

FENESTRATION TESTING LABORATORY

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TESTED FOR

INTERNATIONAL WINDOW CORP.
5625 East Firestone Boulevard
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Report No. : V02G-054
Date : April 9, 2002
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1.0 **PURPOSE**

The purpose of this report is to present the testing methods employed and the test results obtained during the performance testing of one (1) **PVC Green House Window** described in paragraph 4.0 of this report.

2.0 **TEST REFERENCES**

- 2.1 Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.
AAMA/NWWDA 101/LS.2 - 97: **GH - R 20** 72 x 48
- 2.2 CAWM 301 - 90 Forced Entry Resistance Tests for Windows.

3.0 **SUMMARY**

The test results in paragraphs 5.0 and 6.0 indicate that the tested sample described in paragraph 4.0 of this report complied with the performance requirements of the above referenced specifications.

4.0 **SAMPLE SUBMITTED**

SERIES: 5320 Greenhouse Window

CONFIGURATION: Standard Greenhouse

FRAME SIZE: 72.37" *Wide* x 48.37" *High* x 15.00" *Deep*

**FRONT FIXED
PANEL:**

65.62" x 35.12" Daylight Opening

**TOP FIXED
PANEL:**

65.62" x 12.50" Daylight Opening

**SIDE FIXED
PANEL:**

10.50" x 29.75" Daylight Opening With 30° Slope.

**SIDE SINGLE
HUNG SASH SIZE:**

11.25" x 12.62"

GLASS:

All four (4) fixed lites and both vertical sliding panels consisted of 3/4" overall insulated unit with two (2) layers of "DS" clear annealed glass on each side and a 1/2" spacer.

GLAZING:

With the exception of the two (2) vertical sliding panels which were glazed with a double-sided adhesive foam tape, all of the other lites were wet glazed to the frame.

All of the lites including those of the vertical sliding panels were retained with a PVC snap-in glazing beads full perimeter.

WEEPAGE:

The sill under each of the hung windows contained a 1/2" x 1/8" weep at each end in the operable channel draining down into a hollow and out through the 3/8" x 1/4" weep located under the front of the frame.

The sill under the center fixed lite contained a 1/2" x 1/8" weep at each end which drained down into a hollow and out through the two (2) 1/2" x 1/8" weeps located under the front of the frame.

The head of the front fixed lite contained a 1/2" x 1/8" weep at each end which drained through the hollow and down the front jambs and out the bottom of the sill.

WEATHERING:

The following contained 0.240" overall poly pile with center fin:

- a) Operable panels, one strip full perimeter facing out.
- b) The mullion, one strip full length facing in.

HARDWARE:

The operable panels were supported with a block and tackle balance in each jamb.

The midspan of the sash bottom rail contained a spring-loaded aluminum latch. When closed and locked, the hook of the lock engaged an aluminum keeper fastened to the sill with a pair of screws.

CONSTRUCTION:

The following sections were welded full profile:

- a) The front jamb, hung side of sill, top side of frame and rear jamb were all welded together to form the sides of the Greenhouse.
- b) The sash corners of both panels.

The rear head, front head, rear sill and the front of the sill; all contained an aluminum extrusion cut to the same length, to which the welded side portions of the frame were mechanically joined to. The frame was assembled using a pair of #8 x 2" Ph Pan Head screws in each section and at each end.

PVC plugs were used to cover the factory hole punches needed to anchor the frame sides to horizontal sections of the frame.

The mullion was mechanically joined to the front and rear jambs with a pair of screws.

The top shelf was set onto height adjustable clips which rested on a support plate anchored to the frame jambs with a pair of screws at each end.

CAULKING:

The following were sealed with seam sealer full profile:

- a) Rear head to rear jamb.
- b) Front head to front jamb.
- c) Front of sill to front jamb.
- d) Mullion to jamb.

The base board was sealed to the bottom section of the frame with silicone.

ANCHORING:

The frame nail-on fin was fastened to the 2" x 8" wooden buck with screws every 16" on the center. The bottom center of window was supported with an angle bracket constructed of three (3) 2" x 2" wood blocks anchored to the rough opening.

