

## Sistemas Técnicos del Accesorio y Componentes S.L.

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**Agrément Certificate**

**13/5022**

Product Sheet 1

### STAC CLADDING SYSTEMS

### STACBOND FR AND STACBOND A2 CLADDING SYSTEMS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Stacbond FR and Stacbond A2 Cladding Systems, composite panels of aluminium sheets with either a polyethylene or a mineral core, supported on aluminium rails and used, with height restrictions in some cases, to provide a decorative and protective back-ventilated façade over the supporting concrete or masonry external walls of new or existing buildings.

(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 systems can be designed to resist the wind actions normally encountered in the UK and transfer the design loads to the substrate wall structure (see section 6).

**Behaviour in relation to fire** — the Stacbond A2 and Stacbond FR panels have an A2-s1,d0 and a B-s1,d0 reaction to fire classification respectively in accordance with BS EN 13501-1 : 2007. Stacbond FR panel is restricted in some cases (see section 7).

**Air and water penetration** — the vertical and horizontal joints between the panels will minimise water entering the cavity. Any water collecting in the cavity due to rain and condensation will be removed by drainage and ventilation (see section 8).

**Durability** — the cladding systems have acceptable durability and can be expected to have a service life in excess of 30 years (see section 10).

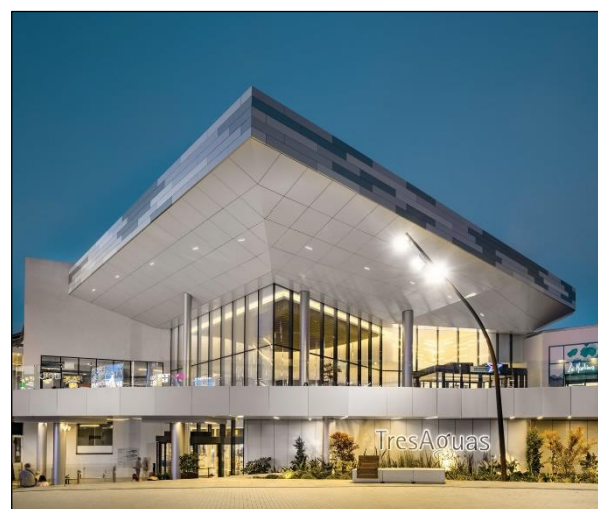
The BBA has awarded this Certificate to the company named above for the systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Third issue: 1 July 2021

Originally certificated on 24 July 2013

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](http://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.

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## Regulations

In the opinion of the BBA, Stacbond FR and Stacbond A2 Cladding Systems, 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)

<b>Requirement:</b>	<b>A1</b>	<b>Loading</b>
Comment:		The systems can be designed to resist the wind actions normally encountered in the UK. See section 6 of this Certificate.
<b>Requirement:</b>	<b>B3(4)</b>	<b>Internal fire spread (structure)</b>
Comment:		The systems are restricted by this Requirement. See section 7.2 of this Certificate.
<b>Requirement:</b>	<b>B4(1)</b>	<b>External fire spread</b>
Comment:		The products are restricted by this Requirement in some cases. See sections 7.1, 7.3, 7.5, 7.6 and 7.7 of this Certificate.
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:		The systems will satisfy this Requirement. See section 8 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The systems are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>7(2)</b>	<b>Materials and workmanship</b>
Comment:		The products are restricted by this Regulation in some cases. See sections 7.1 and 7.2.



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The systems are acceptable. See sections 9 and 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	1.1(a)(b)	Structure
Comment:		The systems are acceptable, with reference to clause 1.1.1 <sup>(1)(2)</sup> . See section 6 of this Certificate.
Standard:	2.4	Cavities
Comment:		The systems are restricted by this Standard, with reference to clause 2.4.2 <sup>(1)(2)</sup> . See section 7.2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The products are restricted by this Standard in some cases, with reference to clauses 2.6.4 <sup>(1)(2)</sup> , 2.6.5 <sup>(1)</sup> and 2.6.6 <sup>(2)</sup> . See sections 7.1, 7.3, 7.8 and 7.9 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The products are restricted by this Standard in some cases, with reference to clause 2.7.1 <sup>(1)(2)</sup> . See sections 7.1, 7.3, 7.5, 7.6, 7.8 and 7.9 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The systems will contribute to satisfying this Standard, with reference to clauses 3.10.1 <sup>(1)(2)</sup> to 3.10.3 <sup>(1)(2)</sup> , 3.10.5 <sup>(1)(2)</sup> and 3.10.6 <sup>(1)(2)</sup> . See section 8 of this Certificate.

Standard:	7.1(a)	Statement of sustainability
Comment:		The systems can contribute to meeting 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.
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



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

<b>Regulation:</b>	<b>23</b>	<b>Fitness of materials and workmanship</b>
Comment:		The systems are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>28(b)</b>	<b>Resistance to moisture and weather</b>
Comment:		The systems will contribute to satisfying this Regulation. See section 8 of this Certificate.
<b>Regulation:</b>	<b>30</b>	<b>Stability</b>
Comment:		The systems are acceptable and can sustain and transmit wind actions to the substrate wall. See section 6 of this Certificate.
<b>Regulation:</b>	<b>35(4)</b>	<b>Internal fire spread — Structure</b>
Comment:		The systems are restricted by this Regulation. See section 7.2 of this Certificate.
<b>Regulation:</b>	<b>36(a)</b>	<b>External fire spread</b>
Comment:		The products are restricted by this Regulation in some cases. See sections 7.1, 7.3, 7.5, 7.6 and 7.7 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 section: 3 *Delivery and site handling* (3.1 and 3.4) of this Certificate.

