PERFORMANCE TESTING IN ACCORDANCE WITH AAMA/WDMA/CSA 101/I.S.2/A440-11 (NAFS 2011) & A440S1-17

PRODUCT MANUFACTURER
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REPORT AI-04900-A1

TEST REPORT SUMMARY	
Product type	**Casement Window**
Product series/model	**W4750 Series Aluminum Casement Window**
Primary product designator	**Class AW – PG100 : Size tested 900 x 1500 mm (~ 35 x 59 in) - Type C**
Optional secondary designator	**Positive Design pressure (DP) = 4800 Pa (~100.25 psf)** **Negative design pressure (DP) = -4800 Pa (~-100.25 psf)** **Water penetration resistance test pressure = 720 Pa (~15.04 psf)** **Canadian air infiltration / exfiltration level = A3 Level**

See CLEB laboratory Inc. complete report AI-04900-A1 for test specimen description and detailed test results

Test completion date	2018-09-24	**Number of pages**	7 pages & 1 appendix
Report date	2018-10-15	**Revision date**	-

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1.0 INTRODUCTION

CLEB laboratory Inc. was retained by ***"ALUMINCO S.A."*** to test a fenestration product according to the performance levels in the *AAMA/WDMA/CSA 101/I.S. 2/A440-11 (NAFS 2011) & A440S1-17* 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. Section 5.0 contains testing results converted to IP units for the sake of convenience only. The only exception to using Si values is in the Performance Grade (PG) portion of the product designation.

Note concerning drawings:
The drawings reviewed for the production of this report are stamped and are on file at CLEB laboratory Inc. The availability of individual drawings will be at the discretion of the client.

2.0 DESCRIPTION OF THE SPECIMEN(S) TESTED

Model
W4750 Series Aluminum Casement Window

Product type
C – (Casement window)

Operation mode
Outward opening

Drawings (Appendix)
ELEVATION (INTERNAL SIDE), frame drainage drawing, Product #1 vertical and horizontal section drawings (4 pages), materials list (7 pages)

Drawings (Others)
4750-110, 4750-207, 540-777, 410-905, 3120-916, 3120-918, 3120-919, 3120-920, CAMERA EUROPEA (Multipoint lock mechanism details)

Date(s) of sample reception
2018-09-06

Date(s) of testing
2018-09-10, 2018-09-11, 2018-09-12, 2018-09-13 to 2018-09-16, 2018-09-17, 2018-09-24

Test specimen installation (test buck)
Material: 2" x 8" treated lumber
R.O. clearances: 0 mm (0.00″)
Fastening: Screwed through the test buck into the window frame. Sill & head: (2) rows of (3) # 10 x 2-1/2″ screws; at mid span and at 300 mm (11.81″) c/c. Jambs: (2) rows of (3) # 10 x 2-1/2″ screws at 300 mm (11.81″) from each corner and at 300 mm (11.81″) c/c.
Sealing detail: Sealant between test buck and specimen on exterior, intermediate and interior perimeters.

Frame
Material: Extruded Aluminum (thermally-broken)
Joinery type: Mechanical assembly (crimped with corner keys / sealed)
Reinforcement: No reinforcement
Weatherstripping: See drawing *Product #1 vertical and horizontal section drawings (pages 3 to 6)* in the appendix
Sealant: See comments on drawing *Product #1 vertical and horizontal section drawings (pages 3 to 6)* in the appendix. Sealant in the four corners before assembly. Sealant at corner joint junctions.
Drainage: See drawing *Product #1 vertical and horizontal section drawings (pages 3 to 6)* in the appendix
Glazing: None
Frame depth: 130 mm (5.12")
Overall dimensions: 900 mm (35.43") W x 1500 mm (59.05") H

Sash
Material: Extruded Aluminum (thermally-broken)
Joinery type: Mechanical assembly (crimped with corner keys / sealed)
Reinforcement: No reinforcement
Weatherstripping: See drawing *Product #1 vertical and horizontal section drawings (pages 3 to 6)* in the appendix
Sealant: See comments on drawing *Product #1 vertical and horizontal section drawings (pages 3 to 6)* in the appendix. Sealant in the four corners before assembly.
Drainage: See drawing *Product #1 vertical and horizontal section drawings (pages 3 to 6)* in the appendix
Glazing: Double glazed sealed unit (27.0 mm) / Glass thickness: Exterior side: 6.0 mm. Interior side: laminated 4.0 mm + 4.0 mm / Air space gap: 12.0 mm / Type of glass: Exterior side: Tempered. Interior side: laminated / Type of spacer: Aluminum / Type of sealant: Dual-sealed / Type of filling gas: Argon / Glass retention: Glazing stops / Glazing seals: Gasket on the exterior face (dry glazing) and gasket on the interior face (dry glazing) / Grid description: None / Setting blocks: (2) per diagonally-opposed corner (top lock side/lower hinge side) / Daylight opening: 664 mm W x 1264 mm H
Overall dimensions: 848 mm (33.39") W x 1448 mm (57.01") H

Screen
None

Hardware
See hardware description (part number and manufacturer/ supplier) in the bill of materials
(1) Handle drive, (1) corner transmission, (5) locking points, (3) keepers on the jamb located at 450 mm / 955 mm / 1310 mm, measured from the frame lower interior corner and (2) keepers at the head located at 208 mm / 538 mm, measured from the frame upper interior corner. (2) snubbers located at 395 mm / 1050 mm measured from the frame lower interior corner. (2) hinges inserted into sash profiles; (3) # 7-10 x 3/4" screws each (frame). (1) opening limiter arm.

3.0 ALTERATION(S)

Alteration(s) performed in the laboratory on tested specimen to meet the reported performances: None.

4.0 TEST BENCH INFORMATION

Test bench identification: TB-AWS-04

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 July, 2018.

