

**AAMA/WDMA/CSA 101/I.S.2/A440-08
TEST REPORT**

Rendered to:

REMODELERS SUPPLY CENTER

**SERIES/MODEL: ClimateGuard Classic
PRODUCT TYPE: PVC Single Hung Window**

**Report No.: 86546.02-501-47
Test Date: 10/02/08
And: 10/03/08
Report Date: 06/05/09
Test Record Retention Date: 10/03/12**

Summary of Results

Summary of Results		
Title	Test Specimen #1	Test Specimen #2
Primary Product Designator	Class R-PG30 1118 x 1829 (44 x 72)-H	Class R-PG50 914 x 1829* (36 x 72*)-H
Design Pressure	1440 Pa (30.09 psf)	2400 Pa (50.16 psf)
Negative Design Pressure	1680 Pa (35.11 psf)	2400 Pa (50.16 psf)
Operating Force (in motion)	44 N (10 lbf)	N/A
Air Infiltration	0.86 L/s/m ² (0.17 cfm/ft ²)	N/A
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)	N/A
Uniform Load Structural Test Pressure	+2160 Pa (45.14 psf) -2526 Pa (52.66 psf)	±3600 Pa (±75.24 psf)
Forced Entry Resistance	Grade 10	N/A

Test Completion Date: 10/03/08

Reference must be made to Report No. 86546.02-501-47, dated 06/05/09 for complete test specimen description and detailed test results.

AAMA/WDMA/CSA 101/I.S.2/A440-08 TEST REPORT

Rendered to:

REMODELERS SUPPLY CENTER
2622 North Pulaski Road
Chicago, Illinois 60639

Report No.: 86546.02-501-47
Test Date: 10/02/08
And: 10/03/08
Report Date: 06/05/09
Expiration Date: 10/03/12

Project Summary: Architectural Testing, Inc. was contracted by Veka Inc. to witness and validate testing on two Series/Model SH54WW, PVC single hung windows at the Veka Inc. test facility in Fombell, Pennsylvania. The samples tested successfully met the performance requirements for the following ratings: Test Specimen #1: Class R-PG30 1118 x 1829 (44 x 72)-H; Test Specimen #2: Class R-PG50 914 x 1829* (36 x 72*)-H. This report is a reissue of the original Report No. 86546.01-501-47. This report is reissued in the name of Remodelers Supply Center through written authorization of Veka Inc. Test specimen description and results are reported herein. The samples were provided by the client.

General Note: *An asterisk (*) next to the size designation 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/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights.*

Test Specimen Description:

Series/Model: ClimateGuard Classic

Product Type: Poly Vinyl Chloride (PVC) Single Hung Window

Test Specimen #1: Class R-PG30 1118 x 1829 (44 x 72)-H

Overall Size: 1118 mm (44") wide by 1829 mm (72") high

Operable Sash Size: 1060 mm (41-3/4") wide by 889 mm (35") high

Fixed Daylight Opening Size: 1003 mm (39-1/2") wide by 829 mm (32-5/8") high

Test Specimen Description: (Continued)

Test Specimen #1: Class R-PG30 1118 x 1829 (44 x 72)-H (Continued)

Screen Size: 1032 mm (40-5/8") wide by 860 mm (33-7/8") high

Overall Area: 2.0 m² (22.0 ft²)

Test Specimen #2: Class R-PG50 914 x 1829* (36 x 72*)-H

Overall Size: 914 mm (36") wide by 1829 mm (72") high

Operable Sash Size: 857 mm (33-3/4") wide by 889 mm (35") high

Fixed Daylight Opening Size: 800 mm (31-1/2") wide by 829 mm (32-5/8") high

Overall Area: 1.7 m² (18.0 ft²)

The following descriptions apply to all specimens.

Finish: All PVC was white.

Frame Construction: The extruded PVC frame was of mitered and welded corner construction. The fixed meeting rail was coped and fastened to the jambs using four #8 x 3" long pan head screws, two at each end. A snap-in rigid PVC adapter was located at sill.

