

**AAMA/WDMA/CSA 101/1.S.2/A440-05  
TEST REPORT**

**Rendered to:**

**REMODELERS SUPPLY CENTER**

**SERIES/MODEL: Platinum 7000 Series  
PRODUCT TYPE: PVC Double Hung Window**

Title	Summary of Results		
	Test Specimen #1	Test Specimen #2	Test Specimen #3
Primary Product Designator	** H-LC35 1100 x 1900 (44 x 75)	H-LC60 1000 x 1600* (40 x 63*)	** H-R60 1000 x 1600 (40 x 63)
Design Pressure	** 1680 Pa (35.11 psf)	2880 Pa (60.19 psf)	** 2880 Pa (60.19 psf)
Negative Design Pressure	** 1920 Pa (40.13 psf)	2880 Pa (60.19 psf)	** 2880 Pa (60.19 psf)
Operating Force (in motion)	** 107 N (24 lbf)	NA	** 67 N (15 lbf)
Air Infiltration	** 0.8 L/s/m <sup>2</sup> (0.16 cfm/ft <sup>2</sup> )	NA	** 1.1 L/s/m <sup>2</sup> (0.21 cfm/ft <sup>2</sup> )
Water Penetration Resistance Test Pressure	** 440 Pa (9.20 psf)	NA	** 440 Pa (9.20 psf)
Uniform Load Structural Test Pressure	** +2520 Pa (+52.66 psf) -2880 (-60.19 psf)	±4320 Pa (±90.28 psf)	** ±4320 Pa (±90.28 psf)
Forced Entry Resistance	Grade 10	NA	Grade 10

**Test Completion Date:** 12/12/07

Reference must be made to Report No. 78165.03-501-47, dated 01/10/08 for complete test specimen description and data. *Reference ATI Report Number 78165.01-501-47, dated 11/14/07 for these (\*\*)  
results.*

**AAMA/WDMA/CSA 101/I.S.2/A440-05 TEST REPORT**

Rendered to:

REMODELERS SUPPLY CENTER  
2622 North Pulaski Road  
Chicago, Illinois 60639

Report No.: 78165.03-501-47  
Test Date: 12/12/07  
Report Date: 01/10/08  
Expiration Date: 11/02/11

**Project Summary:** Architectural Testing, Inc. was contracted by Veka Inc. to witness testing on three Series/Model DH80WW, PVC double hung windows at Veka's test facility in Fombell, Pennsylvania. The samples tested successfully met the performance requirements for the following ratings: Test Specimen #1: H-LC35 1100 x 1900 (44 x 75); Test Specimen #2: H-LC60 1000 x 1600\* (40 x 63\*); Test Specimen #3: H-R60 1000 x 1600 (40 x 63). Test specimen description and results are reported herein. This report is a reissue of the original Report No. 78165.01-501-47. This report is reissued in the name of Remodelers Supply Center through written authorization of Veka, Inc. 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 specimens were evaluated in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights*.

**Test Specimen Description:**

**Series/Model:** Platinum 7000 Series

**Product Type:** Poly Vinyl Chloride (PVC) Double Hung Window

**Test Specimen #1:** H-LC35 1100 x 1900 (44 x 75)

**Overall Size:** 1118 mm (44") wide by 1895 mm (74-5/8") high

**Bottom Sash Size:** 1045 mm (41-1/8") wide by 937 mm (36-7/8") high

**Top Sash Size:** 1019 mm (40-1/8") wide by 911 mm (35-7/8") high

**Test Specimen Description:** (Continued)

**Test Specimen #1:** H-LC35 1100 x 1900 (44 x 75) (Continued)

**Screen Size:** 39-3/8 mm (1013") wide by 892 mm (35-1/8") high

**Overall Area:** 2.12 m<sup>2</sup> (22.8 ft<sup>2</sup>)

**Reinforcement:** The lock rail contained an extruded aluminum reinforcement, reference Drawing No. RFSE8046AOM. The keeper rail contained an extruded aluminum reinforcement, reference Drawing No. RFSE8034AOM. The top sash stiles contained an extruded aluminum reinforcement, reference Drawing No. RFSE8035AOM. The bottom sash stiles contained an extruded aluminum reinforcement, reference Drawing No. RFSE8045AOM.

