

Canadian Building Envelope Science and Technology

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TEST REPORT

Performance Evaluation of

Double Sliding Window

"SGI005 Series"

Performed in Accordance with:

AAMA/WDMA/CSA101/I.S.2/A440-08

& CSA A440S1-09

Report No.: L14-651-3864

Report Date: July 17, 2014

Prepared for:

Skyreach L&S Extrusion Corp.

55 Freshway Dr.

Vaughan, ON L4K 1S1

Canada

Overall Performance Rating

Class R-PG1200: Size tested 1600 mm x 1120 mm-Type HS

Class R-PG25: Size tested 63.0 in x 44.1 in-Type HS

Positive Design Pressure: 1200 Pa (25 psf)

Negative Design Pressure: 1200 Pa (25 psf)

Water Penetration Resistance, With Screen: 180 Pa (3.8 psf), Without Screen: 180 Pa (3.8 psf)

Canadian Air Infiltration/Exfiltration: A2

Forced Entry Resistance: Grade 10

Respectfully submitted by:

**CANADIAN BUILDING ENVELOPE
Science and Technology (CAN-BEST)**

Tests Supervised by:

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Test Supervisor

Person in Responsible Charge:

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1. This report does not constitute certification of the test product. The reported test results refer only to the specimen tested. No representation is made that other samples of similar design will feature like performance.
2. This report was prepared for the consideration of the addressee only. It shall not be used by any other party without the written consent of CAN-BEST.
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1. INTRODUCTION

Canadian Building Envelope Science and Technology (CAN-BEST) was retained by Skyreach L&S Extrusion Corp. to test one Double Sliding Window. Testing was conducted in accordance with the performance requirements outlined in AAMA/WDMA/CSA101/I.S.2/A440-08 'North American Fenestration Standard/Specification for Windows, Doors, and Skylights'. Where applicable, testing was carried out in accordance with the corresponding ASTM standard test method or the CSA A440 S1-09 'Canadian Supplement to AAMA/WDMA/CSA101/I.S.2/A440-08 North American Fenestration Standard/Specification for windows, doors, and skylights'

This report covers tests carried out on one specimen of specific dimensions. Product performance is affected by variations in its dimensions, assembly details and installation method. The reader is advised to ensure product conformity with all the details of the test sample described in the following section.

No conclusions regarding glass structural performance may be drawn from the reported results.

2. SAMPLE DESCRIPTION

Designation: "SGI005 Series"

Type: Double Sliding Window, 1600 mm wide by 1120 mm high (63.0 in by 44.1 in)

Sampling: Sampling of the test specimen was carried out by the Client.

Specimen Details: Details of specimen construction as provided by the client and verified by CAN-BEST are included in Appendix A. (3 pages)

Drawings: Vertical and horizontal sections 1 page

Bill of materials 1 page

Drainage Details 1 page

Die Drawings 9 pages

Copy of the above drawing(s), stamped "Canadian Building Envelope Science and Technology", is enclosed with this report.

3. TEST RESULTS

Detailed test results are presented in Tables (1.1) and (1.2) for the Gateway and Optional Performance requirements respectively.

Notes:

1. This report does not constitute certification of this product, which may only be granted by the AAMA Validator.

2. The reported results were secured by using the designated test methods and they (DO) indicate compliance with the performance requirements of the referenced publication.

3. The product tested is detailed in drawings, which were supplied by the manufacturer and annexed to this report. Any other descriptions were supplied verbally by the manufacturer. The general descriptions in this report are for reference only.

TABLE (1.1): Test Results, Gateway Performance Requirements**Class R-PG15-HS**

Gateway Size: 1600 mm x 1100 mm (63.0 in x 43.3 in)

Test Size: 1600 mm x 1120 mm (63.0 in x 44.1 in)

