Fenestration Testing Laboratory, Inc.

10235 8th Street •Rancho Cucamonga, CA 91730 •PH. (909) 477-4343 •FAX (909) 477-4348



**TESTED FOR**

**INTERNATIONAL WINDOW CORP.**
5625 East Firestone Boulevard
South Gate, CA 90280

**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 Horizontal Sliding Window** described in paragraph 4.0 of this report.

**2.0 TEST REFERENCES**

**2.1** NAFS – North American Fenestration Standard/specification for windows, doors, and skylights AAMA/WDMA/CSA 101/I.S.2/A440-08
**Class LC – PG30: Size Tested 2432 x 1515 mm (96 x 48 in) Type HS**

**2.2** CAWM 301 – 90 Forced Entry Resistance Tests for Windows.

**2.3** ASTM F 588-07 Standard Test Method for Measuring the Forced Entry Resistance of 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:** 5321 HS

**CONFIGURATION:** XOX

**FRAME SIZE:** 2432 mm x 1213 mm (95.75" x 47.76")

**ACTIVE SASH:** 591 mm x 1153 mm (23.27" x 45.39")

**FIXED LITE:** 1143 mm x 1137 mm (45.00" x 44.76") Daylight Opening

**GLASS:** Each lite consisted of 0.75" overall wide insulated glass. The active sashes each contained DS annealed glass on both sides and a 0.5" spacer. The fixed lite contained 3/16" annealed glass on both sides and a 3/8" spacer.

**SPACER:** Each spacer was "U" shaped metal and single sealed.

**GLAZING:** The active sashes were outside wet glazed and the fixed sash was outside tape glazed with 0.5" x 0.06" double sided adhesive foam tape. Each lite sat on 1/8" x 0.8" x 4" rubber setting block at quarter points at the bottom end. PVC snap-in glazing bead was applied full perimeter on the exterior of each lite.

**WEEPAGE:** The sill was weeped as follows:

1) The sill outside face contained a 1.75" x 0.22" weep hole at each end. A snap-in gated weep cover was inserted in each hole.
2) The sill active channel contained a 0.5" diameter vertical weep at each end which drained down into the hollow. The PVC snap-in roller track was cut so as to leave a 0.25" gap at each end to allow water to drain down to the bottom of the active channel.
3) The fixed channel contained a 0.25" diameter vertical weep at 3" and 22" from each end.

The active sash bottom rail contained a 0.25" diameter vertical weep at each end which ran straight through from the top web to the bottom.

**WEATHERING:** The active sash contained a strip of 0.220" overall high polypile with center fin full perimeter facing out.

**HARDWARE:** Each active sash lock stile contained the following at mid-span:

1) A two part metal spring loaded latch lock. The base of the lock was fastened with three #6 x 0.75" PFH screws to the lock stile. The spring loaded latch portion sat over the base and was fastened to it with a pair of #6 x 0.75" PFH screws. When locked, the latch engaged a metal keeper fastened to the fixed interlock with a pair of #6 x 0.75" PFH screws.
2) Each active sash bottom rail contained a tandem nylon roller in PVC housing which snap fit into a slot at each end.

The head active channel contained a PVC anti-lift at mid-span of each active sash.

**CONSTRUCTION:** The frame and sash corners were mitered and fusion welded.
The fixed interlocks were mechanically joined to the frame with a pair of #8 x 2.5" PFH screws respectively.
The lock stiles and fixed interlocks were each reinforced with rolled steel.

**CAULKING:** The heads of the screws that fastened the fixed interlock to the frame were sealed.

**ANCHORING:** The frame was fastened to a 2" x 6" wooden rough opening with #8 x 1.5" screws every 16" through the nail-on fins at head and jambs.

## 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 |
|---|---|---|---|
| 5.3.1.1 | Operating Force (ASTM E 2068) | | |
| | Breakaway Force | 68 N (15.3 lbf) | Report only |
| | Operating Force | 42 N (9.4 lbf) | 115 N (25 lbf) |
| 5.3.1.1.3 | Latching Device | | |
| | Open and Close Latch Device | 18 N (4.0 lbf) | 100 N (22.5 lbf) |
| 5.3.2.1 | Air Infiltration (ASTM E 283) | | |
| | 75 Pa | 1.0 L/s•m$^2$ | 1.5 L/s•m$^2$ |
| | (1.6 PSF) | 0.2 CFM/ft$^2$ | 0.3 CFM/ft$^2$ |

The tested specimen exceeds the performance requirements specified in AAMA/WDMA/CSA 101 / I.S.2 / A440 for air leakage resistance.

**5.2 TEST RESULTS (Continued)**

| PARAGRAPH | TEST DESCRIPTION | MEASURED | ALLOWED |
|---|---|---|---|
| 5.3.3.2 | Water Penetration (ASTM E 547) | | |
| | 180 Pa (3.8 PSF) | No Leakage | No Leakage |
| | With and without screen | | |
| 5.3.4.2 | Uniform Load Deflection (ASTM E 330) | | |
| | 1200 Pa (25.0 PSF) POS | 7.50 mm (0.30") | Report Only |
| | 1200 Pa (25.0 PSF) NEG | 7.25 mm (0.29") | Report Only |
| 5.3.4.3 | Uniform Load Structural (ASTM E 330) | | |
| | 1800 Pa (37.5 PSF) POS | 0.00 mm (0.00") | 4.50 mm ( 0.18") |
| | 1800 Pa (37.5 PSF) NEG | 0.00 mm (0.00") | 4.50 mm ( 0.18") |
| 5.3.6.2 | Thermoplastic Corner Welded Test | | |
| | Frame | Pass | Break Shall Not Extend |
| | Vent | Pass | along Entire Weld |
| 5.3.6.3 | Deglazing (ASTM E 987) | | |
| | 320 N (70 lbf) Stiles | 15% | Less than 90% |
| | 230 N (50 lbf) Rails | 10% | Less than 90% |

**5.3 OPTIONAL PERFORMANCE GRADES**
**TEST RESULTS**

| PARAGRAPH | TEST DESCRIPTION | MEASURED | ALLOWED |
|---|---|---|---|
| 5.3.3.2 | Water Penetration (ASTM E 547) | | |
| | 220 Pa (4.5 PSF) | No Leakage | No Leakage |
| | With and without screen | | |
| 5.3.4.2 | Uniform Load Deflection (ASTM E 330) | | |
| | 1440 Pa (30.0 PSF) POS | 9.25 mm (0.36") | As measured |
| | 1440 Pa (30.0 PSF) NEG | 9.00 mm (0.35") | As measured |
| 5.3.4.3 | Uniform Load Structural (ASTM E 330) | | |
| | 2160 Pa (45.0 PSF) POS | 0.00 mm (0.00") | 4.50 mm (0.18") Set |
| | 2160 Pa (45.0 PSF) NEG | 0.00 mm (0.00") | 4.50 mm (0.18") Set |

**6.0 5.3.5 ASTM F 588 Forced Entry Resistance Test Results for Windows**
**CAWM 301 - 90 FORCED ENTRY RESISTANCE TEST RESULTS**
For the gateway test results refer to FTL report T10-092.

For a complete description of the tested sample refer to the attached thirteen (13) pages consisting of the bill of materials, cross section drawings, and individual part drawings.

Cross section drawings 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 relate only to the tested specimen and were obtained by using the applicable ASTM, CAWM and AAMA 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: September 30, 2010
Report Completed: September 30, 2010

Pete Cruz
Test Engineer

Jim Cruz
Testing Manager