

TEST REPORT No. 423018/17805/CPR

issued by Istituto Giordano in the capacity of notified test laboratory (No. 0407) pursuant to Regulation 305/2011/EU of the European Parliament and of the Council of 09/03/2011

Customer

EVEREST Sh.P.K.

Bulevardi Blu, 544 - 1030 KAMËZ (TIRANE) - Albania

Item#

window named "EV HYBRID"

Activity



environmental and mechanical tests with reference to the harmonized standard UNI EN 14351-1:2016

Results

Activity	Test standard	Classification standard	Class
Air permeability under positive pressure	related to overall area	UNI EN 1026:2016	UNI EN 12207:2000/ EC 1-2007
	related to openable joint length		
	final		
Air permeability under negative pressure	related to overall area	UNI EN 1026:2016	UNI EN 12207:2000/ EC 1-2007
	related to openable joint length		
	final		
Air permeability	UNI EN 1026:2016	UNI EN 14351-1:2016	4
Watertightness	UNI EN 1027:2016	UNI EN 12208:2000/ EC 1-2007	E1350
Resistance to wind load	UNI EN 12211:2016	UNI EN 12210:2016	C4
Verification of the load-bearing capacity of safety devices/static torsion	UNI EN 14609:2004	UNI EN 14351-1:2016	pass

(#) according to that stated by the customer

Bellaria-Igea Marina - Italy, 21 November 2024

Chief Executive Officer

Order:
102801

Item origin:
sampled and supplied by the customer

Identification of item received:
2024/3364 dated 6 November 2024

Activity date:
8 November 2024

Activity site:
Istituto Giordano S.p.A. - Strada Erbosa Uno, 72 -
47043 Gatteo (FC) - Italy

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The results relate only to the item examined, as received, and are valid only in the conditions in which the activity was carried out.

The original of this document consists of an electronic document digitally signed pursuant to the applicable Italian Legislation.

Chief Test Technician:
Dott. Ing. Paolo Bertini

Head of Security and Safety Laboratory:
Dott. Andrea Bruschi

Technical Director:
Dott. Vincenzo De Astis

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Description of item[#]

The item under examination consists of a window with two sashes with the tilt & turn opening typology.

The sashes are joined to each other with an aluminum profile in the middle that has the function of overlap.

The profiles are joined at the corner with the milling and welding process.

The depth of the frame is 76 mm and consists of aluminum material inside and outside the window and PVC material in the middle.

The sealing of the profile is done through three EPDM and PVC gaskets.

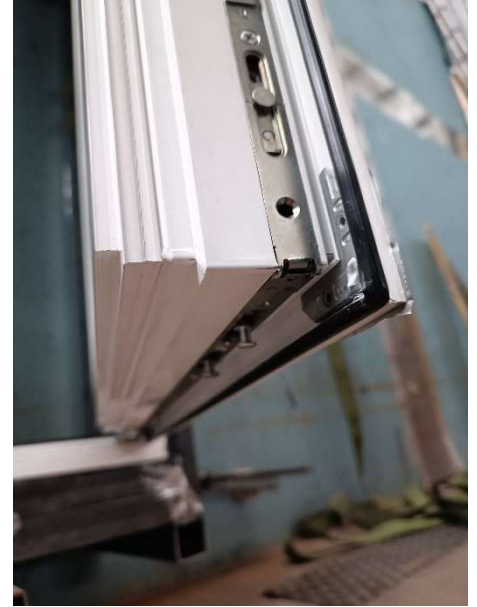
Accessories consist of Gretsch-Unitas mechanisms.

Further details of item characteristics, in annex "A".



Item photograph

([#]) according to that stated by the customer, apart from characteristics specifically stated to be measurements; Istituto Giordano declines all responsibility for the information and data provided by the customer that may influence the results.



Details

Data obtained from the item

Overall dimensions	width	1450 mm
	height	1650 mm
Openable dimensions	width	1400 mm
	height	1600 mm
Overall area		2,393 m ²
Openable area		2,240 m ²
Openable perimeter		7,600 m

Manufacturing site#

EVEREST Sh.P.K. - Bulevardi Blu, 544 - 1030 KAMËZ (TIRANE) - Albania.

(#) according to that stated by the customer.



LAB N° 0021 L

Normative references

Standard	Title
UNI EN 14351-1:2016	Finestre e porte - Norma di prodotto, caratteristiche prestazionali - Parte 1: Finestre e porte esterne pedonali (<i>Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets</i>)
UNI EN 1026:2016	Finestre e porte - Permeabilità all'aria - Metodo di prova (<i>Windows and doors - Air permeability - Test method</i>)
UNI EN 1027:2016	Finestre e porte - Tenuta all'acqua - Metodo di prova (<i>Windows and doors - Watertightness - Test method</i>)
UNI EN 12211:2016	Finestre e porte - Resistenza al carico del vento - Metodo di prova (<i>Windows and doors - Resistance to wind load - Test method</i>)
UNI EN 12207:2000	Finestre e porte - Permeabilità all'aria - Classificazione (<i>Windows and doors - Air permeability - Classification</i>)
EC 1-2007 UNI EN 12207:2000	//
UNI EN 12207:2017	Finestre e porte - Permeabilità all'aria - Classificazione (<i>Windows and doors - Air permeability - Classification</i>)
UNI EN 12208:2000	Finestre e porte - Tenuta all'acqua - Classificazione (<i>Windows and doors - Watertightness - Classification</i>)
EC 1-2007 UNI EN 12208:2000	//
UNI EN 12210:2016	Finestre e porte - Resistenza al carico del vento - Classificazione (<i>Windows and doors - Resistance to wind load - Classification</i>)
UNI EN 14609:2000	Finestre incernierate o imperniate - Determinazione della resistenza a torsione statica (<i>Hinged or pivoted Windows - Determination of the resistance to static torsion</i>) (<i>non-ACCREDIA accredited activity</i>)