## Additional Information

### NHBC Standards 2021

In the opinion of the BBA, Stacbond FR and Stacbond A2 Cladding Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 6.9 *Curtain walling and cladding*.

## Technical Specification

### 1 Description

#### General

1.1 Stacbond FR and Stacbond A2 Cladding Systems comprise composite panels attached to an aluminium support rail system.

#### Facing panels

1.2 The panels are aluminium composite panels comprising two aluminium alloy sheets bonded to either side of a low-density fire retardant polyethylene (LDPE) core (see Figure 1) or an inorganic mineral A2 core, bonded with organic polymer. The panels are available from the Certificate holder as standard flat panels or tray panels and in two grades,

Stacbond FR or Stacbond A2, differentiated by the composition of the panel core and with the nominal characteristics given in Table 1. Routed flat sheets are not covered by this Certificate.

Figure 1 Stacbond FR and Tray Panels



Table 1 Nominal characteristics

Characteristics	Panel type	
	FR	A2
Panel		
Length (mm)	1000, 1250, 1500 and 2000 (−0;+2)	
Width (mm)	3200, 4000, 5000 and 6000 (−0;+3)	
Nominal thickness (mm)	4 (−0.15;+0.1)	
Weight (kg·m <sup>−2</sup> )	8.02 (±8%)	8.3
Aluminium sheet <sup>(1)</sup>		
thickness (mm)	0.48 (±0.02)	
grade	3005/H42, 3005/H44, 3105/H44 or 5005/H42	
Coating		
Outer face	25-35 µm polyvinylidene fluoride (PVDF)	
Reverse side	Protective primer	
Core		
Material	Low density polyethylene with mineral content (light grey)	Inorganic mineral core
Mean density (kg·m <sup>−3</sup> )	1462 <sup>(2)</sup>	1889 <sup>(2)</sup>
Colours	Various	Various

(1) Manufactured in accordance with EN 573-3 : 2019, EN 485-2 : 2016 and EN 1396 : 2015.

1.3 Tray panels are formed by milling and stamping flat panels to form a 90° angle on each side and are used in conjunction with additional reinforcement to strengthen and stiffen the panels and hanging points.

1.4 Standard panels are formed by cutting panels to the desired dimensions and marking perforations for the specified rivets.

1.5 Both tray and standard panels can be specially fabricated for corners, openings, base of walls and parapets.

1.6 The panels are also available in a routed condition for forming into tray panels by others. However, neither the routed panels nor tray panels fabricated by others have been assessed by the BBA and these are outside the scope of the Certificate.

## Support and fixing systems

1.7 The panels are fixed to the substrate wall via an aluminium sub-frame system comprising fasteners, rivet fastening plates and rails creating a cavity. There are three separate support systems (see Figure 2) depending on the type of panel used:

### ***STB-CH hanging support system — Tray panels***

Comprising vertical rail profiles attached to wall brackets using bolts and mechanically fastened to the substrate wall. The brackets are available in several heights to allow for different insulation thickness. Clamping pieces are riveted to the rail and an EPDM sleeve is attached to protect the tray panel at the reinforced notched hanging point. Reinforcement is required for panels with 40 mm folds with 10 mm slots. For panels with 45 mm folds and 15 mm slots, this reinforcement of the slot is not necessary. In addition, vertical reinforced angular profiles are positioned to the back of the panel tray using adhesive and further secured by rivets to the upper or lower tabs to provide extra rigidity.

### ***STB-Riveted support system — Flat panels***

Comprising vertical rail profiles attached to brackets using bolts and mechanically fastened to the substrate wall. Where necessary, reinforcement profiles are positioned horizontally at the top, bottom and middle of the flat panel with a riveted T-joining piece at a maximum distance of 500 mm centres and 15 mm at panel top and bottom. Flat panels are riveted to both vertical and horizontal support rails.

### ***STB-SZ fixed support system – Tray panels***

Comprising vertical rail profiles attached to wall brackets using bolts and mechanically fastened to the substrate wall. Panels are connected to the vertical rails by means of intermediate S- and Z-profiles.

