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BRITISH BOARD OF AGRÉMENT TEST REPORT No 49979 Issue 2

SOLAR LIMPET - PVC BRACKET FOR USE AS PART OF SOLAR PANEL MOUNTING KIT

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Date: 2nd February 2013

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Date: 6th February 2013

On behalf of the British Board of Agrément

4 RESISTANCE TO WIND UPLIFT

4.1 Method

In accordance with DRAFT: MCS 012 *Product Certification Scheme Requirements: Pitched Roof Installation Kits* - Issue 0.1 2010. Tested and reported based on BS EN 14437:2004
Determination of the uplift resistance of installed clay or concrete tiles for roofing – Roof system test method.

The uplift load was applied using suction cup devices attached to the glass cover plate of the solar panel. The panels were tested with the roof at a 45° incline.

An initial test was conducted to determine the force required to pull the panel from the roof. An uplift force was applied to the solar panel at a rate of less than 50 N/s until a failure occurred. The maximum force was then recorded.

To determine the maximum uplift resistance, a first step of 70% of the maximum force from the initial test was applied, increasing by 5% every subsequent step. The load at each step was held for 5 seconds before being released to zero. The force was increased until failure and the result recorded. The deflection of a surrounding tile was measured and recorded at every step.

4.2 Samples

BBA ref/lot	Description
S1/49304/4	Sharp ND-220E1F Solar PV Panel
S1/49304/1,2,3	Solar Limpet Kit (Limpet, bracket, nuts and bolts)
S1/49304/5	Mounting Rail Medium 40 x 40 (3.2m)
S1/49304/6	M8 Cross Connector
S1/49304/7	Cyl Head Screw with Hex Socket. M8 x 30mm
S1/49304/8	Cyl Head Screw with Hex Socket. M8 x 20mm
S1/49304/9	Cyl Head Screw with Hex Socket. M8 x 16mm
S1/49304/10	Serrated Nut A2 DIN 6923 M8
S1/49304/11	Cyl Head Screws M8 x 45mm
S1/49304/12	Corner Clamp 45mm
S1/49304/13	Middle Clamp
S1/49304/14	Sliding Block 13 x 10mm Pivotal Aluminium M8 22mm
S1/49304/15	Washer DIN 125A M8 A2

*Refer to Appendix A for full product information

4.3 Results

Lot	Test	Failure Load (kN)	Maximum uplift resistance (kN) ⁽¹⁾	Failure mode
1-15	1	6.38	6.06	Snap within the solar limpet itself.
	2	6.36	6.04	Snap within the solar limpet itself.
	3	6.75	6.41	Snap within the solar limpet itself.
	Mean	6.50	6.17	
	SD	0.22	0.21	

(1) The maximum uplift resistance is defined as the total force at the last completed step before failure.