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

Product Manufacturer: ALUMINCO S.A
Inofita, Viotia
Greece
32011

Report no.: **AI-04639-B1 Rev.1**

Product type: Aluminum dual-action composite window

Product series/model: W450

TEST REPORT SUMMARY	
Primary product designator	**Class CW – PG40 : Size tested 2245 x 1735 mm* (~88 x 68 in)* - Type DAW**
Optional secondary designator	**Positive Design pressure (DP) = 1920 Pa *(~40 psf)*** **Negative design pressure (DP) = -1920 Pa *(~-40 psf)*** **Water penetration resistance test pressure = 510 Pa *(~10.50 psf)* or 720 Pa *(~15 psf)*** **Canadian air infiltration / exfiltration level = A3 Level**
CAN/CSA A440-00 ratings	***A3/F / B5* or *B7 / C3 / F20 / I:50 (standard) or I:52 with C-Shaped aluminum sheet at the interior sill***
Primary product designator	**Class CW – PG55 : Size tested 2245 x 1735 mm* (~88 x 68 in)* - Type DAW**
Optional secondary designator	**Positive Design pressure (DP) = 2640 Pa *(~55 psf)*** **Negative design pressure (DP) = -2640 Pa *(~-55 psf)*** **Water penetration resistance test pressure = 510 Pa *(~10.50 psf)* or 720 Pa *(~15 psf)*** **Canadian air infiltration / exfiltration level = A3 Level**
***CAN/CSA A440-00 ratings*:** **Option (structural test):**	***A3/F / B5* or *B7 / C4 / F20 / I:50 (standard) or I:52 with C-Shaped aluminum sheet at the interior sill*** **External reinforcement added to the vertical mullion**

See CLEB laboratory Inc. complete report AI-04639-B1 for test specimen description, detailed test results and any alterations made to the product to achieve the results presented in the tables above.
** Downsized - See report AI-04639-A1 for gateway-sized test specimen performance for CW Classification.*

Test completion date: 2016-11-28
Report date: 2017-12-21
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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: W450

Product type: Aluminum dual-action composite window

Operation mode: Inward tilt and turn

Configuration: One (1) operable vent with three (3) fixed lites; Intergral mullions within a common frame.

Drawings (Appendix): AI-04639-B1 DUAL-ACTION COMPOSITE WINDOW (6 Drawings); Bill of Materials, AI-04639-B1 Comments, condensation resistance temperature distribution drawings AT-00570 and AT-00571.

Date(s) of sample reception: 2016-10-24

Date(s) of testing: 2016-10-24, 2016-10-25, 2016-11-04, 2016-11-28

*For items marked with *, please refer to Section 3.0, for detailed alterations.*

Test specimen installation (test buck):

- Material: Pine (~2" x 8")
- R.O. clearances: None
- Fastening: Sill & head (fixed over fixed portion): (3) # 10 x 2-1/2" screws – (1) at 200 mm (7.87") from each corner (1) at the center. Sill & head (fixed over operable portion): (2) # 10 x 2-1/2" screws – (1) at 100 mm (3.94") from each corner. Jambs (upper fixed portions): (1) at 240 mm (9.45") from each top corner. Jambs (lower fixed ad operable portions): (3) # 10 x 2-1/2" screws; at 710 mm (27.95"), 1110 mm (43.70") and 1555 mm (61.22") from the top frame corner.
- Sealing detail: Sealant between test buck and specimen on exterior perimeter only

Frame:

- Material: Extruded Aluminum
- Joinery type: Frame: Mechanical assembly (mitre-cut & crimped); Mullions: mechanical assembly with screws (mullion-to-mullion and mullion-to-frame)
- Reinforcement: External aluminum rectangular extrusion 30 mm W x 50 mm D; (4) #8 x 1-1/4" pan head screws through the interior of the operable vent frame portion.See drawing in the appendix.
- Weatherstripping: See drawings in the appendix
- Sealant: Sealant at all mechanical assemblies. See drawings in the appendix for additional comments.
- Drainage: See drawings in the appendix
- Glazing: Double-glazed sealed unit (29.5 mm)
  Glass thickness: 6.0 mm / Air space gap: 17.5 mm
  Type of glass: Annealed and Tempered with LowE
  Type of spacer: Plastic
  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) under each glass unit Daylight openings: 595 mm W x 305 mm H; 1440 mm W x 305 mm H; 1440 mm W x 1215 mm H.
-	Frame depth:	130 mm (5.12")
-	Overall dimensions:	2245 mm (88.39") W x 1735 mm (68.31") H

Sash:

-	Material:	Extruded Aluminum
-	Joinery type:	Mechanical assembly (crimped)
-	Reinforcement:	See drawing(s) Appendix
-	Weatherstripping:	See drawing(s) Appendix
-	Sealant:	Sealant at all mechanical assemblies. See drawings in the appendix for additional comments.
-	Drainage:	See drawing(s) Appendix
-	Glazing:	Double glazed sealed unit (29.5 mm) Glass thickness: 6.0 mm / Air space gap: 17.5 mm Type of glass: Annealed and Tempered with LowE Type of spacer: Plastic 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: (1) per diagonally-opposed corner (lower pivot side and upper handle side and (2) additional per stile. Daylight opening: 622 mm W x 1245 mm H
-	Overall dimensions:	665 mm (26.18") W x 1287 mm (50.67") H

Hardware (sash): See drawings in the appendix

Screen: No insect screen was provided with the test specimen.

3.0 ALTERATION(S)

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

#1: Water resistance test (510 Pa):

The vent slot on the jamb was enlarged to Ø5 mm x 30 mm for the operable sash section.
Cyanoacrylate (CA) cement was applied to the central gasket moulded corners for the operable sash (these were detached).

#2: Water resistance test (720 Pa):

In addition to alteration #1, the external vertical gaskets on the jambs for the operable vent were notched 25 mm (1") at the upper end at each side.

#3: Uniform load deflection and structural tests:

An exterior rectangular aluminum reinforcement profile (50 mm D x 30 mm W) was added full height on the vertical mullion, on the operable sash side.

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, 2016.