5.0 RESULTS OF PERFORMANCE TESTS

SPECIFICATIONS	TEST RESULTS
U.S. Air Leakage Resistance Test R – LC – CW Classifications: Q_{inf} ≤1.5 l/s-m² @ 75 Pa *(~ ≤ 0.3 cfm/ft² @ 1.57 psf)* AW Classification: Q_{inf} ≤0.5 l/s-m² @ 300 Pa *(~ ≤ 0.1 cfm/ft² @ 6.27 psf)* **Canadian air infiltration/exfiltration levels** R – LC – CW Classifications: A2: Q ≤ 1.5 l/s-m² @ 75 Pa *(~ ≤ 0.3 cfm/ft² @ 1.57 psf)* A3: Q ≤ 0.5 l/s-m² @ 75 Pa *(~ ≤ 0.1 cfm/ft² @ 1.57 psf)* AW Classification: A2: Q ≤ 0.5 l/s-m² @ 300 Pa *(~ ≤ 0.1 cfm/ft² @ 6.27 psf)* A3: Q ≤ 0.5 l/s-m² @ 300 Pa *(~ ≤ 0.1 cfm/ft² @ 6.27 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.2* *A440S1-17 Canadian Supplement par. 5.3* *ASTM-E283-04 (2012)*	**Class AW – U.S. Requirements** **A3 Level – Canadian Requirements** Surface: 1.35 m² *(~14.53 ft²)* Q_{inf} = 0.13 l/s-m² @ 300 Pa *(~0.03 cfm/ft² @ 6.27 psf)* Q_{exf} = 0.13 l/s-m² @ 300 Pa *(~0.03 cfm/ft² @ 6.27 psf)*
Water Resistance Test No water infiltration under a minimum pressure differential: Class R: 140 Pa *(~2.92 psf)* Class LC: 180 Pa *(~3.76 psf)* Class CW: 220 Pa *(~4.59 psf)* Class AW: 390 Pa *(~8.15 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.3.* *A440S1-17 Canadian Supplement par. 5.4* *ASTM-E547-00 (2009) & ASTM-E331-00 (2009)*	**Class AW – U.S. & Canadian Requirements** No water infiltration under the minimum test pressure for the Class. No water infiltration at an optional test pressure differential of: **580 Pa** *(~12.11 psf)* - U.S. & Canadian Requirements **720 Pa** *(~15.04 psf)* - Canadian requirements only
Life Cycle Testing (AW Classification) The tests sequence is the following : Air Infiltration Test *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 7.3.5, ASTM-E283-04 & AAMA 910-10; 3.1.2* Water Resistance Test *AAMA/WDMA/CSA 101/I.S.2/A440-08 par. 7.3.5, ASTM-E547-00 (2009) & ASTM E-331-00 (2009) & AAMA 910-10; 3.1.3* Vent Cycling Test (First Half) 2000 cycles of sash open/close, including the locking hardware. *AAMA 910-10; 3.1.4 & 3.1.5* Misuse Testing *3.6.2.1 Ventilator Torsion Test* *3.6.2.2 Ventilator Vertical Load Test* *AAMA 910-10; 3.1.7* Vent Cycling Test (Second Half) 2000 cycles of sash open/close, including the locking hardware. *AAMA 910-10; 3.1.8 & 3.1.9*	**Passed** **Class AW** Q_{inf} = 0.25 l/s-m² @ 300 Pa *(~0.05 cfm/ft² @ 6.27 psf)* Q_{exf} = 0.25 l/s-m² @ 300 Pa *(~0.05 cfm/ft² @ 6.27 psf)* No water infiltration at an optional test pressure differential of 720 Pa *(~15.04 psf)* Hinges were lubricated at 1000 cycles during the first half of the sash open/close cycling test. Hardware was lubricated at 500 cycles during the first half of the locking hardware cycling. There was no damage to fasteners, hardware parts, support arms, actuating mechanisms or any other damage that would cause the window to be inoperable. Hinges were lubricated at 1000 cycles during the second half of the sash open/close cycling test. Hardware was lubricated at 500 cycles during the second half of the locking hardware cycling.

Post Vent Cycling Air Infiltration Test *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 7.3.5, ASTM-E283-04 & AAMA 910-10; 3.1.11*	Q_{inf} = 0.18 l/s-m² @ 300 Pa *(~0.04 cfm/ft² @ 6.27 psf)* Q_{exf} = 0.17 l/s-m² @ 300 Pa *(~0.03 cfm/ft² @ 6.27 psf)*
Post Vent Cycling Water Resistance Test *AAMA/WDMA/CSA 101/I.S.2/A440-08 par. 7.3.5, ASTM-E547-00 (2009) & ASTM E-331-00 (2009) et AAMA 910-10; 3.1.12*	No water infiltration at an optional test pressure differential of 720 Pa *(~15.04 psf)*
Thermal Cycling The test specimen was subjected to 6 thermal cycles per AAMA 501.5-07 (Test Method for Thermal Cycling of Exterior Walls). *AAMA 910-10; 3.1.13*	High temperature= 82°C (180°F) Low temperature= -18°C (0°F) No damage observed
Uniform Load Deflection Test (L/175) at DP40 *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 7.3.5, ASTM-E283-04 & AAMA 910-10; 3.1.14 & ASTM-E330-02 (2010)*	Member deflection does not exceed the limit of L/175 at a design pressure (DP) of 1920 Pa (~40.10 psf)
Post Thermal Cycling Air Infiltration Test *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 7.3.5, ASTM-E283-04 & AAMA 910-10; 3.1.15*	Q_{inf} = 0.13 l/s-m² @ 300 Pa *(~0.03 cfm/ft² @ 6.27 psf)* Q_{exf} = 0.13 l/s-m² @ 300 Pa *(~0.03 cfm/ft² @ 6.27 psf)*
Post Thermal Cycling Water Resistance Test *AAMA/WDMA/CSA 101/I.S.2/A440-08 par. 7.3.5, ASTM-E547-00 (2009) & ASTM E-331-00 (2009) & AAMA 910-10; 3.1.16*	No water infiltration at an optional test pressure differential of 720 Pa *(~15.04 psf)*
Uniform Load Structural Test at 1.5x DP40 (STP40) *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 7.3.5, ASTM-E283-04 et la spécification AAMA 910-10; 3.1.17 & ASTM-E330-02 (2010)*	Permanent deformation does not exceed the limit of 0.2% (L) at a structural test pressure (STP) of 2880 Pa *(~60.15 psf)*
Uniform Load Deflection Test Member deflection at a minimum design pressure (DP) and at optional DP: Class R: 720 Pa *(~15.04 psf)* – Reported only Class LC: 1200 Pa *(~25.06 psf)* – Reported only Class CW: Limited to L/175 at 1440 Pa *(~30.08 psf)* Class AW: Limited to L/175 at 1920 Pa *(~40.10 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.4* *ASTM-E330-02 (2010)*	**DP 100 – Class AW** Net deflection measured on the lower rail: 0.27 mm @ –1920 Pa *(~0.01" @ –40.10 psf)* 0.17 mm @ +1920 Pa *(~0.01" @ +40.10 psf)* 0.65 mm @ –4800 Pa *(~0.03" @ –100.25 psf)* 1.25 mm @ +4800 Pa *(~0.05" @ +100.25 psf)* Allowed ≤ 4.26 mm *(~0.17")* Net deflection measured on the snubber stile: 0.48 mm @ –1920 Pa *(~0.02" @ –40.10 psf)* 0.59 mm @ +1920 Pa *(~0.02" @ +40.10 psf)* 0.43 mm @ –4800 Pa *(~0.02" @ –100.25 psf)* 1.34 mm @ +4800 Pa *(~0.05" @ +100.25 psf)* Allowed ≤ 7.71 mm *(~0.30")*
Uniform Load Structural Permanent deformation is limited at a minimum structural test pressure (STP) and at optional STP of: Class R: ≤ 0.4% (L) at 1080 Pa *(~22.56 psf)* Class LC: ≤ 0.4% (L) at 1800 Pa *(~37.59 psf)* Class CW: ≤ 0.3% (L) at 2160 Pa *(~45.11 psf)* Class AW: ≤ 0.2% (L) at 2880 Pa *(~60.15 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.4* *ASTM-E330-02 (2010)*	**STP 100 – Class AW** Permanent deformation measured on the lower rail: 0.03 mm @ –2880 Pa *(~0.00" @ –60.15 psf)* 0.03 mm @ +2880 Pa *(~0.00" @ +60.15 psf)* 0.07 mm @ –7200 Pa *(~0.00" @ –150.38 psf)* 0.17 mm @ +7200 Pa *(~0.01" @ +150.38 psf)* Allowed ≤ 1.49 mm *(~0.06")* Permanent deformation measured on the snubber stile: 0.15 mm @ –2880 Pa *(~0.01" @ –60.15 psf)* 0.02 mm @ +2880 Pa *(~0.00" @ +60.15 psf)* 0.02 mm @ –7200 Pa *(~0.00" @ –150.38 psf)* 0.03 mm @ +7200 Pa *(~0.00" @ +150.38 psf)* Allowed ≤ 2.70 mm *(~0.11")*