**Test Specimen #2:** H-LC60 1000 x 1600\* (40 x 63\*)

**Overall Size:** 1016 mm (40") wide by 1594 mm (62-3/4") high

**Bottom Sash Size:** 943 mm (37-1/8") wide by 784 mm (30-7/8") high

**Top Sash:** 918 mm (36-1/8") wide by 759 mm (29-7/8") high

**Screen Size:** 911 mm (35-7/8") wide by 740 mm (29-1/8") high

**Overall Area:** 1.62 m<sup>2</sup> (17.4 ft<sup>2</sup>)

**Reinforcement:** The lock rail contained an extruded aluminum reinforcement, reference Drawing No. RFSE8046AOM. The keeper rail contained an extruded aluminum reinforcement, reference Drawing No. RFSE8034AOM. The top sash stiles contained an extruded aluminum reinforcement, reference Drawing No. RFSE8035AOM. The bottom sash stiles contained an extruded aluminum reinforcement, reference Drawing No. RFSE8045AOM.

**Test Specimen #3:** H-R60 1000 x 1600 (40 x 63)

**Overall Size:** 1016 mm (40") wide by 1594 mm (62-3/4") high

**Bottom Sash Size:** 943 mm (37-1/8") wide by 784 mm (30-7/8") high

**Top Sash:** 918 mm (36-1/8") wide by 759 mm (29-7/8") high

**Test Specimen Description:** (Continued)

**Test Specimen #3:** H-R60 1000 x 1600 (40 x 63) (Continued)

**Screen Size:** 911 mm (35-7/8") wide by 740 mm (29-1/8") high

**Overall Area:** 1.62 m<sup>2</sup> (17.4 ft<sup>2</sup>)

**Reinforcement:** The lock rail contained an extruded aluminum reinforcement, reference Drawing No. RFSE8046AOM. The keeper rail contained an extruded aluminum reinforcement, reference Drawing No. RFSE8034AOM

*The following descriptions apply to all specimens.*

**Finish:** All PVC was white.

**Frame Construction:** The PVC frame was of mitered and welded corner construction. One snap in rigid PVC adapter was located at the head and two were located at the sill. Foam plugs were inserted under the exterior sill insert at the jamb/sill intersections and back sealed with a silicone sealant.

**Sash Construction:** The PVC sash were of mitered and welded corner construction.

**Weatherstripping:**

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
4.7 mm (0.187") backed by 6.9 mm (0.270") high center fin pile	1 Row	Interior leg of sill insert, head insert
4.7 mm (0.187") backed by 6.9 mm (0.270") high center fin pile	2 Rows	Lock rail, keeper rail, and bottom rail
4.7 mm (0.187") backed by 6.9 mm (0.270") high center fin pile	3 Rows	Top rail, and all sash stiles
4.7 mm (0.187") backed by 10.2 mm (0.400") high hollow vinyl bulb	1 Row	Bottom rail

**Test Specimen Description:** (Continued)

**Glazing Details:** Each sash was exterior glazed with nominal 25 mm (1") thick insulating glass consisting of two sheets of 3 mm (1/8") clear annealed glass and a "U" shaped steel spacer system embedded in sealant, single sealed. The insulating glass was set from the exterior against a bed of silicone sealant. A cap bead of silicone sealant was applied at the exterior perimeter of each unit and secured with rigid vinyl glazing beads.

**Drainage:**

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
33.3 mm (1-5/16") by 7.9 mm (5/16") weepslot with cover	2	Exterior sill face, 121 mm (4-3/4") from each end of sill
30.2 mm (1-3/16") by 14.3 mm (9/16") weephole	2	Interior track at jamb/sill intersection
25.4 mm (1") by 4.8 mm (3/16") weephole	2	Intermediate wall, one at each end
25.4 mm (1") by 4.8 mm (3/16") weephole	4	Screen track, two at each end, interior and exterior
9.5 mm (3/8") by 3.2 mm (1/8") weephole	4	Bottom rail and keeper rail, one at each end

**Hardware:**

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Dual action, lock activated tilt latch assembly and keeper	2	Lock rail, one 229 mm (9") from each end with corresponding keeper on the exterior meeting rail
Tilt latch	2	Top rail, one at each end
Pivot bars	4	Meeting rail and lift rail, one at each end
Constant force balances	4	Two per jamb

**Test Specimen Description:** (Continued)

**Screen Construction:** The screen was constructed from roll-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:** Each unit was installed in a wood test buck constructed of Spruce-Pine-Fir construction lumber. Each unit was secured through the frame with six #8 x 51 mm (2") long truss head screws, one at top, bottom and midspan of each jamb. The exterior perimeter was sealed with silicone sealant.