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 @ 1.6 psf)* AW Classification: Q_{inf} ≤0.5 l/s-m² @ 300 Pa *(~ ≤ 0.1 cfm/ft² @ 6.2 psf)* **Canadian air infiltration/exfiltration level** R – LC – CW Classifications: A2: Q ≤ 1.5 l/s-m² @ 75 Pa *(~ ≤ 0.3 cfm/ft² @ 1.6 psf)* A3: Q ≤ 0.5 l/s-m² @ 75 Pa *(~ ≤ 0.1 cfm/ft² @ 1.6 psf)* AW Classification: A2: Q ≤ 0.5 l/s-m² @ 300 Pa *(~ ≤ 0.1 cfm/ft² @ 6.2 psf)* A3: Q ≤ 0.5 l/s-m² @ 300 Pa *(~ ≤ 0.1 cfm/ft² @ 6.2 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 CW – U.S. Requirements** **A3 Level –Canadian Requirements** Surface: 3.90 m² *(~41.93 ft²)* Q_{inf} = 0.29 l/s-m² @ 75 Pa *(~0.06 cfm/ft² @ 1.6 psf)* Q_{exf} = 0.31 l/s-m² @ 75 Pa *(~0.06 cfm/ft² @ 1.6 psf)*
Water Resistance Test No water infiltration under a minimum pressure differential: Class R: 140 Pa *(~ 2.9 psf)* Class LC: 180 Pa *(~ 3.75 psf)* Class CW: 220 Pa *(~ 4.50 psf)* Class AW: 390 Pa *(~ 8.00 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)*	*Test result #1 -see alteration #1 in Section 3.0* **Class CW – 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: **510 Pa** *(~ 10.50 psf)* - U.S. & Canadian Requirements *Test result #2 - see alteration #2 in Section 3.0* **Class CW – 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** *(~12.00 psf)* - Canadian and U.S. requirements **720 Pa** *(~15.00 psf)* - Canadian requirements only
Uniform Load Deflection Test Member deflection at a minimum design pressure (DP) and at optional DP: Class R: 720 Pa (~15 psf) – Reported only Class LC: 1200 Pa (~25 psf) – Reported only *Class* CW: Limited to L/175 at 1440 Pa *(~30 psf)* *Class* AW: Limited to L/175 at 1920 Pa *(~40 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.4* *ASTM-E330-02 (2010)*	*Test result #1- no reinforcement* **DP40 – Class CW** Net deflection measured (horizontal mullion): 3.59 mm @ –1440 Pa *(~0.14" @ –30 psf)* 3.73 mm @ +1440 Pa *(~0.15" @ +30 psf)* 4.83 mm @ –1920 Pa *(~0.19" @ –40 psf)* 5.11 mm @ +1920 Pa *(~0.20" @ +40 psf)* Allowed ≤ 8.51 mm *(0.34")* Net deflection measured (vertical mullion): 5.73 mm @ –1440 Pa *(~0.23" @ –30 psf)* 6.21 mm @ +1440 Pa *(~0.24" @ +30 psf)* 7.88 mm @ –1920 Pa *(~0.31" @ –40 psf)* 8.65 mm @ +1920 Pa *(~0.34" @ +40 psf)* Allowed ≤ 9.49 mm *(0.37")*

	Test result #2 - see alteration #3 in Section 3.0 **DP55 – Class CW** Net deflection measured (horizontal mullion): 3.59 mm @ –1440 Pa (*~0.14" @ –30 psf*) 3.73 mm @ +1440 Pa (*~0.15" @ +30 psf*) 7.07 mm @ –2640 Pa (*~0.28" @ –55 psf*) 7.10 mm @ +2640 Pa (*~0.28" @ +55 psf*) Allowed ≤ 8.51 mm (*0.34"*) Net deflection measured (reinforced vertical mullion): 4.40 mm @ –1440 Pa (*~0.17" @ –30 psf*) 4.48 mm @ +1440 Pa (*~0.18" @ +30 psf*) 8.89 mm @ –2640 Pa (*~0.35" @ –55 psf*) 8.73 mm @ +2640 Pa (*~0.34" @ +55 psf*) Allowed ≤ 9.49 mm (*0.37"*)
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 *(~22.5 psf)* *Class* LC: ≤ 0.4% (L) at 1800 Pa *(~37.5 psf)* *Class* CW: ≤ 0.3% (L) at 2160 Pa *(~45 psf)* *Class* AW: ≤ 0.2% (L) at 2880 Pa *(~60 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.4* *ASTM-E330-02 (2010)*	*Test result #1- no reinforcement* **STP 40 – Class CW** Permanent deformation measured (horizontal mullion): 0.05 mm @ –2160 Pa (*~0.00" @ –45 psf*) 0.06 mm @ +2160 Pa (*~0.00" @ +45 psf*) 0.12 mm @ –2880 Pa (*~0.00" @ –60 psf*) 0.14 mm @ +2880 Pa (*~0.01" @ +60 psf*) Allowed ≤ 4.47 mm (*~0.18"*) Permanent deformation measured (vertical mullion): 0.11 mm @ –2160 Pa (*~0.00" @ –45 psf*) 0.13 mm @ +2160 Pa (*~0.01" @ +45 psf*) 0.25 mm @ –2880 Pa (*~0.01" @ –60 psf*) 0.29 mm @ +2880 Pa (*~0.01" @ +60 psf*) Allowed ≤ 4.98 mm (*~0.20"*)
	Test result #2- see alteration #3 in Section 3.0 **STP 55 – Class CW** Permanent deformation measured (horizontal mullion): 0.05 mm @ –2160 Pa (*~0.00" @ –45 psf*) 0.03 mm @ +2160 Pa (*~0.00" @ +45 psf*) 0.09 mm @ –3960 Pa (*~0.00" @ –82.5 psf*) 0.21 mm @ +3960 Pa (*~0.01" @ +82.5 psf*) Allowed ≤ 4.47 mm (*~0.18"*) Permanent deformation measured (reinforced vertical mullion): 0.08 mm @ –2160 Pa (*~0.00" @ –45 psf*) 0.07 mm @ +2160 Pa (*~0.00" @ +45 psf*) 0.18 mm @ –3960 Pa (*~0.01" @ –82.5 psf*) 0.27 mm @ +3960 Pa (*~0.01" @ +82.5 psf*) Allowed ≤ 4.98 mm (*~0.20"*)
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 40** T_1=10 min., L_1=1334 N *(~300 lbf)*, L_2=667 N *(~150 lbf)* & L_3=267 N *(~60 lbf)*

Sash/Leaf Concentrated Load Test on Latch Rail Dual-Action Window - Maximum deflection: Class R: 1.5 mm (0.06") under a perpendicular load of 135 N *(~30 lbf)* and 1.5 mm (0.06") under a parallel load of 135 N *(~30 lbf)*. Class LC: 1.5 mm (0.06") under a perpendicular load of 135 N *(~30 lbf)* and 2.3 mm (0.09") under a parallel load of 180 N *(~40 lbf)*. Class CW: 1.5 mm (0.06") under a perpendicular load of 135 N *(~30 lbf)* and 3.3 mm (0.13") under a parallel load of 230 N *(~50 lbf)*. Class AW: 1.5 mm (0.06") under a perpendicular load of 270 N *(~60 lbf)* and 6.4 mm (0.25") under a parallel load of 400 N *(~90 lbf)*. *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.6.4.3*	**Passed** **Class CW** Perpendicular deflection under a load 135 N *(~30 lbf):* Allowed = 1.5 mm *(0.06")* Measured = 0.27 mm *(0.01")* Parallel deflection under a load of 230 N *(~50 lbf):* Allowed = 3.3 mm *(0.13")* Measured = 0.43 mm *(0.02")*
Stabilizing Arm Load Test Vertical concentrated load apply on a complete assembled window for 10 sec shall not damage the frame or the sash or any hardware components : Class R: 445 N *(~100 lbf)* at sash corner and 890 N *(~200 lbf)* at center of top rail. Class LC & CW: 890 N *(~200 lbf)* at sash corner and 1780 N *(~400 lbf)* at center of top rail. *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.6.5.3*	**Passed** **Class CW** After loads removal of 890 N *(~200 lbf)* at sash corner and 1780 N *(~400 lbf)* at center of top rail, the window presents no damage and functions normally.
Welded Corner Test When loaded to failure, the break shall not extend along the entire weld line. *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.6*	**N/A** Not applicable for mechanical assemblies.
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.
Condensation resistance Canadian requirements (optional). *CAN/CSA-A440.2-14*	**I:50** *Standard* I_g (Glass index): 63 I_f (Frame index): 50 *The surface temperatures distribution on the warm side of the specimen is shown in Appendix B.*
	I:52 *With the addition of an aluminum "C-Shape" at the sill on the interior side* I_g (Glass index): 63 I_f (Frame index): 52 *The surface temperatures distribution on the warm side of the specimen is shown in Appendix B.*

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 (NAFS 2011)* & *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.

