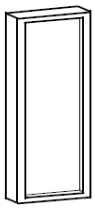
PERFORMANCE TESTING IN ACCORDANCE WITH

AAMA/WDMA/CSA 101/I.S.2/A440-17 (NAFS 2017) & CSA A440S1:19
AAMA/WDMA/CSA 101/I.S.2/A440-22 (NAFS 2022) & CSA A440S1:25

Manufacturer
PORTES ET FENÊTRES ISOTHERMIC
370, chemin Mont-Granit
Thetford Mines (Québec)
G6G 5R7

Report
AI-06049-A1



Product Type
FW - Fixed window

Product series/model
H1 5100 Series

Without reinforcement

Primary designator
Class AW – PG50: Size tested 1500 x 2500 mm (~59 x 98 in) – Type FW

Secondary designator
Positive design pressure (DP) = 3360 Pa (~70.18 psf)
Negative design pressure (DP) = -3360 Pa (~-70.18 psf)
Water penetration resistance test pressure = 480 Pa (~10.03 psf)
Air tightness = $Q_{inf} \leq$ 0.1 l/s-m² @ 300 Pa (≤0.1 cfm/ft² @ 6.27 psf) / $Q_{exf} \leq$0.1 l/s-m² @ 75 Pa (≤0.1 cfm/ft² @ 1.57 psf)

Testing laboratory : UL Laboratory Canada inc. (Varennes)

UL project number : 4791586512

Tests completion date : 2025-01-31

Report date : 2025-02-07

Number of pages : 5 pages & 1 appendix

Prepared by:

Raphaël Plouffe
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TABLE OF CONTENT

1.0 INTRODUCTION

UL Laboratory Canada Inc. was retained by ***PORTES ET FENÊTRES ISOTHERMIC*** to evaluate the performance of a fenestration product according to *AAMA/WDMA/CSA 101/I.S. 2/A440-17 (NAFS 2017)* & *CSA A440S1:19* Standards, and *AAMA/WDMA/CSA 101/I.S. 2/A440-22 (NAFS 2022)* & *CSA A440S1:19* Standards.

The sample components and manufacturing are documented in section 2.0.

Note concerning the use of units of measurement in this report:
According to the AAMA/WDMA/CSA 101/I.S.2/A440 Standard, the use of SI (metric) units is the standard, while IP (Imperial) values given in parentheses are for reference purposes only, and are inexact rounded values.

2.0 DESCRIPTION OF THE SPECIMEN TESTED

Product type
FW – Fixed window

Drawings (Appendix)
Série2 H1 Fixe-Model, Drainage fixe_5100-Model

Drawings (Others)
L1055, L5107, L5124, S-19063, S-20223

Date(s) of testing
2025-01-13, 2025-01-21, 2025-01-30, 2025-01-31

Test specimen installation (test buck)
Material: Spruce (~2" x 12")
R.O. clearances: 7 mm
Fastening: Metal strips screwed to the test buck with (#1) #8 x 1-1/4" screws & clipped and screwed to the frame. Sill: (6x) strips at 110 mm from each corner and every 265 mm c/c. Head: (6x) strips at 110 mm from each corner and every 265 mm c/c. Jambs: (11x) strips at 110 mm from each corner and every 235 mm c/c.
Sealant: Sealant between test buck and specimen on exterior perimeter.

Frame
Material: Extruded PVC / Extruded aluminum
Joinery type: Thermally welded mitre joints (PVC) / Mechanical assembly (screwed / glued)
Reinforcement: No reinforcement
Weatherstripping: None
Sealant: U-shaped rebate seal at sill and jambs (150 mm), sealant at frame junctions before glazing installation.
Drainage: See drawing(s) *Drainage Fixe_5100-Model* in the appendix
Glazing: Triple glazed sealed unit (44 mm) / Nominal glass thickness : 5 mm / Air space gap: 29 mm / Type of glass: Annealed / Type of spacer: Swisspacer black / Type of sealant: Dual-sealed / Type of filling gas: Argon / Glass retention: Glazing stop / Glazing seals: Coextrusion on the exterior face (dry glazing) and coextrusion on the interior face (dry glazing) / Grid description: None / Setting blocks: (2x) at the sill, (2x) per jamb & (4x) at the head / Daylight opening: 1400 mm W x 2400 mm H
Overall dimensions: 1500 mm W x 2500 mm H

3.0 ALTERATION(S)

Alteration(s) performed in the laboratory on tested specimen to meet the reported performances:

Water penetration resistance test
U-shaped joint redone.

