



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

Rendered to:

**SILVER LINE BUILDING PRODUCTS
CORPORATION**

**SERIES/MODEL: 2110/2160
TYPE: PVC Single Hung Window**

Title of Test	Results	
	Test Specimen #1	Test Specimen #2
Rating	H-R25 52 x 73	H-R45 36 x 62*
Overall Design Pressure	25 psf	45 psf
Operating Force	27 lb max.	N/A
Air Infiltration	0.14 cfm/ft ²	N/A
Water Resistance	6.75 psf	N/A
Structural Test Pressure	±37.5 psf	±67.5 psf
Deglazing	Passed	N/A
Forced Entry Resistance	Grade 10	N/A

Reference should be made to Report No. 01-39154.01 for complete test specimen description and data.

For ARCHITECTURAL TESTING, INC.

Adam Fodor, Technician



Architectural Testing

AAMA/NWWDA 101/LS.2-97 TEST REPORT

Rendered to:

SILVER LINE BUILDING PRODUCTS CORPORATION
One Silver Line Drive
North Brunswick, New Jersey 08902

Report No: 01-39154.01
Test Date: 03/26/01
Report Date: 05/07/01
Expiration Date: 03/26/05

Project Summary: Architectural Testing, Inc. (ATI) was contracted to witness tests on a Series/Model 2110/2160, PVC single hung window at Silver Line Building Products' test facility in North Brunswick, New Jersey. The samples tested successfully met the performance requirements for the following ratings: Test Specimen #1 H-R25 52 x 73; Test Specimen #2 H-R45 36 x 62*. Test specimen descriptions and results are reported herein.

General Note: *An asterisk (*) next to the performance grade indicates that the size tested for optional performance was smaller than the Gateway test size for the product type and class.*

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

Test Specimen Description:

Series/Model: 2110/2160

Type: PVC Single Hung Window

Test Specimen #1: H-R25 52 x 73

Overall Size: 4' 4" wide by 6' 1" high

Active Sash Size: 4' 2-1/8" wide by 2' 11-7/8" high

Fixed Daylight Opening Size: 4' 0" wide by 2' 9-1/2" high

Screen Size: 4' 1" wide by 3' 0" high



Test Specimen Description: (Continued)

Test Specimen #2: H-R45 36 x 62*

Overall Size: 3' 0" wide by 5' 2" high

Active Sash Size: 2' 10" wide by 2' 6-1/4" high

Fixed Daylight Opening Size: 2' 7-3/4" wide by 2' 3-3/4" high

The following descriptions apply to all specimens.

Finish: All PVC was white.

Glazing Details: The window utilized 5/8" thick sealed insulating glass units fabricated from two sheets of 1/8" thick clear annealed glass and a spacer system. The lites were interior glazed onto silicone bedding and secured with PVC snap fit glazing beads.

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
0.250" high by 0.270" backed polypile with center fin	2 Rows	Stiles of active sash
0.250" high by 0.270" backed polypile with center fin	1 Row	Active sash meeting rail
0.170" high by 0.187" backed polypile with center fin	1 Row	Sill
0.250" wide co-extruded single leaf gasket	1 Row	Bottom rail

Frame Construction: The frame was constructed of extruded PVC members with mitered and welded corners. The upright sill leg was sealed to each jamb. The fixed meeting rail was coped, butted, sealed and fastened to the jambs with four screws per end.

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

Screen Construction: The screen was constructed of roll-formed aluminum members with plastic keyed corners. The fiberglass mesh screen was secured with a flexible spline.



Test Specimen Description: (Continued)

Hardware:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Metal lock and keeper assembly	2	One 9" from each end of active/fixed meeting rails
Balance assembly	2	One in each jamb
Plastic tilt latch	2	One in each end of active sash meeting rail
Metal pivot bar	2	One in each end of bottom rail

Drainage:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
7/16" wide by 1-1/4" deep weepslot	2	One at each end of interior sill pocket draining into the interior sill hollow
1" wide by 1/4" high weepslot	2	One in each end of intermediate sill leg draining the interior sill hollow into the exterior sill hollow
3/8" wide by 1/8" high weepslot	2	One in each end of the sill face draining the exterior sill hollow

Reinforcement: All active sash members utilized a 5/8" x 1/4" solid aluminum bar. The fixed meeting rail utilized a custom roll formed 0.032" thick galvanized steel reinforcement.

Installation: The test unit was installed into the 2 x 10 wood test buck with 2" long installation screws. The screws were spaced 6" from each corner and midspan of the jambs and head. The 3/8" long brick mould flange was set against a filler block. 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-R25 52 x 73			
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)	0.1 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 (See Note #2)		
<i>Note #2: The client opted to start at a test pressure higher than the minimum required. Test results are listed under "Optional Performance".</i>			
2.1.4.2	Uniform Load Structural per ASTM E 330 (See Note #2)		
2.2.1.6.2	Deglazing Test per ASTM E 987 In operating direction at 70 lbs		
	Active meeting rail	0.04"/8%	0.50"/100%
	Bottom rail	0.04"/8%	0.50"/100%
	In remaining direction at 50 lbs		
	Left stile	0.04"/8%	0.50"/100%
	Right stile	0.04"/8%	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 through A5	No entry	No entry
	Test A7	No entry	No entry
	Lock Manipulation Test	No entry	No entry



Test Results:

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<u>Test Specimen #1:</u> H-R25 52 x 73 (Continued)			
<u>Optional Performance</u>			
4.3	Water Resistance per ASTM E 547 (with and without screen) WTP = 6.75 psf	No leakage	No leakage
4.4.2	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the fixed meeting rail)		
	@ 37.5 psf (exterior)	0.15"	0.19" max.
	@ 37.5 psf (interior)	0.19"	0.19" max.

Test Specimen #2: H-R45 36 x 62*

Optional Performance

4.4.2	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the fixed meeting rail)		
	@ 67.5 psf (exterior)	0.02"	0.14" max.
	@ 67.5 psf (interior)	0.01"	0.14" max.

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by ATI for a period of four years. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator.

For ARCHITECTURAL TESTING, INC:

Adam Fodor
Technician

David G. Moyer, Vice President
Director of Testing Services