ISTITUTO GIORDANO
BEYOND CERTIFICATION

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TESTING ACCREDIA
00019

TEST REPORT No. 441322

Customer

SAINT-GOBAIN LOGLI S.r.l.

Via Giovanni Bensi, 8 - 20152 MILANO (MI) - Italy

Item[#]

glass parapet called "VETRUM50 - mod. VE50FRKIT/10"

Activity

determination of horizontal linear static load resistance and determination of mechanical resistance to dynamic load in accordance with standard UNI 11678:2017

Results

Activity	Reference document	Require-ment	Acceptance criteria	Result
horizontal linear static load resistance determination	UNI 11678:2017 and DM 17 January 2018	3,0 kN/m	table 3.1.II of DM 17 January 2018	compliant
hard-body dynamic load resistance determination	UNI 11678:2017	1020 mm	clause 6.3.4	compliant
semi-rigid-body dynamic load resistance determination	UNI 11678:2017	1200 mm	clause 6.4.4	compliant[##]

([##]) compliant with intended uses specified in table 5 of standard UNI 11678:2017 "Altezze di caduta in funzione della destinazione d'uso" *("Drop heights depending on the intended use")* of standard UNI 11678:2017 related to the assumed drop height.

([#]) according to that stated by the customer.

Bellaria-Igea Marina - Italy, 16 June 2026

Chief Executive Officer

(Dott. Arch. Sara Lorenza Giordano)

Firmato digitalmente da SARA LORENZA GIORDANO

Order:
109769

Item origin:
sampled and supplied by the customer

Identification of item received:
2026/1474/A dated 6 May 2026

Activity date:
6 May 2026

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.
This document is the English translation of the test report No. 441322 issued in Italian; in case of dispute the only valid version is the Italian one.
Date of translation: 16 June 2026.
The original of this document consists of an electronic document digitally signed pursuant to the applicable Italian Legislation.
This document cancels and replaces the test report No. 441322 issued on 15 May 2026 following a name change.

Chief Test Technician:
Dott. Andrea Bruschi
Head of Security and Safety Laboratory:
Dott. Andrea Bruschi

Compiler: Dott. Marina Bonito

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Description of item[#]

The item under examination consists of a glass parapet without handrail, with the dimensional characteristics shown in the following table.

Nominal overall width	3000 mm
Measured overall width	3000 mm
Nominal useful height	1300 mm
Measured useful height	1300 mm

The item, in particular, is made up of a support structure composed of two lateral aluminum profiles and a laminated glass infill, size 3000 mm × 1000 mm, made up of "Quidam" 1010/4 glass tempered with KURARAY Sentryglas®6000 internal layer.

Further details of item specifications in annex "A".

Photograph of the item secured to the test rig by a pair of steel supports for the two lateral aluminum profiles

([#]) according to that stated by the customer, with the exception of the characteristics expressly indicated as obtained via measurement; Istituto Giordano disclaims any responsibility on the information and data provided by the customer that may influence the results

Photograph of a lateral aluminum profile

Normative references

Standard/document	Title
UNI 11678:2017	Vetro per edilizia - Elementi di tamponamento in vetro aventi funzione anticaduta - Resistenza al carico statico lineare ed al carico dinamico - Metodi di Prova *(Glass in building - Fall-protection glass infill - Resistance to linear static loading and dynamic loading - Test methods)*
Infrastrutture e Trasporti DM 17 January 2018	Aggiornamento delle "Norme tecniche per le costruzioni" *(Update of "Technical standards for construction")*

Apparatus

Description	In-house identification code
test rig simulating actual mounting of the item on the floor slab	EDI048
3 GEFRAN linear displacement transducers "PZ-34-S150", measure range 0-150 mm	FT451/1, FT451/2, FT451/3
AEP Transducers "TS" load cell, measure range 20-1000 N, with "DFI" reader	EDI104A
BORLETTI digital calliper gauge "CDEP15", measure range 0-150 mm and resolution 0,01 mm	EDI066
tungsten-carbide cone-shaped hammer, mass 75 g	EDI172
MITUTOYO CORPORATION "TD-S551D1 216-452" digital tape measure, measuring range 0-5,5 m	FT364
ISTITUTO GIORDANO hard body comprising a tempered-steel ball complying with clause 6.3.1 "Impactor" of standard UNI 11678:2017, total mass 1 kg	EDI009
ISTITUTO GIORDANO dual-tyre semi-rigid body complying with clause 6.4.1 "Impactor" of standard UNI 11678:2017, overall mass 50 kg	EDI012
WÜRTH "mEssfix" telescopic measuring rod, full scale 5 m and resolution 0,1 mm	EDI086

Description	In-house identification code
ISTITUTO GIORDANO round steel block, diameter 100 mm	//
GLASSTRESS "SCALP" portable polariscope for measuring residual stress in glass	ENG145
CARGILE LABORATORIES Inc. "Cargile Immersion Liquid" code "5040 μρ = 1.459 - 1.570"	//
LA CROSSE TECHNOLOGY "WS8009" thermohygrometer	EDI111

Method

The test was carried out using detailed internal procedure PP083 in its current revision at the time of testing.
Just the sides of the item were fixed to the test rig in order to reproduce actual installation conditions.