Apparatus

Description	In-house identification code
ISTITUTO GIORDANO computerized semiautomatic control and measurement system capable of performing all tests with the parameters requested by the normative references	EDI001
ISTITUTO GIORDANO pressure differential devices (orifice plates, nozzles and Venturi tubes) compliant with standards ASME MFC-14M:2003 "Measurement of fluid flow using small bore precision orifice meters", UNI EN ISO 5167-1:2004 "Misurazione della portata dei fluidi mediante dispositivi a pressione differenziale inseriti in condotti a sezione circolare piena - Parte 1: Principi e requisiti generali" (<i>"Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full. General principles and requirements"</i>) e UNI EN ISO 5167-2:2004 "Misurazione della portata dei fluidi mediante dispositivi a pressione differenziale inseriti in condotti a sezione circolare piena - Parte 2: Diaframmi" (<i>"Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full. Orifice plates"</i>)	EDI002a, EDI002b, EDI002c, EDI002d, EDI002e, EDI002f
ELEKTRONIK temperature and relative humidity transmitter	EDI018
DRUCK ambient absolute pressure transducer	EDI019a
SETRA SYSTEM differential pressure transducers	EDI024, EDI025
ASA flow meters with flow rate suitable for size of item	EDI008a



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Description	In-house identification code
6 GEFTRAN electronic displacement transducers	EDI017a, EDI017b, EDI017c, EDI017d, EDI017e, EDI017f
AEP Transducers 1 kN load cell with DFI reader	EDI104
MITUTOYO CORPORATION digital meter, full scale 5500 mm	FT364

For the calibration, compliance and identification of each individual piece of equipment (including service devices) refer to PP049 detailed internal procedure in its current revision at testing date.

Method

The test was carried out using PP049 detailed internal procedure in its current revision at testing date.

The item was tested under closed condition and with closed ventilation systems.

The item, conditioned for 4 h immediately prior to testing under the ambient conditions was fitted to the test rig and subjected in sequence to the activities reported in the following table.

Activity	Standard reference	
verification for any parasitic leaks of the test chamber / test rig and identification of the positions of the points of item significant air infiltration	//	
measurement of air permeability under positive and negative pressure	UNI EN 1026:2016	
watertightness measurement	UNI EN 1027:2016	
resistance to wind load	measurement of deflection under wind load with pressure P1	UNI EN 12211:2016
	verification of resistance to pulsating pressure P2	UNI EN 12211:2016
verification of air permeability under positive and negative pressure after pressure P1 and P2	UNI EN 1026:2016	
resistance to wind load	safety check on item under extreme conditions with pressure P3	UNI EN 12211:2016
verification of the load-bearing capacity of safety devices	UNI EN 14609:2000	

Notes for the correct reading of the results

For air permeability tests all figures refer to pressure of 101,3 kPa and temperature of 293 K.

For air permeability tests uncertainty considers contributions caused by measurement of the following quantities: air flow, test chamber pressure and size of item.

For wind load resistance test uncertainty considers contributions caused by measurement of the following quantities: test chamber pressure, net span of elements verified, frontal displacement.

Expanded uncertainty has been calculated using a coverage factor "k" of 2, corresponding to a confidence level of 95,45 %.

Environmental conditions

Atmospheric pressure	(1021 ± 10) hPa
Temperature	(18 ± 1) °C
Relative humidity	(60 ± 5) %

