

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 A440S1:22

Manufacturer

PORTES ET FENÊTRES ISOTHERMIC

370, chemin Mont-Granit
Thetford Mines (Québec)
G6G 5R7

Report

AI-06049-A2

Product Type

FW - Fixed window

Product series/model

H1 5100 Series



Primary designator

Class CW – PG70: 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 = 720 Pa (~15.04 psf)

Air tightness = Q_{inf} & $Q_{exf} \leq 0.1$ l/s-m² @ 75 Pa (≤ 0.1 cfm/ft² @ 1.57 psf)

Testing laboratory : UL Laboratory Canada inc. (Varennnes)

UL project number : 4791586512

Tests completion date : 2025-01-31

Report date : 2025-02-07

Number of pages : 4 pages & 1 appendix

Prepared by:

Approved by:

Raphaël Plouffe

Laboratory technician
UL Laboratory Canada inc.

Jean Miller, P. Eng.

Senior Staff Engineer
UL Laboratory Canada inc.

LABORATORY, FIELD TESTING AND ADVISORY SERVICES FOR BUILDING ENVELOPE

TORONTO

7 Underwriters Road
Toronto
ON M1R 3A9
Canada
T: +1.866.937.3852
E: BuildingEnvelope@ul.com

MONTREAL

1320 boul. Lionel-Boulet
Varennnes
QC J3X 1P7
Canada
T: +1.855.353.2532
E: BuildingEnvelope@ul.com

TELFORD

Halesfield 2
Telford
TF7 4QH
Royaume-Uni
T: +44.1952.586.580
E: BuildingEnvelopeEurope@ul.com

W: ul.com/buildingenvelope

TABLE OF CONTENT

1.0 INTRODUCTION.....1

2.0 DESCRIPTION OF THE SPECIMEN TESTED1

3.0 ALTERATION(S)2

4.0 TEST BENCH INFORMATION2

5.0 RESULTS OF PERFORMANCE TESTS.....2

6.0 CONCLUSION4

7.0 REVISION LOG4

APPENDIX : DRAWINGS, SEALANT, DRAINAGE & BILL OF MATERIALS

The results mentioned in this report apply only to the components tested. This report shall not be reproduced, except in full; any partial reproduction requires the written approval of UL Laboratory Canada inc.

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 A440S1:25 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

2025-01-21, 2025-01-22, 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

The results mentioned in this report apply only to the components tested. This report shall not be reproduced, except in full; any partial reproduction requires the written approval of UL Laboratory Canada inc.

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

NAFS SEQUENCE RESULTS – TYPE FW / FD

Air Leakage Resistance Test

Passed – Class CW

Surface : 3.8 m²

$Q_{inf} \leq 0.1 \text{ l/s-m}^2 @ 75 \text{ Pa} / Q_{ext} \leq 0.1 \text{ l/s-m}^2 @ 75 \text{ Pa}$

NAFS 2017 Requirements

U.S.A - R & LC : $Q \leq 1.5 \text{ l/s-m}^2 @ 75 \text{ Pa} / \text{CW} : Q \leq 0.5 \text{ l/s-m}^2 @ 75 \text{ Pa} / \text{AW} : Q_{inf} \leq 0.5 \text{ l/s-m}^2 @ 300 \text{ Pa} \text{ \& } Q_{ext} \leq 0.5 \text{ l/s-m}^2 @ 75 \text{ Pa}$

Canada - R & LC: FIXED: $Q \leq 0.2 \text{ l/s-m}^2 / \text{CW} : Q \leq 0.5 \text{ l/s-m}^2 @ 75 \text{ Pa} / \text{AW} : Q_{inf} \leq 0.5 \text{ l/s-m}^2 @ 300 \text{ Pa} \text{ \& } Q_{ext} \leq 0.5 \text{ l/s-m}^2 @ 75 \text{ Pa}$

NAFS 2022 Requirements

R & LC: $Q \leq 1.5 \text{ l/s-m}^2 @ 75 \text{ Pa} / \text{CW} : Q \leq 1.0 \text{ l/s-m}^2 @ 75 \text{ Pa} / \text{AW} : Q_{inf} \leq 1.5 \text{ l/s-m}^2 @ 300 \text{ Pa} \text{ \& } Q_{ext} \leq 1.0 \text{ l/s-m}^2 @ 75 \text{ Pa}$

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 CW

No water infiltration under the minimum test pressure for the class CW : 220 Pa.

No water infiltration at a maximum (optional) test pressure differential of :

580 Pa - U.S. & Canadian Requirements

720 Pa - Canadian Requirements only

The results mentioned in this report apply only to the components tested. This report shall not be reproduced, except in full; any partial reproduction requires the written approval of UL Laboratory Canada inc.

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 CW

Net deflection measured on the jamb:

0.14 mm @ –1440 Pa / 0.09 mm @ +1440 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 CW

Permanent deformation measured on the jamb:

0.01 mm @ –2160 Pa / 0.01 mm @ +2160 Pa

0.14 mm @ –5040 Pa / 0.02 mm @ +5040 Pa

Allowed ≤ 7.26 mm

Requirements

Permanent deformation is limited at a minimum structural test pressure (STP) and at optional STP of : R : $\leq 0.4\%$ (L) at 1080 Pa / LC : $\leq 0.4\%$ (L) at 1800 Pa / CW : $\leq 0.3\%$ (L) at 2160 Pa / AW : $\leq 0.2\%$ (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 / T₁=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

The results mentioned in this report apply only to the components tested. This report shall not be reproduced, except in full; any partial reproduction requires the written approval of UL Laboratory Canada inc.