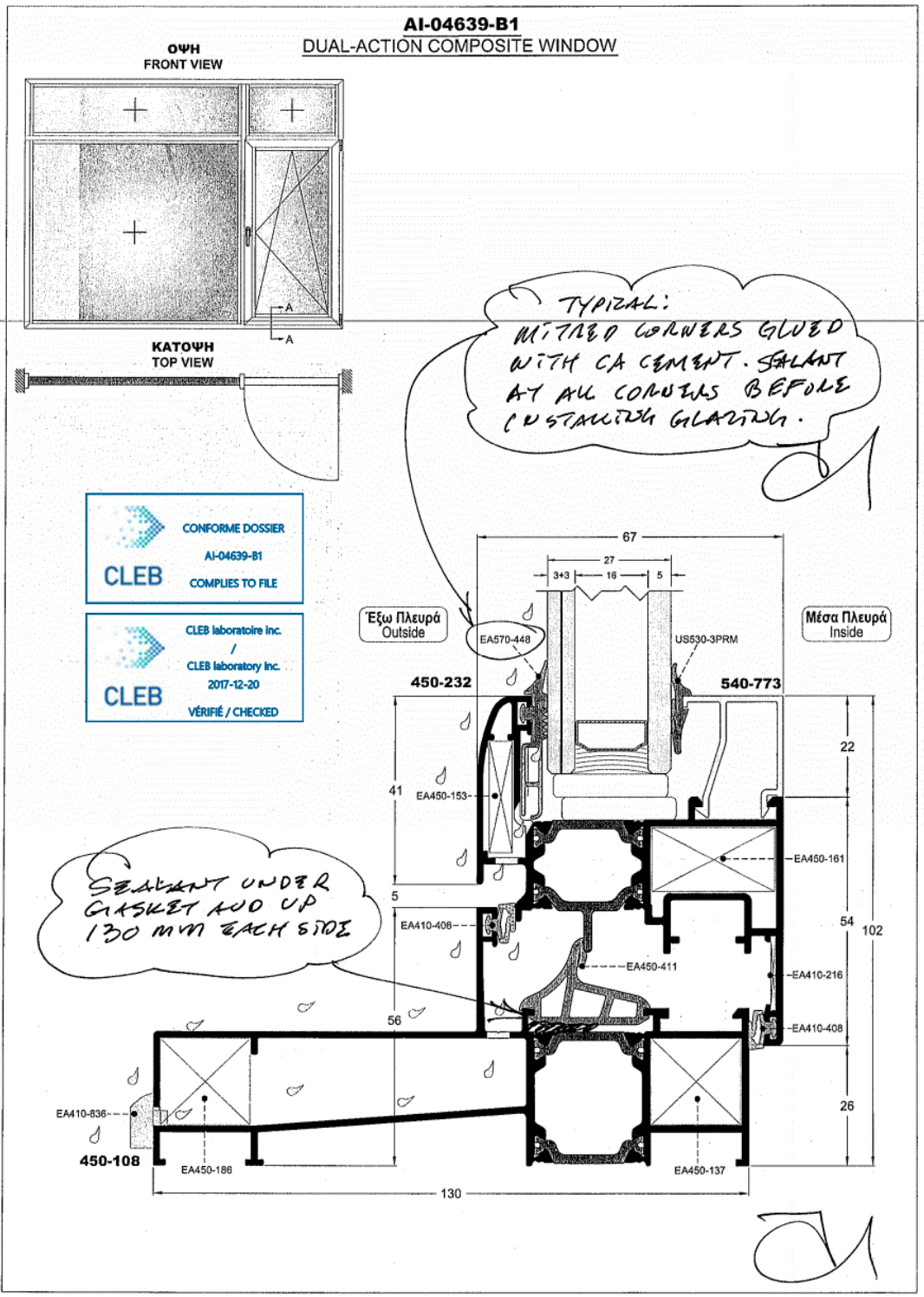
Note on the Limitation of Liability:
Due care was taken in performing the testing sequence and in reporting the results related to the test specimen received for evaluation. Through acceptance of this report, the Client agrees to exempt CLEB Laboratory Inc. employees and owners from all liability claims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