Forced-Entry Resistance All windows shall be tested according to ASTM F588-07 Grade 10. *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.5*	**Passed** **Grade 10** T_1=5 min., L_1=667 N *(~150 lbf)*, L_2=333 N *(~75 lbf)* & L_3=111 N *(~25 lbf)*
Sash/ Leaf Torsion Test Deflection of the unrestrained corner of an unglazed sash < 51.2 x (sash area in m²) under a load of 90 N (~20.24 lbf) *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 7.3.4.2*	**Passed** **Class AW** Deflection under a load of 90 N *(~20.24 lbf) :* Allowed deflection = 62.5 mm *(2.46")* Measured deflection = 19.0 mm *(0.75")*
Sash Vertical Deflection Test Vertical deflection < 2% of sash width under a load of : Classes R & LC: 200 N *(~44.96 lbf)* Classes CW – AW: 270 N *(~60.70 lbf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.6.4.2*	**Passed** **Class AW** Allowed: 16.9 mm *(0.67")* Measured: 1.2 mm *(0.05")* for 270 N *(~60.70 lbf)*
Distributed Load Test No damage to hardware under a uniform load of Class R : 240 Pa *(~5.0 1psf)* Classes LC-CW-AW : 300 Pa *(~6.27 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.6.5.2*	**Passed** **N/A**
Insect Screen Test Canadian (only)requirements: Insect screens shall be tested in accordance with ASTM E1748-95(09) in the outward direction only under a load of 60 N (~13 lbf). *A440S1-17 Canadian Supplement par. 5.1*	**N/A** No screen supplied with the product.

6.0 CONCLUSION

Based on the tests results, the fenestration product described in this report meets the requirements of the *AAMA/WDMA/CSA 101/I.S. 2/A440-11* and *A440S1-17* Standards regarding performance testing.

Detailed assembly drawings showing wall thickness of all members, corner construction and hardware application are on file and have been compared to the sample submitted.

The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the referenced specification. The test records from this evaluation will be retained for a minimum of four (4) years from the date of report issuance. This report does not constitute certification of this product, which may only be granted by a certification agency.

Note on the Limitation of Liability:
Due care was taken in performing the testing sequence and in reporting the results related to the test specimen received for evaluation. Through acceptance of this report, the Client agrees to exempt CLEB laboratory Inc. employees and owners from all liability claims and demands arising from any matter related to or concerning the quality and execution of the performance evaluation contained in this report.

7.0 REVISION LOG

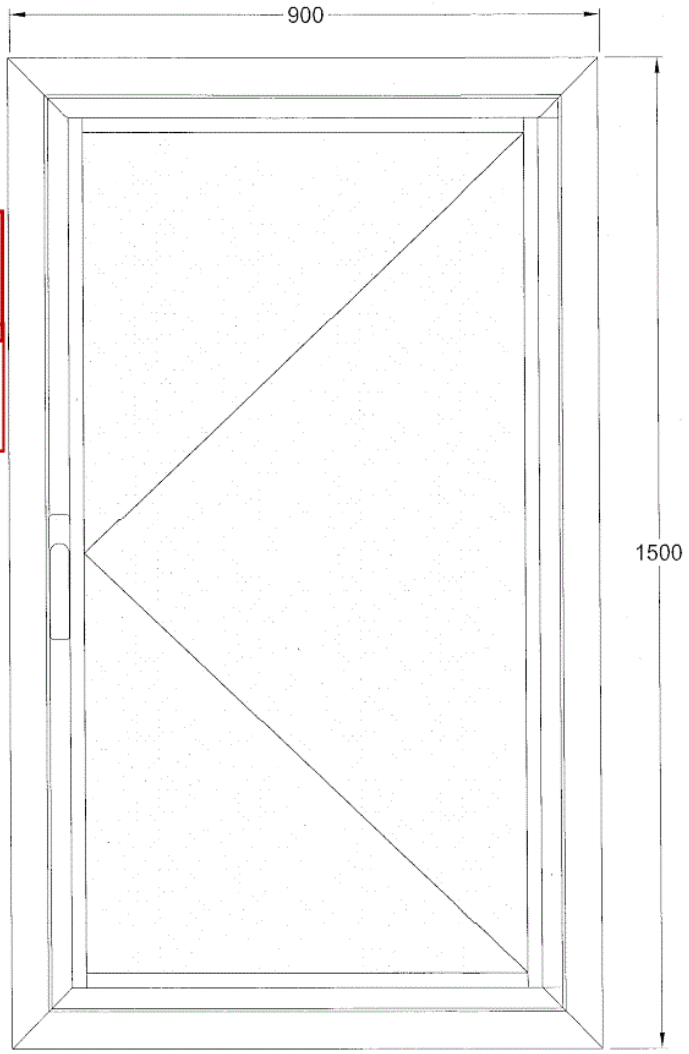
Rev. #	Date	Page(s)	Revision(s)