1.8 The specification of the components used in these systems is given in Table 2.

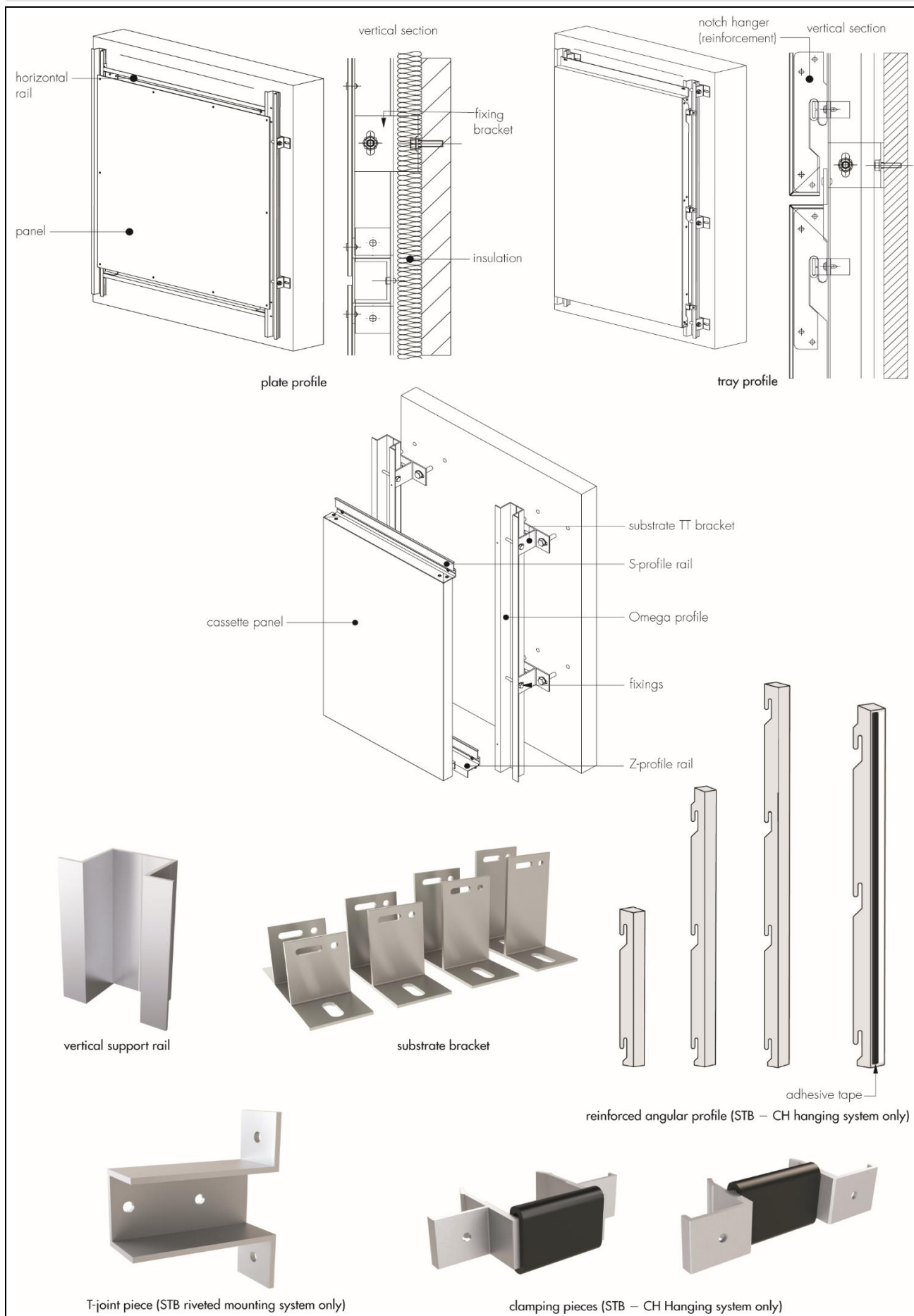
**Table 2 Component specifications**

Component	System	Dimensions/material
Substrate TT bracket	All	59 to 257 mm high and 130 mm wide, 3 or 5 mm thick extruded aluminium alloy TT shaped brackets (grade 6063 T5) with vertical perforations and lateral tongues
Vertical rail profile	All	Omega-shaped section profiles, 77 mm wide 2.5 mm thick aluminium alloy (grade; 6063 T5, weight; 0.89 kg·m <sup>-1</sup> ) supplied in 6.5 metre lengths
Horizontal support rail	STB-Riveted	(specification as vertical rail support)
Clamping piece	STB – CH	80 mm wide with 40 mm hanging area
Clamping piece sleeve	STB – CH	2.3 mm thick EPDM
T-joining piece	STB-Riveted	121 mm wide 3 mm thick extruded aluminium alloy (grade 1050-H)
Notch reinforcement	STB – CH	30 mm x 30 mm 2 mm thick aluminium alloy (grade 1050)
Reinforced intermediate strengtheners	STB – CH	2 mm thick aluminium alloy (grade 1050-H)
Reinforcement adhesive system	STB – CH	System comprising: De-greaser and adhesion promoter Panel Primer — single-part, epoxy polyurethane-based primer Double-sided Adhesive Tape — closed cell, polyethylene adhesive Panel Adhesive — a single part, moisture curing, polyurethane resin adhesive
Horizontal profile	STB-SZ	S- and Z-shaped vertical or horizontal profiles 2 mm thick aluminium alloy (grade: 6063 T5, weight: 0.89 kg·m <sup>-1</sup> ) supplied in 6.5 metre lengths