**Test Results:** The temperature during testing was 21°C (70 °F). The results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<b><u>Test Specimen #1:</u></b> H-LC35 1100 x 1900 (44 x 75) **			
5.3.1	Operating Force per ASTM E 2068		
	Initiate motion	98 N (22lbf)	Report Only
	Maintain motion	107 N (24 lbf)	155 N (35 lbf)
	Latches	9 N (2 lbf)	100 N (22.5 lbf)
5.3.2.1	Air Leakage Resistance per ASTM E 283 **		
	75 Pa (1.6 psf)	0.8 L/s/m <sup>2</sup> (0.16 cfm/ft <sup>2</sup> )	1.5 L/s/m <sup>2</sup> (0.3 cfm/ft <sup>2</sup> ) max.
<i>Note #1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance.</i>			
5.3.3.2	Water Penetration Resistance per ASTM E 547		See Note #2
5.3.4.2	Uniform Load Deflection per ASTM E 330		See Note #2
5.3.4.3	Uniform Load Structural per ASTM E 330		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>			
5.3.5	Forced Entry Resistance per ASTM F 588 **		
	Type: A	Grade: 10	
	Disassembly Test	No entry	No entry
	Tests A1 through 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

*Note: Reference ATI Report Number 78165.01-501-47 for these (\*\*) results.*

**Test Results:** (Continued)

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<b><u>Test Specimen #1:</u></b> H-LC35 1100 x 1900 (44 x 75) (Continued)			
5.3.6.3	Deglazing Test ** In operating direction - 320 N (70 lbf)		
	Top rail:	0.5 mm (0.02")	11.4 mm (0.45")
	Keeper rail:	0.5 mm (0.02")	11.4 mm (0.45")
	Lock rail:	0.5 mm (0.02")	11.4 mm (0.45")
	Bottom rail:	0.5 mm (0.02")	11.4 mm (0.45")
	In remaining direction - 230 N (50 lbf)		
	Top left stile:	0.3 mm (0.01")	11.4 mm (0.45")
	Top right stile:	0.3 mm (0.01")	11.4 mm (0.45")
	Bottom left stile:	0.3 mm (0.01")	11.4 mm (0.45")
	Bottom right stile:	0.3 mm (0.01")	11.4 mm (0.45")

Optional Performance

4.4.2.6	Water Penetration Resistance per ASTM E 547 ** (with and without insect screen) 440 Pa (9.20 psf)	No leakage	No leakage
4.4.2.6	Uniform Load Deflection per ASTM E 330 ** (Deflections were taken on the exterior meeting rail) (Loads were held for 10 seconds)		
	1680 Pa (35.11 psf) (positive)	4.1 mm (0.16")	See Note #3
	1920 Pa (40.13 psf) (negative)	4.6 mm (0.18")	See Note #3

**Note #3:** *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-05 for this product designation. The deflection data is recorded in this report for special code compliance and information only.*

4.4.2.6	Uniform Load Deflection per ASTM E 330 ** (Deflections were taken on the exterior meeting rail) (Loads were held for 10 seconds)		
	2520 Pa (52.66 psf) (positive)	0.3 mm (0.01")	4.1 mm (0.16") max.
	2880 Pa (60.19 psf) (negative)	0.8 mm (0.03")	4.1 mm (0.16") max.

*Note: Reference ATI Report Number 78165.01-501-47 for these (\*\*) results.*

**Test Results:** (Continued)

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<b><u>Test Specimen #2:</u></b> H-LC60 1000 x 1600* (40 x 63*)			
<u>Optional Performance</u>			
4.4.2.6	Uniform Load Deflection per ASTM E 330 (Deflections were taken on the exterior meeting rail) (Loads were held for 10 seconds)		
	2880 Pa (60.19 psf) (positive)	6.6 mm (0.26")	See Note #3
	2880 Pa (60.19 psf) (negative)	3.0 mm (0.12")	See Note #3
4.4.2.6	Uniform Load Deflection per ASTM E 330 (Deflections were taken on the exterior meeting rail) (Loads were held for 10 seconds)		
	4320 Pa (90.28 psf) (positive)	0.5 mm (0.02")	10.2 mm (0.14") max.
	4320 Pa (90.28 psf) (negative)	0.3 mm (0.01")	10.2 mm (0.14") max.

