

RAMILO, S.L

Calle Macal, 32
36213 Vigo
Pontevedra
Spain



Tel: 0034 986 298 300 Fax: 00 34 986 202 511

website: www.cupastone.com

Agrément Certificate

21/5908

Product Sheet 1

CUPASTONE WALL PANELS

STONEPANEL AND STONEPANEL SKY

This Agrément Certificate Product Sheet⁽¹⁾ relates to Stonepanel and Stonepanel Sky, natural stone panels for use as a decorative cladding, which are suitable for indoor and outdoor use on new or existing buildings when attached to solid walls of masonry or concrete.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Strength and stability — the panels have sufficient strength to resist the negative and positive wind pressures likely to be experienced in the UK and have good impact resistance (see section 6).

Behaviour in relation to fire — a construction incorporating the panels achieved an A2-s1, d0 reaction to fire classification to NF EN 13501-1 : 2013 and their panels use may be restricted in some cases (see section 7).

Air and water penetration — the panels are not watertight but will restrict the ingress of rainwater to the supporting structure (see section 8).

Durability — the panels have a design life in excess of 30 years (see section 10).



The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 30 July 2021

Hardy Giesler
Chief Executive Officer

The BBA is a UKAS accredited certification body – Number 113.

*The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk
Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.*

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

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Regulations

In the opinion of the BBA, Stonepanel and Stonepanel Sky, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement: Comment:	A1	Loading The products are acceptable for use as set out in section 6 of this Certificate.
Requirement:	B2(1)	Internal fire spread (linings) The products can be unrestricted by this Requirement. See section 7.8 of this Certificate.
Requirement: Comment:	B4(1)	External fire spread The products can be unrestricted by this Requirement. See sections 7.3, 7.5, and 7.6 of this Certificate.
Requirement: Comment:	C2(b)	Resistance to moisture The products will not be completely watertight but will provide a degree of protection against rain ingress. See section 8.1 of this Certificate.
Regulation: Comment:	7(1)	Materials and workmanship The products are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: Comment:	7(2)	Materials and workmanship The products may be restricted by this Regulation. See sections 7.1, 7.2, 7.3 and 7.6 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: Comment:	8(1)(2)	Durability, workmanship and fitness of materials The use of the products satisfies the requirements of this Regulation. See sections 9 and 10 and the <i>Installation</i> part of this Certificate.
Regulation: Standard: Comment:	9 1.1(a)(b)	Building standards applicable to construction Structure The products are acceptable, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ . See section 6 of this Certificate.
Standard: Standard: Standard:	2.1 2.2 2.3	Compartmentation Separation Structural Protection The products may be restricted by these Standards, with reference to clause 2.1.12 ⁽²⁾ , 2.2.4 ⁽²⁾ , 2.2.5 ⁽²⁾ , 2.2.2 ⁽²⁾ , 2.3.2 ⁽¹⁾⁽²⁾ , 2.2.6 ⁽¹⁾ , 2.2.7 ⁽¹⁾ , 2.2.8 ⁽¹⁾ . See sections 7.1, 7.2, 7.3 and 7.8 of this Certificate.
Standard: Comment:	2.5	Internal linings The products can be unrestricted by this Standard, with reference to clause 2.5.1 ⁽¹⁾⁽²⁾ . See section 7.8 of this Certificate.
Standard: Comment:	2.6	Spread to neighbouring buildings The products may be restricted by this Standard, with reference to clause 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See sections 7.1, 7.2, 7.3, 7.5 and 7.7 of this Certificate.

