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Agrément Certificate
13/5022
Product Sheet 1

STAC CLADDING SYSTEMS

STACBOND PE AND STACBOND FR CLADDING SYSTEMS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Stacbond PE and Stacbond FR Cladding Systems, a composite panel of aluminium sheets with a polyethylene core, supported on aluminium rails and used to provide a decorative and protective back-ventilated façade over the supporting external walls of new and existing buildings for use on concrete and masonry walls.

(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 wind loads normally encountered in the UK and transfer the design loads to the substrate wall structure (see section 6).

Behaviour in relation to fire — for reaction to fire, the systems with panels Stacbond PE and Stacbond FR may be regarded as Class F and Class B-s 1, d0 respectively (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 system 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

Brian Chamberlain

Head of Approvals — Engineering

Claire Curtis-Thomas

Chief Executive

Date of First issue: 24 July 2013

The BBA is a UKAS accredited certification body — Number 1113. 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 are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Stacbond PE and Stacbond FR Cladding Systems, if installed, used and maintained in accordance with this Certificate, will meet or contribute to meeting 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: A1	Loading
Comment:	The systems can be designed to resist the wind loads normally encountered in the UK. See sections 4.4, 6.1 to 6.6 of this Certificate.
Requirement: B4(1)	External fire spread
Comment:	The FR panels are capable of meeting Class 0 requirements. See sections 7.1 to 7.6 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The systems will meet this requirement. See sections 8.1 to 8.7 of this Certificate.
Regulation: 7	Materials and workmanship
Comment:	The systems are acceptable. See sections 10.1 to 10.4 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)(2)	Fitness and durability of materials and workmanship
Comment:	The systems are acceptable. See sections 9.1 to 9.3, 10.1 to 10.4 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards applicable to construction
Standard: 1.1(a)(b)	Structure
Comment:	The systems are acceptable with reference to clauses 1.1.1 ⁽¹⁾⁽²⁾ . See sections 4.4, 6.1 to 6.6 of this Certificate.
Standard: 2.4	Cavities
Comment:	The systems, when used in conjunction with fire-resistant materials can meet this Standard, with reference to clauses 2.4.1 ⁽¹⁾⁽²⁾ , 2.4.2 ⁽¹⁾⁽²⁾ , 2.4.5 ⁽¹⁾ , 2.4.7 ⁽¹⁾⁽²⁾ and 2.4.9 ⁽²⁾ . See section 7.1 of this Certificate.
Standard: 2.6	Spread to neighbouring buildings
Comment:	The panels can contribute to a construction satisfying this Standard, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ , 2.6.6 ⁽¹⁾⁽²⁾ and 2.6.7 ⁽²⁾ . See sections 7.1 to 7.6 of this Certificate.
Standard: 2.7	Spread on external walls
Comment:	The panels can contribute to satisfying this Standard, with reference to clause 2.7.1 ⁽¹⁾⁽²⁾ . See sections 7.1 and 7.5 of this Certificate.
Standard: 3.10	Precipitation
Comment:	The systems will contribute to meeting this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ to 3.10.3 ⁽¹⁾⁽²⁾ , 3.10.5 ⁽¹⁾⁽²⁾ and 3.10.6 ⁽¹⁾⁽²⁾ . See sections 8.1 to 8.7 of this Certificate.
Standard: 7.1(a)(b)	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

Regulation: 23	Fitness of materials and workmanship
Comment:	The systems are acceptable. See sections 10.1 to 10.4 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	The systems will contribute to meeting this Regulation. See sections 8.1 to 8.7 of this Certificate.
Regulation: 30	Stability
Comment:	The systems are acceptable and can sustain and transmit wind loads to the substrate wall. See sections 4.4, 6.1 to 6.6 of this Certificate.
Regulation: 36	External fire spread
Comment:	The FR panels are capable of meeting the Class 0 requirements. See sections 7.1 to 7.6 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.1 and 3.5) of this Certificate.

