

Robert J. Brady, P.E.
Consulting Engineer
4185 S. W. 178th Terrace
Dunnellon, Florida 34432

June 10, 2002

Mr. Bob Braatz, C.E.O.
Energy Saving Products, Inc.
P. O. Box 1119
Jasper, Fl 32052

Subject: Vinyl Window Products
Test Reports

Dear Mr. Braatz:

Pursuant to your request, I have reviewed reports from Architectural Testing, Inc. and Twin City Testing Corporation for performance of vinyl windows, as furnished by you.

The reports reviewed are as follows:

Testing Lab	Test No.	Test Date	Exp. Date	Manufacturer/Model
Arch. Testing	01-34367.01	03/04/99	03/04/03	Fiberlux, Inc./1800 6'0"x6'0" Fixed
Arch. Testing	01-39470.01	07/09/01	07/09/05	Fiberlux, Inc./1800 54x64 & 37x64 D.H.
Arch. Testing	01-39545.01	6/19/01	09/20/05	Fiberlux, Inc./1800 54x64 & 37x64 S.H.
Twin City Testing	1801 99-1359C.2	Oct. 30, 01	Oct. 30, 05	Engineered Profiles/ 5200 SGD-LC40 96x96 Sliding Door

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Based on my review, these reports are in accord with the proper and applicable building codes for testing of vinyl windows. It is my opinion that the results of these listed reports can be used for design of windows manufactured by Energy Saving Products provided that structural member profiles, glass types and window sizes and types match those described in the respective reports.

I trust this information is a proper response to your request.

Sincerely,

A handwritten signature in cursive script, appearing to read "Robert J. Brady".

Robert J. Brady, P.E.
FL P.E. #26153

cc: File

rbsp611



AAMA/NWDA 101/I.S.2-97
TEST REPORT SUMMARY

Rendered to:

NORTH AMERICAN PROFILES GROUP,
FIBERLUX DIVISION

SERIES/MODEL: 1800 ^{36 3/4 Fin}
TYPE: PVC Double Hung With Sloped Sill Insert ^{36 4/1 Flange}

Title of Test	Results	
	Test Specimen #1	Test Specimen #2
Rating	H-R30 54 x 64	H-R50* 37 x 64
Overall Design Pressure	35.0 psf	50 psf
Operating Force	27 lb max.	N/A
Air Infiltration	0.18 cfm/ft ²	N/A
Water Resistance	8.25 psf	N/A
Structural Test Pressure	+45.0 psf	+75.0 psf
Deglazing	Passed	N/A
Forced Entry Resistance	Grade 10	N/A

Reference should be made to Report No. 01-39470.01 for complete test specimen description and data.

For ARCHITECTURAL TESTING, INC.

Mark A. Hess, Technician

MAH:baw



Architectural Testing

AAMA/NWWDA 101/I.S.2-97 TEST REPORT

Rendered to:

NORTH AMERICAN PROFILES GROUP, FIBERLUX DIVISION
2287 Route 292
Holmes, New York 12531

Report No: 01-39471.01

Test Date: 07/01/01

Thru: 09/21/01

Report Date: 12/14/01

Expiration Date: 07/01/05

Project Summary: Architectural Testing, Inc. (ATI) was contracted by North American Profiles Group to witness performance testing on two Series/Model 1800, PVC double hung windows at Fiberlux, Inc.'s in-plant test facility in Holmes, New York. The samples tested successfully met the performance requirements for the following ratings: Test Specimen #1 H-R30 54 x 64; Test Specimen #2 H-R50* 37 x 64.

Test Specification: The test specimen was evaluated in accordance with AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Class Doors*.

Test Specimen Description:

Series/Model: 1800

Type: PVC Double Hung With Sloped Sill Insert

Test Specimen #1: H-R30 54 x 64

Overall Size: 4' 6" wide by 5' 4" high

Interior Sash Size: 4' 3-7/8" wide by 2' 6-7/8" high

Exterior Sash Size: 4' 2-3/4" wide by 2' 6-7/8" high

Screen Size: 4' 3-5/8" wide by 2' 6-5/8" high

130 Derry Court
York, PA 17402-9405
phone: 717.764.7700
fax: 717.764.4129
www.testati.com



Test Specimen Description: (Continued)

Test Specimen #2: H-R50* 37 x 64

Overall Size: 3' 1" wide by 5' 4" high

Interior Sash Size: 2' 11" wide by 2' 6-3/4" high

Exterior Sash Size: 2' 9-3/4" wide by 2' 6-3/4" high

Screen Size: 2' 9-1/2" wide by 2' 6-3/4" high

The following descriptions apply to all specimens.

Finish: All PVC was white.

Glazing Details: Both sash utilized 3/4" thick sealed insulating glass fabricated from two sheets of 3/32" clear annealed glass and a desiccant filled metal spacer system. Both ites were exterior glazed onto dual-sided adhesive glazing tape and secured with snap-in PVC glazing beads.

