

Measuring Up To Your Standards, And More

01-552-11503.0 QHQ HS

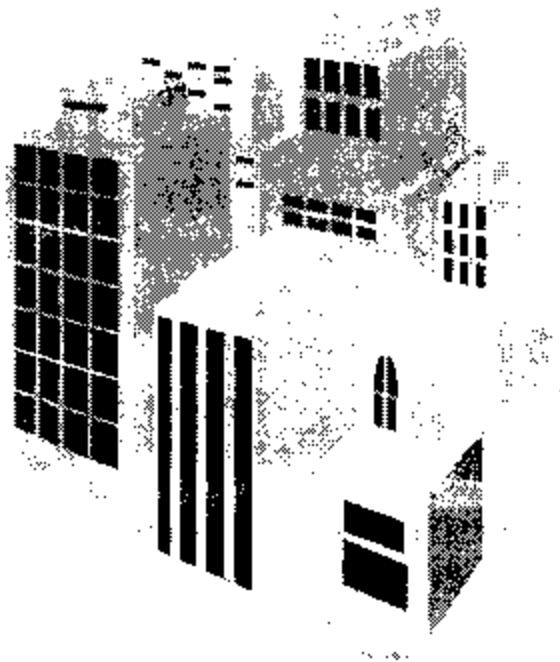
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Report Number ETC-01-552-11503.0

Test Start Date: 05/09/02

Test Finish Date:

Summary Date: 05/16/02



Fenestration Structural Test Report

Rendered To

Great Lakes Window
30499 Tracy Road
Walbridge, OH 43603

Series/Model

GLW – EVQHQ - 120 Triple Horizontal Slider QHQ (XOX)

Description: The product tested was a vinyl Horizontal Sliding window (XOX). The product was glazed with insulated glass units with a nominal thickness of 7/8 inches and using center only end sashes had single strength (Only on this unit). The frame size is 96 inches wide by 54 inches high.

Test Specification: AAMA/NWWDA 101/I.S.2-97

Summary of Results

Overall Design Pressure	35.0 psf
Maximum Operating Force	6 lbf.
Air Leakage Rate	0.07 scfm/ft ²
Maximum Water Pressure Achieved	6.00 psf
Maximum Structural Pressure Achieved	67.5 psf
Forced Entry Resistance – AAMA	Pass

Product Rating

HS – R35 - 96 x 54

Accreditation's/Recognition's

*AAMA – WDMA – NFRC – SIGMA – NAMI – IGCC – SGCC – Dade County – NYCSCA-TDI
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Specifications: The test specimen was evaluated in accordance with AAMA/NWWDA 101/I.S.2-97 "Voluntary Specification For Aluminum, Vinyl and Wood Windows and Glass Doors", sections 1,2 and 4 only. All performance specifications in this standard shall be met for full compliance to the standard and for product certification, labeling or represented as conforming to this standard.

Referenced Test Reports: None

Note – The test data in any section below with an "RTR" comment have not been obtained from this specimen but from the Referenced Test Report with a specimen of the same or larger size and identical construction.

Design Pressure (DP) – The product tested herein has been first evaluated to the Gateway pressure in the referenced specification for the performance class rating achieved.

Gateway Performance Tests

<u>Specification Paragraph</u>	<u>Title of Test</u>	<u>Results</u>	<u>Allowed</u>
2.1.2	<u>Air Infiltration – ASTM E283</u> Test Pressure - 1.57 psf	0.07 scfm/ft ²	0.3 scfm/ft ²
2.1.3	<u>Water Resistance – ASTM E547</u> 5 gal/hr-ft ² – 4 Test cycles – 24 Minutes Design Pressure - 15.0 psf Test Pressure - 2.86 psf (15% x DP) With Screen Without Screen	Pass Pass	No Leakage No Leakage
2.1.4	<u>Uniform Structural Load - ASTM E 330</u> Design Pressure - 15.0 psf Test Pressure Positive Load - 22.5 psf (150% x DP) Negative Load - 22.5 psf (150% x DP)	0.022 in. 0.020 in.	0.199 in. 0.199 in.