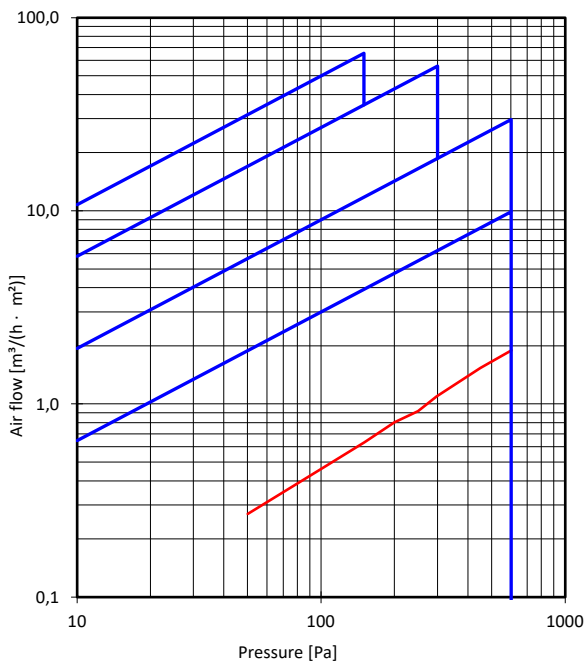


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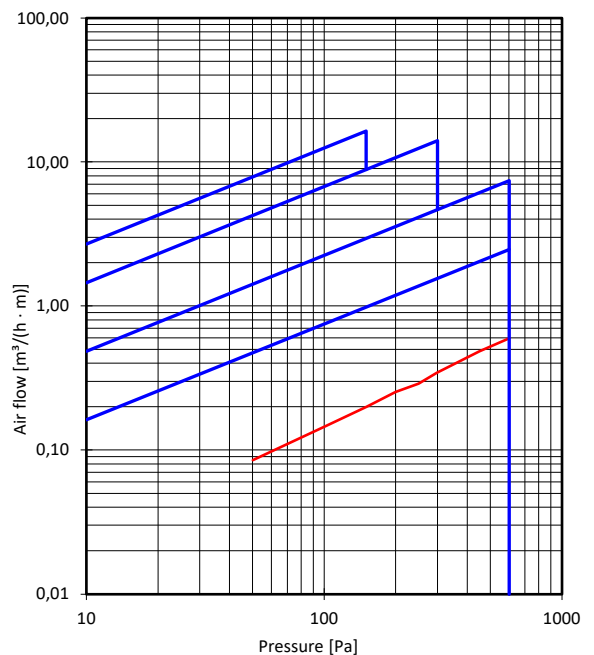
Results

Measurement of air permeability under positive pressure

Pressure		Air flow		
nominal	test	total	related to the overall area and relative uncertainty	related to opening joint length and relative uncertainty
[Pa]	[Pa]	[m³/h]	[m³/h · m²]	[m³/h · m]
50	50	0,65	0,270 ± 0,028	0,085 ± 0,009
100	102	1,12	0,468 ± 0,031	0,147 ± 0,010
150	151	1,52	0,635 ± 0,034	0,200 ± 0,011
200	200	1,92	0,803 ± 0,036	0,253 ± 0,011
250	250	2,19	0,917 ± 0,040	0,289 ± 0,013
300	298	2,62	1,094 ± 0,048	0,344 ± 0,015
450	450	3,67	1,534 ± 0,059	0,483 ± 0,019
600	602	4,54	1,898 ± 0,072	0,598 ± 0,023



Air flow related to overall area



Air flow related to openable joint length

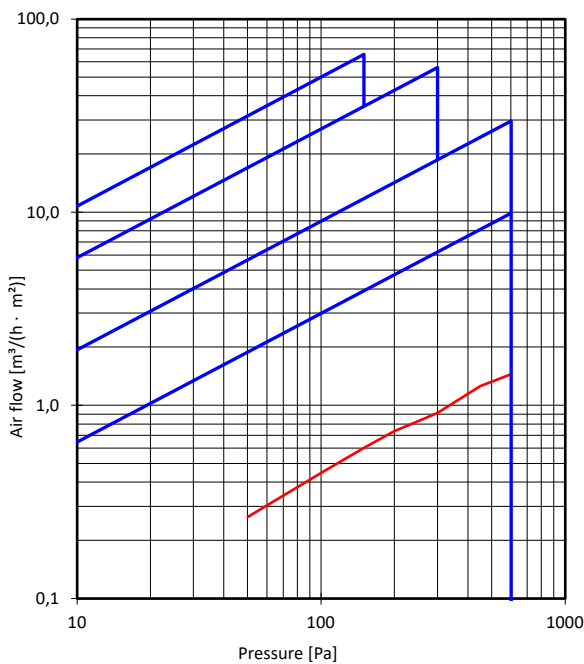
Air permeability class under positive pressure	related to overall area	4
	related to openable joint length	4
Air permeability class under positive pressure according to standard UNI EN 12207:2000/EC 1-2007 / UNI EN 12207:2017		4



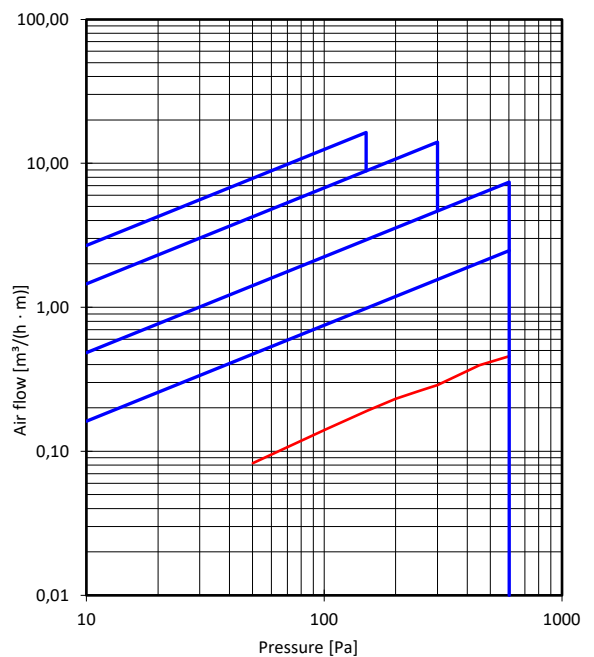
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Measurement of air permeability under negative pressure