Standard:	2.7	Spread on external walls
Comment:		The products may be restricted by this Standard, with reference to clause 2.7.1 ⁽¹⁾⁽²⁾ . See sections 7.1, 7.2, 7.3, 7.5 and 7.7 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The products will not be completely watertight but will restrict the ingress of rainwater to the supporting structure. See section 8.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The products can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	12	Building standards applicable to conversions
Comment:		Comments in relation to the products under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .
		(1) Technical Handbook (Domestic)
		(2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	23(a)(i)	Fitness of materials and workmanship
Comment:	(iii)	The products are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The products provide a degree of protection against rain ingress and contribute to satisfying this Regulation. See section 8.1 of this Certificate.
Regulation:	30	Stability
Comment:		The products are acceptable for use when installed in accordance with this Certificate. See section 6 of this Certificate.
Regulation:	34(a)(b)	Internal fire spread (linings)
		The products can be unrestricted by this Regulation. See section 7.8 of this Certificate.
Regulation:	36(a)	External fire spread
Comment:		The products can be unrestricted by this Regulation. See sections 7.1, 7.2, 7.3 and 7.5 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 1 *Description* (1.1) and 3 *Delivery and site handling* of this Certificate.

Technical Specification

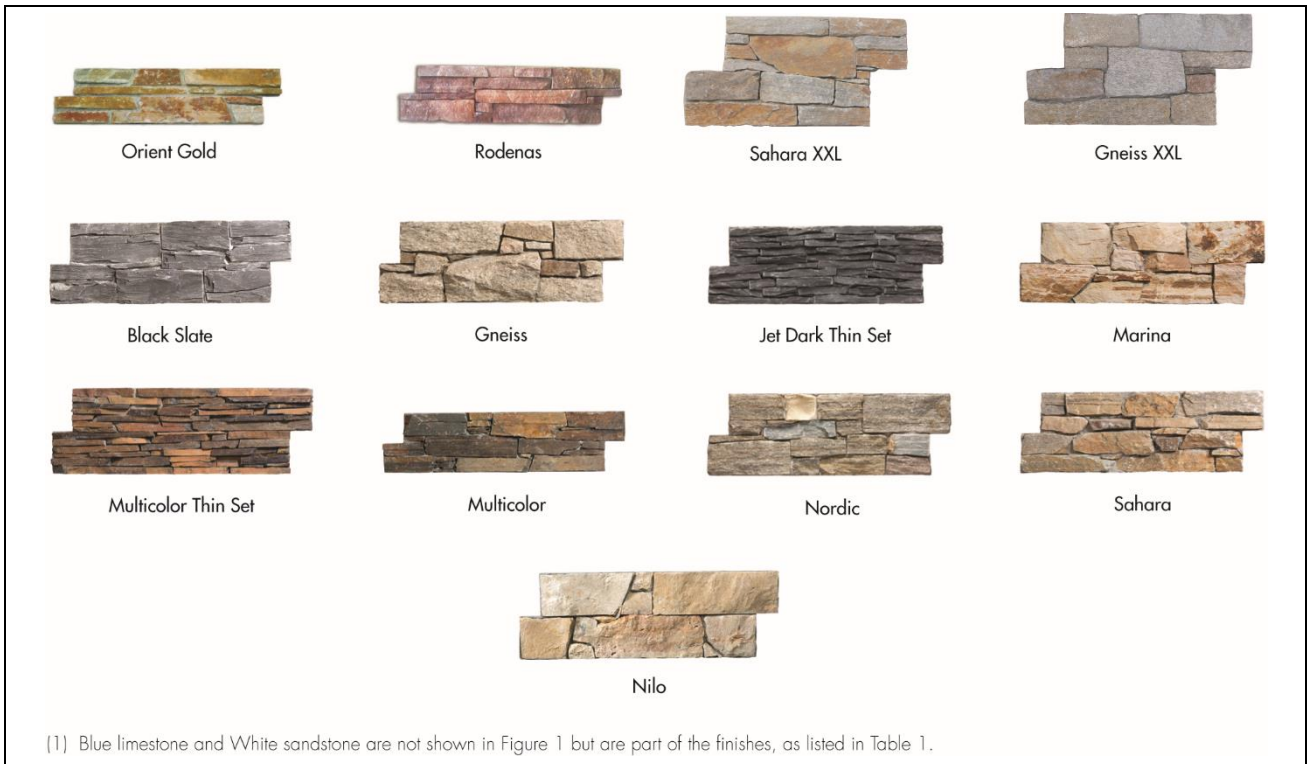
1 Description

1.1 Stonepanel and Stonepanel Sky are natural stone panels bonded to a cement base reinforced with glass fibre mesh. The panels are available in a range of stone types and with long (L) or short (S) corners (see Table 1 and Figure 1).