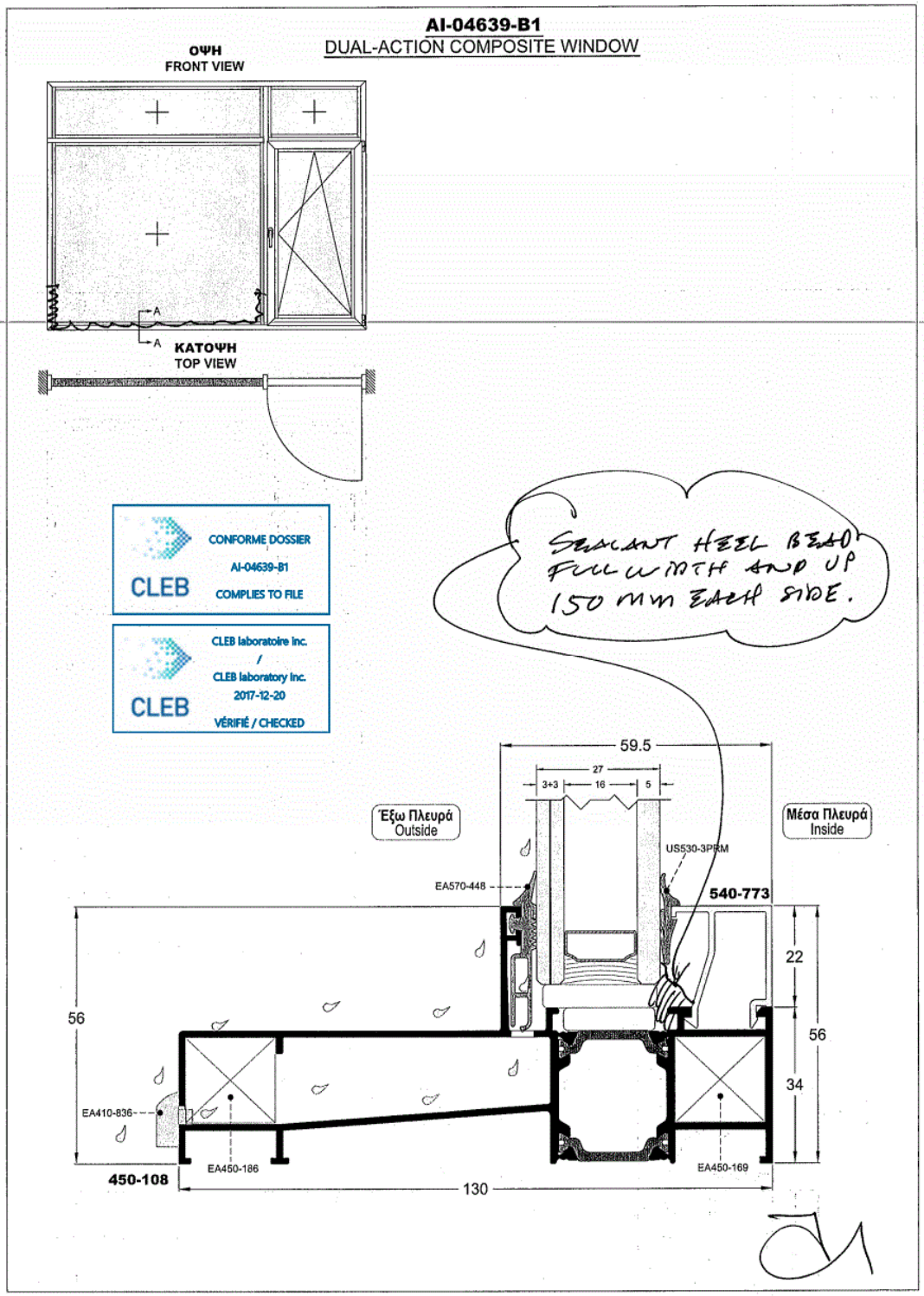
7.0 REVISION LOG

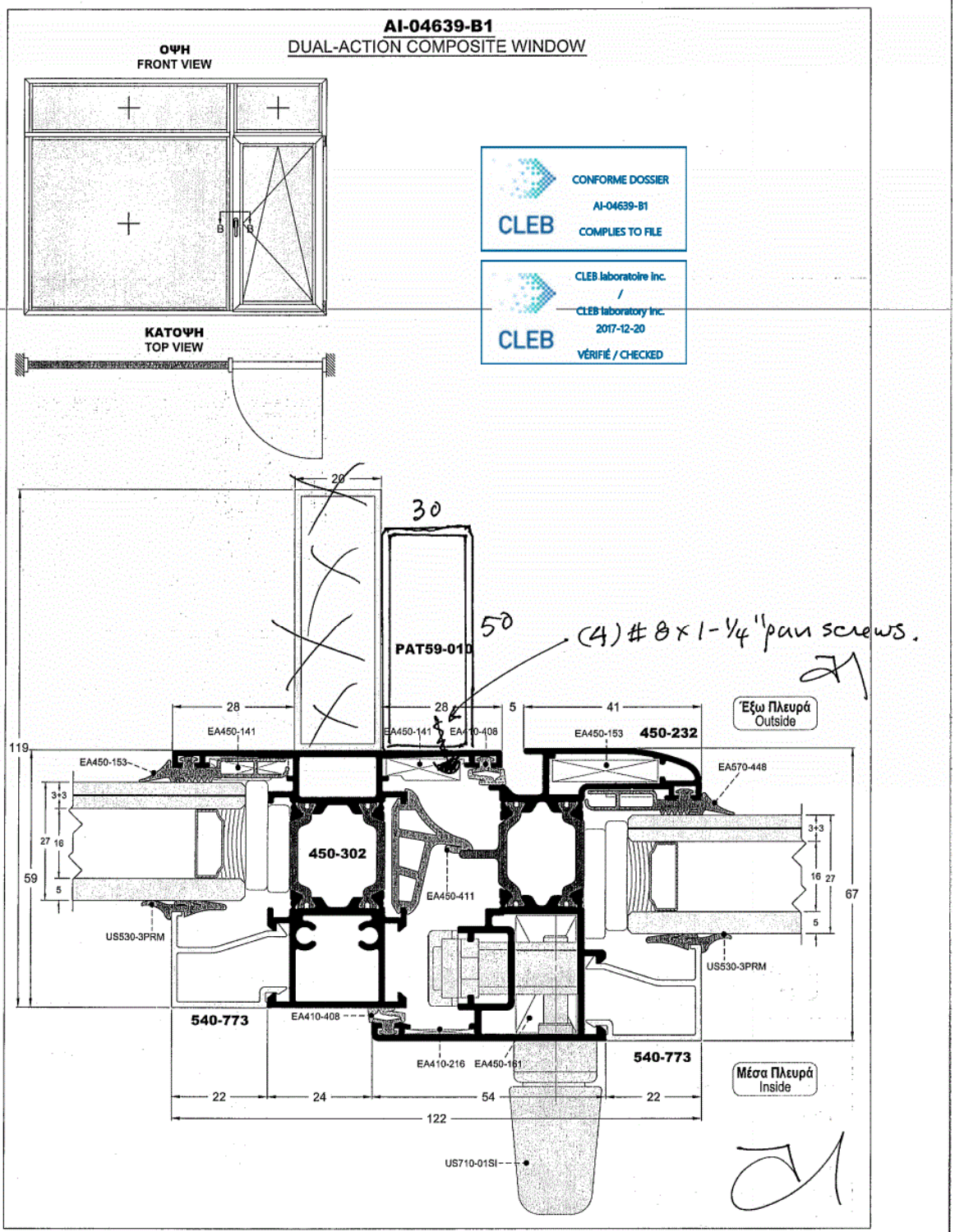
Rev. #	Date	Page(s)	Revision(s)
1	2017-12-22	Test results	Optional test performance revised to reflect the final performance achieved after alterations and condensation test.

