

Fenestration Testing Laboratory, Inc.

10235 8th Street, Rancho Cucamonga, CA 91730

Report #: T18-015

REPORT SUMMARY:

REPORT #:

T18-015

TESTED FOR:

International Window Corporation
1551 Orangethorpe Ave.
Fullerton, CA 92831

SERIES & PRODUCT TYPE:

8220 - THERMALLY BROKEN ALUMINUM HORIZONTAL SLIDING WINDOW

CONFIGURATION:

XO

FRAME SIZE:

2438.40 mm x 1524.00 mm (96.00" x 60.00")

SPECIFICATION:

NAFS - North American Fenestration Standard/specification for windows, doors, and skylights
AAMA/WDMA/CSA 101/I.S.2/A440-11

PRIMARY DESIGNATOR:

CLASS LC-PG25 2438.40 x 1524.00 mm (96.00 x 60.00 in) Type: HS

TEST COMPLETION DATE: February 26, 2018

REPORT DATE: March 5, 2018

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1.0 Tested For: International Window Corporation
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Fullerton, CA 92831

2.0 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) THERMALLY BROKEN ALUMINUM HORIZONTAL SLIDING WINDOW described in paragraph 4.0 of this report.

3.0 Test References:

- 3.1** NAFS - North American Fenestration Standard/specification for windows, doors, and skylights AAMA/WDMA/CSA 101/I.S.2/A440-11
- 3.2** ASTM F 588-14 Forced Entry Resistance Tests for Windows
- 3.3** CAWM 301-90(1995) Forced Entry Test for Windows (CMBSO 1-79)

4.0 Compliance Statement: The test results in paragraph 6.0 indicate that the test sample described in paragraph 5.0 of this report met the performance requirements of the above specifications for the performance grade shown in 4.1 below.

4.1 CLASS LC-PG25 2438.40 x 1524.00 mm (96.00 x 60.00 in) Type: HS

5.0 Sample Submitted:

5.1 Product Type: THERMALLY BROKEN ALUMINUM HORIZONTAL SLIDING WINDOW

5.2 Series: 8220 Horizontal Sliding Window

5.3 Configuration: XO

5.4 Product Dimensions:	Millimeters	Inches
Total Frame:	2438.40 x 1524.00	96.00 x 60.00
Fixed Sash DLO:	1162.05 x 1438.40	45.75 x 56.63
Active Sash:	1228.85 x 1479.55	48.38 x 58.25

5.5 Glass and Glazing:

<i>IGU Thickness</i>	<i>Spacer Type</i>	<i>Interior Lite</i>	<i>Exterior Lite</i>	<i>Glazing method</i>
0.71" overall wide	Metal "U" shaped	1/8" Annealed	1/8" Annealed	Channel glazed with wrap around vinyl gasket; The active lite was glazed to the stiles and rails. The fixed lite was glazed to the frame head, sill, jamb and fixed interlock.

5.6 Weepage:

<i>Drainage Method</i>	<i>Size</i>	<i>Quantity</i>	<i>Location</i>
Rectangular weep	1.7" x 0.25"	Four (4)	Sill outside face - 2.5" and 45.5" from each end. Each rectangular weep on the outside face contained a gated weep cover insert.
Rectangular weep	0.63" x 0.09"	Four (4)	Sill outside face to drain the fixed channel - 0.88" and 47" from each end.

5.7 Pressure balancing: None

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5.8 Weather-stripping:

<i>Type</i>	<i>Quantity</i>	<i>Location</i>
0.230" overall high polypile with center fin	One (1) strip	Active sash – one strip full perimeter facing out.

5.9 Sealants:

Sealant was applied at the following locations:

1. All frame corners full profile.
2. Fixed interlock to frame head and sill full profile.
3. Jamb to Sill frame corner screws and sill fixed interlock screws were sealed.

5.10 Hardware:

<i>Type</i>	<i>Quantity</i>	<i>Location</i>
Metal cam lock	Two (2)	Lock stile 19.25" from each end – each lock was fastened with a pair of #8 x 0.5" square drive PH screws. When locked, the tongue of the lock engaged a groove on the fixed interlock.
Single adjustable nylon roller in aluminum housing	Two (2)	At bottom of each active panel stile – each roller fit into a hollow in its respective stile extrusion and fastened with a pair of #8 x 0.38" Phil Truss Head screws. The screws went through slotted holes in the stile that allowed for adjustment of the rollers.
PVC snap-in anti-lift, 3/8"	One (1)	Head at mid-span of the active side

There was a secondary lock at the bottom of the lock stile that was left unengaged during all testing.