**Table 3 Fixing specifications**

Fixing	Dimensions (mm)	Use
<b><u>STB-Riveted</u></b>		
Blind rivet	5.0 diameter x 12 length	Fixing panel to substructure
Open end blind rivet with A2 stainless-steel break pull mandrel and protruding aluminium head (optionally lacquered), i.e. SFS AP14-S-50120	5.0 diameter x 12 length	
Optionally self-drilling screw, stainless steel, i.e. SLA3/6-D12-4,8x19 A2	4.8 diameter x 19 length	
Open end blind rivet, with A2 stainless steel break pull mandrel, i.e. SFS Polygrip ASO-D-48150	4.8 diameter x 15 length	Fix T-joining piece to vertical profiles
Self-drilling screw, A2 stainless steel	4.8 diameter x 19 length	
<b><u>STB-CH / STB-SZ</u></b>		
Self-drilling screws type DIN 7504, i.e. SFS SN3/6-S-7049/SR2 or SFS SN3/9-S-7049/SR2	4.2 diameter x 16 length	Fix hanger and the upper panel flap to vertical profiles; Fix S/Z profiles to vertical profiles
Blind rivet	4.8 diameter x 15 length	
Open end blind rivet, with A2 stainless steel break pull mandrel diameter, i.e. SFS Polygrip ASO-D-48140 aluminium alloy A2	4.8 diameter x 15 length	
<b><u>All systems</u></b>		
Hexagonal head screw ISO 4017 with 8.8 washer ISO 7089 and hexagonal nut M6-8-8	M6 diameter x 60/70 length; 8.8 diameter washer	Wall bracket to vertical support profile
Optionally stainless-steel self-drilling screw with hexagonal head, washer and self-threading threads ISO 15480, i.e. SFS SDA 5/3.5-4 13- S4 (2 units, 1 each side of panel)	5.5 diameter x 22 length	
Open end blind rivet, with A2 stainless steel break pull mandrel diameter, i.e. SFS Polygrip ASO-D-48140 aluminium alloy A2	4.8 diameter x 15 length	Cassette panel forming

Figure 2 Panels and fixing components





1.9 Ancillary items used with the system but outside the scope of this Certificate:

- insulation — where required, should be of a semi-rigid type (eg boards or batts) and of a non-combustible material type
- breather membrane — where required, used in conjunction with insulation
- cavity barriers
- substrate fixings — specified on a project specific basis, used to attach the aluminium support rail bracket to the substrate wall.

## 2 Manufacture

2.1 Stacbond panels are manufactured by extruding a polyethylene core with mineral compounds or a mineral core between two sheets of coil-coated aluminium which are fusion-bonded in a continual process. The aluminium sheets are milled, stamped and coated with a polyvinylidene fluoride finish.

2.2 The core is manufactured from polyethylene solid granules and mineral compounds, or from a mineral core and shaped by applying heat and pressure, and processed to produce the finished composite panel.

2.3 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 operated by the manufacturer are being maintained.

2.4 The management system of Sistemas Técnicos del Accesorio y Componentes S.L. has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by Bureau Veritas (Certificate ES043762-1).

## 3 Delivery and site handling

3.1 The panels are delivered on wooden pallets and marked with directional arrows. To avoid damage to the panels, storage must be no more than eight pallets per stack. The maximum period of storage is eight months. The pallets bear product details such as type, size, quantity, identification code, manufacturing references and colour.

3.2 The pallets should be stored on a dry, flat and level surface, suitably protected from the weather. The maximum period of storage should be eight months and the protective film on the panels should not be removed until on site installation.

3.3 The panels are supplied with a removable protective film but must be handled with care to avoid damage and should be lifted off, rather than slid across each other.

3.4 Care should be exercised when handling the rails to avoid injury from sharp edges. Protective clothing should be worn and normal Health and Safety precautions observed.

3.5 All the components of the adhesive system must be protected from sunlight and the elements during transportation and storage.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Stacbond FR and Stacbond A2 Cladding Systems.



### 4 General

4.1 The Stacbond FR Cladding System is satisfactory for use in an open-jointed, back-ventilated and drained cladding system on the external walls of new or existing buildings with the height restrictions described in section 7 of this Certificate.

4.2 The Stacbond A2 Cladding System is satisfactory for use in an open-jointed, back-ventilated and drained cladding system on the external walls of new or existing buildings without restriction in height (see section 7).

4.3 All design aspects, including structural, fire and hygrothermal design, 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 Ventilation and drainage must be provided behind the cladding. The ventilation openings should be suitably protected, or baffled, to prevent the ingress of birds, vermin and rain.

4.5 The wall and sub-frame to which the cladding is fixed should be structurally sound and constructed in accordance with the requirements of the relevant national Building Regulations and Standards.

4.6 The supporting wall to which the cladding is fixed should be watertight and resistant to the transmission of heat and sound.

4.7 To allow for thermal expansion and water run-off, a gap of 10 to 15 mm between the ends of adjacent aluminium support rails should be provided. The open joints between panels must be sufficient to allow thermal expansion.

### 5 Practicability of installation

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

### 6 Strength and stability



6.1 All design aspects of the installation, including the adequacy of the substrate wall to which the cladding is to be fixed must be checked by a suitably qualified and experienced individual.

#### Wind loading



6.2 Design values of wind actions should be calculated in accordance with BS EN 1991-1-4 : 2005 and its relevant UK National Annex. Due consideration should be given to the higher pressure coefficients applicable to corners of the building as recommended in this Standard. In accordance with BS EN 1990 : 2002 and its relevant UK National Annex, it is recommended that a partial load factor of 1.5 is applied to determine the design wind load to be resisted by the cladding systems.