Pressure		Air flow		
nominal	test	total	related to the overall area and relative uncertainty	related to opening joint length and relative uncertainty
[Pa]	[Pa]	[m ³ /h]	[m ³ /h · m ²]	[m ³ /h · m]
50	50	0,63	0,265 ± 0,028	0,083 ± 0,009
100	102	1,08	0,452 ± 0,030	0,142 ± 0,010
150	152	1,45	0,606 ± 0,032	0,191 ± 0,010
200	200	1,76	0,735 ± 0,033	0,231 ± 0,010
250	250	1,98	0,828 ± 0,033	0,261 ± 0,010
300	300	2,19	0,914 ± 0,036	0,288 ± 0,011
450	450	3,01	1,258 ± 0,043	0,396 ± 0,014
600	600	3,47	1,451 ± 0,045	0,457 ± 0,014



Air flow related to overall area



Air flow related to openable joint length

Air permeability class under negative pressure	related to overall area	4
	related to openable joint length	4
Air permeability class under negative pressure according to standard UNI EN 12207:2000/EC 1-2007 / UNI EN 12207:2017		4



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Calculation of the mean permeability to air and classification according to standard UNI EN 14351-1:2016

Nominal pressure [Pa]	Air flow		
	total average [m ³ /h]	related to overall area [m ³ /h · m ²]	related to openable joint length [m ³ /h · m]
50	0,64	0,268	0,084
100	1,12	0,466	0,147
150	1,49	0,624	0,197
200	1,84	0,770	0,242
250	2,09	0,873	0,275
300	2,39	1,001	0,315
450	3,34	1,396	0,439
600	4,01	1,676	0,528

Air permeability class	related to overall area	4
	related to openable joint length	4
Air permeability class according to standard UNI EN 14351-1:2016		4



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Measurement of watertightness

Water spray system utilized	A
Lines of nozzles	n. 1
Nozzles per line	n. 4
Water flow rate upper line	480 l/h

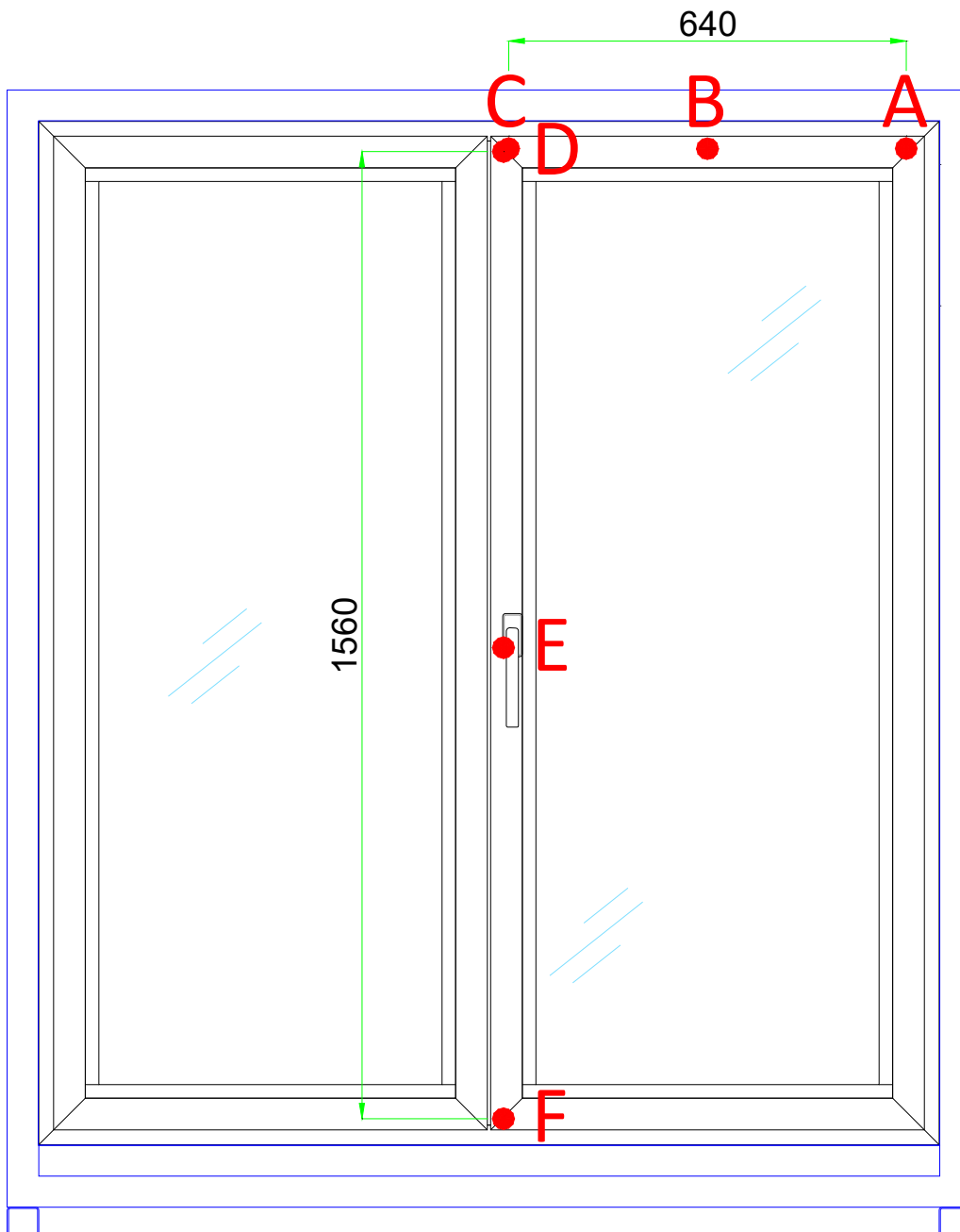
Pressure [Pa]	Spraying time [min]	Observations
0	15	no penetration
50	5	no penetration
100	5	no penetration
150	5	no penetration
200	5	no penetration
250	5	no penetration
300	5	no penetration
450	5	no penetration
600	5	no penetration
750	5	no penetration
900	5	no penetration
1050	5	no penetration
1200	5	no penetration
1350	5	no penetration