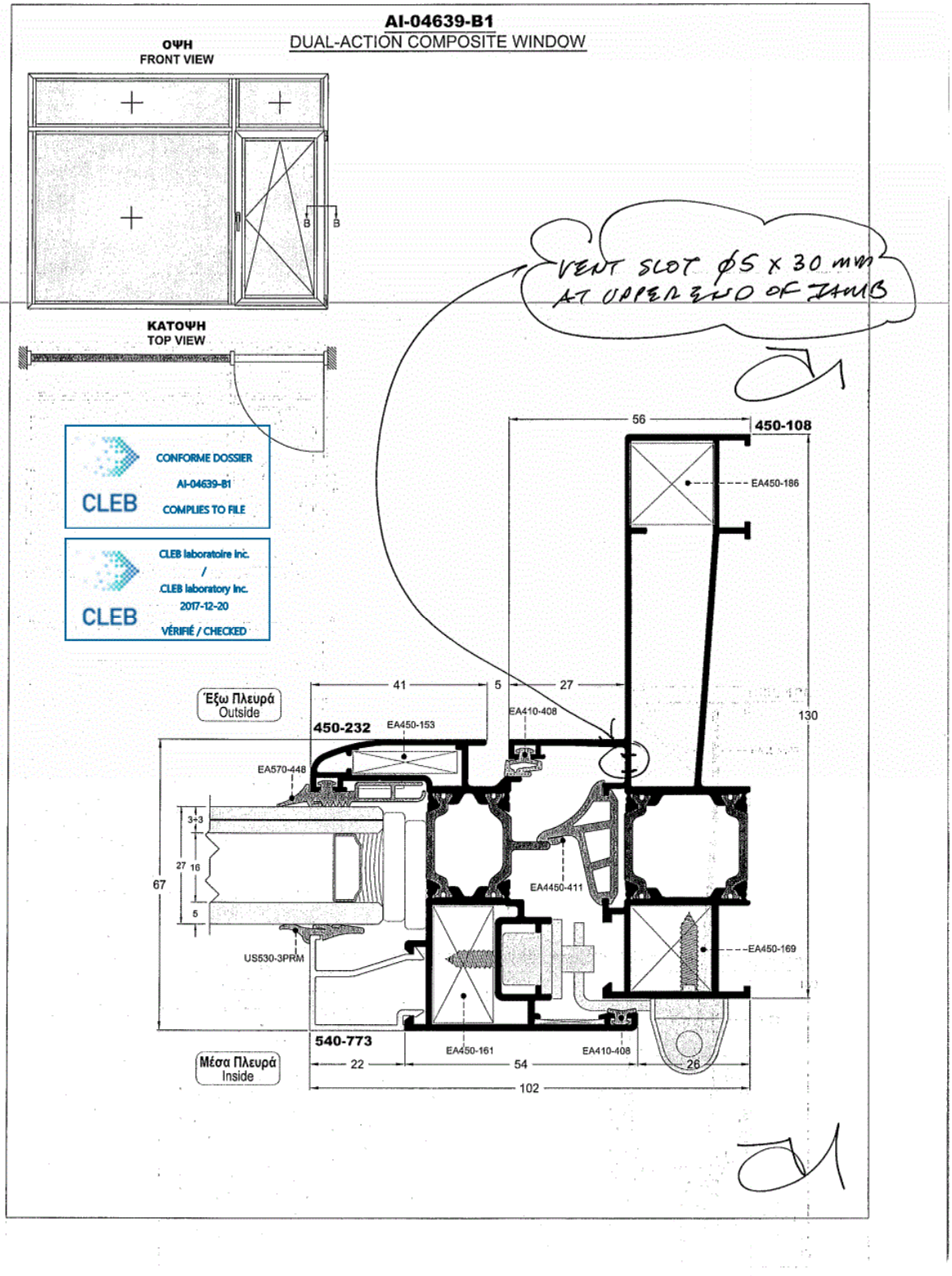
APPENDIX A

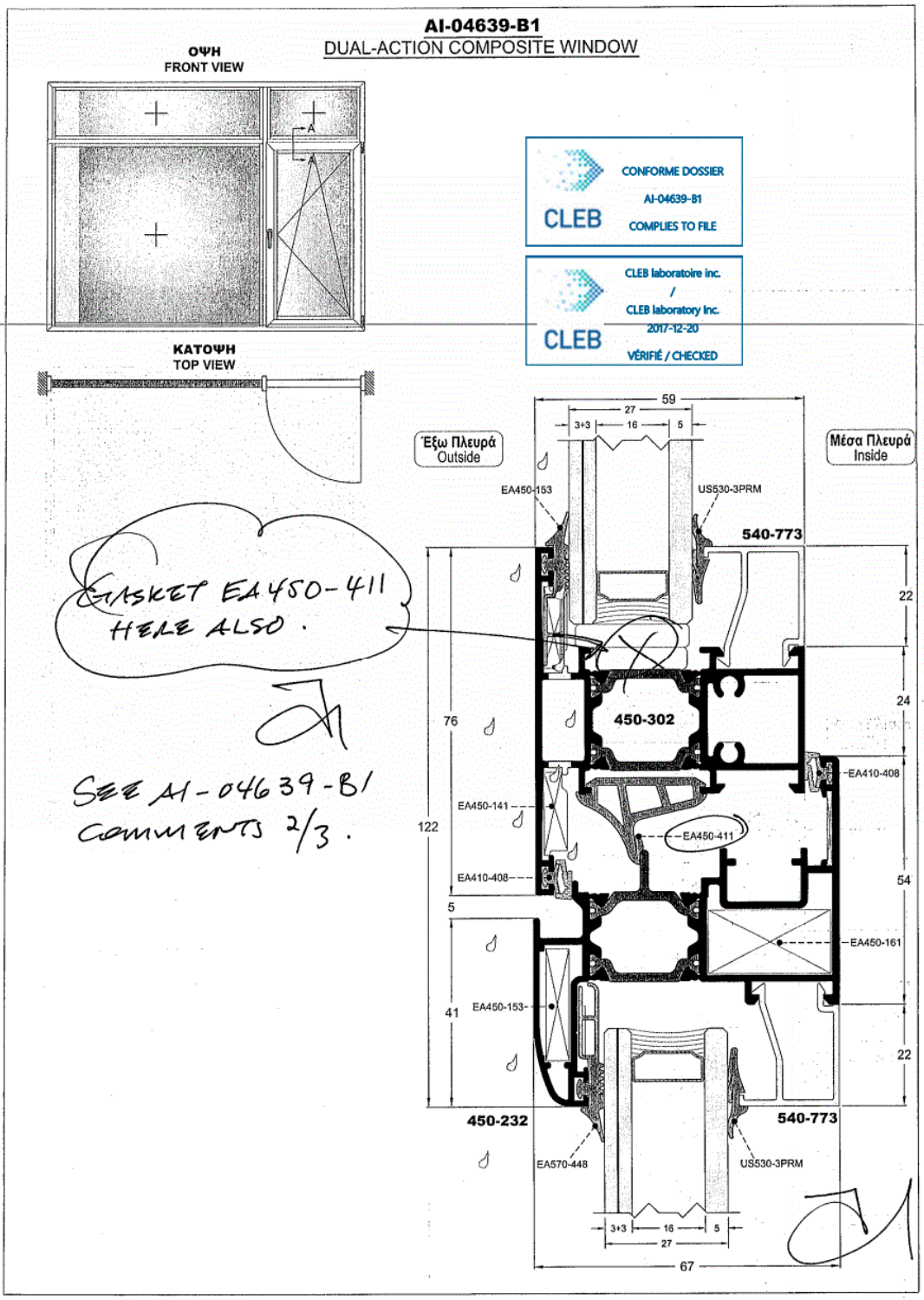
DRAWINGS, BILL OF MATERIALS, SEALANT & DRAINAGE DETAILS

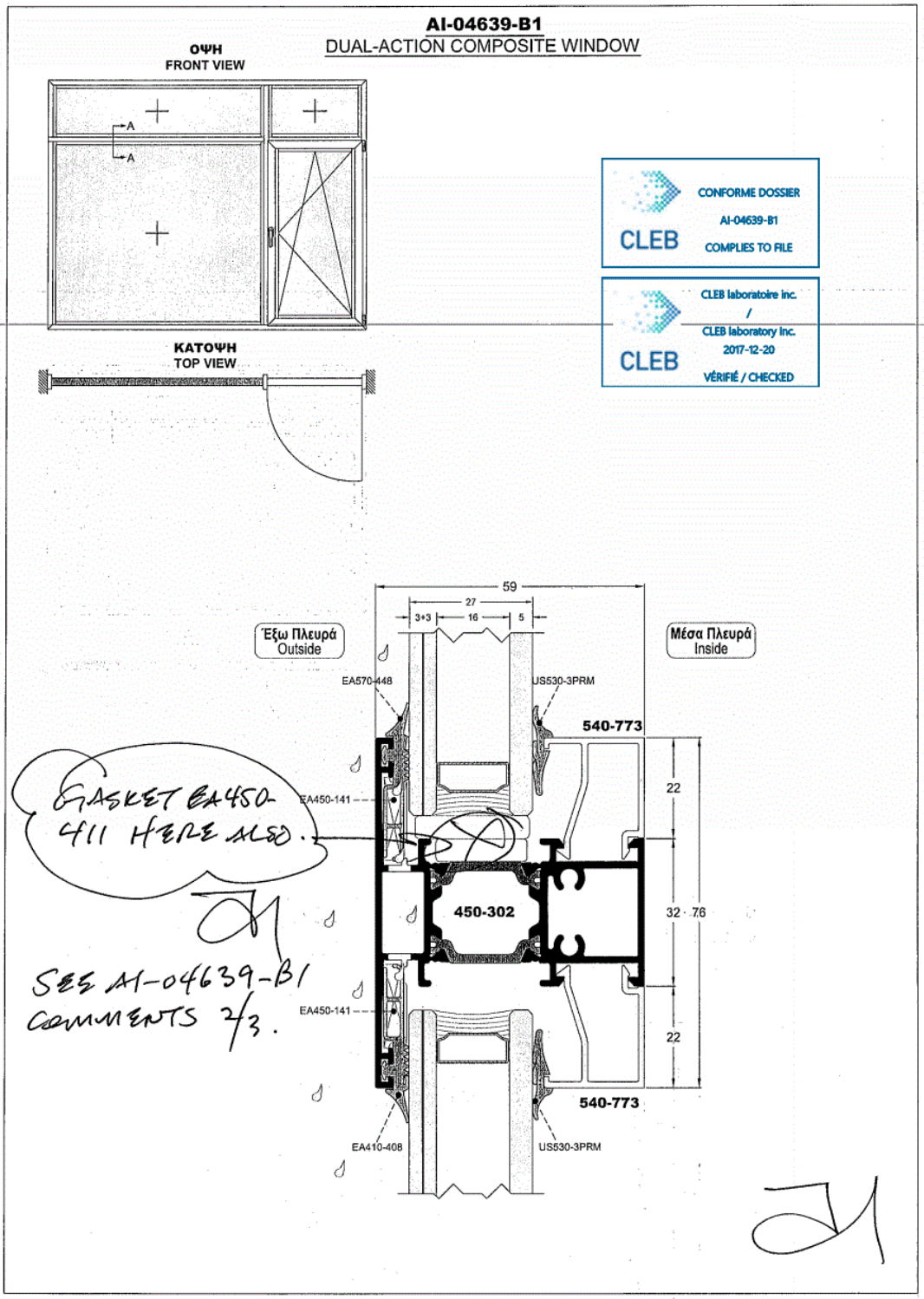


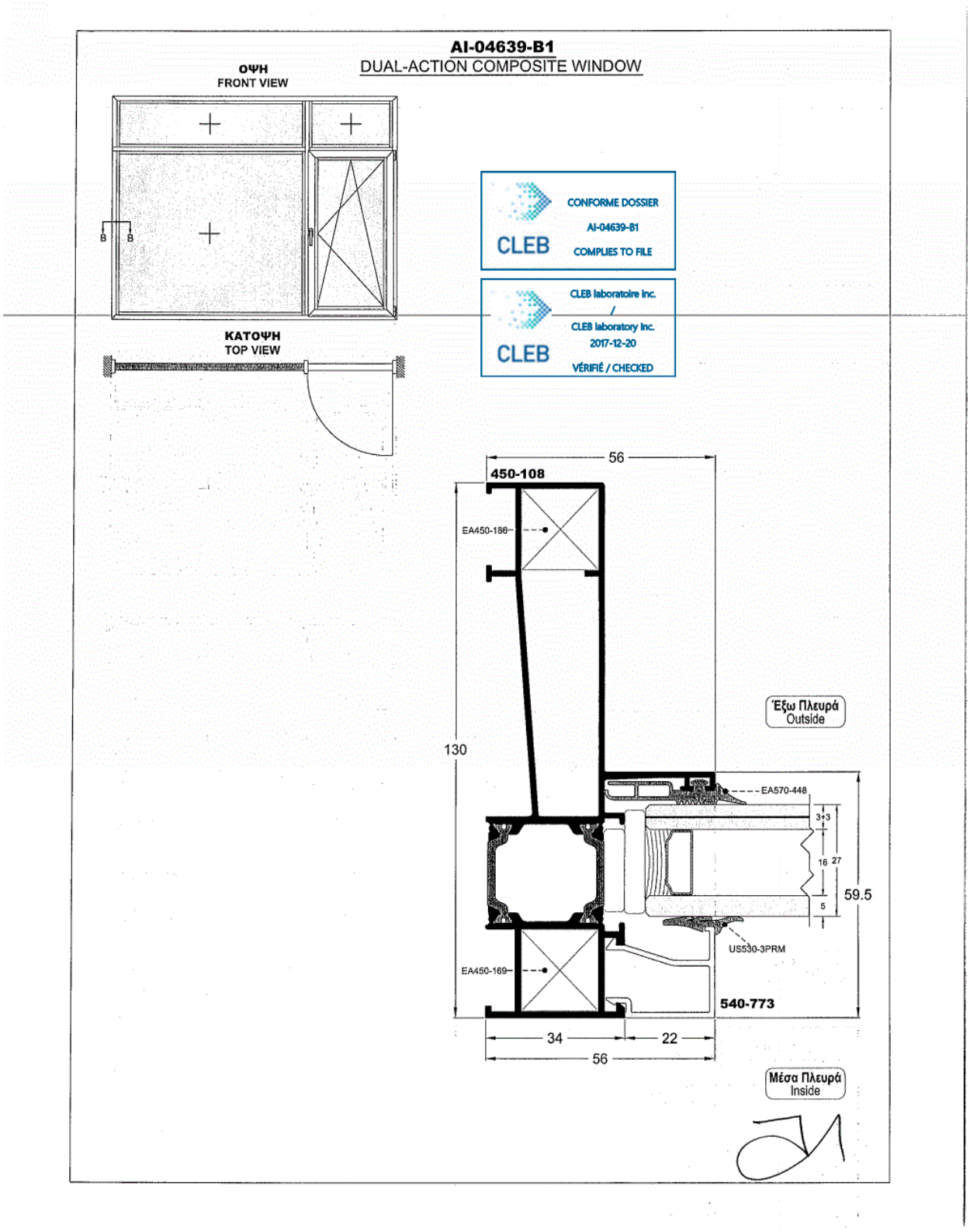




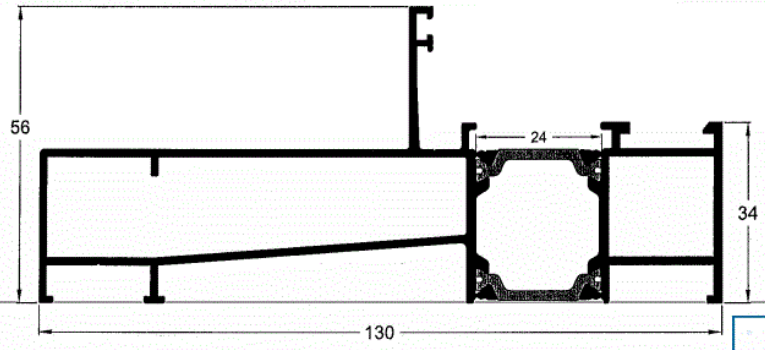








AI-04639-B1
DUAL-ACTION COMPOSITE WINDOW



Κωδικός | Code	450-108
Βάρος | Weight	1796 gr/m
Περιγραφή	Κάσα
Description	Frame

CONFORME DOSSIER
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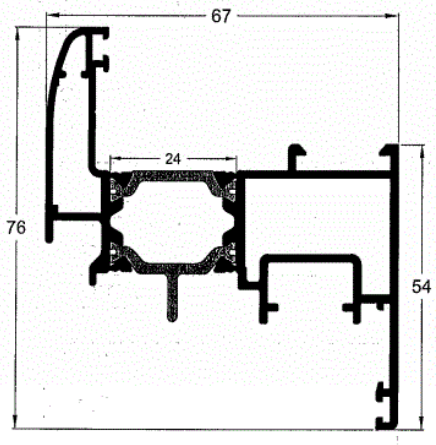
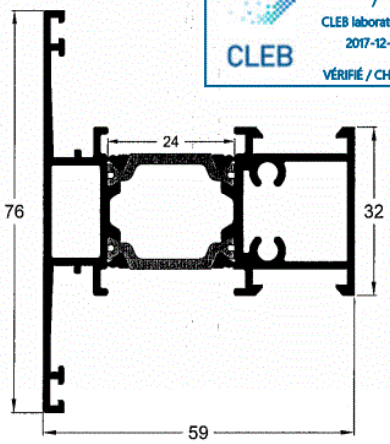
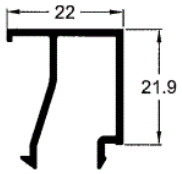


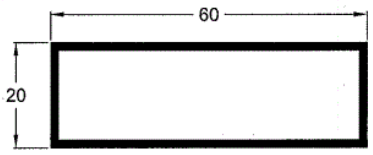
Κωδικός | Code	450-232