Sash Construction: The extruded PVC sash was of mitered and welded corner construction.

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
0.187" backed by 0.270" high center fin pile	1 Row	Sill, lock rail, fixed meeting rail and bottom rail
0.187" backed by 0.270" high center fin pile	2 Rows	Sash stiles
0.187" backed 90° offset carrier with a 0.375" high, foam-filled, flexible vinyl bulb	1 Row	Bottom rail

Test Specimen Description: (Continued)

Glazing Details: The fixed lite was interior glazed and the sash was exterior glazed with nominal 3/4" thick sealed insulating glass fabricated from two sheets of 1/8" clear annealed glass and a butyl spacer material with steel substrate, single sealed. The insulating glass was set against a silicone sealant, and secured with rigid vinyl glazing beads.

Drainage:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
1-1/4" wide by 5/16" high weepslot with flap	2	Sill, one 3-1/2" in from each end of the exterior face
1" wide by 3/16" high weepslot	2	Intermediate sill wall, one 1-1/2" in from each end
1-1/4" deep by 1" wide weephole	2	Jamb / sill intersection at the interior track
3/8" wide by 1/8" deep weephole	2	Bottom rail, one in 2-1/2" from each end

Hardware:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Metal cam lock with corresponding keeper	2	Lock rail, one 8" in from each end
Spiral balance system with locking tilt shoes	2	Jambs, one at each side
Plastic spring-loaded tilt latch	2	Sash, one at each top corner
Metal sash tilt pin	2	Sash, one at each bottom corner

Reinforcement: The fixed meeting rail contained a custom-shaped extruded aluminum reinforcement, reference Drawing No. RFSH5404AOM. The lock rail contained a custom-shaped extruded aluminum reinforcement, reference Drawing No. S-047. The sash stiles and bottom rail contained a custom-shaped extruded aluminum reinforcement, reference Drawing No. S-050.

Test Specimen Description: (Continued)

Screen Construction: The screen frame was constructed from formed aluminum. The corners were square-cut and secured with snap-in plastic corner keys. Fiber mesh screen cloth was secured with a flexible vinyl spline.

Installation: The unit was installed in a wood test buck constructed of Spruce-Pine-Fir construction lumber, and secured through the nailing fin with #8 x 2" long stainless steel truss head screws spaced approximately 9" on center. The nailing fin perimeter was sealed a silicone sealant. A 3/16" gap was maintained between the perimeter of the test specimen and the wood buck.

Test Results: The temperature during testing was 22°C (72°F). 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> Class R-PG30 1118 x 1829 (44 x 72)-H			
5.3.1	Operating Force per ASTM E 2068		
	Initiate motion	53 N (12 lbf)	Report Only
	Maintain motion	44 N (10 lbf)	155 N (35 lbf)
	Latches	13 N (3 lbf)	100 N (22.5 lbf)
	Locks	18 N (4 lbf)	100 N (22.5 lbf)
5.3.2.1	Air Leakage Resistance per ASTM E 283		
	75 Pa (1.6 psf)	0.86 L/s/m ² (0.17 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.
<i>Note #1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.</i>			
5.3.3.2	Water Penetration Resistance per ASTM E 547		See Note #2
<i>Note #2: The client opted to start at a pressure higher than the minimum required. Those results are listed under "Optional Performance".</i>			
5.3.4.2	Uniform Load Deflection per ASTM E 330 (Deflections were taken on the fixed meeting rail) (Loads were held for 10 seconds)		
	720 Pa (15.05 psf) (positive)	2.3 mm (0.09")	See Note #3
	720 Pa (15.05 psf) (negative)	2.5 mm (0.10")	See Note #3
<i>Note #3: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation. The deflection data is recorded in this report for special code compliance and information only.</i>			
5.3.4.3	Uniform Load Structural per ASTM E 330 (Permanent sets were taken on the fixed meeting rail) (Loads were held for 10 seconds)		
	1080 Pa (22.57 psf) (positive)	0.3 mm (0.01")	4.1 mm (0.16") max.
	1080 Pa (22.57 psf) (negative)	0.3 mm (0.01")	4.1 mm (0.16") max.