Watertightness class according to standard UNI EN 12208:2000	E1350
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Resistance to wind load

Test target class	4
Test pressure P1	1600 Pa
Test pressure P2 (0,5·P1)	800 Pa
Test pressure P3 (1,5·P1)	2400 Pa

Clear span of section A-C	640 mm
Clear span of section D-F	1560 mm



Item elevation showing measuring points



LAB N° 0021 L

Measurement of deflection under wind load with pressure P1

Pressure		Frontal displacement at measuring points						Frontal deflection		Relative frontal deflection noted and relative uncertainty		Permissible relative frontal deflection
nominal [Pa]	test [Pa]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	AC [mm]	D<E>F [mm]	AC [1/xxx]	D<E>F [1/xxx]	
0	0	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	//	//	//
1600	1598	0,80	1,37	1,77	1,66	3,30	2,08	0,08	1,43	1/(8000 ± 4000)	1/(1093 ± 95)	1/300
0 [#]	0	0,00	0,02	0,03	0,02	0,05	0,05	0,00	0,01	//	//	//
0	0	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	//	//	//
-1600	-1608	-0,34	-0,99	-1,56	-1,16	-3,32	-2,06	-0,04	-1,71	1/(17900 ± 9000)	1/(912 ± 69)	1/300
0 [#]	0	-0,06	-0,07	-0,11	-0,07	-0,15	-0,17	0,02	-0,03	//	//	//

(#) pressure set to zero to detect the permanent deformations.

Verification of resistance to pulsating pressure P2

Pressure [Pa]	Cycles [No.]	Observations
±800	50	no visible damage at a distance of 1 m and no operating defects after pressure P1 and P2

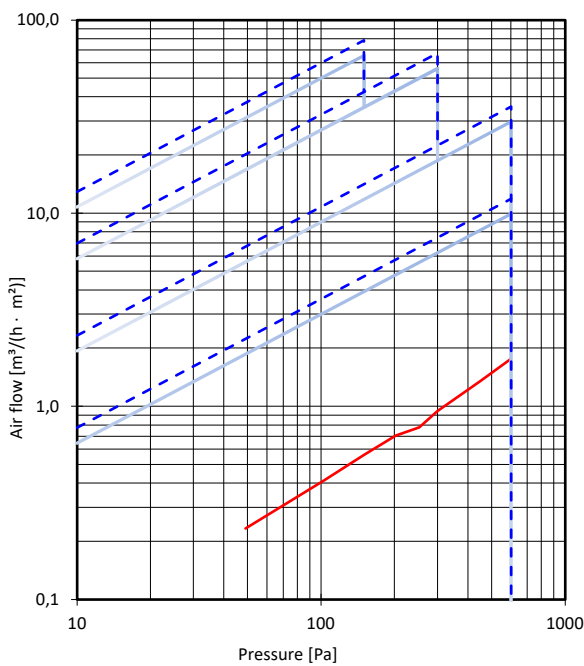
Wind load resistance class according to standard UNI EN 12210:2016	deflection	C
	wind load	4



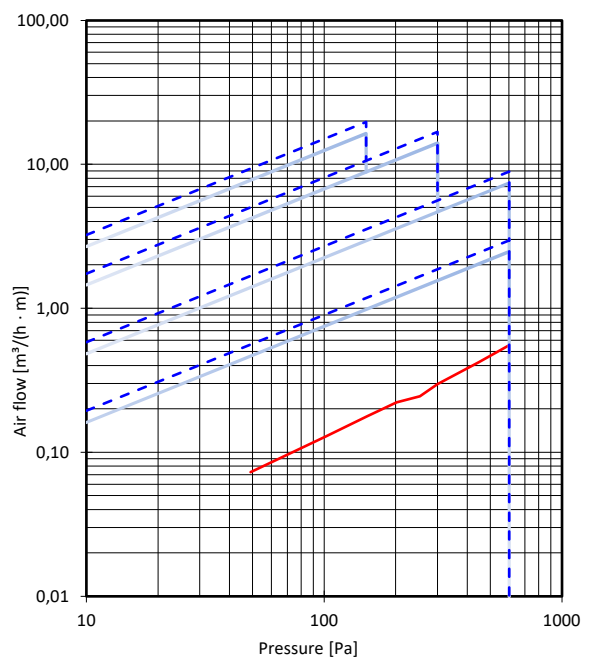
LAB N° 0021 L

Verification of air permeability under positive pressure after pressure P1 and P2