Procedure

Normative reference	Activity	Description/parameters
//	reading the surface compression of the glass using an optical polariscope	10 records were taken per side *(test not accredited by Accredia)*
table 3.1.II of DM 17 January 2018	defining load values	//
clause 5 of standard UNI 11678:2017	determination of horizontal linear static load resistance	Group 1 3 linear displacement transducers were positioned in such a way as to measure the relative displacement of the infill panel top edge (two at the ends and one at the midpoint between them) before performing the following test sequence: – preload, representing 30 % of the maximum working load, for 5 min; – preload removal and linear displacement transducer set to zero; – maximum working load for 5 min and recording of deflection; – load removal and recording of permanent deformation after 15 min; – ultimate load, obtained by multiplying the maximum working load by a factor equal to 1,5, for 5 min and load removal; – induced breakage of a directly-loaded glass panel; – collapse load, representing 30 % of the maximum working load, for 1 min

Normative reference	Activity	Description/parameters
clause 6 of standard UNI 11678:2017	determination of mechanical resistance under dynamic loading	The item was subjected, in sequence, to: – hard-body impacts; – semi-rigid-body impacts. All impacts were carried out by allowing the suspended impactor to fall in a pendular motion, without initial velocity, from a predetermined height. The impactor was suspended by means of an inextensible cable of negligible mass, arranged so that, in its resting position, it was in contact with the point of intended impact. After each impact, the impactor was prevented from striking the item again after rebounding.

Environmental conditions

Atmospheric pressure	(1010 ± 5) mbar
Temperature	(20 ± 2) °C
Relative humidity	(60 ± 5) %

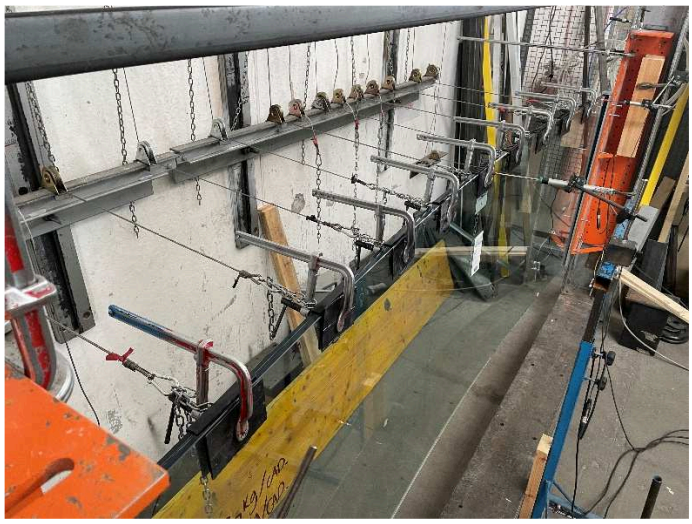
Results

Reading the surface compression of tempered glass

Reading type	Reading Area	Average compression [Mpa]	Standard deviation [Mpa]
with polariscope	No. 10 readings distributed on the internal side	91,6	3,0
	No. 10 readings distributed on the external side	89,0	2,1

Resistance to horizontal linear static loading

Load step	Load [kN/m]	Duration [min]	Deflection at the measuring points A [mm]	B [mm]	C [mm]	Maximum permissible deflection [mm]	Effect
preload	0,9	5	//	//	//	//	no damage
working load	3,0	5	10,2	75,6	12,4	≤100	no damage
load removal	0,0	//	0,1	0,2	0,1	≤10	//
ultimate limit state	4,5	5	//	//	//	//	no damage
induced breakage of the directly-loaded glass panel							
ultimate collapse load	0,6	1	//	//	//	//	no collapse



Photograph of the item during linear static load resistance test

Photograph of the item subjected to static load after breakage

Resistance to dynamic load

Impact type	Impact area	Drop height [mm]	Impact energy [J]	Effect
hard body	100 mm from top edge at mid-point	1020	10	no glass fragmentation
	at the centre of infill	1020	10	no glass fragmentation
	near to a fixing point	1020	10	no glass fragmentation
semi-rigid body	100 mm from top edge at mid-point	1200	600	no glass fragmentation
	at the centre of infill	1200	600	no glass fragmentation
	250 mm from the corner along the bisectors	1200	600	no glass fragmentation

Photograph of the item after the hard body impact at the center of the infill

Photograph of the item after the impact 100 mm from the top edge

Findings

Activity	Reference document	Requirement	Acceptance criteria	Result[#]
horizontal linear static load resistance determination	UNI 11678:2017 and DM 17 January 2018	3,0 kN/m	table 3.1.II of DM 17 January 2018	**compliant**
hard-body dynamic load resistance determination	UNI 11678:2017	1020 mm	clause 6.3.4	**compliant**
semi-rigid-body dynamic load resistance determination	UNI 11678:2017	1200 mm	clause 6.4.4	**compliant[##]**

(#) the compliance was determined on the basis of values obtained by experimental measurement/calculation, in line with clause 4.2.1 "Binary Statement for Simple Acceptance Rule (w = 0)" of ILAC-G8:09/2019 "Guidelines on Decision Rules and Statements of Conformity", having met all equipment and measure requirements of the reference standards.