Additional Information

NHBC Standards 2013

NHBC accepts the use of Stacbond PE and Stacbond FR Cladding Systems, provided they are installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards, Chapter 6.9 Curtain walling and cladding.*

Technical Specification

1 Description

General

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

Facing panels

1.2 The Stacbond PE panel (see Figure 1) comprises two sheets of aluminium alloy bonded to a low density polyethylene (PE) core. Stacbond FR panel is a fire retardant version with the core comprising polyethylene with a mineral content. There are two styles of panel; standard flat panels or tray panels. The nominal characteristics of the panels are given in Table 1.

Figure 1 Stacbond PE and FR Panels

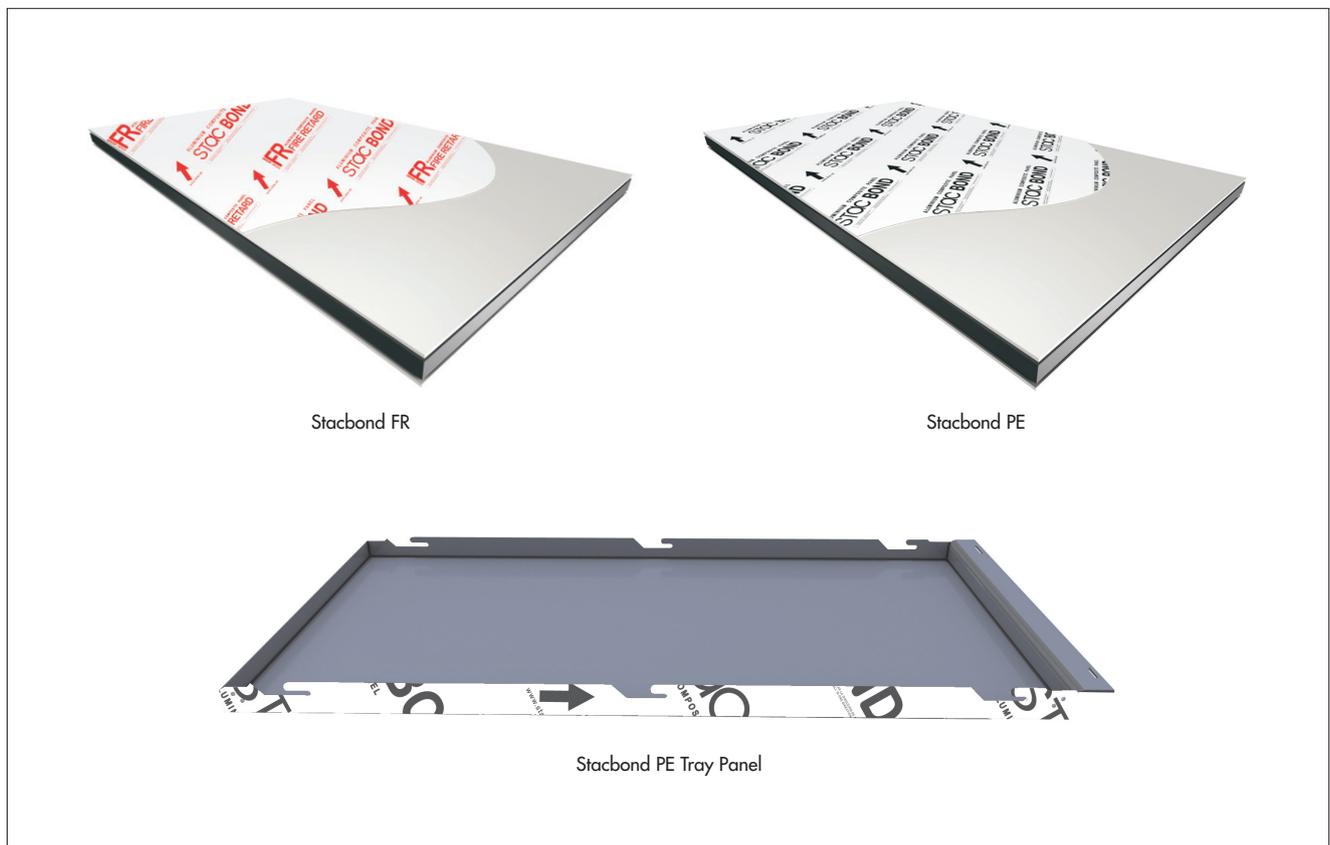


Table 1 Nominal characteristics

Characteristics	Panel type	
	PE	FR
Panel		
Length (mm)	3200, 4000, 5000 and 6000 (-0;+3)	
Width (mm)	1000, 1250 and 1500 (-0;+2)	
Nominal thickness (mm)	4 (-0.15;+0.1)	
Weight (kg·m ⁻²)	5.50 (±5%)	8.02 (±8%)
Aluminium sheet ⁽¹⁾		
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 (black)	Low density polyethylene with mineral content (light grey)
Density (kg·m ⁻²)	935 (±10%)	1700 (±10%)
Colours	Various	Various

(1) Manufactured in accordance with EN 573-3 : 2009, EN 485-2 : 2009 and EN 1396 : 2008.

1.3 Tray panels are formed by milling and stamping flat panels to form a 90 degree 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 with the desired dimensions and marking perforations for the corresponding rivets.

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

Support and fixing systems

1.6 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 two 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. 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.