6.3 The supporting wall must be able to take the full wind load, as well as any racking loads on its own. No contribution from the cladding system may be assumed in this regard.

6.4 Tests were carried out to confirm the ultimate resistance to wind actions of the Stacbond FR and Stacbond A2 Cladding Systems using vertical support rails at 920 mm centres. The results are given in Table 3.

**Table 3 Wind resistance values**

Panel type/support system	Ultimate resistance (kN·m <sup>-2</sup> )	Design resistance <sup>(8)</sup> (kN·m <sup>-2</sup> )	Resistance at maximum allowable deflection <sup>(1)</sup> (kN·m <sup>-2</sup> )
Stacbond FR STB-CH <sup>(2)</sup>	2.0	1.3	1.4
Stacbond A2 STB-CH <sup>(3)</sup>	1.4	0.9	1.6
Stacbond FR STB-Riveted <sup>(4)</sup>	1.6	1.1	N/A
Stacbond FR STB-Riveted <sup>(5)</sup>	1.8	1.2	3.0
Stacbond FR STB-Riveted <sup>(6)</sup>	3.0	2.0	3.0
Stacbond FR STB-Riveted <sup>(7)</sup>	3.0	2.0	2.4
Stacbond A2 STB-Riveted <sup>(7)</sup>	2.4	1.6	N/A
Stacbond FR/A2 STB-SZ	3.4	2.3	N/A

(1) Maximum allowable deflection of the centre of the panel/cassette tray is given as  $L/30$ , where L is the distance between vertical rails or tray strengthening profiles

(2) Tests were carried out on cassette trays with reinforced slots

(3) Tests were carried out on cassette trays with non-reinforced slots

(4) Tests were carried out on non-continuous boards riveted to a substructure of vertical profiles

(5) Tests were carried out on continuous boards riveted to a substructure of vertical profiles

(6) Tests were carried out on non-continuous boards riveted to a substructure of bidirectional profiles

(7) Tests were carried out on continuous boards riveted to a substructure of bidirectional profiles

(8) The design wind load resistance was evaluated by applying a partial load factor of 1.5 to the ultimate wind load resistance

6.5 The Stacbond FR and Stacbond A2 systems can achieve the wind load resistance values as given in Table 3, provided the designer ensures the following:

- span between support rails does not exceed 920 mm
- maximum deflection of vertical rails does not exceed  $L/200$  (L = distance between brackets)
- maximum deflection in the centre of the tray/plate does not exceed 40 mm or  $L/30$ , whichever is the lesser (L = distance between vertical rails or tray strengthening profiles)
- maximum permissible panel stress is 51 MPa
- maximum permissible design load for the tray notch is 0.392 kN
- the system attachment to the substrate has adequate fixing pull-out capacity for the calculated actions. An appropriate number of site-specific pull-out tests should be conducted on the substrate of the building to determine the minimum resistance to failure of the fixings. The characteristic pull-out resistance should be determined in accordance with the guidance given in EOTA TR055, using 50% of the mean value of the five smallest measured values at the ultimate load.

### Impact

6.6 When tested for hard and soft body impacts, the Stacbond Cladding Systems using support rails at 1500 mm centres, achieved adequate resistance. Therefore, provided the distance between support rails does not exceed 1500 mm centres, the systems are considered suitable for use in categories I, II, III and IV as defined in EAD 090062-00-0404 (see Table 4).

**Table 4 Definition of Use Categories from EAD 090062-00-0404, Table G.2**

Use category	Description
I	A zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use.
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.
III	A zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects.
IV	A zone out of reach from ground level

## 7 Behaviour in relation to fire



7.1 The Stacbond FR and Stacbond A2 panels have reaction to fire classifications as shown in Table 5, in accordance with BS EN 13501-1 : 2007. The reaction to fire classification of specific build-ups may be different and must be confirmed by an appropriately qualified fire expert, or testing at a laboratory accredited by the United Kingdom Accreditation Service (UKAS) or other mutually recognised accreditation scheme.

*Table 5 Reaction to fire classifications of panels to BS EN 13501-1 : 2007*

Panel	Thickness	Classification	Report reference <sup>(1)</sup>
Stacbond FR	4 mm	B-s1,d0 <sup>(2)</sup>	AFITI 3526T18-2 dated 28 August 2018
Stacbond A2	4 mm	A2-s1,d0 <sup>(3)(4)</sup>	AFITI 3532T18-2 dated 10 October 2018

(1) Copies available from the Certificate holder

(2) Cassette system, various colours, minimum 20 mm air gap behind

(3) Cassette and flat panel system, various colours, minimum 20 mm air gap behind

(4) The core in isolation has a classification of A2-s2, d0 to UNE EN 13501-1 : 2019, report reference 4070T20-2 dated 18 June 2020

7.2 The reverse side of the panels (facing into the cavity) has not been classified to BS EN 13501-1 : 2007. Cavity barriers should be provided in accordance with the requirements of the documents supporting the national Building Regulations.

7.3 The metal fixings and aluminium support system components are classified as 'non-combustible' or 'of limited combustibility' in accordance with the relevant national regulatory guidance.

7.4 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity barriers, service penetrations and combustibility limitations for other materials and components used in the overall wall construction, for example, thermal insulation.

