

TEST REPORT

AAMA/WDMA/CSA 101/I.S.2/A440-17

AAMA/WDMA/CSA 101/I.S.2/A440-11

REPORT No.: 11894.02-109-12

RENDERED TO: Trophy Windows
16261 Hollister Street
Houston, Texas 77066

PRODUCT TYPE: PVC Single Hung Window

SERIES / MODEL: 82 Single Hung

Test	Summary of Results
Primary Product Designator	Class R – PG50 1105 x 1816 (44 x 72)-H
Design Pressure	±2400 Pa (±50.13 psf)
Air Infiltration @ 1.57 psf	0.9 L/s/m ² (0.17 cfm/ft ²)
Air Exfiltration @ 1.57 psf	0.9 L/s/m ² (0.17 cfm/ft ²)
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)

Test Completion Date: 10/26/2022

Reference must be made to Report No. 11894.02-109-12, dated 11/15/2022 for complete test specimen description and detailed test results.

CLIENT INFORMATION: TROPHY WINDOWS
16261 Hollister Street
Houston, Texas 77066

TEST LABORATORY: Molimo, LLC
1410 Eden Road
York, Pennsylvania 17402
717-900-6034

PROJECT SUMMARY:

PRODUCT TYPE: PVC Single Hung Window

SERIES/MODEL: 82 Single Hung

PROJECT SUMMARY:

Molimo LLC was contracted to perform testing on the above-referenced product. The results are tested values and were secured by using the designated test methods. A summary of the rating achieved for the specimen tested is shown in the table below.

This product was originally tested by Veka, Inc. as Series: SH46WW PVC Single Hung Window. This report is a reissue of Report No. 11894.01-109-12 in the name of Trophy Windows through written authorization by Veka, Inc.

SPECIMEN	SPECIFICATION	PRODUCT RATING
1	101/I.S.2/A440-11/-17	Class R – PG50 1105 x 1816 (44 x 72)-H

PROJECT DETAILS:

Test Dates: 10/13/2022 – 10/26/2022

Test Record Retention End Date: 10/26/2026

Test Location: Veka, Inc. test facility in Fombell, PA. In accordance with AAMA 205.01, calibration of manufacturers' test equipment is documented under Report No. 11891.01-109-12.

Test Specimen Source: The test specimens were provided by the client. Representative samples of the test specimens will be retained by Molimo for a minimum of four years from the test completion date.

Drawing Reference: The test specimen drawings were supplied by the client. The test specimen construction was verified by Molimo and was found to be representative of the products tested. Test specimen drawings are located in Appendix C of this report.

WITNESSES:

The following representatives witnessed all or part of the testing.

Name	Company
Doug Merry	VEKA, Inc.
Cornell Charles	VEKA, Inc.
Joseph Allison	Molimo, LLC

TEST METHODS:

AAMA/WDMA/CSA 101/I.S.2/A440-17, *NAFS 2017 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

TEST SPECIMEN DESCRIPTION:
PRODUCT SIZES:

Test Specimen #1				
Overall Area: 2.01 m ² (21.60 ft ²)	Width		Height	
	Millimeters	Inches	Millimeters	Inches
Overall Size:	1105	43-1/2	1816	71-1/2
Sash:	1051	41-3/8	886	34-7/8
Screen Size:	1016	40	876	34-1/2

FRAME CONSTRUCTION:

Frame Member	Material	Detail
Head, Sill and Jambs	PVC	Extruded
Corner Construction	--	Miter-cut and thermally welded
Fixed Meeting Rail	PVC	Coped, butted and fastened with two #8 x 2-1/2" truss head screws at jamb. The entire mechanical joint was sealed with silicone sealant.

TEST SPECIMEN DESCRIPTION: (Continued)
SASH CONSTRUCTION:

Sash Member	Material	Detail
Rails and Stiles	PVC	Extruded
Corner Construction	--	Miter-cut and thermally welded

REINFORCEMENT:

Drawing Number	Material	Location
S-046	Extruded Aluminum	Fixed meeting rail
S-047	Extruded Aluminum	Lock rail, stiles, bottom rail

GLAZING DETAILS: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimens can be made.*

Description	Detail
Glass Type	3/4" IG
Glazing Construction (Exterior to Interior)	3/16" Thick annealed glass 3/8" Silicone foam spacer system 3/16" Thick annealed glass
Glazing Method	The sash was exterior glazed, and the fixed lite interior glazed against a bed of silicone sealant and back filled with silicone sealant. The IG was secured with rigid vinyl glazing beads.
Glazing Bite	1/2"
Sash:	991 mm x 826 mm (39" x 32-1/2")
Fixed:	991 mm x 819 mm (39" x 32-1/4")

