

Fenestration Testing Laboratory, Inc.

10235 8th Street, Rancho Cucamonga, CA 91730

Report #: T18-034

REPORT SUMMARY:

REPORT #:

T18-034

TESTED FOR:

International Window Corporation
1551 Orangethorpe Ave.
Fullerton, CA 92831

SERIES & PRODUCT TYPE:

5320 - PVC SINGLE HUNG WINDOW

CONFIGURATION:

O/X

FRAME SIZE:

1219.20 mm x 2133.60 mm (48.00" x 84.00")

SPECIFICATION:

NAFS - North American Fenestration Standard/specification for windows, doors, and skylights
AAMA/WDMA/CSA 101/I.S.2/A440-17

PRIMARY DESIGNATOR:

CLASS LC-PG25 1219.20 x 2133.60 mm (48.00 x 84.00 in) Type: H

TEST COMPLETION DATE: July 30, 2018

REPORT DATE: July 31, 2018

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1.0 Tested For: International Window Corporation
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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) PVC SINGLE HUNG 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/A440-17
- 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 1219.20 x 2133.60 mm (48.00 x 84.00 in) Type: H

5.0 Sample Submitted:

5.1 Product Type: PVC SINGLE HUNG WINDOW

5.2 Series: 5320

5.3 Configuration: O/X

5.4 Product Dimensions:	Millimeters	Inches
Total Frame:	1219.20 x 2133.60	48.00 x 84.00
Fixed DLO:	1149.35 x 993.90	45.25 x 39.13
Active Sash:	1168.40 x 1054.10	46.00 x 41.50

5.5 Glass and Glazing: Applies to the fixed and active lites

<i>IGU Thickness</i>	<i>Spacer Type</i>	<i>Interior Lite</i>	<i>Exterior Lite</i>	<i>Glazing method</i>
0.75" overall wide	Metal "U" shaped	SS Annealed	SS Annealed	Outside glazed with 1/16" x 0.5" double-sided adhesive foam tape. 1/8" high PVC setting blocks were set at quarter points on the bottom rail of the active sash and on the fixed interlock for the fixed lite. PVC snap-in glazing stop applied full perimeter on the outside of the IGU.

5.6 Weepage:

<i>Drainage Method</i>	<i>Size</i>	<i>Quantity</i>	<i>Location</i>
Rectangular weep	1.75" x 0.25"	Two (2)	One on the sill outside face - 3.5" from each end; A PVC gated weep cover was inserted into each hole. The same size weep went straight through the next web (wall #2). in line with this weep, a 3/8" x 0.25" weep went through wall #3.
Round vertical weep	0.25" diameter	See "Location"	Sill fixed channel - one at each end. Active sash bottom rail - one at each end.
Round vertical weep	0.38" diameter	Two (2)	Sill active channel - one at each end.

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5.7 Pressure balancing: None

5.8 Weather-stripping:

Type	Quantity	Location
0.240" overall high polypile with center fin	One strip	Full perimeter of the active sash facing out.

5.9 Sealants:

Sealant was applied at the following locations: - Each end of the fixed interlock to the frame joint was sealed
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5.10 Hardware:

Type	Quantity	Location
Block and tackle balance	Two (2)	One in each jamb - Each balance engaged a PVC sash cam at the top of each stile. Each sash cam was fastened to its respective stile with a pair of PFH screws.
Metal spring loaded latch lock	One (1)	Active sash lock rail - mid-span of the rail. The latch portion was fastened to a metal base with a pair of #6 x 0.5" PPH screws. The metal base was fastened to the lock rail with three #6 x 0.75" PPH screws that went through the PVC wall and into the metal reinforcement in the lock rail hollow. When locked, the latch engaged a metal keeper that fit into a groove in the fixed interlock extrusion and was fastened with three #6 x 0.75" PFH screws into the PVC walls. The strike contained two integral hooks that mated to the latch portion of the lock.