APPENDIX

DRAWINGS, SEALANT, DRAINAGE DETAILS & BILL OF MATERIALS

PRODUCT #1
Testing as per NAFS 2011 Class AW-PG50-Type C

ELEVATION
(INTERNAL SIDE)



CONFORME DOSSIER
CLEB AI-04900-A
COMPLIES TO FILE

CLEB laboratoire inc.
/
CLEB laboratory Inc.
2018-10-15
VÉRIFIÉ / CHECKED

2018-10-15

ALUMINCO®
W4750 thermal opening system

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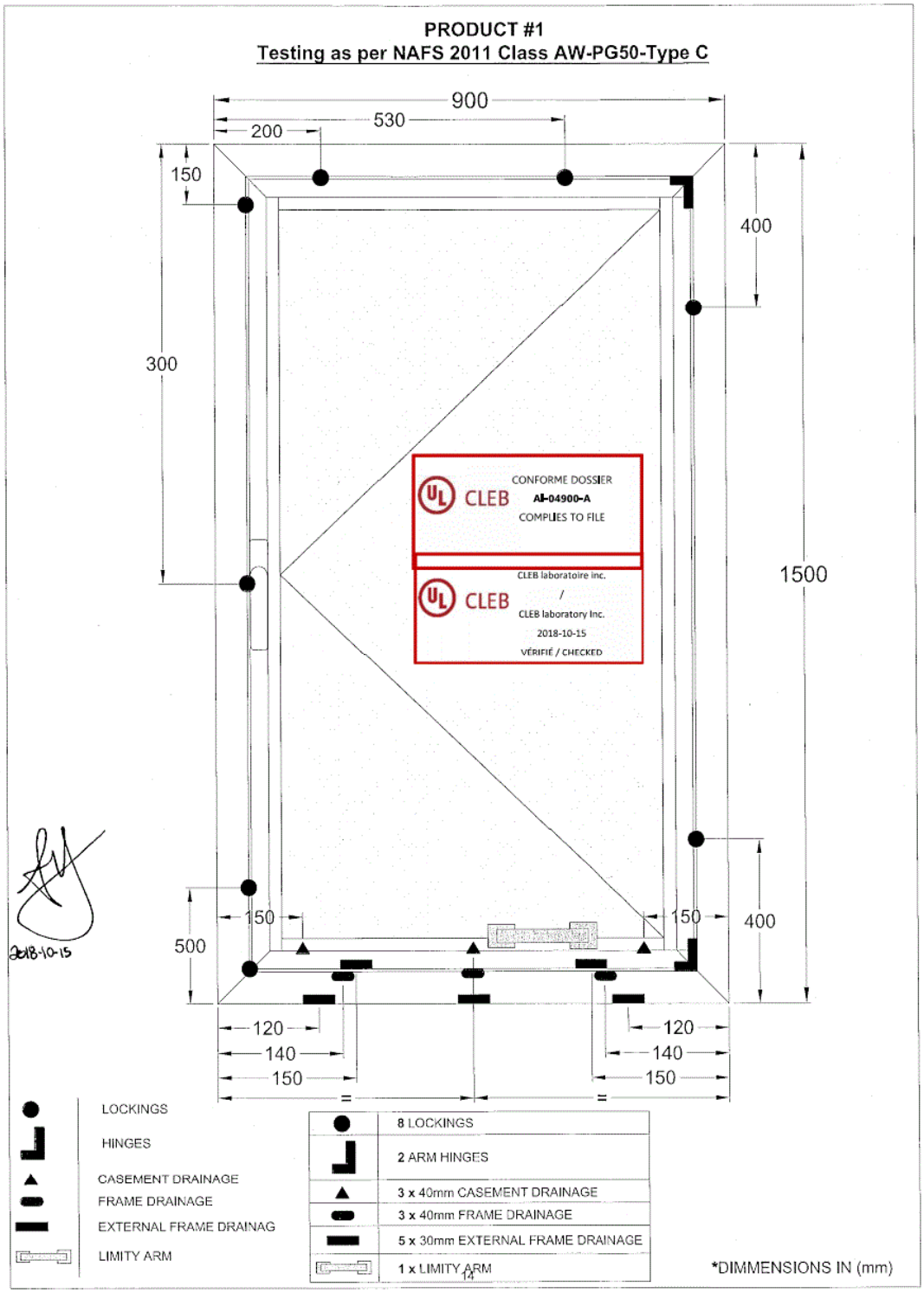