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
0.230" high by 0.187" backed polypile with center fin	2 Rows	Stiles
0.230" high by 0.187" backed polypile with center fin	1 Row	Head, sill, interior meeting rail, top rail
1/4" diameter by 0.187" backed vinyl wrapped bulb gasket	1 Row	Bottom rail

Frame Construction: The frame was constructed of extruded PVC members with mitered and welded corners. The sill and head utilized a snap-in PVC insert.

Sash Construction: The sash were constructed of extruded PVC members with mitered and welded corners.

Screen Construction: The screen was constructed of roll-formed aluminum members with mitered and keyed corners.



Test Specimen Description: (Continued)

Hardware:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Spiral balance assembly	4	Two in each jamb
Metal tilt bar	4	One in each end of exterior meeting rail and bottom rail
Plastic tilt latch	4	One on each end of interior meeting rail and top rail
Metal cam lock with keeper	2	8" from each end of meeting rail
Anti bow clip	4	All stiles at midspan

Drainage:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
3/8" wide by 3/16" deep weepslot	8	Two in each end of exterior meeting rail and bottom rail in the glazing channel draining the channel
5/8" wide by 1/4" notch	2	Each end of intermediate sill leg draining interior sill pocket into exterior sill pocket
1-3/8" wide by 1/4" high weepslot with cover	2	4-1/2" from jamb ends, draining exterior sill pocket

Reinforcement: The interior and exterior meeting rails utilized a customized "U" shaped steel reinforcement.

Installation: The test specimen was installed into the #2 Spruce-Pine-Fir wood test truck and secured using wood blind stops on the interior and exterior frame perimeter. The exterior perimeter was sealed with silicone.

Test Results:

The results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<u>Test Specimen #1:</u> H-R30 54 x 64			
2.2.1.6.1	Operating Force	27 lbs	30 lbs max.
2.1.2	Air Infiltration per ASTM E 283 (See Note #1) @ 1.57 psf (25 mph)	0.18 cfm/ft ²	0.3 cfm/ft ² max.
<i>Note #1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/NWDA 101/I.S. 2-97 for air infiltration.</i>			
2.1.3	Water Resistance per ASTM E 547 (with and without screen) WTP =2.86 psf	No leakage	No leakage
2.1.4.2	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the exterior meeting rail) (Loads held for 10 seconds) @ 22.5 psf (positive) @ 22.5 psf (negative)	0.02" 0.04"	0.21" max. 0.21" max.
2.2.2.5.2	Deglazing Test per ASTM E 987 In operating direction at 70 lbs		
	Top rail	0.06"/12.5%	0.50"/100%
	Exterior meeting rail	0.06"/12.5%	0.50"/100%
	Interior meeting rail	0.06"/12.5%	0.50"/100%
	Bottom rail	0.06"/12.5%	0.50"/100%
	In remaining direction at 50 lbs		
	Interior right stile	0.03"/6.25%	0.50"/100%
	Interior left stile	0.03"/6.25%	0.50"/100%
	Exterior right stile	0.03"/6.25%	0.50"/100%
	Exterior left stile	0.03"/6.25%	0.50"/100%
2.1.7	Welded Corner Test	Meets as stated	Meets as stated
2.1.8	Forced Entry Resistance per ASTM F 588-97		
	Type: A		
	Grade: 10		
	Lock Manipulation Test	No entry	No entry
	Test A1 thru A7	No entry	No entry
	Lock Manipulation Test	No entry	No entry

Test Results: (Continued)

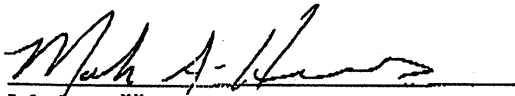
<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<u>Test Specimen #1:</u> H-R30 54 x 64 (Continued)			
<u>Optional Performance</u>			
4.3	Water Resistance per ASTM E 547 (with and without screen) WTP = 8.25 psf	No leakage	No leakage
4.4.2	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the meeting rail) (Loads held for 10 seconds)		
	@ 45.0 psf (positive)	0.19"	0.21" max.
	@ 45.0 (negative)	0.13"	0.21" max.

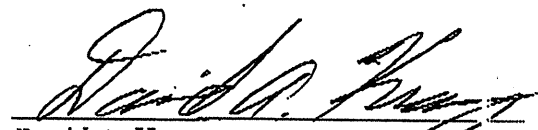
Test Specimen #2: H-R50* 37 x 64Optional Performance

4.4.2	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the exterior meeting rail) (Loads held for 10 seconds)		
	@ 75.0 psf (positive)	0.10"	0.14" max.
	@ 75.0 psf (negative)	0.07"	0.14" max.

Representative samples of the test specimen, and a copy of this report will be retained by AT for a period of four years. This report is the exclusive property of the client so named herein and is applicable to the sample tested. Results obtained are tested values and do not constitute an opinion or endorsement by this laboratory.

For ARCHITECTURAL TESTING, INC:


 Mark A. Hess
 Technician


 David A. Kranz
 Director - Product/Physical Testing

MAH:baw
 01-39470.01