Table 1 Panel characteristics

Finish	Stone type	Stonepanel reference	Stonepanel long (L) and short (S) corner reference	Stonepanel Sky reference	Stonepanel Sky long (L) and short (S) corner reference	Size of panel (mm)	Overall thickness (mm)	Approx weight (kg)
Orient Gold	Quartzite	SPZ-14R	SPZ-14R-L	SPZ-14R-MF	SPZ-14R-L-MF	610 x 152	20 - 40	7.0
			SPZ-14R-S		SPZ-14R-S-MF	305 x 152		3.5
Orient Gold	Quartzite	SPZ-14R	SPZ-14R-L	SPZ-14R-MF	SPZ-14R-L-MF	600 x 200	20 - 40	8.8
			SPZ-14R-S		SPZ-14R-S-MF	300 x 200		4.4
Multicolor	Slate	SPZ-24A	SPZ-24A-L	SPZ-24A-MF	SPZ-24A-L-MF	610 x 152	20 - 40	7.5
			SPZ-24A-S		SPZ-24A-S-MF	305 x 152		3.8
Multicolor	Slate	SPZ-24A/T	SPZ-24A/T-L	SPZ-24A/T-MF	SPZ-24A/T-L-MF	600 x 200	20 - 40	9.4
			SPZ-24A/T-S		SPZ-24A/T-S-MF	300 x 200		4.7
Multicolor Thin Set	Slate	SPZ-24TS	SPZ-24TS-L	SPZ-24TS-MF	SPZ-24TS-L-MF	600 x 200	20 - 45	9.4
			SPZ-24TS-S		SPZ-24TS-S-MF	300 x 200		4.7
Jet Dark Thin Set	Slate	SPZ-18TS	SPZ-18TS-L	SPZ-18TS-MF	SPZ-18TS-L-MF	610 x 152	20 - 45	7.7
			SPZ-18TS-S		SPZ-18TS-S-MF	305 x 152		3.8
Jet Dark Thin Set	Slate	SPZ-18TS/T	SPZ-18TS/T-L	SPZ-18TS/T-MF	SPZ-18TS/T-L-MF	600 x 200	20 - 45	8.8
			SPZ-18TS/T-S		SPZ-18TS/T-S-MF	300 x 200		4.4
Ródenas	Sandstone	SPZ-31N	SPZ-31N-L	SPZ-31-MF	SPZ-31-MF-L	610 x 152	30 - 40	7.0
			SPZ-31N-S		SPZ-31-MF-S	305 x 152		3.5
Ródenas	Sandstone	SPZ-31N/T	SPZ-31N/T-L	SPZ-31N/T-MF	SPZ-31N/T-MF-L	600 x 200	30 - 40	8.8
			SPZ-31N/T-S		SPZ-31N/T-MF-S	300 x 200		4.4
Gneiss	Gneiss	SPZ-55N	SPZ-55N-L	SPZ-55N-MF	SPZ-55N-MF-L	600 x 200	30 - 50	10.5
			SPZ-55N-S		SPZ-55N-MF-S	300 x 200		5.3
Black Slate	Slate	SPZ-19A	SPZ-19A-L	SPZ-19A-MF	SPZ-19A-MF-L	600 x 200	20 - 40	8.8
			SPZ-19A-S		SPZ-19A-MF-S	300 x 200		4.4
Blue Limestone	Limestone	SPZ-38N	SPZ-38N-L	SPZ-38N-MF	SPZ-38N-MF-L	600 x 200	30 - 40	8.8
			SPZ-38N-S		SPZ-38N-MF-S	300 x 200		4.4
White Sandstone	Sandstone	SPZ-61N	SPZ-61N-L	SPZ-61N-MF	SPZ-61N-MF-L	600 x 200	30 - 40	8.8
			SPZ-61N-S		SPZ-61N-MF-S	300 x 200		4.4
Marina	Sandstone	SPZ-66N	SPZ-66N-L	SPZ-66N-MF	SPZ-66N-MF-L	600 x 200	30 - 50	10.5
			SPZ-66N-S		SPZ-66N-MF-S	300 x 200		5.3
Nilo	Limestone	SPZ-35N	SPZ-35N-L	SPZ-35N-MF	SPZ-35N-MF-L	600 x 200	20 - 40	8.8
			SPZ-35N-S		SPZ-35N-MF-S	300 x 200		4.4
Sahara	Mica Schist	SPZ-49R	SPZ-49R-L	SPZ-49R-MF	SPZ-49R-MF-L	600 x 200	30 - 50	10.5
			SPZ-49R-S		SPZ-49R-MF-S	300 x 200		5.3
Nordic	Quartzite + Mica Schist	SPZ-33RB	SPZ-33RB-L	SPZ-33RB-MF	SPZ-33RB-MF-L	600 x 200	30 - 50	9.6
			SPZ-33RB-S		SPZ-33RB-MF-S	300 x 200		4.8
Sahara XXL	Mica Schist	SPZ-49GB	SPZ-49GB-L	SPZ-49GB-MF	SPZ-49GB-MF-L	600 x 300	30 - 50	14.1
			SPZ-49GB-S		SPZ-49GB-MF-S	300 x 300		7.0
Gneiss XXL	Gneiss	SPZ-55GB	SPZ-55GB-L	SPZ-55GB-MF	SPZ-55GB-MF-L	600 x 300	30 - 50	14.1
			SPZ-55GB-S		SPZ-55GB-MF-S	300 x 300		7.0