Test Start Date: May 6, 2014

Test Finish Date: June 1, 2014

Test	Specifications	Test Results	Rating									
Operating Force 5.3.1	Maximum allowable forces, N (lb): <i>Initiate:</i> 90 (20.3) <i>Maintain:</i> 45 (10.1) <i>Lock:</i> 100 (22.5)	Measured Operation Forces, N (lb): <i>Initiate:</i> 44 (10.0) <i>Maintain:</i> 40 (9.0) <i>Lock:</i> 18 (4.0)	PASS									
Air Leakage Resistance 5.3.2 <i>ASTM E283</i>	Rate of air leakage shall be less than or equal to the following: <i>l/s/m² (cfm/ft²)</i> <i>Cdn A2 (Inf./Exf.)</i> 1.5 (0.3) <i>Cdn A3 (Inf./Exf.)</i> 0.5 (0.1) <i>Cdn Fixed (Inf./Exf.)</i> 0.2 (0.04) Test Pressure, Pa (psf): 75 (1.57)	Surface Area, m ² (ft ²): 1.792 (19.29) Measured Air Flow, l/s (cfm): <i>Infiltration:</i> 1.60 (3.41) <i>Exfiltration:</i> 1.78 (3.79) Rates of Air Flow, l/s/m ² (cfm/ft ²): <i>Infiltration:</i> 0.89 (0.18) <i>Exfiltration:</i> 0.99 (0.20)	PASS Canadian A2									
Water Resistance 5.3.3 <i>ASTM E 547</i>	No leakage past innermost plane following four pressure cycles, each five minutes "ON" and one minute "OFF". Test Pressure, Pa (psf): 140 (2.86) <i>(Equivalent to wind speed of 33 mph)</i>	No leakage past innermost plane was observed. <table><tr><td>Test</td><td>Result</td></tr><tr><td><i>With Screen</i></td><td>OK</td></tr><tr><td><i>Without Screen</i></td><td>OK</td></tr></table>	Test	Result	<i>With Screen</i>	OK	<i>Without Screen</i>	OK	PASS			
Test	Result											
<i>With Screen</i>	OK											
<i>Without Screen</i>	OK											
Uniform Load Deflection 5.3.4.2 <i>ASTM E 330</i>	Report deflections at the following test pressure: Test Pressure, Pa (psf): 720 (15.0) <i>(Equivalent to wind speed of 77 mph)</i>	Measured deflection of Meeting Stiles, mm (in): Span = 1485 (58.46) <i>Inward (mid span):</i> 5.5(0.217) <i>Outward (mid span):</i> 5.5(0.218)	REPORT ONLY									
Uniform Load Structural 5.3.4.3 <i>ASTM E 330</i>	No glass breakage or permanent damage to window components at the following test pressure, Pa(psf). Permanent Deflection to be less than 0.4% of span, or 5.9 mm (0.234 in). Test Pressure, Pa (psf): 1080 (22.5) <i>(Equivalent to wind speed of 94 mph)</i>	Measured permanent deflection of Meeting Stiles, mm (in): Span = 1485 (58.46) <table><tr><td></td><td>Deflection</td><td>% Span</td></tr><tr><td><i>Inward (end span):</i></td><td>0.7 (0.029)</td><td>0.05</td></tr><tr><td><i>Outward (end span):</i></td><td>0.9 (0.036)</td><td>0.06</td></tr></table>		Deflection	% Span	<i>Inward (end span):</i>	0.7 (0.029)	0.05	<i>Outward (end span):</i>	0.9 (0.036)	0.06	PASS
	Deflection	% Span										
<i>Inward (end span):</i>	0.7 (0.029)	0.05										
<i>Outward (end span):</i>	0.9 (0.036)	0.06										
Thermoplastic Corner Weld Test 5.3.6.2	When frame and sash corners are loaded to failure, the break shall not extend along the entire weld line.	Frame Corners				PASS						
1		2	3	4								
OK		OK	OK	OK								
Sash Corners												
1		2	3	4								
OK		OK	OK	OK								

TABLE (1.1): Test Results, Gateway Performance Requirements, Continued**Class R-PG15-HS**

Gateway Size: 1600 mm x 1100 mm (63.0 in x 43.3 in)

Test Size: 1600 mm x 1120 mm (63.0 in x 44.1 in)

Test Start Date: May 6, 2014

Test Finish Date: June 1, 2014

Test	Specifications	Test Results	Rating
Forced Entry Resistance 5.3.5 <i>ASTM F 588</i>	No entry shall be gained during the following sequence of disassembly, load tests and hardware and sash manipulation tests: Disassembly T1: 5 minutes Loads: N (lbf) L1: 667 (150) L2: 333 (75) L3: 111 (25) Manipulation T1: 5 minutes	No entry was gained following the specific sequence of testing. Test Results Disassembly T1: OK L1: OK L1+L2: OK L1+L2+L3: OK Manipulation T1: OK	Grade 10
Deglazing Test <i>ASTM E 987</i> 5.3.6.3	No disengagement of glazing material from sash frame under the test load application indicated below: Test Loads, N (lbf): Stiles: 320 (70) Rails: 230 (50)	Measured Sash Deglazing (in): Member Deglazing % Left Stile: 2.13 (0.084) 17% Right Stile: 1.96 (0.077) 15% Top Rail: 1.42 (0.056) 11% Bottom Rail: 1.14 (0.045) 9%	PASS
Screen Strength Cdn. Suppl. 5.1	No disengagement or deformation, of the screen or fastening, after application of test load. Test Load, N (lbf): 60 (13.5)	No disengagement or deformation was observed after application of test load	PASS

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