### Systems with Stacbond A2 panels



7.5 The panels are not subject to any restriction on building height or proximity to boundaries. See section 7.1 of this Certificate.

### Systems with Stacbond FR panels



7.6 The product should not be used with polymeric foam insulation on buildings at any height with residents who need significant assistance to evacuate.



7.7 In England, Wales and Northern Ireland, the panels may be used on buildings at any proximity to a boundary and with no storey more than 18 m above the ground.



7.8 In Scotland, the panels may be used on buildings more than 1 m from a boundary and, on houses, 1 m or less from a boundary. With minor exceptions, the panels should be included in calculations of unprotected area, except on houses where the external wall behind has the appropriate fire resistance.

7.9 In Scotland, the panels should not be used on any building with a storey more than 11 m above the ground or, on any entertainment and assembly building with a total storey area more than 500 m<sup>2</sup>, or on any hospital or residential care building with a total storey area more than 200 m<sup>2</sup>.

## 8 Air and water penetration



8.1 The cladding is not airtight or watertight, but intentionally open-jointed, back ventilated and drained.

8.2 The supporting wall must be watertight and reasonably airtight.

8.3 The air space between the back of the panels and the supporting wall or insulation (where specified) must be 38 mm and 50 mm minimum for baffled and opened joints respectively, while allowing for conventional building tolerances.

8.4 As far as possible, the vertical joints between panels should coincide with the centre line of vertical studding to minimise precipitation into the cavity due to wind driven rain.

8.5 In a correctly designed and installed pressure equalisation system, accounting for compartmentalisation within the cavity, the open joints will aid pressure equalisation and the air cushion within the cavity will reduce the amount of water passing through the joints.

8.6 Any water collecting in the cavity due to rain or condensation will be removed by ventilation and drainage. The gap between the panels should be a minimum of 10 mm throughout.

8.7 To aid drainage, 4.8 to 6 mm diameter holes should be drilled in all horizontal support rails at mid-span of vertical rails.

8.8 Consideration should be given to providing a breather membrane to protect the inner wall from precipitation. In such cases, the Certificate holder's advice should be sought. For open jointed systems, a continuous and durable breather membrane should be provided over the outer face of the insulation.

## 9 Maintenance



9.1 To maintain the panel appearance, an annual cleaning regime should be carried out using soapy water (ie non alkaline, non-abrasive detergent) followed by rinsing with clean water, or alternatively, a pressure hose method can be used. For more difficult chemical soiling, the Certificate holder's specialist advice must be sought.

9.2 Checks should be carried out periodically to ensure that ventilation and drainage pathways remain clear; blockages should be cleared promptly.

9.3 Damaged panels should be replaced as soon as is practicable by following the Certificate holder's instructions, and all necessary Health and Safety regulations should be observed.

## 10 Durability



10.1 The systems will perform effectively as a cladding with a service life of at least 30 years.

10.2 The performance of the cladding system and the specific coating chosen will depend upon the type, colour, building location, façade aspect and the immediate environment.

10.3 In a non-corrosive atmosphere, the panels can be expected to retain a good appearance for up to 20 years in typical locations, and 15 years in coastal or severe industrial regions. Colour change will be generally small and uniform on any one elevation. Regular maintenance (see section 9), will prolong the aesthetic appearance of the panels.

10.4 The aluminium support rails will have a lifetime at least commensurate with the panels they are supporting.

## 11 Reuse and recyclability

The aluminium panel, rail and bracket components can be readily recycled.

### Installation

## 12 General

12.1 Stacbond FR and Stacbond A2 Cladding Systems must be installed in accordance with the Certificate holder's recommendations, the requirements of this Certificate and specifications laid down by a suitably qualified and experienced individual.

12.2 Design aspects such as thermal expansion should be taken into consideration in the installation of the system.

12.3 Installers must be trained and approved by the Certificate holder who can provide technical assistance at the design stage and at the start of the installation.

12.4 The substructure must be aligned to ensure the system flatness after installation. An assessment of the suitability of the substrate to ensure stability and bearing capacity must be made prior to installation of the system.

12.5 The panels can be worked by conventional techniques in accordance with the Certificate holder's instructions. These include sawing and cutting, routing, slotting, folding, drilling, bending, clamping and bolting, shearing and riveting. It is essential that the correct tools, in good condition, are used to prevent any damage to the coating, and that swarf is removed.

12.6 Installation should be carried in temperatures between 5°C and 25°C.

12.7 Suitable cavity barriers (as described in section 7.4), should be installed behind the cladding as necessary to comply with the relevant Building Regulations relating to fire safety.

