ISTITUTO GIORDANO

TEST REPORT No. 369685

Customer

SAINT-GOBAIN PPC ITALIA S.p.A.

Via Ettore Romagnoli, 6 - 20146 MILANO (MI) - Italy

Item*

waterproofing membrane named "Bituver Renover"

Activity

hail resistance according to standard UNI EN 13583:2012

Results

Type of support	Damaging velocity "v_d" [m/s]
soft	34

(*) according to that stated by the customer.

Bellaria-Igea Marina - Italy, 24 February 2020

Chief Executive Officer
(Dott. Arch. Sara Lorenza Giordano)

Firmato digitalmente da SARA LORENZA GIORDANO

Order:
82734

Item origin:
sampled and supplied by the customer

Identification of item received:
2020/0150 dated 23 January 2020

Activity date:
28 January 2020

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

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Description of item*

The sample under test consists of a waterproofing membrane with double compound BPE+APAO, with slate top finish, thickness 4 mm.

Normative references

Standard	Title
UNI EN 13583:2012	Membrane flessibili per impermeabilizzazione - Membrane bituminose, di materiale plastico e gomma per impermeabilizzazione di coperture - Determinazione della resistenza alla grandine" *("Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of hail resistance")*

Apparatus

Description
vertical pneumatic launching drive equipped with pressurization tank, electric valves for loading and launching, manometer to control the loading pressure and photo cell device able to measure the output velocity of the ball from the launching opening
plastic balls made of polyamide (PA 6.6), diameter (40 ± 0,5) mm and mass (38,5 ± 0,5) g each, with a smooth and defect free surface
device for creating a di 0,15 bar pressure difference, to check the holes in the specimen with soapy water
soft support comprising a steel plate, size 500 mm × 300 mm and thickness 20 mm, without cooling on which expanded polystyrene panel with compressive stress "CS(10)" equal to 100 kPa, size 500 mm × 250 mm, thickness 20 mm and mass 20 kg/m³, is laid
ballast steel plate, size 500 mm × 300 mm and thickness 20 mm, with a circular opening, diameter 200 mm, in the centre
soap solution

Method

Description of the specimens

5 specimens, dimensions 250 mm × 250 mm and thickness equal to that of origin, were cut by the customer from the item.

Photograph of a specimen

(*) 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.

Procedure

Normative reference	Activity	Description
clause 6.2	Conditioning	(23 ± 2) °C temperature (50 ± 10) % relative humidity 24 h
clause 8	Determining damaging velocity	"v_d" defined as the velocity leading to maximum one perforation for a set of 5 specimens.

Environmental conditions

Temperature	(20 ± 1) °C
Relative humidity	(48 ± 5) %

Results

Type of support	Specimen	Velocity [m/s]	Effect
soft	1	33,7	slight superficial sign at the point of impact
	2	33,7	slight superficial sign at the point of impact
	3	34,1	slight superficial sign at the point of impact
	4	33,9	slight superficial sign at the point of impact
	5	34,1	slight superficial sign at the point of impact
Average		**33,9**	//

Photograph of a specimen during the test

Findings

Type of support	Damaging velocity "v_d"* [m/s]
soft	34

(*) according to clause 3.2 "damaging velocity" of standard UNI EN 13583:2012, the hail resistance is expressed as the damaging velocity "v_d" of the ball, rounded to the nearest 1 m/s which has caused perforation of maximum one out of five shots.