Figure 1 Panel finishes⁽¹⁾



1.2 Stonepanel Sky panels, to the same specification as Stonepanel panels, incorporate an anchor of 2.6 mm stainless steel wire embedded into the concrete base, for mechanical fixing to the wall. During installation, a piece of stainless-steel banding is looped through this anchor and fixed to the support wall using stainless steel screws and wall plugs (see Figures 2 and 3).

Figure 2 Stonepanel Sky — rear view, showing anchor and steel band

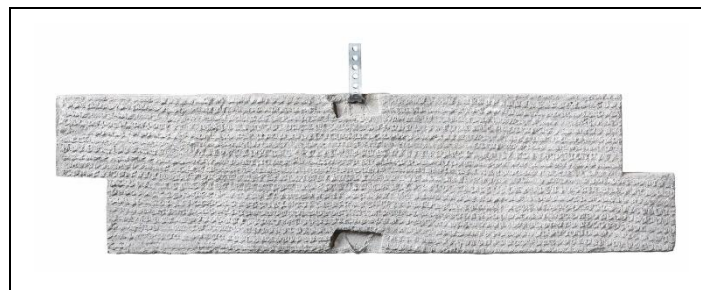
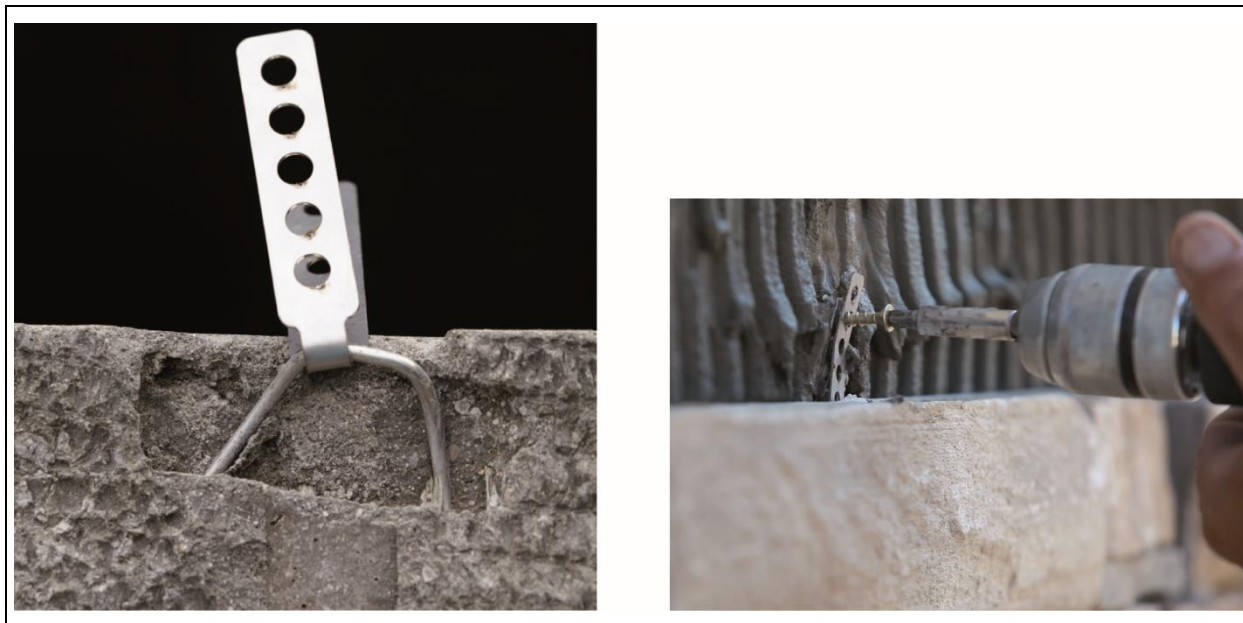


Figure 3 Perforated steel band looped through the anchor and fixed in the wall



1.3 Ancillary items or components specified for use with the panel, but outside the scope of this Certificate, include:

- cementitious adhesive — to BS EN 12004-1 : 2017, for attachment of the panels to the substrate wall. The adhesive must be classified as type C2 for internal walls and type C2-S1/S2 for external walls, in accordance with BS EN 12004-1 : 2017. Also see sections 7.2 and 12.1 of this certificate.
- perforated steel banding — stainless steel grade AISI 316 (1.4401) or AISI 304 (1.4301) to BS EN 10088-1:2014, with a minimum thickness of 0.7 mm and width of 12 to 15 mm, with holes 6 ± 1 mm in diameter; and stainless steel grade AISI 304 (1.4301) to BS EN 10088-1:2014, with a minimum thickness of 0.8 mm and width of 10 ± 1 mm, with holes 5 ± 1 mm in diameter. The steel banding has five holes on each of the two wings, which are aligned in order to fix a screw through both holes into the wall (see Figure 3)
- stainless steel screws and wall plugs — for installation of Stonepanel Sky (above 2 metres). For fixing strength requirements, see section 6
- substrate wall.

2 Manufacture

2.1 The panels are made of natural stone which is manually cut and bonded to a cement-based mortar reinforced with glass fibre mesh. For Stonepanel Sky panels, a stainless-steel anchor is embedded in the concrete base for additional fixing strength.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control being operated by the manufacturer are being maintained.

3 Delivery and site handling

3.1 The products are delivered to site on pallets, either packed in plastic in pairs, or in cardboard boxes of three or four pieces.

3.2 Each pallet carries a label bearing details of manufacturing reference, size, area covered per unit and weight per unit.

3.3 Panels should be handled with care to avoid damage or breakage. Care is required when installing panels, particularly at height, to avoid injuries.

3.4 When handling panels, appropriate protective clothing must be worn.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Stonepanel and Stonepanel Sky.

Design Considerations

4 General

4.1 Stonepanel and Stonepanel Sky are satisfactory for use as a decorative cladding for indoor and outdoor use, on new or existing buildings, when attached to solid walls of masonry or concrete using cementitious adhesive to BS EN 12004-2 : 2017.