TEST SPECIMEN DESCRIPTION: (Continued)
WEATHERSTRIPPING:

Description	Quantity	Location
0.187" Backed by 0.270" high center fin pile	2 Rows	Stiles
0.187" Backed by 0.270" high center fin pile	1 Row	Sill
0.187" Backed by 0.230" high center fin pile	1 Row	Lock rail
0.500" Diameter foam-filled vinyl bulb with fin on an offset base	1 Row	Bottom rail

DRAINAGE:

Description	Quantity	Location
1" wide by 3/16" high weep slot	2	Exterior sill face, one 3-1/2" from each end
1" wide by 1-1/4" deep weep hole	2	Sill/Jamb intersection, one at each end of sill
Leg height weep notch	6	Top surface sill legs (3), one at each end of each

HARDWARE:

Description	Quantity	Location
Composite lock	2 per sash	Lock rail, one 7" from each end with integral mating groove on the fixed meeting rail
Plastic flush mount tilt latch	2 per sash	Top corners of each sash
Metal interlocking pivot bar	2 per sash	Bottom rail, one at each end
Constant force balance system	2 per sash	One per jamb

TEST SPECIMEN DESCRIPTION: (Continued)
SCREEN CONSTRUCTION:

Frame Material	Formed aluminum
Corner Construction	Square cut and secured with snap-in plastic corner keys
Mesh Type	Fiberglass mesh
Mesh Attachment Method	Flexible vinyl spline

INSTALLATION: The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/8" shim space. The integral nailing fin the specimen was sealed to the wood buck with silicone sealant.

Location	Anchor Description	Anchor Spacing
Integral nailing fin	#8 x 2" Truss head screw	Beginning at each corner then spaced 8" on center, through the nailing fin and into the wood buck.

TEST RESULTS: The temperature during testing was 20° C (68° F).

OPERATING FORCE: (per ASTM E 2068)

Test	Results	Allowable	Note
Initiate Motion	155 N (35 lbf)	Report Only	1
Maintain Motion (Opening)	155 N (35 lbf)	155 N (35 lbf)	
Maintain Motion (Closing)	44 N (10 lbf)	155 N (35 lbf)	
Locks / Latches	89 N (20 lbf)	100 N (22.5 lbf)	

AIR LEAKAGE TESTING: (per ASTM E 283)

Test	Results	Allowable	Note
Infiltration @ 75 Pa (1.57 psf)	0.9 L/s/m ² (0.17 cfm/ft ²)	1.5 L/s/m ² (0.30 cfm/ft ²)	2
Exfiltration @ 75 Pa (1.57 psf)	0.9 L/s/m ² (0.17 cfm/ft ²)	1.5 L/s/m ² (0.30 cfm/ft ²)	2

Canadian Air Infiltration Rating: A2

WATER PENETRATION TESTING: (per ASTM E 547)

Test	Results	Allowable	Note
360 Pa (7.52 psf)	Pass	No Leakage	3

UNIFORM LOAD TESTING: (per ASTM E 330)

Design Pressure Test	Results	Allowable	Note
Deflection measured at Fixed meeting rail +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	16.3 mm (0.64") 13.8 mm (0.54")	Report Only	4,5,6

Structural Test	Results	Allowable	Note
Permanent Set measured at fixed meeting rail +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	0.5 mm (0.02") 1.0 mm (0.04")	4.1 mm (0.16") 4.1 mm (0.16")	4,5,6

TEST RESULTS: (Continued)

SECONDARY TESTING:

Test	Results	Allowable
FORCED ENTRY RESISTANCE per ASTM F 588 Type: A – Grade: 10	Pass	No Entry
THERMOPLASTIC CORNER WELD	Pass	Meets as stated
DEGLAZING per ASTM E 987 Operating Direction – 320 N (70 lbf) Remaining Direction – 230 N (50 lbf)	Pass Pass	Meets as stated Meets as stated

General Notes: All testing was performed in accordance with reference test methods.

- #1: The operating force results listed above represent the maximum force measured among all sash tested.
- #2: The specimen tested meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.
- #3: Water Penetration testing was performed with and without an insect screen.
- #4: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation and is recorded for information purposes only.
- #5: All loads were held for 10 seconds.
- #6: Tape and film were used to seal against air leakage. In our opinion, the tape and film did not influence the results of the test.

This report is reissued in the name of Trophy Windows through written authorization from Veka, Inc. to whom the original report was rendered. The original Report No. is 11894.01-109-12. A copy of this report, detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Molimo, LLC for the entire test record retention period. At the end of this retention period, the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. This test 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 permission of Molimo, LLC.

