TEST REPORT SUMMARY

Rendered to:

ALSIDE WINDOW SYSTMES

SERIES/MODEL: 0401
TYPE: PVC Double Hung Window
(Exterior Glazed)

	Results				
Title of Test	**Test Specimen #1**	**Test Specimen #2**	**Test Specimen #3**	**Test Specimen #4**	**Test Specimen #5**
Rating	H-LC25 48 x 78	H-LC30 44 x 77	H-LC40* 44 x 60	H-LC35* 36 x 72	H-LC40* 36 x 60
Overall Design Pressure	25 psf	30 psf	40 psf	35 psf	40 psf
Operating Force	35 lb max.	N/A	N/A	N/A	N/A
Air Infiltration	0.11 cfm/ft^2	N/A	N/A	N/A	NA/
Water Resistance	5.25 psf	N/A	6.0 psf	N/A	N/A
Structural Test Pressure	+45.0 / -37.5 psf	+/-45.0psf	+/-60.0 psf	+52.5 / -60.0 psf	+82.5 / -90.0 psf
Deglazing	Passed	N/A	N/A	N/A	N/A
Forced Entry Resistance	Passed	N/A	N/A	N/A	N/A

Reference should be made to Report No. 05-30311.02 for complete test specimen description and data.

For ARCHITECTURAL TESTING, INC.

Lynn George

Digitally signed by Lynn George

Lynn George, Project Manager

LG:baw

Architectural Testing

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

Rendered to:

ALSIDE WINDOW SYSTEMS
P.O. Box 2010
3773 State Road
Akron, Ohio 44309

Report No: 05-30311.02
Test Date: 12/12/01
Report Date: 02/28/02
Expiration Date: 12/12/05

Project Summary: Architectural Testing, Inc. (ATI) was contracted by Veka, Inc. to perform tests on five Series/Model DH30/31MW/Slope, PVC double hung windows at their facility located in Fombell, Pennsylvania. The samples tested successfully met the performance requirements for the following ratings: Test Specimen #1 H-LC25 48 x 78; Test Specimen #2 H-LC30 44 x 77; Test Specimen #3 H-LC40* 44 x 60; Test Specimen #4 H-LC35* 36 x 72; and Test Specimen #5 H-LC40* 36 x 60. 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 minimum test size for the product type and class.*

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 Glass Doors.*

Test Specimen Description:

Series/Model: 0401

Type: Poly Vinyl Chloride (PVC) Double Hung Window (Exterior Glazed)

Test Specimen #1: H-LC25 48 x 78

Overall Size: 4' 0" wide by 6' 6" high

Bottom Sash Size: 3' 9-3/4" wide by 3' 3" high

Top Sash Size: 3' 8-3/4" wide by 3' 2" high

Screen Size: 3' 8-3/4" wide by 3' 2-7/16" high

130 Derry Court
York, PA 17402-9405
phone: 717.764.7700
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www.archtest.com

Test Specimen Description: (Continued)

Test Specimen #2: H-LC30 44 x 77

Overall Size: 3' 8" wide by 6' 5" high

Bottom Sash Size: 3' 5-3/4" wide by 3' 2-1/2" high

Top Sash Size: 3' 4-3/4" wide by 3' 1-1/2" high

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

Test Specimen #3: H-LC40* 44 x 60

Overall Size: 3' 8" wide by 5' 0" high

Bottom Sash Size: 3' 5-3/4" wide by 2' 6" high

Top Sash Size: 3' 4-3/4" wide by 2' 5" high

Screen Size: 3' 4-3/4" wide by 2' 5-1/2" high

Test Specimen #4: H-LC35* 36 x 72

Overall Size: 3' 0" wide by 6' 0" high

Bottom Sash Size: 2' 9-3/4" wide by 3' 0" high

Top Sash Size: 2' 8-3/4" wide by 2' 11" high

Test Specimen #5: H-LC40* 36 x 60

Overall Size: 3' 0" wide by 6' 0" high

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

Top Sash Size: 2' 8-3/4" wide by 2' 5" high

Finish: All vinyl was white.

Glazing Details: The sash were glazed from the exterior with 13/16" thick insulating glass fabricated from two sheets of 1/8" clear annealed glass and a steel spacer system. The glass was set onto double-sided adhesive glazing tape and secured with rigid vinyl glazing beads.

Test Specimen Description: (Continued)

Weatherstripping:

Description	Quantity	Location
0.187" backed by 0.260" high pile with center fin	1 Row	Lock rail, top rail, head, and sill
0.187" backed by 0.260" high pile with center fin	2 Rows	All stiles, exterior meeting rail
1/4" diameter vinyl jacket/ foam filled bulb	1 Row	Bottom rail

Frame Construction: The PVC frame was of mechanical coped corner construction, fastened with three screws per corner. Each corner contained a foam gasket.

Sash Construction: The PVC sash were assembled utilizing mitered and welded corner construction.

Screen Construction: The screen was constructed from extruded aluminum. The corners were miter cut and secured with corner keys. Fiberglass mesh screen cloth was held-in-place with a flexible spline. A 1/8" high spacer button was located at each end of the bottom rail.