4.2 Stonepanel panels can be installed at heights up to 2 metres. Stonepanel Sky panels can be installed up to any height.

4.3 It is important for designers, planners, contractors and/or installers to ensure that the installation of the panels is in accordance with the Certificate holder's instructions and the information given in this Certificate. All design aspects should be checked by a suitably qualified and experienced individual in accordance with the requirements of the relevant national Building Regulations and Standards.

4.4 The wall to which the cladding is fixed must be structurally sound and constructed in accordance with the requirements of the relevant Building Regulations and national Standards.

4.5 The products will improve the weather resistance of a wall and provide a decorative finish. However, they may be installed only where other potential sources of moisture penetration have been dealt with separately and where there are no signs of dampness on the inner surface of the wall, other than those caused solely by condensation.

4.6 The fixing of rainwater goods, satellite dishes, clothes lines, hanging baskets and similar items is outside the scope of this Certificate.

5 Practicability of installation

The products should only be installed by installers who have been trained and approved by the Certificate holder.

6 Strength and stability



6.1 The design wind actions must be calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. Consideration should be given to higher pressure coefficients applicable to corners of buildings as recommended in this Standard. In accordance with BS EN 1990 : 2002, it is recommended that a partial load factor of 1.5 is used to determine the design wind load to be resisted by the system.

6.2 The panels should be installed on the wall with cementitious adhesive to BS EN 12004-2 : 2017 as described in sections 1.3 of this Certificate.

6.3 The panels, when bonded to masonry built to BS EN 1996-1-1 : 2005, using cementitious adhesive as described in section 1.3 and determined as described in section 6.4 of this Certificate, should provide adequate resistance to design wind actions likely to occur in the UK (see sections 6.1 of this Certificate).

6.4 The bond strength between the cementitious adhesive and the substrate wall should be determined on site as described in section 11.4 to confirm it is in accordance with BS EN 12004-1: 2017 (i.e. minimum tensile adhesion strength $\geq 1.0 \text{ N} \cdot \text{mm}^{-2}$ after 28 days) as specified in section 1.3 of this Certificate. The design bond strength should be taken as the lowest of the five results divided by a safety factor of 9. The designer should ensure that the design wind actions calculated as described in section 6.1 do not exceed the design bond strength between the wall and adhesive.

6.5 All panels installed above 2 m from the ground, must be fixed with both cementitious adhesive and mechanical fixings (which include perforated steel banding, stainless steel screws and wall plugs) as described in section 1.3 of this Certificate.

6.6 The anchor embedded in the concrete base of Stonepanel Sky panels (see Figure 2) has a minimum characteristic pull-out resistance of 2 kN.

6.7 The fixings attaching Stonepanel Sky panel to the substrate wall must have adequate tensile pull-out strength and corrosion resistance. An appropriate number of site-specific pull-out tests must be conducted on the wall as appropriate, to determine the minimum pull-out resistance to failure of the fixings as well as their characteristic pull-out resistance in accordance with the guidance given in BS EN 1990 : 2002 and EOTA TR 055 : 2018. The design pull-out value should be determined by dividing the characteristic value by a minimum safety factor of 3.

6.8 The design of the installation must be checked by a suitably qualified individual.

6.9 The mechanical fixings, comprising stainless steel perforated banding, stainless steel screws and wall plugs (not covered by this Certificate), must be designed and specified by a suitably qualified individual to ensure adequate strength. The Certificate holder can supply details of the fixings.

Impact

6.11 When tested for hard body impact, the panels achieved adequate resistance to impact and therefore may be considered suitable for use in Categories I, II, III and IV as defined in Table 2 below.