4.0 TEST BENCH INFORMATION

Test bench identification
TB-AWS-01 & TB-AWS-07
The calibration of this test bench was done as per Article 9.0 of *ASTM E283*, *Standard Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors*, and *ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference* and *ASTM E547 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Cycling Static Air Pressure Difference.* The last calibration of this test bench and related equipment was performed in January 2025.

5.0 RESULTS OF PERFORMANCE TESTS

RESULTS OF THE AW SEQUENCE ACCORDING TO AAMA 910-10 / AAMA 910-16

Air Leakage Resistance Test
$Q_{inf} \leq 0.1$ l/s-m² @ 300 Pa / $Q_{exf} \leq 0.1$ l/s-m² @ 75 Pa

Water Penetration Resistance Test
No water infiltration at an optional test pressure differential of 720 Pa.

Thermal Cycling
The test specimen was subjected to 6 thermal cycles per AAMA 501.5-07 (Test Method for Thermal Cycling of Exterior Walls). High temperature = 82°C / Low temperature = -18°C / No damage observed

Uniform Load deflection Test at Design Load
Member deflection does not exceed the limit of L/175 at a design pressure (DP) of 1920 Pa.

Post Thermal Cycling Air Leakage Resistance Test
$Q_{inf} \leq 0.1$ l/s-m² @ 300 Pa / $Q_{exf} \leq 0.1$ l/s-m² @ 75 Pa

Post Thermal Cycling Water Penetration Resistance Test
No water infiltration at an optional test pressure differential of 480 Pa.

Uniform Load Structural Test at 1.5x Design Load
Permanent deformation does not exceed the limit of 0.2% (L) at a structural pressure (STP) of 2880 Pa.

NAFS SEQUENCE RESULTS – TYPE FW / FD

Air Leakage Resistance Test

Passed – Class AW
Surface : 3.8 m^2
$Q_{inf} \leq$ 0.1 l/s-m² @ 300 Pa / $Q_{exf} \leq$ 0.1 l/s-m² @ 75 Pa

NAFS 2017 Requirements
U.S.A - R & LC : Q ≤ 1.5 l/s-m² @ 75 Pa / CW : Q ≤ 0.5 l/s-m² @ 75 Pa / AW : Q_{inf} ≤ 0.5 l/s-m² @ 300 Pa & Q_{exf} ≤ 0.5 l/s-m² @ 75 Pa
Canada - R & LC: FIXED: Q ≤ 0.2 l/s-m² / CW : Q ≤ 0.5 l/s-m² @ 75 Pa / AW : Q_{inf} ≤ 0.5 l/s-m² @ 300 Pa & Q_{exf} ≤ 0.5 l/s-m² @ 75 Pa
NAFS 2022 Requirements
R & LC: Q ≤ 1.5 l/s-m² @ 75 Pa / CW : Q ≤ 1.0 l/s-m² @ 75 Pa / AW : Q_{inf} ≤ 1.5 l/s-m² @ 300 Pa & Q_{exf} ≤ 1.0 l/s-m² @ 75 Pa

AAMA/WDMA/CSA 101/I.S.2/A440-17 par. 9.3.2 & A440S1-19 Canadian Supplement par. 5.2 / AAMA/WDMA/CSA 101/I.S.2/A440-22 par. 8.3.2. / ASTM-E283-04 (2012) & ASTM-E283-19

Water Penetration Resistance Test

Passed – Class AW
No water infiltration under the minimum test pressure for the class AW : 390 Pa.
No water infiltration at a maximum (optional) test pressure differential of : **480 Pa** - U.S. & Canadian Requirements