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Gateway Performance Tests (con't)

Specification Paragraph	Title of Test	Results	Allowed
2.1.7	<u>Welded Corner Tests- AAMA Method</u> Frame – Four Corners Sash – Eight Corners	Pass Pass	<100% <100%
2.1.8	<u>Forced Entry Resistance</u> AAMA 1302 Tests A,B,C,D,E,F,G	Pass	No Entry
2.2.2.5.1	<u>Operating Force – No Standardized Method</u> Right Sash – Open / Close Left Sash – Open / Close	5 / 5 lbf 6 / 6 lbf	20 lbf 20 lbf
2.2.2.5.2	<u>Deglazing – ASTM E 987</u> Right Sash – Rails – 50 lbf Right Sash – Rails – 50 lbf Right Sash – Stiles – 70 lbf Right Sash – Stiles – 70 lbf Left Sash – Rails – 50 lbf Left Sash – Rails – 50 lbf Left Sash – Stiles – 70 lbf Left Sash – Stiles – 70 lbf	0% (in.) 0% (in.) 0% (in.) 0% (in.) 0% (in.) 0% (in.)	<100% <100% <100% <100% <100% <100%

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Optional Performance Tests

The manufacturer specified herein has successfully achieved all the required criteria in section 2 of the referenced specification for the Gateway size of the achieved Performance Rating and has further successfully tested the product to higher performance levels as indicated below.

Design Pressure (DP) – The product tested herein has been additionally evaluated to the Design Pressure referenced below.

Specification

<u>Paragraph</u>	<u>Title of Test</u>	<u>Results</u>	<u>Allowed</u>
4.3	<u>Water Resistance - ASTM E 547</u> 5 gal/hr-ft ² – 4 Test cycles – 24 Minutes Design Pressure - 35.0 psf Test Pressure – 5.25 psf (15% x DP) With Screen Without Screen	Pass Pass	No Leakage No Leakage
4.4	<u>Uniform Structural Load - ASTM E 330</u> Design Pressure - 45.0 psf Test Pressure Positive Load – 67.5 psf (150% x DP) Negative Load – 67.5 psf (150% x DP)	0.035 in. 0.045 in.	0.199 in. 0.199 in.

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Product Description of Test Specimen

Glazing:

Overall Thickness	7/8 in.
Thickness of Glass(s)	DS Annealed Center lite, SS Annealed End Vents
Number of Lights	Two
Spacer Material	Steel channel

Frame:

Width, Height, Depth	96 in. W x 54 in. H x 4-1/4 in. D
Material	Vinyl
Corner Construction	Mitered
Corner Fastening	Welded
Corner Sealing	None
Cladding	None

End Vents, Right and Left:

Width, Height, Depth	25-1/4 in. W x 49-15/16 in. H x 1-1/2 in. D
Material	Vinyl
Corner Construction	Mitered
Corner Fastening	None
Cladding	None
Glazing Method	Interior Drop-In
Interior	Dual-durometer glazing bead, snap-in vinyl
Exterior	Wet glazed w/silicone, dual-durometer glazing leg

Reinforcement

Material	Fiberglass
Location	Meeting stiles / Lock Stiles

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Product Description of Test Specimen (con't)

Center Vent:

Width, Height, Depth	47-1/2 in. W x 49-15/16 in. H x 1-1/2 in. deep
Material	Vinyl
Corner Construction	Mitered
Corner Fastening	Welded
Corner Sealing	None
Cladding	None
Glazing Method	Interior drop-in
Interior	Dual-durometer glazing bead, snap-in vinyl
Exterior	Wet glazed w/silicone, dual-durometer glazing leg

Reinforcement

Material	Fiberglass
Location	Meeting stiles / Lock Stiles

Weather-stripping

Frame	One row of fin-pile on the interior leg of each sash channel of all frame members
End Vents	One row of fin-pile on the interior face of each sash member, with pile pad at the bottom of the lock stile (3/4 in. W. x 1/2 in. H.)
Center Vent	One row of fin-pile on the exterior face of each sash member. One additional row on the interior face of each keeper stile with a pile pad at the top and bottom of each.