Test Results: (Continued)

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<u>Test Specimen #1:</u> Class R-PG30 1118 x 1829 (44 x 72)-H (Continued)			
5.3.5	Forced Entry Resistance per ASTM F 588		
	Type: A	Grade: 10	
	Disassembly Test	No entry	No entry
	Tests A1 through A5	No entry	No entry
	Test A7	No entry	No entry
	Sash/Panel Manipulation Test	No entry	No entry
	Lock Hardware Manipulation Test	No entry	No entry
5.3.6.2	Thermoplastic Corner Weld Test	Meets as stated	Meets as stated
5.3.6.3	Deglazing Test		
	In operating direction - 320 N (72 lbf)		
	Lock rail	2.0 mm (0.08")	11.4 mm (0.45")
	Bottom rail	2.0 mm (0.08")	11.4 mm (0.45")
	In remaining direction - 230 N (52 lbf)		
	Left stile	1.5 mm (0.06")	11.4 mm (0.45")
	Right stile	1.5 mm (0.06")	11.4 mm (0.45")
<u>Optional Performance</u>			
4.3.2.1	Water Penetration Resistance per ASTM E 547 (with and without insect screen)		
	360 Pa (7.52 psf)	No leakage	No leakage
4.3.2.1	Uniform Load Deflection per ASTM E 330 (Deflections were taken on the fixed meeting rail) (Loads were held for 10 seconds)		
	1440 Pa (30.09 psf) (positive)	4.0 mm (0.16")	See Note #3
	1680 Pa (35.11 psf) (negative)	5.0 mm (0.20")	See Note #3

Test Results: (Continued)

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
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Test Specimen #1: Class R-PG30 1118 x 1829 (44 x 72)-H (Continued)

Optional Performance (Continued)

4.3.2.1	Uniform Load Structural per ASTM E 330 (Permanent sets were taken on the fixed meeting rail) (Loads were held for 10 seconds)		
	2160 Pa (45.14 psf) (positive)	0.3 mm (0.01")	4.1 mm (0.16") max.
	2520 Pa (52.66 psf) (negative)	0.3 mm (0.01")	4.1 mm (0.16") max.

Test Specimen #2: Class R-PG50 914 x 1829* (36 x 72*)-H

Optional Performance

4.3.2.1	Uniform Load Deflection per ASTM E 330 (Deflections were taken on the fixed meeting rail) (Loads were held for 10 seconds)		
	2400 Pa (50.16 psf) (positive)	3.5 mm (0.14")	See Note #3
	2400 Pa (50.16 psf) (negative)	3.0 mm (0.12")	See Note #3

4.3.2.1	Uniform Load Structural per ASTM E 330 (Permanent sets were taken on the fixed meeting rail) (Loads were held for 10 seconds)		
	2400 Pa (50.16 psf) (positive)	0.3 mm (0.01")	3.3 mm (0.13") max.
	2400 Pa (50.16 psf) (negative)	0.5 mm (0.02")	3.3 mm (0.13") max.

Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen reported herein.

List of Official Observers:

<u>Name</u>	<u>Company</u>
Mike Zilian	Veka Inc.
Joe Allison	Architectural Testing, Inc.

This report is reissued in the name of Remodelers Supply Center through written authorization of Veka Inc. to whom the original report was rendered. The original Veka Inc. Report No. is 86546.01-501-47.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen can be made. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.



Digitally Signed by: Joseph E. Allison

Joseph E. Allison
Senior Technician



Digitally Signed by: Lynn George

Lynn George
Director – Regional Operations

JEA:sld

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Alteration Addendum (1)