-166
Date : December 17, 1998

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) **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 - C 35**	191 x 60	(With standard sill)
	HS - C 40	191 x 60	(With sub sill)

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: **WESTWOOD 250 Horizontal Slider**

CONFIGURATION: **XXOX**

FRAME SIZE: 190.75" x 60.00"

SASH SIZES: 48.25" x 56.88", 48.31" x 56.88", 47.63" x 56.88"

FIXED SIZE: 48.63" x 56.88"

GLASS: All panels contained 1/4" clear annealed.

GLAZING: All panels were channel glazed with vinyl reducing gasket.

WEEPAGE: The sill contained a pair of 1" x 1/4" weep slots with nylon flap covers under each panel, for a total of eight (8) weeps.

The sub sill contained a total of six (6) #1 x 1/4" weep slots with nylon flap covers distributed as follows:

a) One (1) 12 inches from each end and every 33 inches on center.

WEEPAGE (cont'd): The sliding track of the sill contained a pair of 3/4" x 1/4" holes under each operable panel that drained down into the sub sill for a total of six (6) holes.

WEATHERING: Center leg of head and sill, and jamb stiles contained Amesbury 230270-60 finseal.

All operable top and bottom rails contained a strip of Amesbury 240270-82 pile.

Center leg of head and sill facing out contained a strip of two-finger vinyl.

Frame jambs and false jamb contained Amesbury 180270-66 finseal.

Fixed interlock contained a strip of Amesbury 230270-66 pile.

The operable interlock contained Amesbury 140270-82 pile.

HARDWARE: Each operable sash bottom rail contained a nylon roller with a metal axle in a nylon housing at each end.

The sliding interlock contained a spring loaded steel strike lock fastened in place 17 inches from the bottom with a pair of screws. When activated, the lock engaged a steel keep fastened to the fixed interlock with a pair of screws.

CONSTRUCTION: All of the frame corners were joined with a pair of screws.

All of the panel corners were joined with a single screw.

A rigid extruded PVC, anti-lift/air barrier, fastened to the end of fixed interlock with one (1) #6 x 1/2" tek screw.

Sill was fastened to sub sill along the inside span with #8 x 1" screws every 16" on center.

The false jamb on the fixed panel was formed by mechanically joining a fixed interlock with a part #02009 with four (4) screws from the inside.

CAULKING: All frame corner joints full profile.

All glazing gasket corners outside only.

Sill to sub sill running joint on both sides.

All sill anchor screws.

Wood rough opening to block frame of window on both sides.

ANCHORING: Window frame was mounted into 2" x 6" wood rough opening and fastened with #8 x 1" screws, four (4) per jamb and ten (10) per head and sill.

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	4 lbf.	25 lbf.
2.1.2	Air Infiltration (ASTM E 283) **With standard sill weeps open and sub sill weeps closed**		
	1.57 PSF	Passed	0.3 CFM/Ft^2
	The tested specimen exceeds the performance requirements specified in AAMA/NWWDA 101/I.S.2-97 for Air Infiltration.		
2.1.2	Air Infiltration (ASTM E 283) **With standard sill weeps closed and sub sill weeps open**		
	1.57 PSF	Passed	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
	With/without screens		
2.1.4	Uniform Load Structural (ASTM E 330)		
	45.0 PSF POS	+0.02"	+0.227" Set
	45.0 PSF NEG	- 0.00"	- 0.227" Set
2.2.2.5.2	Deglazing (ASTM E 987)		
	70 lbf. Stiles	3%	Less than 100%
	50 lbf. Rails	1%	Less than 100%

5.3 OPTIONAL PERFORMANCE GRADES

4.3	Water Penetration (ASTM E 547) **With standard sill weeps open and sub sill weeps closed**		
	5.25	No Leakage	No Leakage
	With/without screens		
4.4.2	Uniform Load Structural (ASTM E 330)		
	52.5 PSF POS	+0.04"	+0.227" Set
	52.5 PSF NEG	- 0.02"	- 0.227" Set
4.3	Water Penetration (ASTM E 547 & ASTM E 331) **With standard sill weeps closed and sub sill weeps open**		
	6.00 PSF	No Leakage	No Leakage
	With/without screens		
	10.0 PSF	No Leakage	No Leakage
	With/without screens		
4.4.2	Uniform Load Structural (ASTM E 330)		
	60.0 PSF POS	+0.06"	+0.227" Set
	60.0 PSF NEG	- 0.03"	- 0.227" Set

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.

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

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

Testing Completed: December 17, 1998
Report Completed: December 17, 1998

Pete Cruz
Test Engineer

Jim Cruz
Test Technician