5.11 Construction:

Location	Joinery Type	Number of Fasteners	Fastener Size
Frame corners and active sash corners	Fusion welded	None	N/A
Fixed interlock to frame jamb at each end	Mechanically joined	Two (2) at each end	#8 x 2.5" PFH screws

5.12 Reinforcement:

Material	Part #	Location
Rolled steel	FT5310	Active lock rail
Rolled steel	FT5311	Fixed interlock

5.13 Installation:

Location on frame	Anchor type	Spacing
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.

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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 refer to the corresponding sections in the NAFS.

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

Test Description	Results	Allowed	Comments
Maximum force to initiate motion	108.0 N (24.30 lbf)	Report only	
Maximum force to maintain motion	152.5 N (34.30 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	0.65 L/s*m ²	1.5 L/s*m ²	
1.57 psf differential pressure	0.13 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	11.94 mm (0.47")	Report only	2
DP25 - 1200 Pa (25.06 psf) Neg	10.92 mm (0.43")	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	4.57 mm (0.18")	4.83 mm (0.19")	2
OL for DP25 - 1800 Pa (37.59 psf) Neg	3.30 mm (0.13")	4.83 mm (0.19")	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	3

9.3.6.2 - Thermoplastic Weld Test

Test Description	Results	Allowed	Comments
Frame and Sash Corners	Passed	Break shall not extend along the entire weld line	

9.3.6.3 - Deglazing Test

Test Description	Results	Allowed	Comments
Active Sash Pull Rail - 320 N (71.94 lbf)	10%	Less than 90% of glazing bite	
Active Sash Stile - 230 N (51.71 lbf)	8%	Less than 90% of glazing bite	

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

Comment #2 - Deflection measurement taken from the interlocks.

Comment #3 - The ASTM F588 Grade 10 level was achieved.

Testing was witnessed by: Jim Cruz with FTL and Abe Peralta with International Window.

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For a complete description of the tested sample, refer to the attached twelve (12) 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.

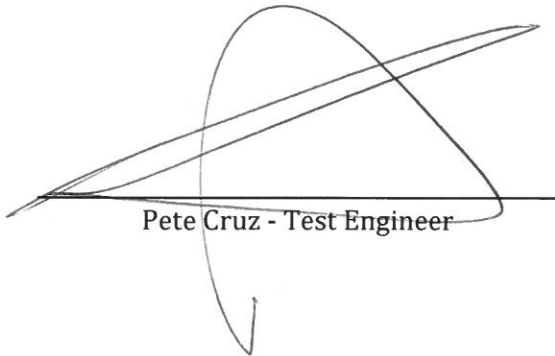
The bill of materials, cross section drawings, and die drawings of frame and sash members are on file and have been compared to the sample submitted. Test sample sections, bill of materials, drawings and a copy of this report will be retained at the test laboratory for four years.

This test report may not be modified in any way without the written consent of Fenestration Testing Laboratory, Inc (FTL).

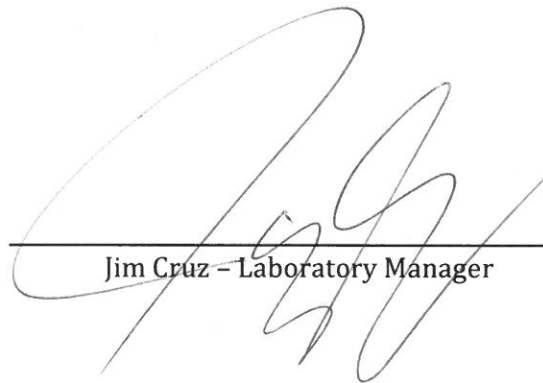
The preceding test results relate only to the tested specimen and were obtained by using the applicable test methods listed in section 3.0 and 6.0 above. This report does not constitute certification of this product or an endorsement by this laboratory. It is the property of the client named in section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

Test Completion Date: July 30, 2018

Report Completion Date: July 31, 2018



Pete Cruz - Test Engineer



Jim Cruz - Laboratory Manager