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Product Description of Test Specimen (con't)

Drainage:

Type	Weep slots at the bottom of each sash channel near the parting stop ¼ inch from each end, four total, and cut through to the internal sill cavity. Slot at the exterior face of the sill 4-1/8 inch from each end, 2 total, cut through to the internal sill cavity, with corners.
Quantity	Six weeps in the frame, two in the operating sash
Size:	exterior face, one inch wide x 3/16 inch high; sash tracks, 2 in. W. x 3/16 in. D.; sash 3/16 in. Dia.
Location:	Frame – sash track insert cutback ¾ in. at each end. Sash – bottom edge of each sash, 4-1/4 in. from each end of bottom rail.

Hardware:

Locks/Keepers	Four cast Zinc cam locks – 2 centered at 27-3/4 inches apart at on each lock stile.
Rollers	One pair 3/8 inch dia. brass rollers in plastic carrier, centered and 2-1/2 inch from each corner
Night Latches	Plastic latch centered 5-1/2 in. from the ends of the bottom rail of the center sash

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Product Description of Test Specimen (con't)

Screen

Size	23-3/8 in. W x 50 in. H x 1/2 in. Thk
Cloth Material	Fiberglass
Corner Construction	But corners with Aluminum insert
Weep System	N/A

Anchorage of Frame to Test Buck:

Type	Screws
Material	Steel
Size	#6 x 2-1/2 in. L
Quantity	16
Location	3 each jamb, 4-1/2 inches from ends and centered, 5 on head and sill – 6 inches from corner, 20 inches on-center

Test Buck:

Mounting Gap	1/4 in.
Shims-Qty./Location	Four shims, 1-1/2 in. W. at each fastener
Stops: size, Qtn., Loc.	None
Sealant	Silicone
Buck Size	2 x 6
Material	Pine
Grade	#2

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Review of Bill of Materials- As Supplied

Review of Assembly and Detail Drawings -- As Supplied

Components changed or altered during testing to achieve stated results – None

This report, in its original form contains product drawings and a Bill of Materials.

Product Description Approval

Product Description Analysis

Clients Representative Signature on File

William Yanda
Laboratory Representative

Date: 5/8/02

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Conditions, Terms, and General Notes Regarding These Tests

The product tested **Has Been** compared to the detailed drawings, bill of materials and fabrication information supplied by the client so named herein. Our analysis, which includes dimensional and component description comparisons, indicate the tested product and engineering information supplied by the client "**Are Equivalent**". The report and representative samples will be retained for four years from the date of initial test.

These test results were obtained by employing all requirements of the designated test methods with no deviations. The test results and specimen supplied for testing are in compliance with the referenced specifications.

The test results are specific to the product tested by this laboratory and of the sample supplied by the client named herein, and they relate to no other product either manufactured by the client, a Fabricator of the client or of installed field performance.

This report does not constitute an AAMA or NWWDA certified product under the certification programs of these organizations. The program administrator of these programs and organizations may only grant product certification.

ETC Laboratories makes no opinions or endorsements regarding this product and its performance. This report may not be reproduced or quoted in partial form without the expressed written approval of ETC Laboratories.

No conclusions of any kind regarding the adequacy of the glass in the test specimen may be drawn from the test. Procedure "A" in ASTM E330 was used for this test.

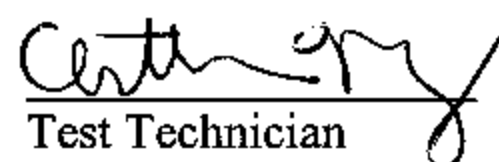
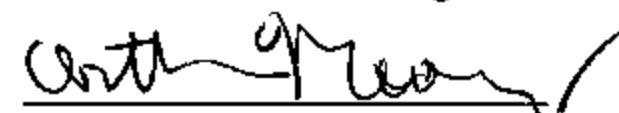
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VPTS Approval

For ETC Laboratories


Test Technician
Art Murray, Manager, Wild
Engineering Laboratory

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