Pressure		Air flow		
nominal	test	total	related to the overall area and relative uncertainty	related to opening joint length and relative uncertainty
[Pa]	[Pa]	[m ³ /h]	[m ³ /h · m ²]	[m ³ /h · m]
50	49	0,56	0,233 ± 0,028	0,073 ± 0,009
100	102	0,98	0,410 ± 0,030	0,129 ± 0,009
150	151	1,34	0,562 ± 0,032	0,177 ± 0,010
200	202	1,69	0,705 ± 0,032	0,222 ± 0,010
250	253	1,86	0,777 ± 0,037	0,245 ± 0,012
300	300	2,26	0,945 ± 0,047	0,298 ± 0,015
450	449	3,22	1,347 ± 0,058	0,424 ± 0,018
600	598	4,20	1,756 ± 0,077	0,553 ± 0,024



Air flow related to overall area



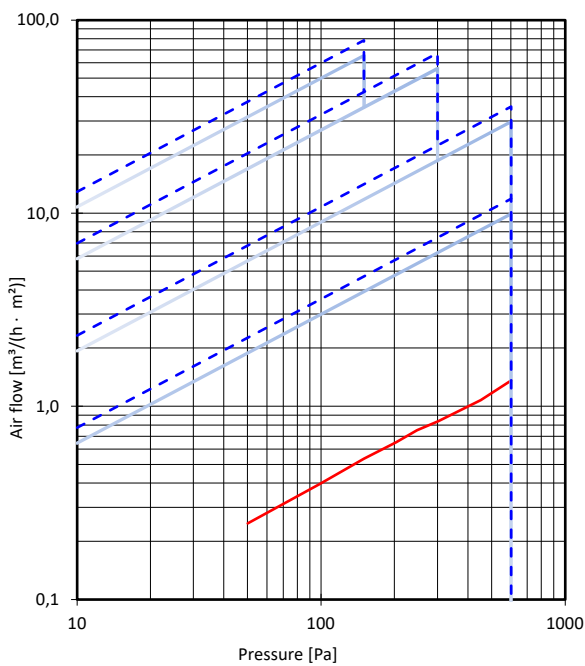
Air flow related to openable joint length



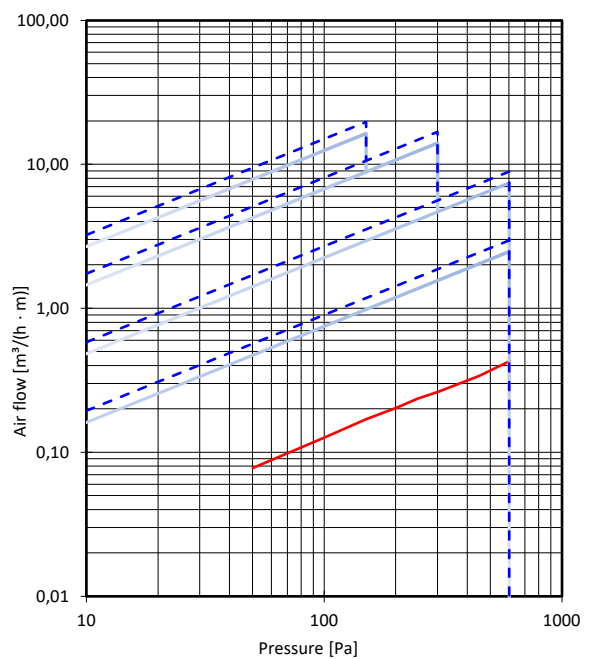
LAB N° 0021 L

Verification of air permeability under negative pressure after pressure P1 and P2

Pressure		Air flow		
nominal	test	total	related to the overall area and relative uncertainty	related to opening joint length and relative uncertainty
[Pa]	[Pa]	[m ³ /h]	[m ³ /h · m ²]	[m ³ /h · m]
50	50	0,59	0,248 ± 0,028	0,078 ± 0,009
100	99	0,95	0,396 ± 0,029	0,125 ± 0,009
150	150	1,28	0,536 ± 0,031	0,169 ± 0,010
200	203	1,56	0,651 ± 0,032	0,205 ± 0,010
250	248	1,80	0,751 ± 0,033	0,236 ± 0,010
300	302	2,00	0,836 ± 0,033	0,263 ± 0,010
450	451	2,57	1,076 ± 0,042	0,339 ± 0,013
600	603	3,27	1,367 ± 0,056	0,430 ± 0,018



Air flow related to overall area



Air flow related to openable joint length



LAB N° 0021 L

Safety check on item under extreme conditions (pressure P3)

Pressure [Pa]	Observations
+2400	no opening of sashes, breakage, detachment of parts nor apparent malfunction
-2400	no opening of sashes, breakage, detachment of parts nor apparent malfunction

Verification of the load-bearing capacity of safety devices

Type of opening	Applied load [N]	Displacement detected [mm]	Result
hinged	350	75	no failure
	0	5 [#]	no failure
tilting	350	85	no failure
	0	5 [#]	no failure

([#]) residual displacement.