**Test Specimen #3:** H-R60 1000 x 1600 (40 x 63)

5.3.1	Operating Force per ASTM E 2068 **		
	Initiate motion	67 N (15 lbf)	Report Only
	Maintain motion	67 N (15 lbf)	135 N (30 lbf)
	Latches	9 N (2 lbf)	100 N (22.5 lbf)
5.3.2.1	Air Leakage Resistance per ASTM E 283 **		
	75 Pa (1.6 psf)	1.1 L/s/m <sup>2</sup> (0.21 cfm/ft <sup>2</sup> )	1.5 L/s/m <sup>2</sup> (0.3 cfm/ft <sup>2</sup> ) max.

**Note #1:** *The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance.*

5.3.3.2	Water Penetration Resistance per ASTM E 547		See Note #2
5.3.4.2	Uniform Load Deflection per ASTM E 330		See Note #2
5.3.4.3	Uniform Load Structural per ASTM E 330		See Note #2

*Note: Reference ATI Report Number 78165.01-501-47 for these (\*\*) results.*

**Test Results:** (Continued)

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<b><u>Test Specimen #3:</u></b> H-R60 1000 x 1600 (40 x 63) (Continued)			
5.3.5	Forced Entry Resistance per ASTM F 588 **		
	Type: A	Grade: 10	
	Disassembly Test	No entry	No entry
	Tests A1 through 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 (70 lbf)		
	Top rail:	0.5 mm (0.02")	11.4 mm (0.45")
	Keeper rail:	0.5 mm (0.02")	11.4 mm (0.45")
	Lock rail:	0.5 mm (0.02")	11.4 mm (0.45")
	Bottom rail:	0.5 mm (0.02")	11.4 mm (0.45")
	In remaining direction - 230 N (50 lbf)		
	Top left stile:	0.3 mm (0.01")	11.4 mm (0.45")
	Top right stile:	0.3 mm (0.01")	11.4 mm (0.45")
	Bottom left stile:	0.3 mm (0.01")	11.4 mm (0.45")
	Bottom right stile:	0.3 mm (0.01")	11.4 mm (0.45")
<u>Optional Performance</u>			
4.4.2.6	Water Penetration Resistance per ASTM E 547 ** (with and without insect screen)		
	440 Pa (9.20 psf)	No leakage	No leakage
4.4.2.6	Uniform Load Deflection per ASTM E 330 ** (Deflections were taken on the exterior meeting rail) (Loads were held for 10 seconds)		
	2880 Pa (60.19 psf) (positive)	6.6 mm (0.26")	See Note #3
	2880 Pa (60.19 psf) (negative)	3.0 mm (0.12")	See Note #3

*Note: Reference ATI Report Number 78165.01-501-47 for these (\*\*) results.*

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**Test Results:** (Continued)

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<b><u>Test Specimen #3:</u></b> H-R60 1000 x 1600 (40 x 63) (Continued)			
<u>Optional Performance</u>			
4.4.2.6	Uniform Load Deflection per ASTM E 330 ** (Deflections were taken on the exterior meeting rail) (Loads were held for 10 seconds)		
	4320 Pa (90.28 psf) (positive)	0.5 mm (0.02")	10.2 mm (0.14") max.
	4320 Pa (90.28 psf) (negative)	0.3 mm (0.01")	10.2 mm (0.14") max.

*Note: Reference ATI Report Number 78165.01-501-47 for these (\*\*) results.*

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.
Doug Merry	VEKA, Inc.
Barry Bieber	VEKA, Inc.
Joe Allison	Architectural Testing, Inc.
Jim Grippo	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 78165.01-501-47.

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

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Joseph E. Allison  
Senior Technician



Digitally Signed by: Lynn George

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Lynn George  
Director – Regional Director

JEA:sld

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

### Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	01/10/08	N/A	Original report issue – Reissue of Report No. 78165.01-501-47 in the name of Remodelers Supply Center.

**Appendix A**  
**Alteration Addendum**

*Note: No alterations were required.*