5.0 TEST PROCEDURES AND RESULTS

5.1 All testing procedures were performed in accordance with the performance requirements of the test specifications referenced in paragraph 2.0 of this report.

5.2 TEST RESULTS PARAGRAPH

TEST DESCRIPTION	MEASURED	ALLOWED
2.2.1.6.1 Operating Force	5lbf.	30 lbf.
2.1.2 Air Infiltration (ASTM E 283) 1.57 PSF The tested specimen exceeds the performance requirements specified in AAMA/NWWDA 101/IS.2-97 for Air Infiltration.	0.19 CFM/Ft ²	0.3 CFM/Ft ²
2.1.3 Water Penetration (ASTM E 547) 2.86 PSF With/without screen	No Leakage	No Leakage
2.1.4 Uniform Load Structural (ASTM E 330) 22.5 PSF POS 22.5 PSF NEG	0.05" 0.03"	0.29" Set 0.29" Set
2.2.1.6.2 Deglazing (ASTM E 987) 70 lbf. Rails 50 lbf. Stiles	5% 3%	Less than 100% Less than 100%
2.1.7 Welded Corner Test	Passed	Break Shall Not Extend Along Entire Weld Line
2.2.13.5.1 Unit Dead Load Test Shelf Total Unit	0.35" 0.12"	0.38" Defl. 0.41" Defl.

5.3 OPTIONAL PERFORMANCE GRADES PARAGRAPH

TEST DESCRIPTION	MEASURED	ALLOWED
4.3 Water Penetration (ASTM E 547) 3.00 PSF With/without screen	No Leakage	No Leakage
4.4.1 Uniform Load Deflection (ASTM E 330) 20.0 PSF POS 20.0 PSF NEG	0.64" 0.48"	No Damage No Damage
4.4.2 Uniform Load Structural (ASTM E 330) 30.0 PSF POS 30.0 PSF NEG	0.06" 0.05"	0.289" Set 0.289" Set

6.0 2.1.8 **CAWM 301 - 90 FORCED ENTRY TEST RESULTS**

2.4.1 Type "I" Window

	<u>TEST</u>	<u>RESULTS</u>	<u>DESCRIPTION</u>
5.1.1		Passed	Disassembly
5.1.2	A	Passed	200# in direction parallel to the plane of the glass that tends to open the window.
5.1.3	B	Passed	Test A & 75# in direction perpendicular to the plane of the glass toward the interior.
5.1.4	C	Passed	Test A & 75# in direction perpendicular to the plane of the glass toward the exterior.
5.1.5	E	Passed	Hand and Tool Manipulation
5.1.6.1	D	Passed	With sliding sash toward the frame jamb to the full limit within the confines of the window frame, Test B while simultaneously applying concentrated load of 25# inward at the corner of the operating sash near the interlock stile.
5.1.7	E	Passed	Hand and Tool Manipulation

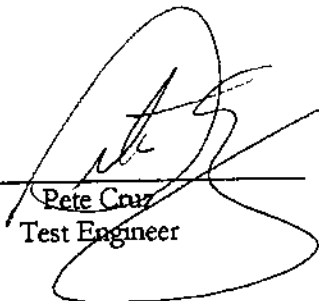
For a complete description of the tested sample refer to the attached cross section drawings.

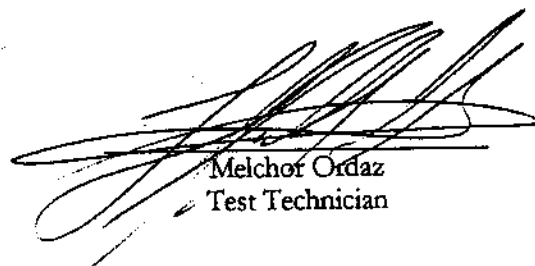
Assembly and die drawings of frame members are on file and have been compared to the sample submitted. Test sample sections, drawings, and a copy of this report will be retained at the test laboratory for four years.

This test report may not be modified in any way without the written consent of Fenestration Testing Laboratory.

The preceding test results were obtained by using the applicable ASTM Test Methods. This report does not constitute Certification of this product. Certification can only be granted by an approved Administrator and/or Validator.

Testing Completed: April 8, 2002
Report Completed: April 9, 2002


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