Findings

Activity	Test standard	Classification standard	Class [#]
Air permeability under positive pressure	UNI EN 1026:2016	UNI EN 12207:2000/ EC 1-2007	4
		UNI EN 12207:2017	4
		related to overall area	4
Air permeability under negative pressure	UNI EN 1026:2016	UNI EN 12207:2000/ EC 1-2007	4
		UNI EN 12207:2017	4
		related to openable joint length	4
Air permeability	UNI EN 1026:2016	UNI EN 14351-1:2016	4
Watertightness	UNI EN 1027:2016	UNI EN 12208:2000/ EC 1-2007	E1350
Resistance to wind load	UNI EN 12211:2016	UNI EN 12210:2016	C4
Verification of the load-bearing capacity of safety devices/ static torsion	UNI EN 14609:2004	UNI EN 14351-1:2016	pass

([#]) the classification has been determined on the basis of the values obtained by experimental measurements/calculation without considering the uncertainties in line with clause 4.2.1 "Binary Statement for Simple Acceptance Rule (w = 0)" of ILAC G8:09/2019 guide "Guidelines on Decision Rules and Statements of Conformity", having fulfilled all the requirements of equipment and measurement in the reference standards.

Chief Test Technician
(Dott. Ing. Paolo Bertini)

Head of
Security and Safety Laboratory
(Dott. Andrea Bruschi)

Technical Director
(Dott. Vincenzo De Astis)

ANNEX "A"
to TEST REPORT No. 423018/17805/CPR

Customer
EVEREST Sh.P.K.
Bulevardi Blu, 544 - 1030 KAMËZ (TIRANE) - Albania

Item#
window named "EV HYBRID"

Contents
item technical documentation

Order:
102801

Item origin:
sampled and supplied by the customer

Identification of item received:
2024/3364 dated 6 November 2024

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Istituto Giordano S.p.A. - Strada Erbosa Uno, 72 -
47043 Gatteo (FC) - Italy

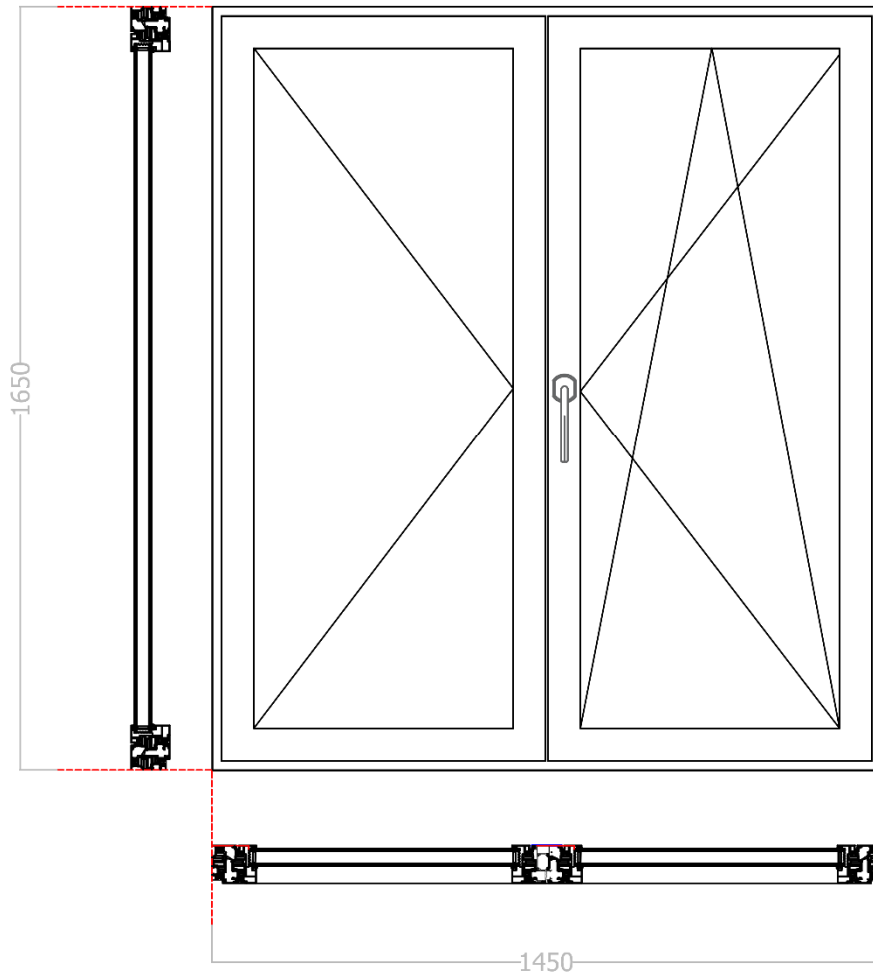
(#) according to that stated by the customer.

Bellaria-Igea Marina - Italy, 21 November 2024

This annex consists of 4 pages.