Table 2 Impact Use Categories (reproduced from EAD 090062-00-0404 : 2018, Table G.2)

Category	Use
I	A zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use, eg façade bases in buildings sited in public locations, such as squares, schoolyards or parks. Cleaning gondolas may be used on the façade.
II	A zone liable to impacts from thrown or kicked objects, but in public locations where the height of the kit will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care, eg façade bases in buildings not sited in public locations (such as squares, schoolyards or parks) or upper façade levels in buildings sited in public locations that occasionally can be hit by a thrown object (eg ball, stone, etc). Cleaning gondolas may be used on the façade.
III	A zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects, eg upper façade levels in buildings (not including base) not sited in public locations, that occasionally can be hit by a thrown object (eg ball, stone, etc). Cleaning gondolas should not be used on the façade.
IV	A zone out of reach from ground level, eg high façade levels that cannot be hit by a thrown object. Cleaning gondolas should not be used on the façade.

7 Behaviour in relation to fire



7.1 A construction incorporating the panels achieved the reaction to fire classification shown in Table 3

Table 3 Reaction to fire classification to NF EN 13501-1 : 2013

Classification	Products	Cementitious adhesive ⁽¹⁾	Report reference ⁽²⁾
A2-s1, d0 ⁽³⁾	Stonepanel & Stonepanel Sky	PCS value ≤ 2.49 MJ/kg Maximum wet quantity 8 kg·m ⁻²	CSTB – N°RA18-0226

(1) Cementitious adhesive had an E reaction to fire classification to BS EN 12004-1 : 2017. See also section 1.3 of this Certificate.

(2) Copies available from the Certificate holder.

(3) End uses, on any A1 or A2-s1, d0 substrate with a density ≥ 1350 kg·m⁻³ and a thickness ≥ 6 mm.



7.2 This classification may not be achieved by other constructions, or in combination with other materials, such as adhesive with different properties. The performance of such constructions, therefore, should be confirmed in accordance with the requirements of the documents supporting the national Building Regulations.

7.3 The Skypanel fixings (perforated steel banding and stainless-steel screw) are classified as non-combustible in accordance with the relevant national regulatory guidance.

7.4 Designers should refer to the relevant national Building Regulations and guidance for alternative approaches and detailed conditions of use, particularly in respect of requirements for substrate fire performance, and combustibility limitations for other materials and components used in the overall wall construction.

External wall cladding



7.5 The construction in Table 3 is unrestricted in terms of building height or proximity to a boundary, other than external walls described in sections 7.6 and 7.7 of this Certificate.



7.6 In England and Wales, cementitious adhesive with a reaction to fire classification less than A2-s1, d0 should not be used on the external walls of buildings that have a storey at least 18 m above ground level and which contain one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.



7.7 In Scotland, cementitious adhesive with a reaction to fire classification of less than A2 should not be used on walls 1 m or less from a boundary.

Internal wall lining



7.8 The construction in Table 3 is unrestricted, other than external walls described in sections 7.6 and 7.7 of this Certificate and (in Scotland) some separating walls.

8 Air and water penetration



8.1 The panels are for decorative purposes only and provide neither airtightness nor watertightness.

8.2 Care must be taken to ensure that the wall supporting the cladding is adequately weathertight prior to the application of the system. The system must only be installed where there are no signs of dampness on the inner surface of the wall other than those caused solely by condensation.

8.3 The cementitious adhesive should be applied evenly to the supporting wall and the back of the panels to minimise the formation of air pockets which might collect water from wind-driven rain.

9 Maintenance and repair



9.1 In the case of abnormal soiling, the surface may be cleaned using a hot water/household detergent mixture, applied with a suitable cleaning pad or sponge. However, for the removal of graffiti and other persistent stains, the Certificate holder's advice should be sought.

9.2 Regular maintenance inspections should be made, and faults and damage repaired as soon as is practicable, following the Certificate holder's instructions and observing all necessary Health and Safety precautions. Where damage has been caused by severe impact, the Certificate holder's advice should be sought.

10 Durability



10.1 Tests carried out on the panels indicated that the bond between the stone finish and the cement base of the panels was not affected by freeze-thaw conditions or by thermal shock, and therefore will have adequate durability.