Requirements
No water infiltration under the minimum test pressure requirements of : Class R : 140 Pa / Class LC : 180 Pa / Class CW : 220 Pa / Class AW : 390 Pa

AAMA/WDMA/CSA 101/I.S.2/A440-17 par. 9.3.3 & A440S1-19 Canadian Supplement par. 5.5 / AAMA/WDMA/CSA 101/I.S.2/A440-22 par. 8.3.3. / R, LC & CW: ASTM-E547-00 (2016) / AW: ASTM-E547-00 (2016) & ASTM-E331-00 (2016)

Uniform Load Deflection

DP 70 – Class AW
Net deflection measured on the jamb:
0.13 mm @ –1920 Pa / 0.02 mm @ +1920 Pa
0.06 mm @ –3360 Pa / 0.14 mm @ +3360 Pa
Allowed ≤ 13.83 mm

Requirements
Member deflection at a minimum design pressure (DP) and at optional DP : R : 720 Pa – Reported only / LC : 1200 Pa – Reported only / CW : Limited to L/175 at 1440 Pa / Class AW : Limited to L/175 at 1920 Pa

AAMA/WDMA/CSA 101/I.S.2/A440-17 par. 9.3.4 / AAMA/WDMA/CSA 101/I.S.2/A440-22 par. 8.3.4.2 / ASTM-E330-14 (2021)

Uniform Load Structural

STP 70 – Class AW
Permanent deformation measured on the jamb:
0.08 mm @ –2880 Pa / 0.01 mm @ +2880 Pa
0.14 mm @ –5040 Pa / 0.02 mm @ +5040 Pa

Allowed ≤ 4.84 mm

Requirements
Permanent deformation is limited at a minimum structural test pressure (STP) and at optional STP of : R : ≤ 0.4% (L) at 1080 Pa / LC : ≤ 0.4% (L) at 1800 Pa / CW : ≤ 0.3% (L) at 2160 Pa / AW : ≤ 0.2% (L) at 2880 Pa

AAMA/WDMA/CSA 101/I.S.2/A440-17 par. 9.3.4 / AAMA/WDMA/CSA 101/I.S.2/A440-22 par. 8.3.4.3 / ASTM-E330-14 (2021)

Forced Entry Resistance

Passed

Grades 10 & 20 / T_1=5 min.

Requirements
All windows shall be tested according to ASTM F588-14 & ASTM F588-17 Grade 10.

AAMA/WDMA/CSA 101/I.S.2/A440-17 par. 9.3.5 / AAMA/WDMA/CSA 101/I.S.2/A440-22 par. 8.3.5

Welded Corner Test

Passed

For each corner detail the breakage does not extend along the entire weld line.

Requirements
When loaded to failure, the break shall not extend along the entire weld line.

AAMA/WDMA/CSA 101/I.S.2/A440-17 par. 9.3.6.2

6.0 CONCLUSION

The fenestration product described in this report was tested in accordance with the *AAMA/WDMA/CSA 101/I.S. 2/A440-17 (NAFS 2017)* & *CSA A440S1:19 Standards,* and *AAMA/WDMA/CSA 101/I.S. 2/A440-22 (NAFS 2022)* & *CSA A440S1:25* Standards, regarding performance testing. The above results were obtained by using the designated test methods and the performance requirements of the referenced specification.

The assembly drawings show the wall thickness of all members, construction details and hardware application are on file and have been compared to the sample submitted.

The test files from this evaluation will be retained for a minimum period of four (4) years following the issue date of this report. This report does not represent product certification, which can only be obtained by a certification agency.

Note on the Limitation of Liability
Particular care was taken in the test sequence as well as the results obtained for the sample received. Upon acceptance of the report, the client agrees to exempt all employees and owners of UL Laboratory Canada Inc. from any suit or claim regarding the quality and performance evaluation contained in this

report. The decision rule is simply based on the results obtained (The measurement of uncertainty is not taken into account when declaring conformity).