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Ev hybrid



Dimension:

1 frame - 50 mm	2 pane
3 sash - 38 mm	4 sash
5 frame width - 70 mm	6 glass
7 glass 27 mm - 66 mm	
8 sash height - 35 mm	



EVEREST CONSTRUCTION GROUP Bulevardi Blu, Nr.544 Kamez Tirane

EVEREST CONSTRUCTION GROUP
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Kamez Tirane

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Profiles

Drawing	Quantity / Unit (Required)	Number	Description	Colour Inside/Outside
	2 x 6.5 m (8.3)	10411	Glazing bead	RAL colours
	1 x 6.5 m (1.4)	10607	Drip to glue, Aluminium	RAL colours
	1 x 6.5 m (6.2)	67101	Frame	RAL colours
	2 x 6.5 m (9.3)	67201	Casement opening thermal	RAL colours
	1 x 6.5 m (1.6)	67501	Central overlap for flat sash/Thermal	RAL colours
Sum:				

Hardware



Drawing	Quantity / Unit	Number	Description	Colour	Required [kg]	Total [kg]
	1 pc (1)	6-28072-29-0-6	Handle DIRIGENT-F, TITANIUM	Onyx matt		0.16
	1 PU @ 100 pc (1)	6-29211-00-0-1	Rebate cam plate adj.	ferGUard silver		4.70
	1 PU @ 10 pc (2)	6-32010-00-0-1	Middle lock Se 215, 280-750 MV1	ferGUard silver		1.00
	1 PU @ 10 pc (1)	6-32012-00-0-1	G-U MIDDLE LOCK 215 DK	ferGUard silver		1.10
	1 PU @ 5 pc (3)	6-32303-00-0-1	EXTENSION PIECE UNI-JET 180° W/O ML	ferGUard silver		0.40
	1 PU @ 10 pc (1)	6-34215-00-0-1	GEAR EURO-JET F15 GV 1451-1950	ferGUard silver		7.59
	1 pc (1)	6-35217-00-0-1	EURO-JET CORNER TRANSMISSION MV1	ferGUard silver		0.17
	1 pc (1)	6-35596-15-0-1	MIDDLE LOCK 1450, 1600-2450 MV3	ferGUard silver		
	1 PU @ 5 pc (1)	6-35935-02-0-1	LOCKING PLATE SE 9MM 14/18 PR.3,5	ferGUard silver		0.16
	1 PU @ 100 pc (2)	6-36026-06-0-1	STAY ARM BEARING UNI-JET D W.O. AXLE	ferGUard silver		6.00



LAB N° 0021 L

Drawing	Quantity / Unit	Number	Description	Colour	Required [kg]	Total [kg]
	1 PU @ 100 pc (2)	6-36882-22-0-1	PIVOT REST+DRILLING PIN Ø6x22 WHITE	ferGUard silver		5.50
	1 pc (1)	6-37455-18-L-1	REBATE CORNER HINGE UNI-JET 18/9mm	ferGUard silver		0.14
	1 pc (1)	6-37455-18-R-1	REBATE CORNER HINGE UNI-JET 18/9mm	ferGUard silver		0.15
	1 PU @ 10 pc (1)	6-38999-06-0-1	Scherenstulp EURO-JET 501-750	ferGUard silver		2.60
	1 PU @ 10 pc (1)	6-39147-18-0-1	side hung hinge UNI-JET D+S NL9/9,5	ferGUard silver		1.75
	1 PU @ 10 pc (1)	6-39835-18-R-1	Stay arm E-JET / U-JET S NL9 501-750	ferGUard silver		2.44
	1 PU @ 100 pc (1)	9-40487-00-L-6	Abdeckkappe UNI-JET D lang	Black		0.30
	1 PU @ 100 pc (1)	9-40487-00-R-6	Abdeckkappe UNI-JET D lang	Black		0.30
	1 PU @ 10 pc (1)	9-41959-00-0-1	FRAME PART OF CONCEALED MIDDLE HINGE	ferGUard silver		0.22
	1 PU @ 100 pc (2)	9-42683-00-0-6	COVER FOR PIVOT REST UNIJET D+M RAL 7016	Black		0.10
	1 PU @ 10 pc (5)	9-45219-14-0-1	LOCKING PLATE ALU GROOVE 14/18 9mm	ferGUard silver		0.18
	1 PU @ 100 pc (2)	9-47334-01-0-6	STAY ARM BEARING COVER UNI-JET RAL7016	Black		0.10
	1 PU @ 100 pc (2)	9-47795-01-0-6	COVER STAY ARM HINGE JET RAL7016	Black		0.30
	1 PU @ 100 pc (2)	9-48898-00-0-1	STAY ARM BEARING AXLE PIN	ferGUard silver		1.70
	1 PU @ 5 pc (1)	G-22172-00-0-1	Shoot Bolt, UniJet Rebate	ferGUard silver		4.10
Sum:						41.16 kg

Accessories

Drawing	Quantity / Unit (Required)	Number	Description	Colour	Required [kg]	Total [kg]
	1 PU @ 10 pc (2)	9-13255-30-0-1	Countersunk screw	ferGUard silver		0.04
	18 pc (18)	H186PB	Coverhole plug Ø mm 12			
	2 pc (2)	H210NB	Black nylon water drainage cover	Black		
	1 pc (1)	PS352	Central overlap Cork (70502-70542)	Black		