10.2 The durability and service life of the panels will depend upon the building's location and use, and its immediate environment.

10.3 Provided regular maintenance is carried out as described in section 9 and in accordance with the Certificate holder's instructions, the product will have a service life in excess of 30 years.

Installation

11 General

11.1 The products must be installed in accordance with the Certificate holder's recommendations, the requirements of this Certificate and the specifications laid down by a suitably qualified individual.

11.2 At the design stage and at the commencement of the installation, technical advice must be sought from the Certificate holder.

11.3 Wall surface should be clean and prepared/treated as required.

11.4 The bond strength between the cementitious adhesive and the wall must be determined using trial tests. A minimum of five specimens are bonded to the wall and allowed to cure for 28 days. The specimens are then pulled off the wall using suitable calibrated equipment to determine the bond strength. Also see sections 1.3 and 6.4 of this Certificate.

11.5 On existing buildings, purpose-made window sills must be fitted to extend beyond the finished face of the panels. New buildings must incorporate suitably deep sills.

12 Procedure

12.1 A serrated trowel should be used to apply the mortar adhesive in a 6 to 7 mm thick layer, covering both the back of the stone panel and the wall surface; the two are then bonded together (see Figures 4, 5 and section 7.1). If the blockwork is uneven, it is advisable to level it with a suitable mortar before installing the panels.

Figure 4 Mortar application using a toothed trowel



Figure 5 Stone panels bonded to the wall



12.2 Starting with a long-cornered panel, the bottom row of panels is placed into position supported by either a plinth or a profile made from aluminium or stainless or galvanized steel. A rubber mallet may be used to help consolidate the mortar adhesive and align the panels. The end panel is trimmed to fit using a suitable tool such as an abrasive disc. The process is repeated for each row, ensuring that joints are staggered (eg by alternate use of long- and short-cornered panels).

12.3 For heights above two metres, Stonepanel Sky panels must be used with the appropriate mortar adhesive and mechanical system (not covered by this Certificate). With each panel, a piece of steel banding (see Figure 3) is looped through the wire embedded in the panel and fixed to the support wall using the stainless steel screws and wall plugs.

12.4 Above windows and door openings, a stainless or galvanized steel profile should be fixed to the wall to support the first line of panels.

12.5 To support the last course of Stonepanel Sky panels, and those immediately below window sills, the steel banding should be embedded into a created gouged pocket filled with cementitious mortar adhesive in the wall behind the panels.

13 Tests

Tests were carried out on the panels and the results assessed to determine:

- resistance to frost damage
- resistance to thermal shock
- bond strength of stone facing to cement base
- pull-off strength of anchor
- resistance to impact.

14 Investigations

14.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

14.2 An assessment was made of test reports relating to the reaction to fire classification of the product to NF EN 13501-1 + A1 : 2013.

14.3 Installations in progress were inspected to evaluate the practicability of installation.

Bibliography

BS EN 1990 : 2002 + A1 : 2005 *Eurocode — Basis of structural design*

NA to BS EN 1990 : 2002 + A1 : 2005 UK National Annex for *Eurocode — Basis of structural design*

BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 : Actions on structures — General actions — Wind actions*

NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Wind actions*

BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

BS EN 12004-1 : 2017 *Adhesives for ceramic tiles — Requirements, assessment and verification of constancy of performance, classification and marking*

BS EN 12004-2 : 2017 *Adhesives for ceramic tiles — Test methods*

EAD 090062-00-0404 : 2018 *Kits for external wall claddings mechanically fixed*

EOTA TR 055 : 2018 *Design of fastenings based on EAD 330232-00-0601, EAD 330499-00-0601 and EAD 330747-00-0601*

NF EN 13501-1 + A1 : 2013 *Fire classification of construction products and building elements - Part 1 : classification using data from reaction to fire tests*

BS EN 10088-1:2014 *Stainless Steel — List of stainless steels*

15 Conditions

15.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

15.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

15.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

15.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

15.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

15.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.