## 13 Procedure

### General

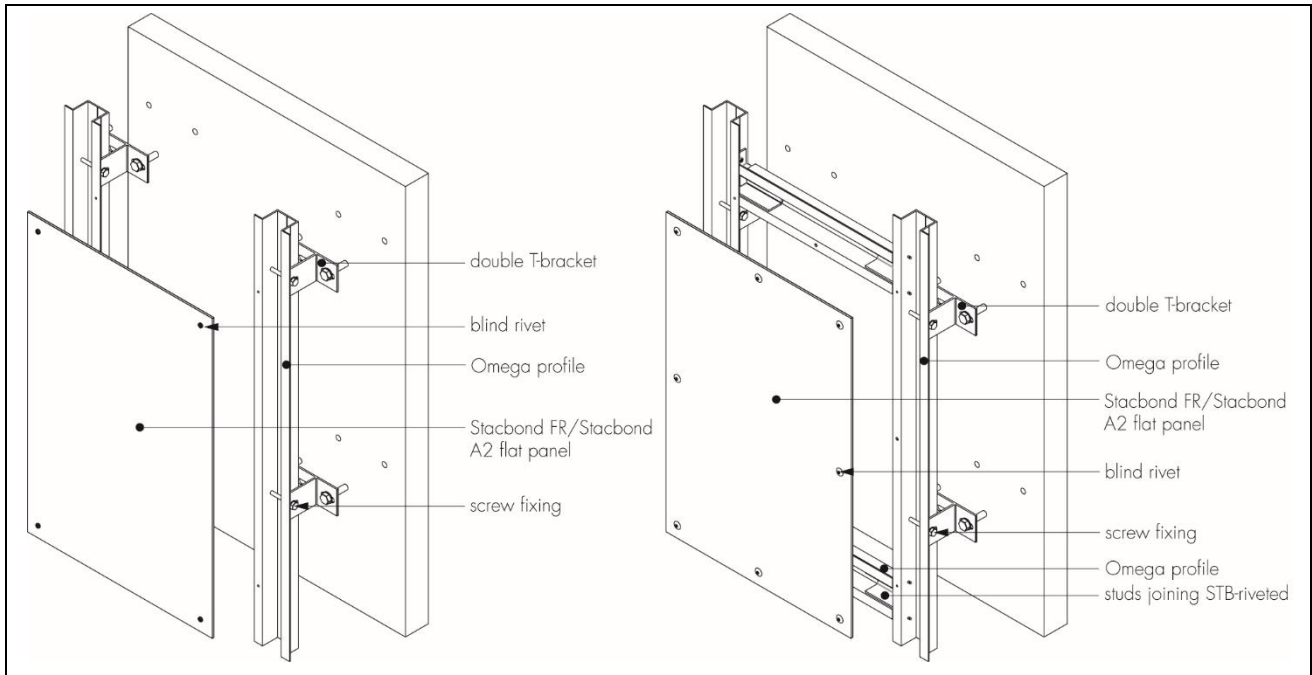
13.1 Based on a preliminary survey of the wall and architectural/structural design, a grid layout for the supporting frame is first prepared. Accurate grid positioning and installation of the supporting frame is essential.

13.2 The vertical support rail is fixed to the substrate wall using support brackets at the appropriate spacing depending on the size of panel used and the local wind load (see section 6). Support brackets are installed at a maximum of 250 mm from the support rail ends using appropriate fixings to the substrate wall.

13.3 If required, after the vertical profiles are installed, the substrate wall can be covered by insulation and/or a breather membrane.

13.4 When installing the panels, special attention must be paid to the direction of the panels (indicated on the arrow of the film protector) and once installed, the film protection peeled off the panels.

**Figure 3 Flat panel riveted fixing detail – STB-Riveted support system**

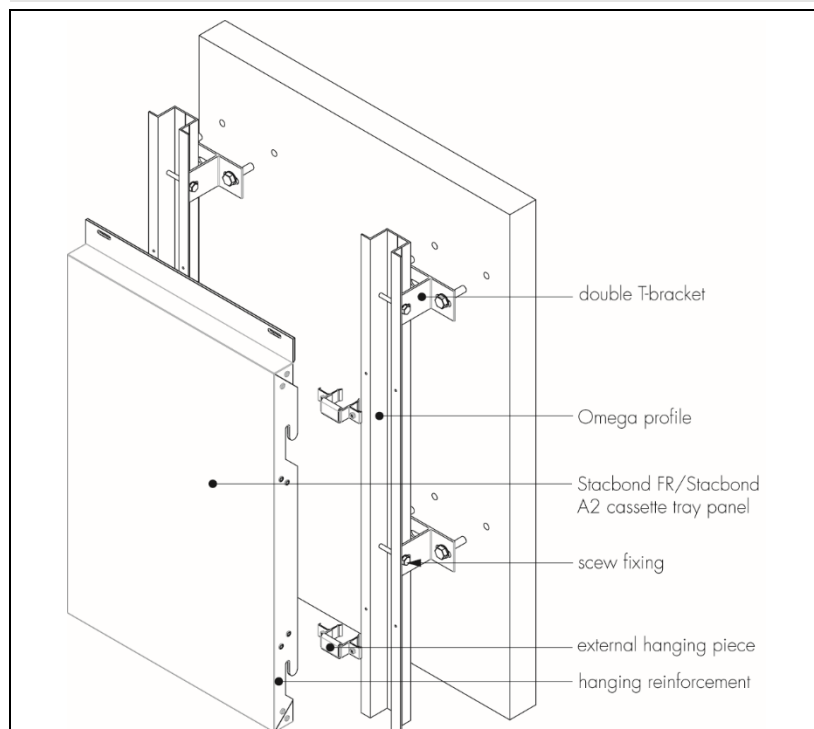


13.5 Once the vertical support rails are installed (see section 13.2), horizontal reinforcing profiles are installed at maximum 500 mm centres and 15 mm from panel top and bottom and connected to a T-jointing piece perpendicular to the vertical support rail.