Hardware:

Description	Quantity	Location
Metal cam lock with metal keepers	2	Lock rail, 8-1/2" from each end, corresponding keepers on the exterior meeting rail
Constant force balance system with locking tilt shoes	4	Two per jamb
Plastic spring loaded tilt latches	4	Top corners of each sash
Metal sash tilt pins	4	Bottom corners of each sash

Test Specimen Description: (Continued)

Drainage:

Description	Quantity	Location
3/8" wide by leg height weep notch	4	One at each end of the interior and exterior vertical screen legs at the sill
3/8" wide by 3/16" deep weephole	4	One at each end of the exterior meeting rail and bottom rail

Reinforcement: The lock rail and bottom stiles contained a custom shaped formed steel reinforcement measuring 1.150" x .0.835" x 0.047" (reference drawing #2726). The exterior meeting rail and top stiles contained a custom-shaped formed steel reinforcement measuring 1.000" x 0.520" x 0.047" (reference drawing #UY008300).

Installation: The window was installed in a wood buck constructed of #2 Spruce-Pine-Fir construction grade framing lumber, and was sealed with silicone caulking at the interior and exterior perimeter with the exception of an approximate 5" long void at each interior sill corner. A 3/4" by 3/4" wood stop was applied at the interior and exterior perimeter, secured using 2" drywall screws spaced approximately 16" o.c.

Test Results:

The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
Test Specimen #1: H-LC25 48 x 78			
2.2.1.6.1	Operating Force	30 lbs	35 lbs max.
2.1.2	Air Infiltration per ASTM E 283 @ 1.57 psf (25 mph)	0.11 cfm/ft^2	0.3 cfm/ft^2
2.1.3	Water Resistance per ASTM E 547 (with and without screen) WTP = 3.75 psf	No leakage	No leakage
2.1.4.2	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the meeting rails)		
	@ 37.5 psf (exterior)	0.02"	0.179" max.
	@ 37.5 psf (interior)	0.03"	0.179" max.

Test Results:

Paragraph	Title of Test - Test Method	Results	Allowed
Test Specimen #1: H-LC25 48 x 78 (Continued)			
2.2.1.6.2	Deglazing Test per ASTM E 987		
	Bottom Sash		
	In operating direction at 70 lbs		
	Lift Rail	0.060"/12%	0.500"/100%
	Meeting Rail	0.060"/12%	0.500"/100%
	In remaining direction at 50 lbs		
	Left Stile	0.030"/6%	0.500"/100%
	Right Stile	0.030"/6%	0.500"/100%
	Top Sash		
	In operating direction at 70 lbs		
	Lift Rail	0.090"/18%	0.500"/100%
	Meeting Rail	0.060"/12%	0.500"/100%
	In remaining direction at 50 lbs		
	Left Stile	0.060"/12%	0.500"/100%
	Right Stile	0.060"/12%	0.500"/100%
2.1.7	Welded Corner Test	Meets as stated	Meets as stated
2.1.8	Forced Entry Resistance per AAMA 1302.5-76		
	Tests A through G	No entry	No entry
Optional Performance			
4.3	Water Resistance per ASTM E 547		
	(with and without screen)		
	WTP = 5.25 psf	No leakage	No leakage
4.4.2	Uniform Load Structural per ASTM E 330		
	(Measurements reported were taken on the meeting rails)		
	@ 45.0 psf (positive)	0.07"	0.179" max.
	@ 45.0 psf (negative)	Did not sustain test pressure	

Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
	Test Specimen #2: H-LC30 44 x 77		
	Optional Performance		
4.4.2	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the meeting rails)		
	@ 45.0 psf (positive)	0.03"	0.163" max.
	@ 45.0 psf (negative)	0.01"	0.163" max.
	Test Specimen #3: H-LC40* 44 x 60		
	Optional Performance		
4.3	Water Resistance per ASTM E 547 (with and without screen)		
	WTP = 6.0 psf	No leakage	No leakage
4.4.2	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the meeting rails)		
	@ 60.0 psf (positive)	0.03"	0.163" max.
	@ 60.0 psf (negative)	0.01"	0.163" max.
	Test Specimen #4: H-LC35* 36 x 72		
	Optional Performance		
4.4.2	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the meeting rails)		
	@ 52.5 psf (positive)	0.02"	0.123" max.
	@ 60.0 psf (negative)	0.01"	0.123" max.
	Test Specimen #5: H-LC40* 36 x 60		
	Optional Performance		
4.4.2	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the meeting rails)		
	@ 82.5 psf (positive)	0.02"	0.123" max.
	@ 90.0 psf (negative)	0.02"	0.123" max.

This report is reissued in the name of Alside Window Systems through written authorization of Veka, Inc. to whom the original report was rendered. The original Veka, Inc. Report No. is 05-30311.01.

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:

Lynn George

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Lynn George
Project Manager

Scott A. Warner

Scott A. Warner
Executive Vice President

LG:baw
05-30311.02