

Fenestration Testing Laboratory, Inc.

10235 8th Street, Rancho Cucamonga, CA 91730

Report #: T18-017

REPORT SUMMARY:

REPORT #:

T18-017

TESTED FOR:

International Window Corporation
1551 Orangethorpe Ave.
Fullerton, CA 92831

SERIES & PRODUCT TYPE:

8220 - THERMALLY BROKEN ALUMINUM HORIZONTAL SLIDING WINDOW

CONFIGURATION:

XOX

FRAME SIZE:

3657.60 mm x 1219.20 mm (144.00" x 48.00")

SPECIFICATION:

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

PRIMARY DESIGNATOR:

CLASS R-PG20 3657.60 x 1219.20 mm (144.00 x 48.00 in) Type: HS

TEST COMPLETION DATE: February 23, 2018

REPORT DATE: March 2, 2018

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1.0 Tested For: International Window Corporation
1551 Orangethorpe Ave.
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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

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 R-PG20 3657.60 x 1219.20 mm (144.00 x 48.00 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: XOX

| 5.4 Product Dimensions: | Millimeters | Inches |
|--------------------------------|--------------------|----------------|
| Total Frame: | 3657.60 x 1219.20 | 144.00 x 48.00 |
| Fixed DLO: | 1768.60 x 1127.25 | 69.63 x 44.38 |
| Active Sashes (each): | 920.75 x 1171.70 | 36.25 x 46.13 |

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> |
|--------------------------------------|---------------------|----------------------|----------------------|--|
| Active sash 0.69" overall wide | Metal "U" shaped | SS Annealed | SS Annealed | Channel glazed with wrap around vinyl gasket; the active lite was glazed to the stiles and rails. |
| Fixed Lite 0.74" overall wide | Metal "U" shaped | 1/8" Annealed | 1/8" Annealed | Channel glazed with wrap around vinyl gasket; the fixed lite was glazed to the frame head, sill, and fixed interlocks. |

5.6 Weepage:

| <i>Drainage Method</i> | <i>Size</i> | <i>Quantity</i> | <i>Location</i> |
|------------------------|---------------|-----------------|--|
| Rectangular weep | 1.7" x 0.25" | Six (6) | Sill outside face - 2.5", 33.5", and 38.5" from each end. Each rectangular weep on the outside face contained a gated weep cover insert. |
| Rectangular weep | 0.63" x 0.09" | Six (6) | Sill outside face to drain the fixed channel - 0.88", 35" and 37" 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 per active sash | Active sashes – one strip full perimeter facing out per sash. |

5.9 Sealants:

| |
|---|
| Sealant was applied at the following locations: <ol style="list-style-type: none">All frame corners full profile.Fixed interlocks to frame head and sill full profile.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 | One (1) per active sash | Each active sash lock stile - lock was fastened at mid-span 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) per active sash | 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) per active sash | Head at mid-span of each active sash |

There was a secondary lock at the bottom of each 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 stiles to rails | Mechanically joined | One (1) per corner | #6 x 1.5" PPH |
| Active sash lock stiles to rails | Mechanically joined | One (1) per corner | #6 x 2" PPH |
| Fixed interlocks to frame | Mechanically joined and coped | One (1) at each end of each fixed interlock | #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 | 61.38 N (13.80 lbf) | Report only | |
| Maximum force to maintain motion | 30.38 N (6.83 lbf) | 90 N (20.23 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 |
|--------------------------|----------------------|----------------------|----------|
| DP20 - 150 Pa (3.13 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 |
|-------------------------------|-----------------|-------------|----------|
| DP20 - 960 Pa (20.05 psf) Pos | 5.33 mm (0.21") | Report only | 2 |
| DP20 - 960 Pa (20.05 psf) Neg | 5.84 mm (0.23") | 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 DP20 - 1440 Pa (30.08 psf) Pos | 0.51 mm (0.02") | 4.57 mm (0.18") | 2 |
| OL for DP20 - 1440 Pa (30.08 psf) Neg | 0.76 mm (0.03") | 4.57 mm (0.18") | 2 |

9.3.5 - Forced Entry Resistance (ASTM F588-14 & CAWM 301-90(1995)) - See comment #3 below

9.3.6.3 - Deglazing Test

| Test Description | Results | Allowed | Comments |
|--|---------|-------------------------------|----------|
| Active Sash Pull Stile - 320 N (71.94 lbf) | 10% | Less than 90% of glazing bite | |
| Active Sash Rail - 230 N (51.71 lbf) | 6% | Less than 90% of glazing bite | |

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

Comment #2 - Deflection measurement taken from fixed interlock.

Comment #3 - Refer to FTL report T17-010 for testing conducted on an identical window containing an active sash equal to or larger in both dimensions than the active sash reflected in this report and that contained a single cam lock on the sash.

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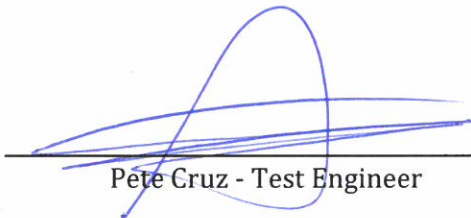
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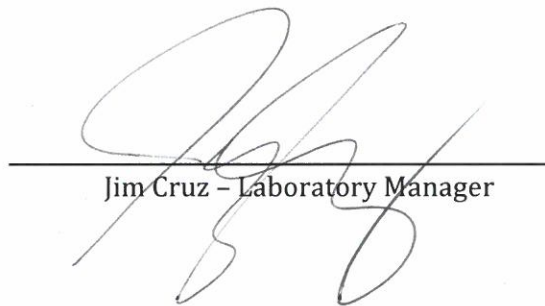
The preceding test results relate only to the tested specimen and were obtained by using the applicable test methods listed in section 3.0 and 6.0 above. This report does not constitute certification of this product or an endorsement by this laboratory. It is the property of the client named in section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

Test Completion Date: February 23, 2018

Report Completion Date: March 2, 2018



Pete Cruz - Test Engineer



Jim Cruz - Laboratory Manager