Fenestration Testing Laboratory, Inc.
10235 8th Street, Rancho Cucamonga, CA 91730

Report #: T16-093

REPORT SUMMARY:

REPORT #:
T16-093

TESTED FOR:
International Window Corporation
1551 Orangethorpe Ave.
Fullerton, CA 92831

SERIES & PRODUCT TYPE:
5320 - PVC HORIZONTAL SLIDING WINDOW

CONFIGURATION:
XOX

FRAME SIZE:
2438.40 mm x 1219.20 mm (96.00" 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-PG30 2438.40 x 1219.20 mm (96.00 x 48.00 in*) Type: HS

TEST COMPLETION DATE: September 23, 2016

REPORT DATE: January 26, 2017

1.0 Tested For: International Window Corporation
1551 Orangethorpe Ave.
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) PVC 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 R-PG30 2438.40 x 1219.20 mm (96.00 x 48.00 in*) Type: HS

5.0 Sample Sumbitted:
5.1 Product Type: PVC HORIZONTAL SLIDING WINDOW
5.2 Series: 5320
5.3 Configuration: XOX
5.4 Product Dimensions:

	Millimeters	Inches
Total Frame:	2438.40 x 1219.20	96.00 x 48.00
Fixed Sash or Fixed DLO:	1152.65 x 1154.18	45.38 x 45.44
Active Sash:	595.38 x 1169.92	23.44 x 46.06

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

IGU Thickness	*Spacer Type*	*Interior Lite*	*Exterior Lite*	*Glazing method*
0.75" overall wide	Metal "U" shaped	SS Annealed	SS Annealed	Outside glazed: double-sided adhesive foam tape Foam tape was 1/16" x 3/8". Setting blocks 1/8" high were set at quarter points on the sill for fixed lite and on bottom rail for active sashes. PVC snap-in glazing stop applied full perimeter on the outside of the IGU.

5.6 Weepage:

Drainage Method	*Size*	*Quantity*	*Location*
Rectangular weep PVC flap weep covers inserted into holes	1.8" x 0.25"	One (1) at each end	Sill outside face; one weep 2.5" from each.
Vertical round weep	0.5" diameter	One (1) at each end	Sill active channel

Vertical round weep	0.25" diameter	One (1) at each end of each lite	Sill fixed channel
Vertical round weep	0.25" diameter	One (1) at each end	Active sash bottom rail
The PVC snap-in roller track in the sill active channel was cut short 0.5" at each end to allow water to drain.			

5.7 Pressure balancing: None

5.8 Weather-stripping:

Type	*Quanitity*	*Location*
0.240" overall high polypile with center fin	One (1) strip	Full perimeter of each active sash facing out.

5.9 Sealants: None

5.10 Hardware:

Type	*Quanitity*	*Location*
Metal spring loaded latch lock assembly	One (1) per active sash	Each active sash; located at midspan of the lock stile. The assembly consisted of two pieces; the base was fastened to the stile (and the metal reinforcement in the stile) with three (3) #6 x 0.75" PFH screws. The latching portion was fastened to the base with a pair of #6 x 0.5" PPH screws. When locked, each lock engaged its respective metal keeper. Each keeper was fastened to a fixed interlock with a pair of #6 x 0.75" PFH screws.
Tandem nylon rollers in PVC housing	Two (2) per active sash	Each active sash bottom rail contained a tandem roller at each end. The roller housing snap-fit into a hole in the bottom rail.

5.11 Construction:

Location	*Joinery Type*	*Number of Fasteners*	*Fastener Size*
Frame corners	Mitered and fusion welded	N/A	N/A
Sash corners	Mitered and fusion welded	N/A	N/A
Fixed interlock to frame; there were two fixed interlocks	Mechanically joined	Two (2) at each end	#8 x 2.5" PFH screws

5.12 Reinforcement:

Material	*Part #*	*Location*
Rolled steel	FT5311	Fixed interlock
Rolled steel	FT5310	Active interlock stile

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.

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	51.15 N (11.50 lbf)	Report only	
Maximum force to maintain motion	22.24 N (5.00 lbf)	90 N (20.23 lbf)	
Latching device force	11.12 N (2.50 lbf)	100 N (22.48 lbf)	

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

Test Description	Results	Allowed	Comments
75 Pa differential pressure	1.50 L/s*m^2	1.5 L/s*m^2	
1.57 psf differential pressure	0.30 cfm/ft^2	0.30 cfm/ft^2	
The tested specimen meets the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.			

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

Test Description	Results	Allowed	Comments
DP30 - 220 Pa (4.59 psf)	No water penetration	No water penetration	1

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

Test Description	Results	Allowed	Comments
DP30 - 1440 Pa (30.08 psf) Pos	16.00 mm (0.63")	Report Only	2
DP30 - 1440 Pa (30.08 psf) Neg	12.45 mm (0.49")	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 DP30 - 2160 Pa (45.11 psf) Pos	2.54 mm (0.10")	4.83 mm (0.19")	2
OL for DP30 - 2160 Pa (45.11 psf) Neg	2.54 mm (0.10")	4.83 mm (0.19")	2

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

Refer to FTL report T16-055 for the results of the gateway compliant window of the same series as the one described in this report.

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 Stile - 320 N (71.94 lbf)	8%	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.
Testing was witnessed by: Jim Cruz.

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: September 23, 2016

Report Completion Date: January 26, 2017

Pete Cruz - Test Engineer

Jim Cruz - Laboratory Testing Manager