7.0 REVISION LOG

Rev. #	Date	Page(s)	Revision(s)

APPENDIX
DRAWINGS, SEALANT, DRAINAGE & BILL OF MATERIALS

H1
SÉRIE 5100

CONFORME DOSSIER
AI-06049-A1
COMPLIES TO FILE

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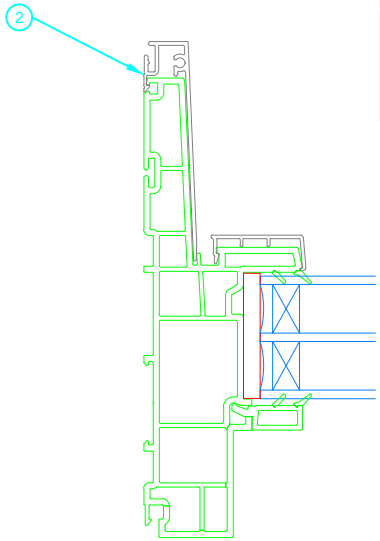

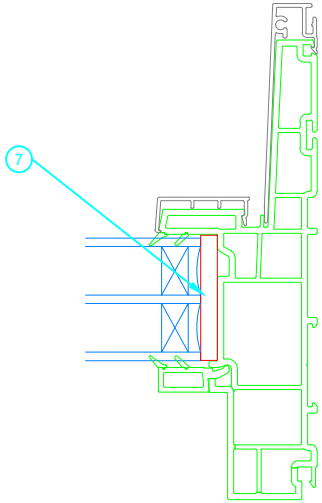

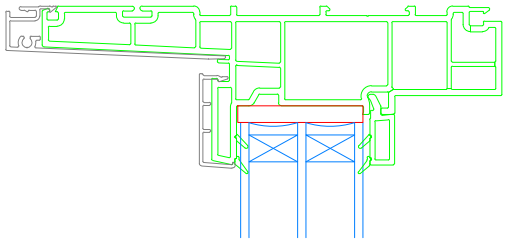

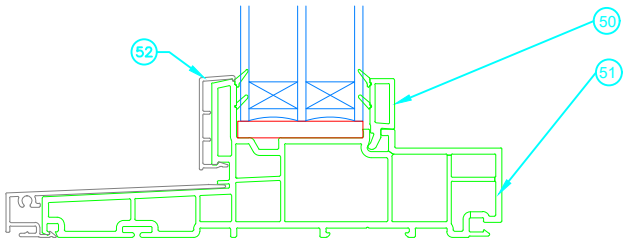

FENÊTRE FIXE 7''

MATÉRIAUX		
No.	Description	NO. CAT.
2	Alum. Extension Cadre 5 3/4	S-19063 / EBA608
7	CALE (Jambage et tête)	1055
50	PARCLOSE PVC 1 3/4po	5124 / PB512401
51	CADRE FIXE	5107 / PB510701
52	Alu. Recou. FACADE FIXE EXT.	S-20223 / EBA85921

CONFORME DOSSIER
AI-06049-A1
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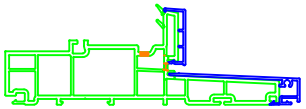

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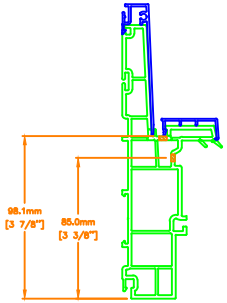

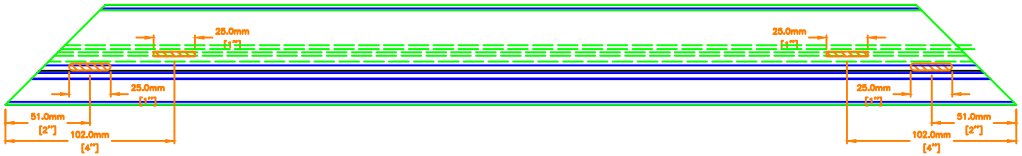

Drainage Machining Bottom