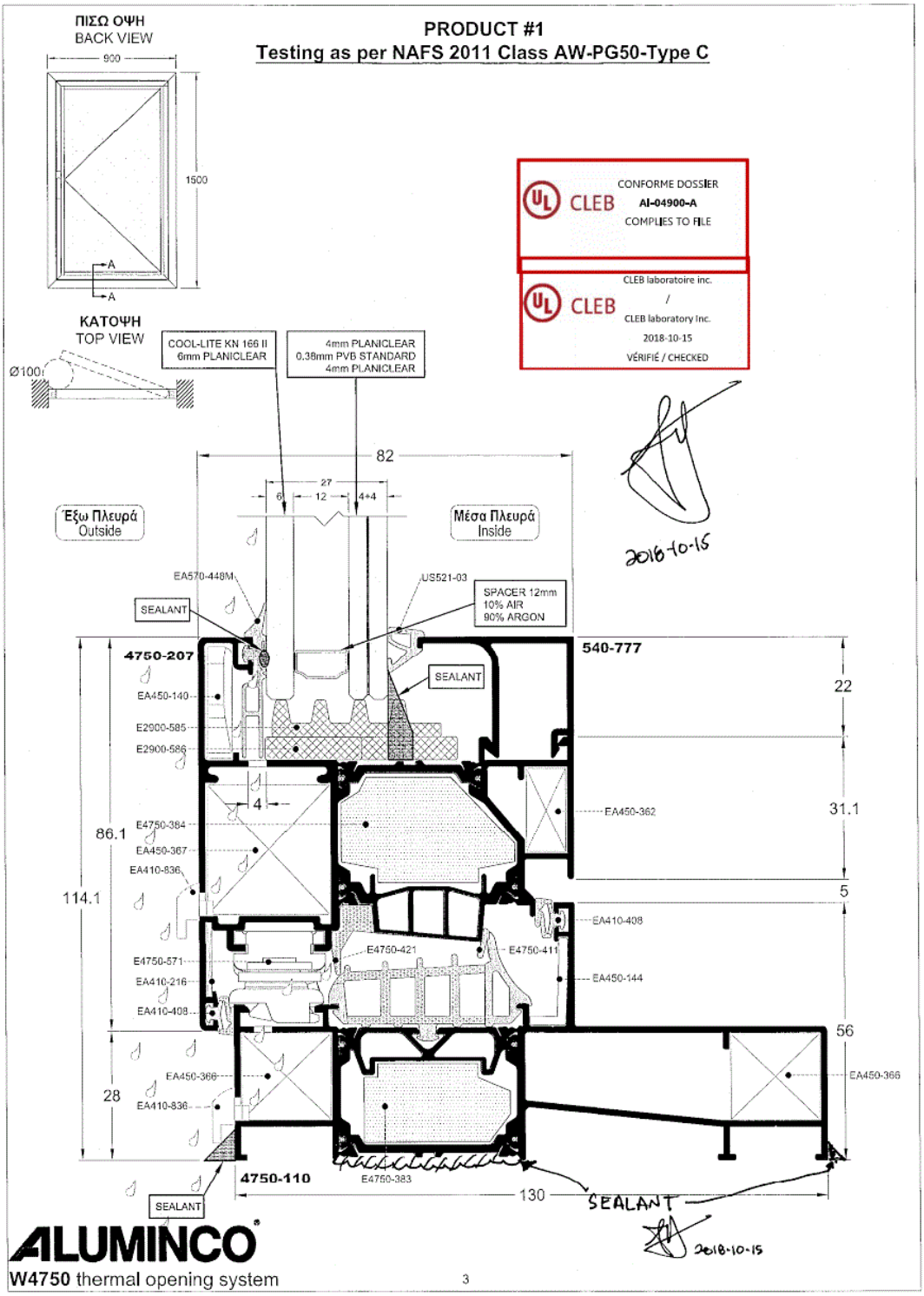

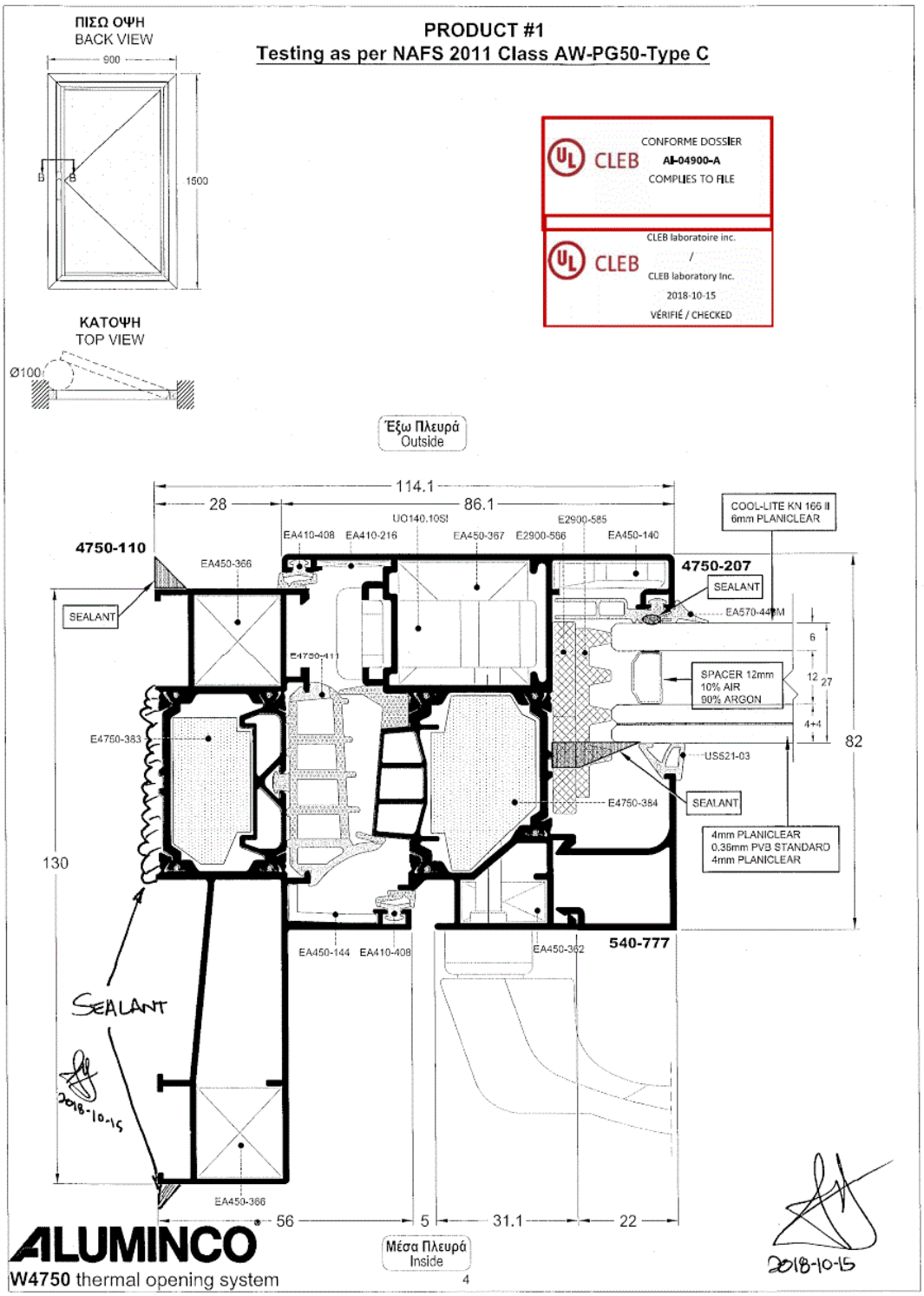

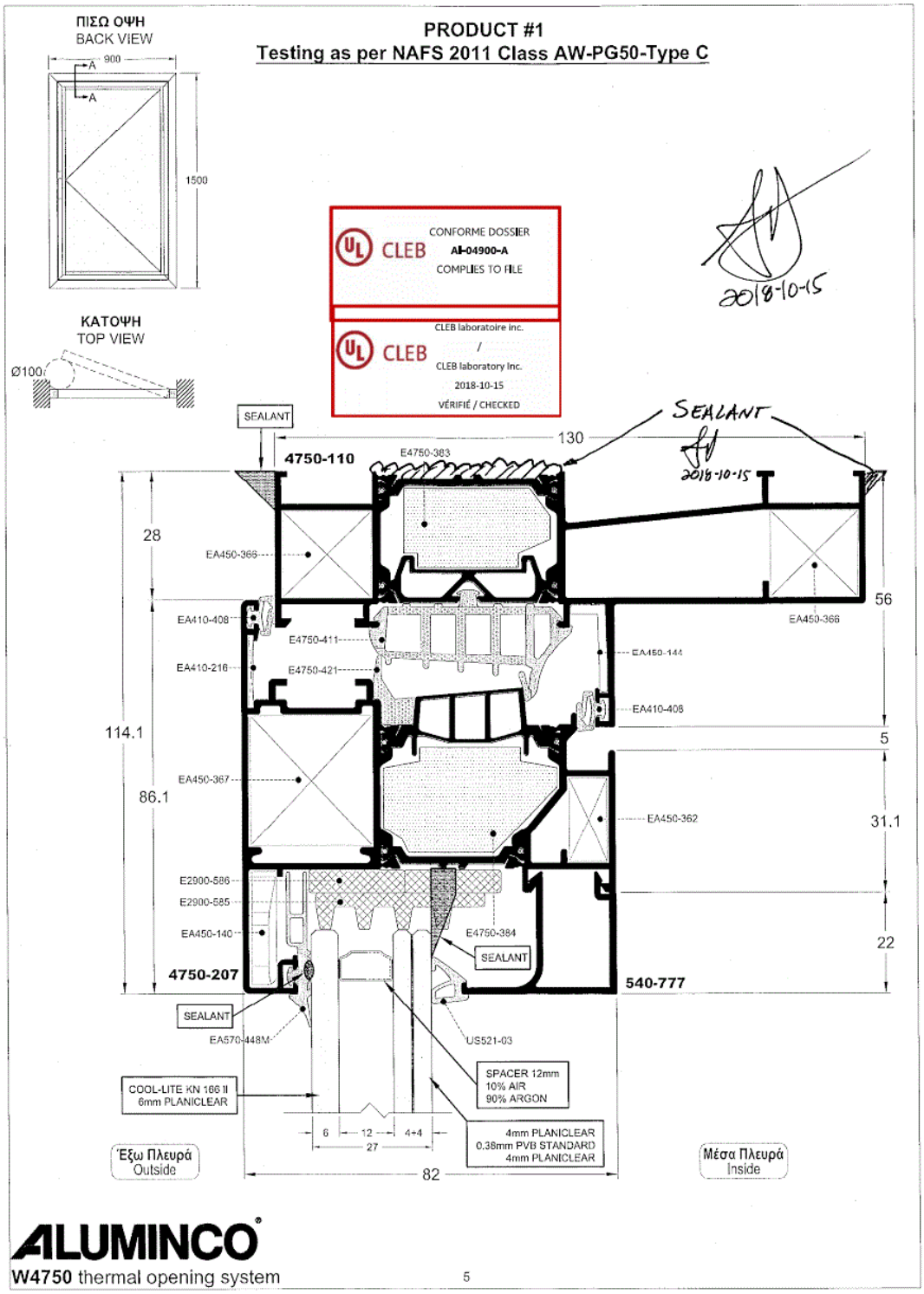

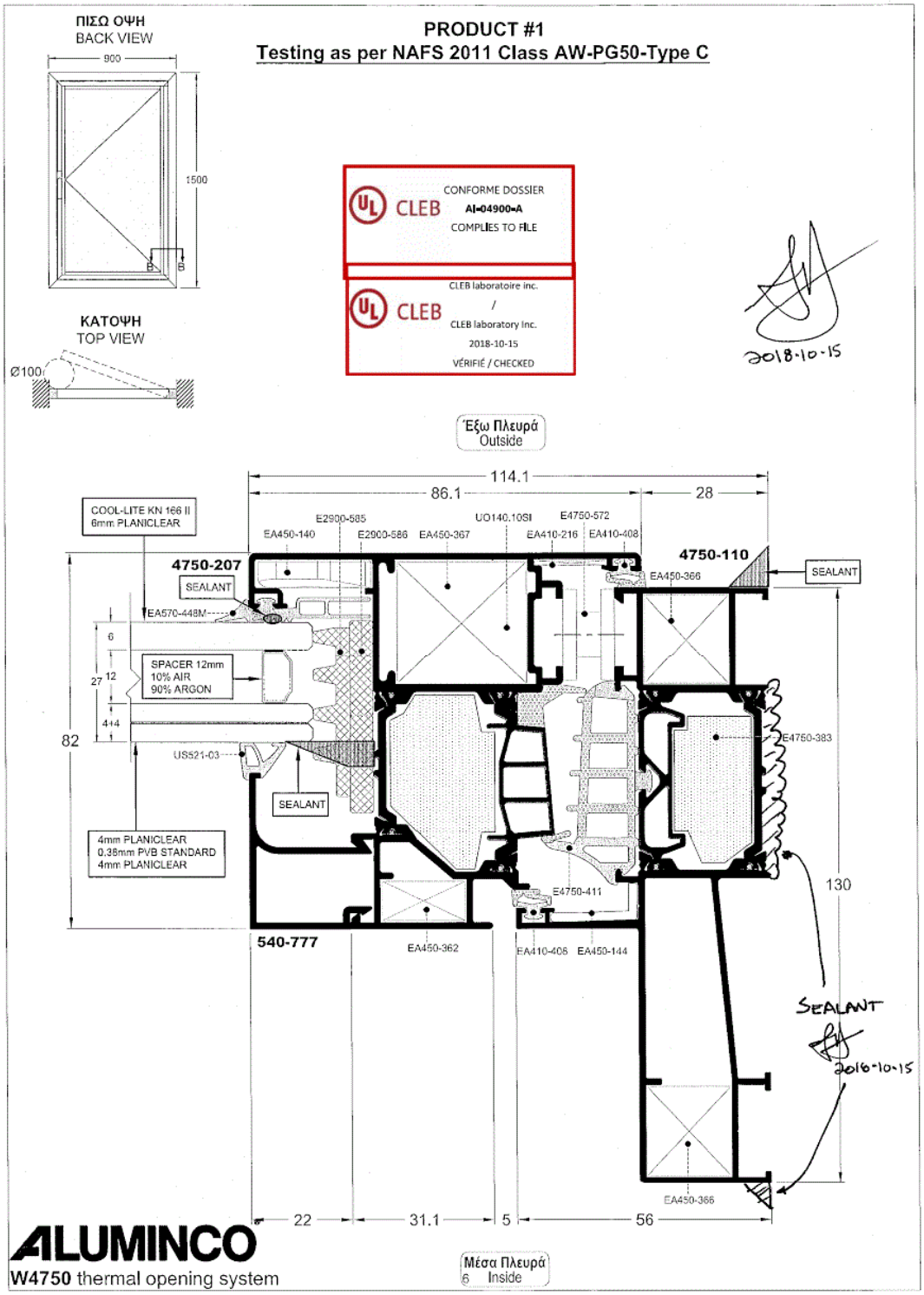

Build of Materials
For 1 opening casement

PRODUCT #1
Testing as per NAFS 2011 Class AW-PG50-Type C

2018-10-15

CONFORME DOSSIER AI-04900-A COMPLIES TO FILE
CLEB laboratoire inc. / CLEB laboratory Inc. 2018-10-15 VÉRIFIÉ / CHECKED