5.11 Construction:

<i>Location</i>	<i>Joinery Type</i>	<i>Number of Fasteners</i>	<i>Fastener Size</i>
Frame corners	Mechanically joined	Two (2) per corner	#6 x 1" Phil Oval Head Screws
Active sash lead stile to rails	Mechanically joined	One (1) per corner	#6 x 1.5" PPH
Active sash lock stile to rails	Mechanically joined	One (1) per corner	#6 x 2" PPH
Fixed interlock to frame	Mechanically joined	One (1) at each end	#8 x 0.5" PPH

5.12 Reinforcement: None

5.13 Installation:

<i>Location on frame</i>	<i>Anchor type</i>	<i>Spacing</i>
Full perimeter through the nail-on fin	#8 x 1.5" PFH	3" from each end and 10" on center; Wood furring applied over the nail-on fins and fastened with screws to the rough opening.

6.0 - Test procedures and results: All testing procedures were performed in accordance with the performance requirements of the test specifications referenced in paragraph 3.0 of this report. The number preceding each test listed below refers to the corresponding section in the NAFS.

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9.3.1 - Operation Force (ASTM E2068-00(2016))

Test Description	Results	Allowed	Comments
Maximum force to initiate motion	54.71 N (12.30 lbf)	Report only	
Maximum force to maintain motion	37.80 N (8.50 lbf)	115 N (25.85 lbf)	
Latching device force	8.89 N (2.00 lbf)	100 N (22.48 lbf)	

9.3.2 - Air Infiltration (ASTM E283-04(2012))

Test Description	Results	Allowed	Comments
75 Pa differential pressure	1.45 L/s*m ²	1.5 L/s*m ²	
1.57 psf differential pressure	0.29 cfm/ft ²	0.30 cfm/ft ²	
The tested specimen meets the performance levels specified in AAMA/WDMA/CSA 101/IS.2/A440 for air leakage resistance.			

9.3.3 - Water Penetration (ASTM E547-00(2016))

Test Description	Results	Allowed	Comments
DP25 - 180 Pa (3.76 psf)	No water penetration	No water penetration	1

9.3.4.2 - Uniform Load Deflection at Design Pressure (ASTM E330-14)

Test Description	Results	Allowed	Comments
DP25 - 1200 Pa (25.06 psf) Pos	18.03 mm (0.71")	Report only	2
DP25 - 1200 Pa (25.06 psf) Neg	18.29 mm (0.72")	Report only	2

9.3.4.3 - Uniform Load Structural Overload (OL) at 1.5 x Design Pressure (ASTM E330-14)

Test Description	Results	Allowed	Comments
OL for DP25 - 1800 Pa (37.59 psf) Pos	2.79 mm (0.11")	5.84 mm (0.23")	2
OL for DP25 - 1800 Pa (37.59 psf) Neg	4.57 mm (0.18")	5.84 mm (0.23")	2

9.3.5 - Forced Entry Resistance (ASTM F588-14 & CAWM 301-90(1995))

Test Description	Results	Allowed	Comments
ASTM F588 Type A and CAWM 301 Type I	No Entry	No Entry	

9.3.6.3 - Deglazing Test

Test Description	Results	Allowed	Comments
Active Sash Pull Stile - 320 N (71.94 lbf)	17%	Less than 90% of glazing bite	
Active Sash Rail - 230 N (51.71 lbf)	9%	Less than 90% of glazing bite	

Comment #1 - Tested with and without insect screen in place.

Comment #2 - Deflection measurement taken from fixed interlock.

Testing was witnessed by: Jim Cruz (FTL).

For a complete description of the tested sample, refer to the attached twenty-five (25) pages consisting of bill of materials, cross section drawings, and die drawings. This report is complete only when all the above referenced bill of materials and drawings are attached.

The bill of materials, cross section drawings, and die drawings of frame and sash members are on file and have been compared to the sample submitted. Test sample sections, bill of materials, 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, Inc (FTL).

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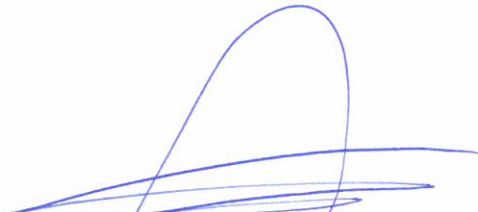
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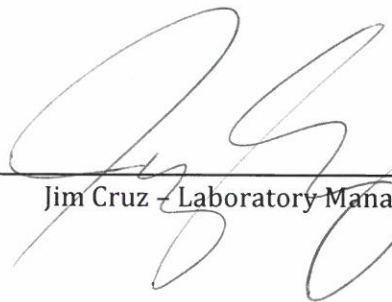
The preceding test results relate only to the tested specimen and were obtained by using the applicable test methods listed in section 3.0 and 6.0 above. This report does not constitute certification of this product or an endorsement by this laboratory. It is the property of the client named in section 1.0 above. Certification can only be granted by an approved administrator and/or validator.

Test Completion Date: February 26, 2018

Report Completion Date: March 5, 2018



Pete Cruz - Test Engineer



Jim Cruz - Laboratory Manager