(##) compliant with intended uses specified in table 5 of standard UNI 11678:2017 "Altezze di caduta in funzione della destinazione d'uso" *("Drop heights depending on the intended use")* della norma UNI 11678:2017 related to the assumed drop height.

As requested by k) of clause 7 "Rapporto di prova" *("Test Report")* of standard UNI 11678:2017, it is hereby declared that: "This Test Report does not represent type approval or certification of the product. The results obtained refer exclusively to the test item and describe product behaviour under the specified test conditions".

ANNEX “A”
TO TEST REPORT No. 441322

Customer

SAINT-GOBAIN LOGLI S.r.l.

Via Giovanni Bensi, 8 - 20152 MILANO (MI) - Italy

Item[#]

glass parapet called
“VETRUM50 - mod. VE50FRKIT/10”

Contents

item technical documentation

(#) according to that stated by the customer.

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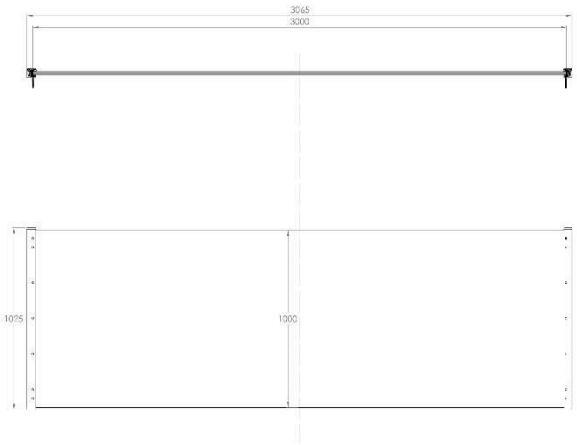
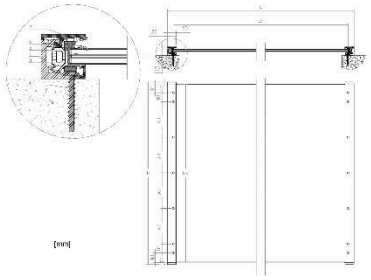
This annex consists of 2 pages.



[mm]

Property of Saint-Gobain Logli S.r.l.	
Description/Description	
VERTIGO50	
Rev. / Data/Date / Progettista/Designer	
00 / 12/05/26 / MM	



[mm]

IT

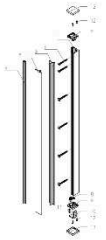
Dettagli di posa

Cod.	Descrizione	U	Misura
A1	Distanza ancoraggio interni	[mm]	200
B1	Distanza ancoraggi superiori (x2)	[mm]	50
L	Larghezza del modello	[mm]	2064
Lv	Larghezza vetro	[mm]	2000
H	Altezza totale sistema	[mm]	1025
Hv	Altezza vetro	[mm]	1000

EN

installation details

Cod.	Description	U	Measure
A1	Internal anchoring distance	[mm]	200
B1	Distance between upper anchors (x2)	[mm]	50
L	Model width	[mm]	2064
Lv	Glass width	[mm]	2000
H	Total system height	[mm]	1025
Hv	Glass height	[mm]	1000



IT

Legenda componenti

n°	Descrizione	Q.tà
1	Profilo femmina forato	2
2	Profilo di chiusura a incastro	2
3	Guarnizione di battuta interna	2
4	Guarnizione ferma vetro	2
5	Vetro stratificato	1
6	Ancoraggio alla struttura primaria	12
7	Struttura di ancoraggio	1
8	Guarnizione inferiore	2
9	Porta tappo	4
10	Staffa metallica	2
11	Grani di serraggio	6
12	Viti di serraggio porta tappo	8
13	Tappo di finitura	4

EN

Components legend

n°	Description	Q.ty
1	Drilled female profile	2
2	Interlocking closing profile	2
3	Internal gasket	2
4	Glass retaining gasket	2
5	Laminated glass	1
6	Anchoring to the primary structure	12
7	Anchor structure	1
8	Bottom gasket	2
9	Cap holder	4
10	Metal bracket	2
11	Clamping screws	6
12	Cap holder tightening screws	8
13	Finishing cap	4