Βάρος | Weight	1414 gr/m
Περιγραφή	Φύλλο (ALU 16)
Description	Casement (ALU 16)



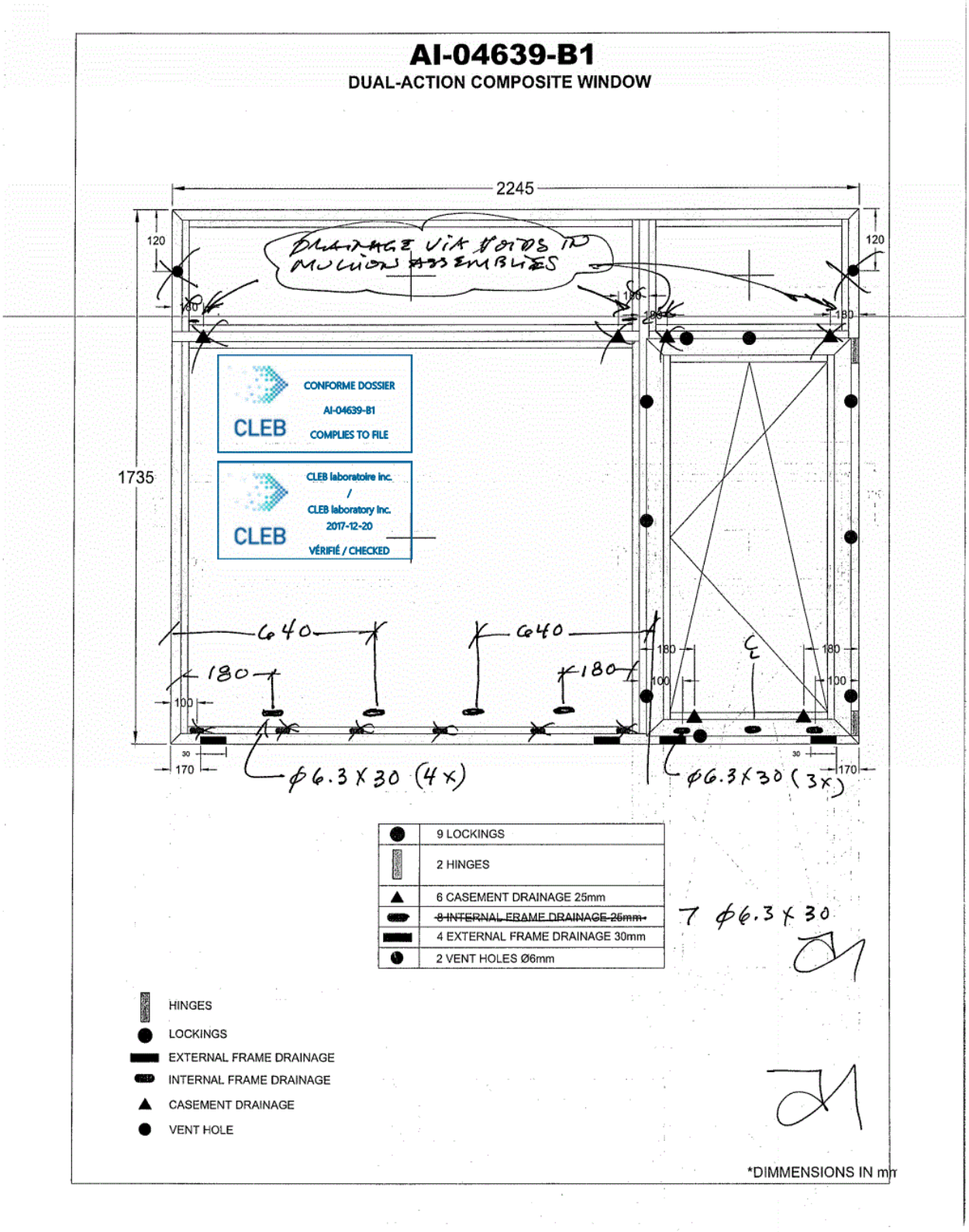
Κωδικός | Code	450-302
Βάρος | Weight	1405 gr/m
Περιγραφή	Χώρισμα φύλλου-κάσας
Description	Transom for sash-frame



Κωδικός | Code	540-773
Βάρος | Weight	275 gr/m
Περιγραφή	Πηχάκι
Description	Bead



Κωδικός | Code	PAT59-010
Βάρος | Weight	624 gr/m
Περιγραφή	Καρέ
Description	Square



Build of materials (BOM):

AI-04639-A1 & AI-04639-B1			
A/A	Code	Description	Material
1	450-108	Frame profile	15m
2	450-232	Casement profile	10m
3	450-302	Transom profile	4m
4	540-771	Bead profile	21m
5	EA450-153	Extra crimping corner for casement	8pcs
6	EA450-186	Crimping corner for frame	8pcs
7	EA450-169	Crimping corner for frame	8pcs
8	EA450-161	Crimping corner for casement	8pcs
9	EA410-216	Alignment corner	8pcs
10	EA450-141L/R	Transom connector	8pcs
11	EA450-875	Vulcanized epdm corner for central gasket	12pcs
12	EA450-874M	Vulcanized epdm corner for sash gasket	8pcs
13	EA410-874B	Vulcanized epdm corner for frame gasket	12pcs
14	US530-3PRM	Glazing gasket	9m
15	EA570-448M	External epdm glazing gasket	9m
16	EA410-408M	Epdm gasket for sash & frame with weatherstrips foam	17m
9m	EA450-411M	Epdm central gasket	9m
18	US710-01IA	Handle for perimetrical mechanism Siegenia	2pcs
19	Favorit Siegenia	Perimetric mechanism ALU16	-