A/A	Code	Description	Material
		ΠΡΟΦΙΛ	
1	4750-110	ΚΑΣΑ-FRAME	4.8m
2	4750-207	SASH-ΦΥΛΛΟ	4.6m
3	540-777	ΠΙΧΑΚΙ-BEAD	4 m
4	410-905	ΝΤΙΖΑ ΜΕΤΑΔΟΣΗΣ ΚΙΝΗΣΗΣ-TRANSMISSION ROD	-
		ΕΞΑΡΤΗΜΑΤΑ	
5	EA450-140	ΧΥΤΗ ΓΩΝΙΑ ΕΥΘΥΓΡΑΜΜΙΣΗΣ-CAST ALIGNMENT CORNER 24.5mm	4 pcs
6	EA450-144P	ΠΛΑΣΤΙΚΗ ΓΩΝΙΑ ΕΥΘΥΓΡΑΜΜΙΣΗΣ-ALIGNMENT CORNER	4 pcs
7	EA450-367	ΓΩΝΙΑ ΓΩΝΙΑΣΤΡΑΣ-CRIMPING CORNER 26.8 x 28.6mm	4 pcs
8	EA450-362	ΓΩΝΙΑ ΓΩΝΙΑΣΤΡΑΣ-CRIMPING CORNER 8.9 x 18.6 mm	4 pcs
9	EA450-366	ΓΩΝΙΑ ΓΩΝΙΑΣΤΡΑΣ-CRIMPING CORNER 19.4 x 18.6mm	8 pcs
10	EA410-216	ΓΩΝΙΑ ΕΥΘΥΓΡΑΜΜΙΣΗΣ-ALIGNMENT CORNER	4 pcs
11	E4750-383	ΘΕΡΜΟΜΟΝΩΤΙΚΗ ΜΠΑΡΑ ΚΑΣΑΣ-FRAME INSULATION BAR	3x2m bars
12	E4750-384	ΘΕΡΜΟΜΟΝΩΤΙΚΗ ΜΠΑΡΑ ΦΥΛΛΟΥ-SASH INSULATION BAR	3x2m bars
13	E2900-585	ΑΦΡΟΣ ΜΟΝΩΣΗΣ-FOAM INSULATION 35x10mm	2x3m bars
14	E2900-586	ΑΦΡΟΣ ΜΟΝΩΣΗΣ-FOAM INSULATION 19x5mm	4x3m bars
15	E4750-411	ΚΕΝΤΡΙΚΟ ΛΑΣΤΙΧΟ-CENTRAL GASKET	5m
16	E4750-421	ΑΦΡΟΣ ΘΕΡΜΟΜΟΝΩΣΗΣ-INSULATION FOAM	4.6m
17	EA410-408	ΛΑΣΤΙΧΟ ΚΑΣΑΣ & ΦΥΛΛΟΥ-GASKET FOR FRAME & SASH	10m
18	EA570-448	ΕΞΩΤΕΡΙΚΟ ΛΑΣΤΙΧΟ ΤΖΑΜΙΟΥ-EXTERNAL GLAZING GASKET	5m
19	US521-03	ΛΑΣΤΙΧΟ ΣΦΗΝΑ ΤΖΑΜΙΟΥ-GLAZING GASKET	4m
20	EA410-836	ΤΑΠΑ ΝΕΡΟΧΥΤΗ-END COVER FOR WATER DRAINAGE	5 pcs
21	E4750-571	ΚΟΥΜΠΑΣΟ ΠΕΡΙΟΡΙΣΜΟΥ-LIMITY ARM	1 pcs
22	E4750-572	ΚΟΥΜΠΑΣΟ ΜΕΝΤΕΣΕΣ-HINGE ARM	1 set
23	UO140-01	ΓΩΝΙΑΚΗ ΜΕΤΑΔΟΣΗ ΚΙΝΗΣΗΣ-CORNER TRANSMISSION	1 pc

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Build of Materials
For 1 opening casement

PRODUCT #1
Testing as per NAFS 2011 Class AW-PG50-Type C

A/A	Code	Description	Material
		ΕΞΑΡΤΗΜΑΤΑ	
24	EA410-874B	ΒΟΥΛΚΑΝΙΣΜΕΝΗ ΓΩΝΙΑ ΚΑΣΑΣ-VULCANIZED CORNER FOR FRAME	4pcs
25	EA410-874M	ΒΟΥΛΚΑΝΙΣΜΕΝΗ ΓΩΝΙΑ ΦΥΛΛΟΥ-VULCANIZED CORNER FOR FRAME	4pcs
26	US712-1	ΠΟΜΟΛΟ-HANDLE	1pc
27	UO160-01	ΕΞΤΡΑ ΚΛΕΙΔΩΜΑ-EXTRA LOCKING POINT	1pc
28	UO140-7SI	ΜΗΧΑΝΙΣΜΟΣ ΜΕ ΚΑΡΕ-MECHANISM FOR SQUARE HANDLE	1pc
29	UO510-3SI	ΚΙΤ ΑΝΟΙΓΟΜΕΝΟΥ-OPENING KIT	1 set
30	UO160-14	ΔΑΚΤΥΛΙΟΣ ΠΡΟΣΑΡΜΟΓΗΣ ΝΤΙΖΑΣ	1pc
31	UO310-3	ΠΡΟΣΘΗΚΗ ΨΑΛΙΔΙΟΥ-SCISSOR ADDITION	2pcs
32	UO310-4	ΨΑΛΙΔΙ-SCISSOR	1pc
33	UO350-02SI	ΑΝΤΙΚΡΙΣΜΑ-STRIKE PLATE	5pcs
34	UO510-01SI	ΚΙΤ ΑΝΟΙΓΟΜΕΝΟΥ ΦΥΛΛΟΥ-OPENING KIT	1 kit
35	UO310-05SI	ΕΝΙΣΧΥΤΗΣ ΦΥΛΛΟΥ-REINFORCEMENT	1 set
36	UO510-05SI	ΜΕΤΑΦΟΡΕΑΣ ΚΙΝΗΣΗΣ-TRANSMITION GEAR	1 pc
37	UO160-12SI	ΠΛΑΚΑΚΙ ΕΝΙΣΧΥΣΗΣ ΣΠΑΝΙΟΛΕΤΑΣ-CREMONE BOLT REINFORCEMENT	1 pc