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)
--------	------	---------	-------------

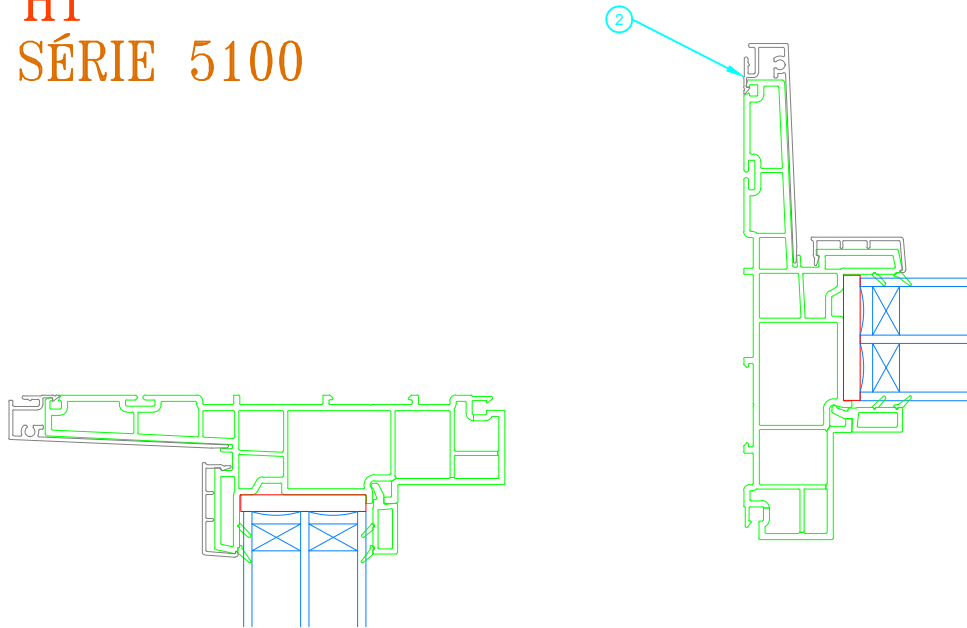
The results mentioned in this report apply only to the components tested. This report shall not be reproduced, except in full; any partial reproduction requires the written approval of UL Laboratory Canada inc.

APPENDIX
DRAWINGS, SEALANT, DRAINAGE & BILL OF MATERIALS

The results mentioned in this report apply only to the components tested. This report shall not be reproduced, except in full; any partial reproduction requires the written approval of UL Laboratory Canada inc.

H1

SÉRIE 5100

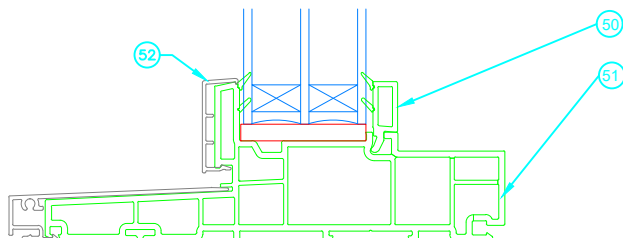
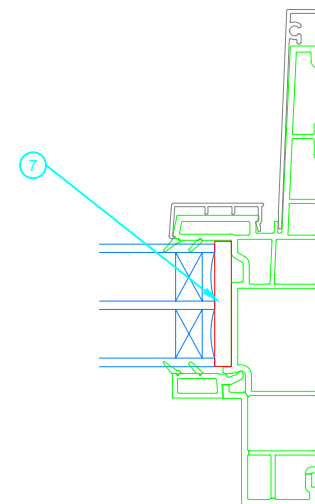




CONFORME DOSSIER
AI-06049-A1
COMPLIES TO FILE



UL laboratoire Canada inc.
2025-02-07
UL Laboratory Canada Inc.
2025-02-07



FENÊTRE FIXE 7''

MATÉRIAUX

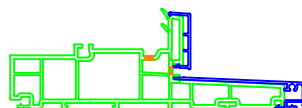
No.	Description	NO. CAT.
2	Alum. Extension Cadre 5 3/4	S-19063 / EBA608
7	CALE (Jambage et tête)	1055
50	PARCLOSE PVC 1 3/4po	5124 / PB512401
51	CADRE FIXE	5107 / PB510701
52	Alu. Recou. FACADE FIXE EXT.	S-20223 / EBA85921



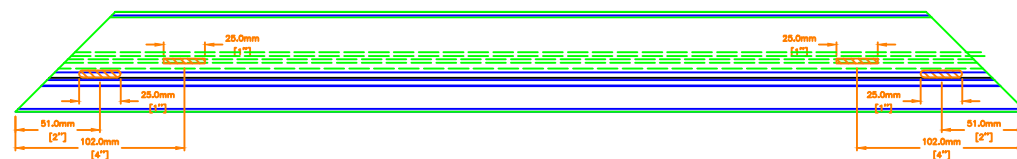
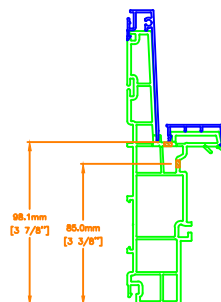
CONFORME DOSSIER
AI-06049-A1
COMPLIES TO FILE



UL Laboratories Canada Inc.
2025-02-07
UL Laboratories Canada Inc.
2025-02-07



Picture Frame



Drainage Machining Bottom