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AI-04639-B1
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2017-12-20
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W450 A1

AL450 DUAL-ACTION COMPOSITE WINDOW

Manufacturer	ALUMINCO S.A, Inofita Viotias
Designation / Type / Item No.	AL450/ ALU16/ AI-04639-B1
Material	Aluminium profiles with thermal break
Type of opening	Turn/ tilt and turn
Opening directions	Active casement: right inwards opening and fixed windows
Frame member	Further details are given in drawings
Designation / Type / Item No.	450-108
Overall dimensions in mm	2245 x 1735mm
Type of joint	Mitred, compressed by using crimping corner EA450-186 and EA450-169 and sealed with pourable sealant
Casement member	Further details are given in drawings
Designation / Type / Item No.	450-232
Overall dimensions in mm	Active casement: 1748 x 1148mm
Type of joint	Mitred, internal with crimping corner EA450-161, crimping corner EA450-153 and alignment corner EA410-216
Supplementary profile	Further details are given in drawings
Designation / Type / Item No.	450-302
Overall dimensions in mm	1667x2211mm
Type of joint	Butt jointeded and bonded
Additional parts	Transom connection EA450-141L/R with casement
Supplementary profile	Further details are given in drawings
Designation / Type / Item No.	PAT59-010
Overall dimensions in mm	1667mm
Type of joint	Butt jointed and bonded
Additional parts	-
Rebate design	
Rebate drainage	In frame member 4 slots 6x30mm to the outside with cover caps EA410-836M In frame member 8 slots 6X25mm to the inside
Rebate seal external	EA410-408M

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Material	EPDM with foam
Corner design	At top and bottom butt jointed and bonded on end caps EPDM corner EA410-874B & EA410-874M
Centre seal	EA450-411
Material	EPDM
Corner design	At top and bottom in each case butt to overlap end caps and bonded using EPDM corner EA450-875M

IGU double	
Thickness in mm	27
Configuration in mm	Float 6/ SZR16/ Float 5
Incorporation on infill panel	
Vapour pressure equalisation	2 slots 6x25mm at the bottom of the casement 2 slots 6x25mm at the top of the casement, and 2 slots 6x25mm at the top of fixed window. 1 drills Ø6mm at the top of each side of the frame
Glazing gasket external	
Designation / Type / Item No.	EA570-448M
Material	Sealing material-EPDM
Corner design	Continuous, at top centre mitred and bonded
Glazing gasket internal	
Designation / Type / Item No.	US530-3PRM
Material	Sealing material-EPDM
Corner design	Continuous, at top centre mitred and bonded
Glazing bead	
Designation / Type / Item No.	540-773
Type of joint	Butt-jointed
Fixing method	Clamped
Tilt and turn hardware	
Manufacturer	Siegenia
Designation / Type / Item No.	Favorit ALU16
Type of opening turn/ tilt and turn	Turn/ tilt and turn
Hinges/Bearings	Active casement: 2 hinges, 1 tilt mechanism
Number of locks	Active casement: 9 lockings

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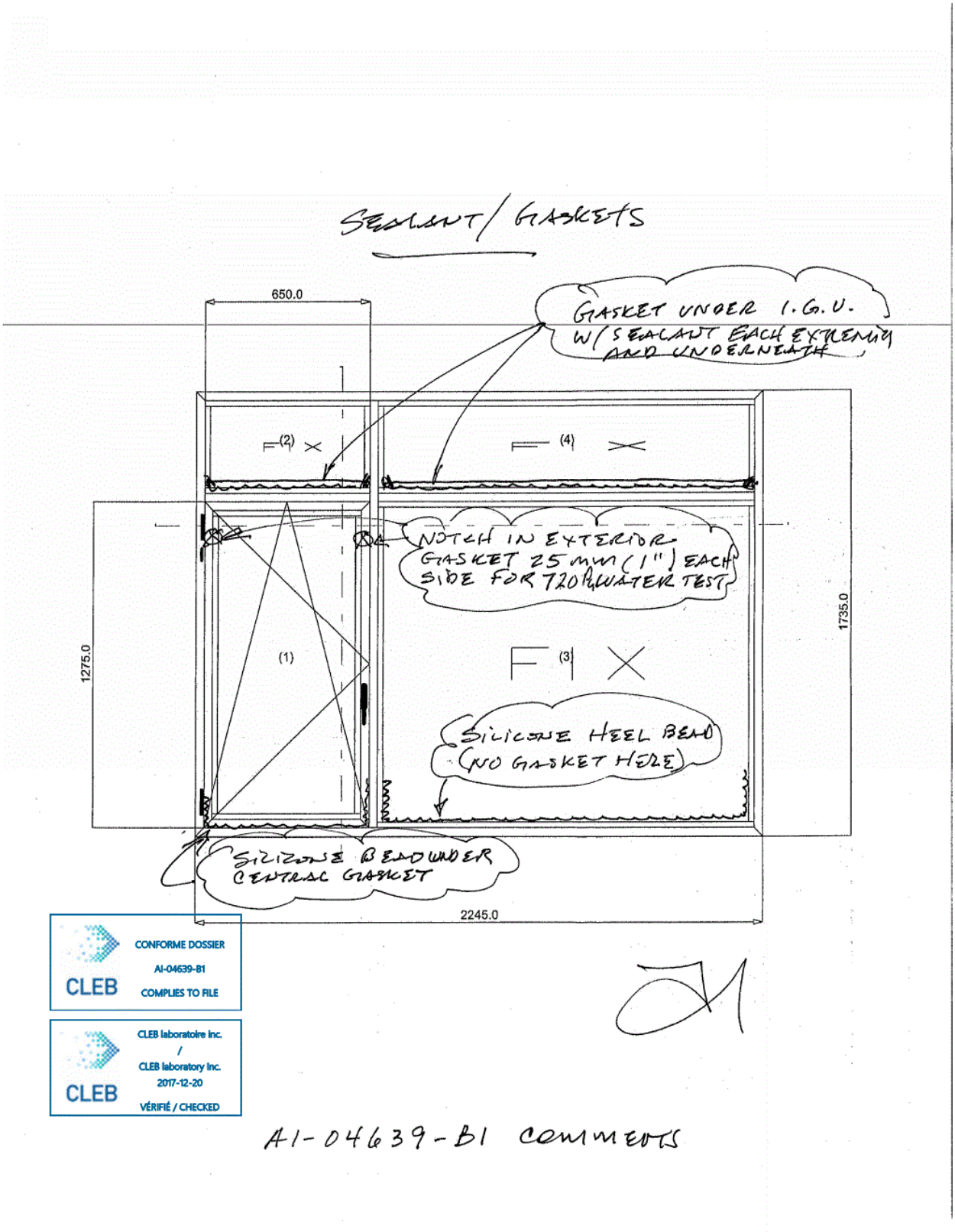

APPENDIX B

TEMPERATURES DISTIBUTION