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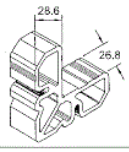
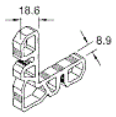
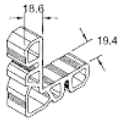
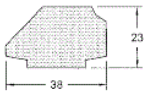
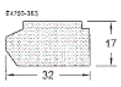
	Κωδικός | Code:	Περιγραφή: / Description:
	**EA450-140U**	ΧΥΤΗ ΓΩΝΙΑ ΕΥΘΥΓΡΑΜΜΙΣΗΣ 24.5 mm CAST ALIGNMENT CORNER 24.5 mm
	**EA450-144P**	ΓΩΝΙΑ ΕΥΘΥΓΡΑΜΜΙΣΗΣ ΓΙΑ ΠΡΟΦΙΛ ALIGNMENT CORNER FOR PROFILE P=ΠΛΑΣΤΙΚΗ-PLASTIC
	**EA450-367U**	ΓΩΝΙΑ ΓΩΝΙΑΣΤΡΑΣ 26.8 x 28.6 mm CRIMPING CORNER 26.8 x 28.6 mm
	**EA450-362U**	ΓΩΝΙΑ ΓΩΝΙΑΣΤΡΑΣ 8.9 x 18.6 mm CRIMPING CORNER 8.9 x 18.6 mm
	**EA450-366U**	ΓΩΝΙΑ ΓΩΝΙΑΣΤΡΑΣ 19.4 x 18.6 mm CRIMPING CORNER 19.4 x 18.6 mm
	**EA410-216I/U**	ΓΩΝΙΑ ΕΥΘΥΓΡΑΜΜΙΣΗΣ 16mm ALIGNMENT CORNER 16mm
	**E4750-384**	ΘΕΡΜΟΜΟΝΩΤΙΚΗ ΜΠΑΡΑ ΚΑΣΑΣ FRAME INSULATION BAR
	**E4750-383**	ΘΕΡΜΟΜΟΝΩΤΙΚΗ ΜΠΑΡΑ ΦΥΛΛΟΥ CASEMENT INSULATION BAR

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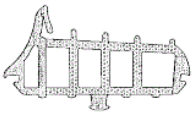
	Κωδικός | Code: **E2900-585**	Περιγραφή: **ΑΦΡΟΣ ΜΟΝΩΣΗΣ 35x10mm** Description: FOAM INSULATION 35x10mm
	Κωδικός | Code: **E2900-586**	Περιγραφή: **ΑΦΡΟΣ ΜΟΝΩΣΗΣ 19x5mm** Description: FOAM INSULATION 19x5mm
	Κωδικός | Code: **E4750-411**	Περιγραφή: **ΚΕΝΤΡΙΚΟ ΛΑΣΤΙΧΟ** Description: CENTRAL GASKET
	Κωδικός | Code: **E4750-421**	Περιγραφή: **ΑΦΡΟΣ ΘΕΡΜΟΜΟΝΩΣΗΣ** Description: INSULATION FOAM
	Κωδικός | Code: **EA410-408**	Περιγραφή: **ΛΑΣΤΙΧΟ ΚΑΣΑΣ-ΦΥΛΛΟΥ ΜΕ ΑΦΡΩΔΕΣ ΥΛΙΚΟ ΚΑΙ ΣΚΛΗΡΗ ΒΑΣΗ (EPDM)** Description: EPDM GASKET FOR FRAME-SASH WITH WEATHERSTRIP FOAM
	Κωδικός | Code: **EA570-448M**	Περιγραφή: **ΕΞΩΤΕΡΙΚΟ ΚΟΥΜΠΩΤΟ ΛΑΣΤΙΧΟ ΤΖΑΜΙΟΥ 3mm (EPDM)** Description: EXTERNAL GLAZING GASKET 3mm (EPDM) 70m
	Κωδικός | Code: **US521-03** (6-7 mm)	Περιγραφή: **ΛΑΣΤΙΧΟ ΣΦΗΝΑ ΤΖΑΜΙΟΥ** Description: GLAZING GASKET
	Κωδικός | Code: **EA410-874B**	Περιγραφή: **ΒΟΥΛΚΑΝΙΣΜΕΝΗ ΓΩΝΙΑ ΚΑΣΑΣ ΓΙΑ ΛΑΣΤΙΧΟ EA410-408** Description: VULCANIZED CORNER FOR FRAME FOR GASKET EA410-408

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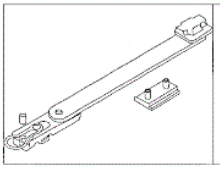
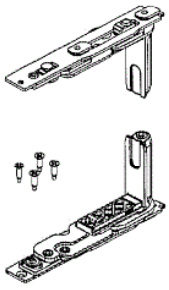
	Κωδικός | Code: **EA410-874M**	Περιγραφή: **ΒΟΥΛΚΑΝΙΣΜΕΝΗ ΓΩΝΙΑ ΦΥΛΛΟΥ ΓΙΑ ΛΑΣΤΙΧΟ EA410-408** Description: VULCANIZED CORNER FOR SASH FOR GASKET EA410-408
	Κωδικός | Code: **EA410-836M**	Περιγραφή: **ΤΑΠΑ ΝΕΡΟΧΥΤΗ** Description: END COVER FOR WATER DRAINAGE
	Κωδικός | Code: **E4750-571**	Περιγραφή **ΚΟΥΜΠΑΣΟ ΠΕΡΙΟΡΙΣΜΟΥ** Description LIMITY ARM
	Κωδικός | Code: **E4750-572**	Περιγραφή **ΚΟΥΜΠΑΣΟ ΜΕΝΤΕΣΕΣ** Description HINGE ARM CONFORME DOSSIER AI-04900-A COMPLIES TO FILE CLEB laboratoire inc. / CLEB laboratory Inc. 2018-10-15 VÉRIFIÉ / CHECKED

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W4750 thermal opening system