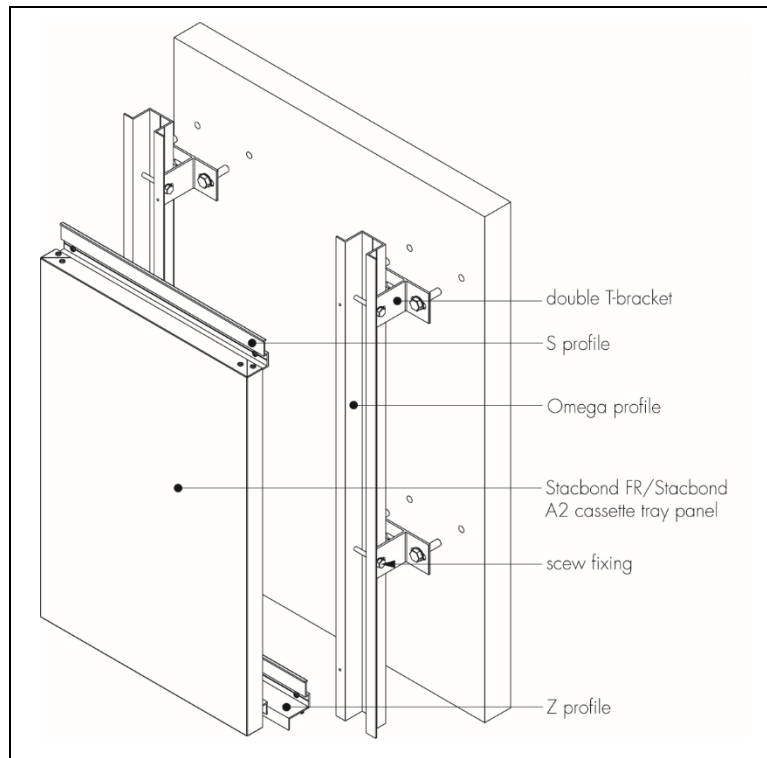
13.6 Starting at the base, flat panels are riveted to both vertical and horizontal support rails at maximum 500 mm centres and a minimum 15 mm from panel edges. Special attention is required when placing the panels to ensure fixings can be correctly positioned.

13.7 Joints between the panels must always be open. Vertical and horizontal joints must be at least 10 mm wide. Expansion joints in the substrate must always coincide with the vertical joints in the façade system using two vertical profiles.

**Figure 4 Tray panel clamp fixing detail – STB-CH hanging support system**



*Figure 5 Tray panel fixing detail – STB-SZ support system*



13.8 Tray panels should also be installed in ascending rows with their positions checked and adjusted as necessary as installation proceeds. The clamping pieces incorporating an EPDM sleeve are fixed to the both wings of the vertical support rail using screw fixings.

13.9 Where trays are used with additional adhered reinforcements; panels must be thoroughly cleaned, primed, double-sided tape and adhesive applied ensuring that the minimum thickness is applied. The strengtheners are fully embedded in the adhesive and riveted to the tray panel upper and lower tab ensuring adequate time to allow for the adhesive to cure.

13.10 Joints between trays panels must always be open. Vertical and horizontal joints must be at least 10 mm wide. Expansion joints in the substrate must always coincide with the vertical joints in the façade system using two vertical profiles.

## **14 Finishing**

Base and crown closure finishes of the cladding system must ensure sufficient ventilation is provided from the cavity.

## **Technical Investigations**

## **15 Investigations**

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

15.2 From test data, an assessment was made of the claddings for:

- wind resistance
- watertightness
- thermal transmission
- thermal expansion
- impact resistance
- reaction to fire.



15.3 An assessment was also made of the manufacturing process.

## Bibliography

BS EN 573-3 : 2019 *Aluminium and aluminium alloys – Chemical composition and form of wrought products – Chemical composition and form of products*

BS EN 485-2 : 2016 + A1 : 2018 *Aluminium and aluminium alloys – Sheet, strip and plate – Mechanical properties*

BS EN 1396 : 2015 *Aluminium and aluminium alloys – Coil coated sheet and strip for general applications – Specifications*

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

NA to BS EN 1990 : 2002 UK National Annex to *Eurocode 0 – Basis of structural design*

BS EN 1991-1-4 : 2005 *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*

BS EN 13501-1 : 2007 *Fire classification of construction products and building elements – Classification using test data from reaction to fire tests*

BS EN ISO 9001 : 2015 *Quality management systems – Requirements*

EAD 090062-00-0404 *European Assessment Document for Kits for External Wall Claddings Mechanically Fixed*

BRE Report BR 135 : 2013 *Fire performance of external thermal insulation for walls of multistorey buildings, third edition*

DIN 7504 : 1995 *Self-drilling tapping screws – Dimensions, requirements and testing*

EN ISO 845 : 2009 *Cellular plastics and rubbers – Determination of apparent density*

ISO 4017 : 2014 *Hexagon head screws – Product grades A and B*

ISO 7089 : 2000 *Plain washers – Normal series – Product Grade A*

ISO 15480 : 2019 *Fasteners – Hexagon washer head drilling screws with tapping screw thread*

### 16 Conditions

#### 16.1 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.

16.2 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.

16.3 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.

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

16.5 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.

16.6 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.