For MOLIMO, LLC:

Joseph E. Allison
Regional Project Manager

Michael D. Stremmel, P.E.
Senior Project Engineer

JEA:dro

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Alteration Addendum (1)

Appendix-B: Air Seal Location (1)

Appendix-C: Drawings (1)

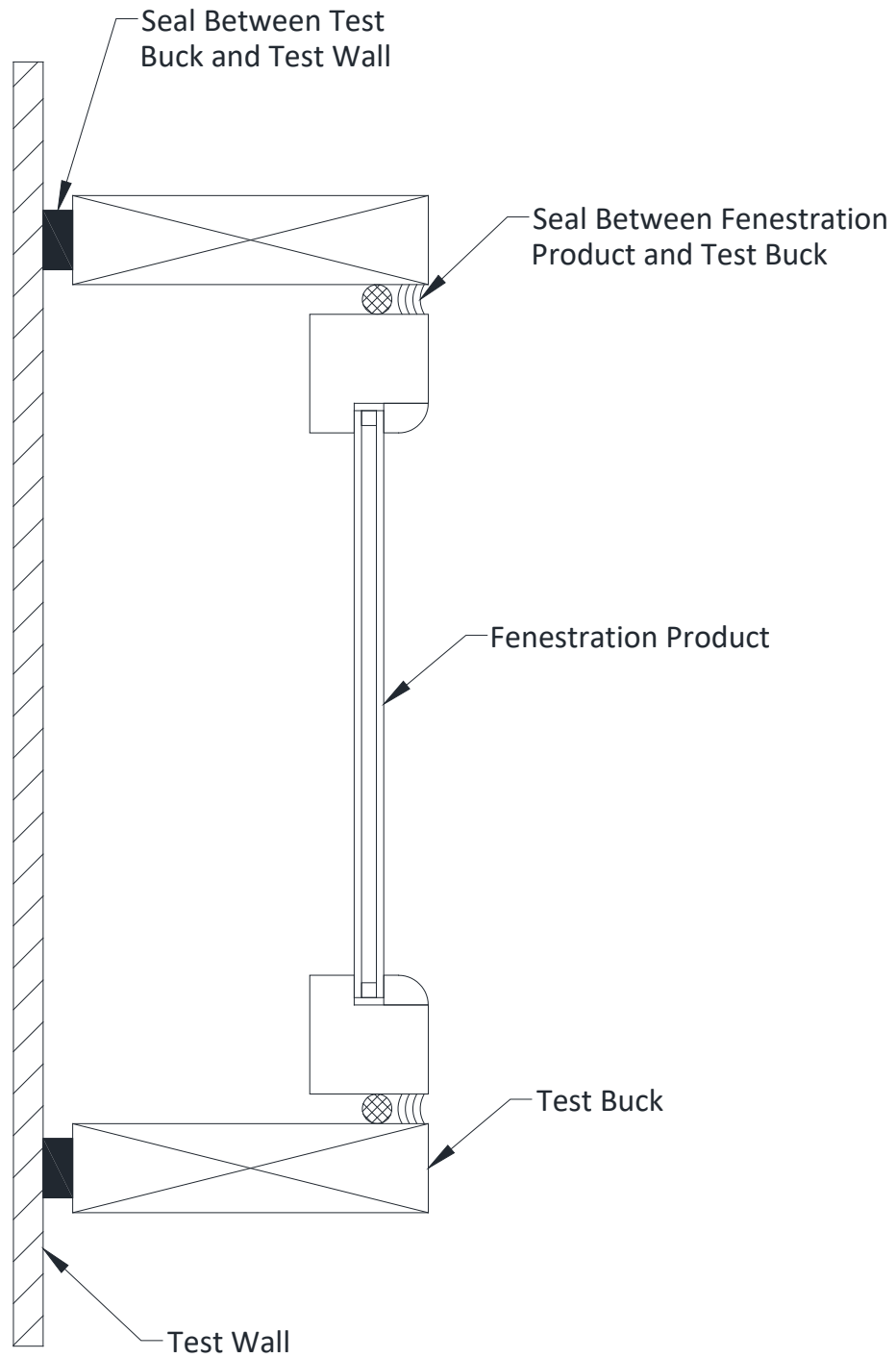
Appendix A

Alteration Addendum

No alterations were performed

Appendix B

Air Seal Location



Appendix C

Drawings



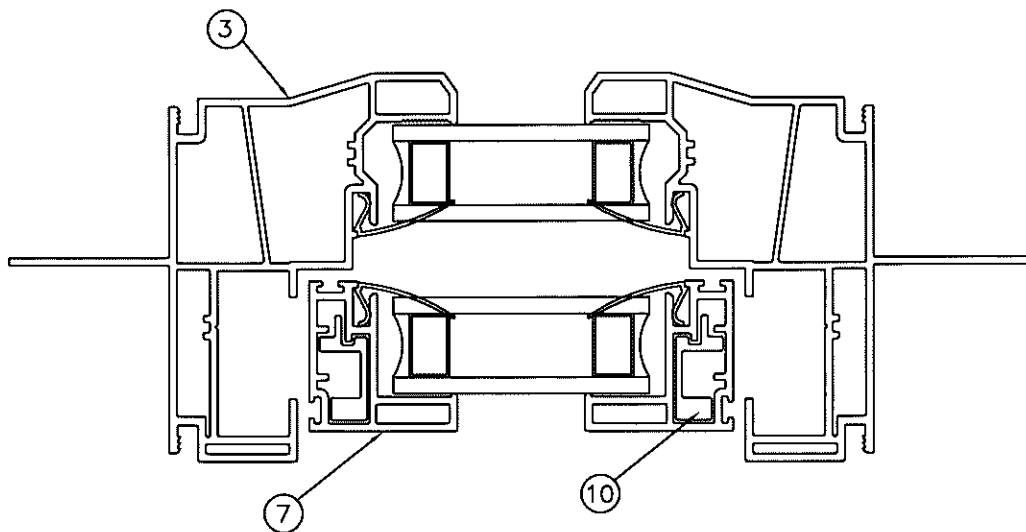
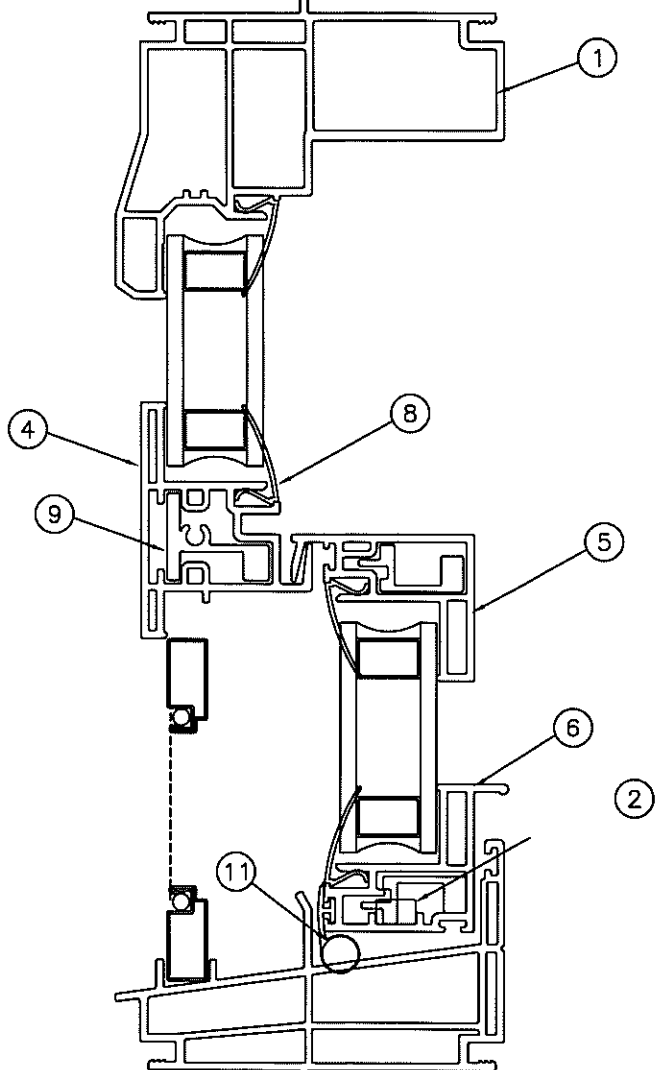
Molimo[™]

Architectural Product Testing

Report #: 11894.02-109-12

Date: 11/15/2022

By: JEA



VINYL & ALUMINUM EXTRUSIONS

① SH4602	FRAME HEAD	⑦ V-705	SASH STILE
② SH4603	FRAME SILL	⑧ V-716	GLAZING BEAD
③ SH4601	FRAME JAMB	⑨ S-046	M.R. REINFORCEMENT
④ V-706	MEETING RAIL	⑩ S-047	SASH REINFORCEMENT
⑤ SE4636	SASH LOCK RAIL	⑪ AMESBURY 32684	BULB SEAL
⑥ SE4637	SASH BOTTOM RAIL		

SH46WW



VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

SINGLE HUNG SH46WW

C	UPDATED SH4602 TCR#0517-002	BJF	13 SEP 17
B	UPDATED SH4603	BJF	18 MAY 10
A	UPDATED SH4601	BJF	13 NOV 08
REV	ECN.	CHANGE	BY DATE

B-SIZE BY BJF DATE 10/30/07

SCALE FULL DWG # SH46WW (LA3100)

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