1.7 Specification of the components used in these systems is given in Table 2.

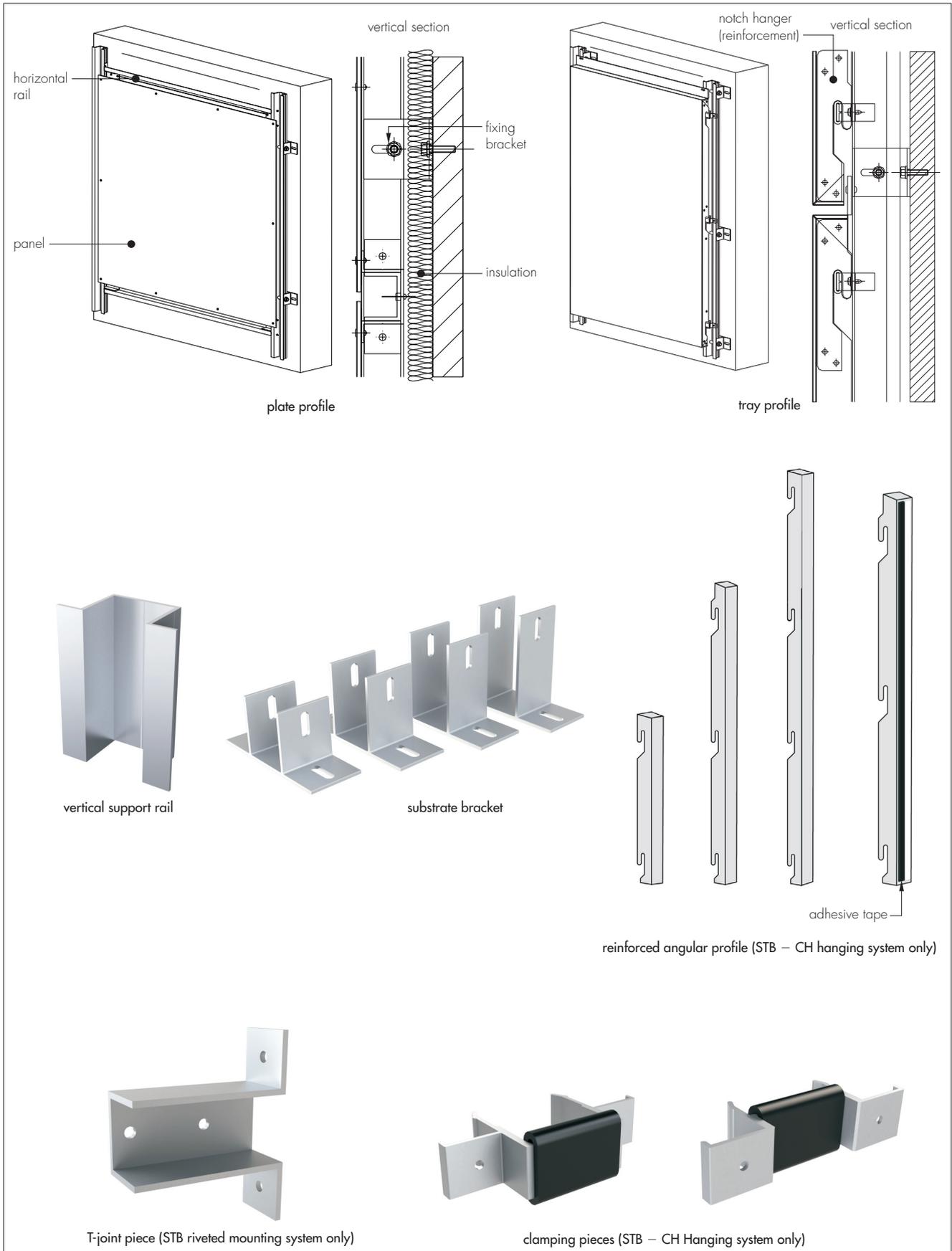
Table 2 Component specifications

Component	System	Dimensions/material
Substrate TT bracket	Both	59 mm to 257 mm high and 130 mm wide, 3 or 5 mm thick extruded aluminium alloy TT shaped brackets (grade 6063 T5)
Vertical rail profile	Both	77 mm wide 2.5 mm thick aluminium alloy (grade; 6063 T5, weight; 0.89 kg·m ⁻¹) supplied in 6 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.

Table 3 Fixing specifications

Fixing	Dimensions (mm)	Use
STB-CH		
Self drilling screws stainless steel domed head	4.2 diameter x 19 length	Vertical support profile
Hidden rivet aluminium alloy head and steel pin	4.8 diameter x 15 length	Vertical support profile
STB-Riveted		
Self drilling screws stainless steel A2 with 16 mm EPDM washer	5.5 diameter x 22 length	Vertical support profile to T-piece
Hidden rivet aluminium alloy head and steel pin	4.8 diameter x 15 length	Vertical support profile
Screw/washer and hexagonal bolt	M6 x 60 length	Wall bracket to vertical support profile
Self drilling auxiliary screw with hexagonal head	5.5 diameter x 19 length	Vertical support profile to T-piece

Figure 2 Panels and fixing components



1.8 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 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 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:

- 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 non-conformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis as part of 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 EN ISO 9001 : 2008 by Bureau Veritas (Certificate number 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 stage 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 PE and Stacbond FR Cladding Systems.

Design Considerations

4 General

4.1 The Stacbond PE and Stacbond FR Cladding Systems are suitable for use on concrete and masonry walls of new and existing buildings to provide an open-jointed, back-ventilated protective finish.

4.2 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 Building Regulations and Standards.

4.3 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.



4.4 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 Building Regulations and Standards.

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

4.6 To allow for thermal expansion and water run-off, a gap of 10 mm 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. Due consideration should be given to the higher pressure coefficients applicable to corners of the building as recommended in this Standard.

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

6.4 Tests were carried out to confirm the ultimate resistance to wind actions of the Stacbond PE and Stacbond FR 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 ⁻²)	characteristic resistance ⁽¹⁾ (kN·m ⁻²)
Stacbond PE STB-CH	2.2	1.4
Stacbond FR STB-CH	3.2	2.1
Stacbond PE/FR STB-Riveted	4.0	2.6

(1) Determined by applying wind load factor of 1.5 to the ultimate resistance value

6.5 The Stacbond PE and Stacbond FR 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 loads. 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 ETAG 034 : 2012.

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 ETAG 034 (see Table 4).

Table 4 Definition of all categories from ETAG 034, 6.4.4. Table 4

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 When tested to BS EN 13501-1 : 2007, Stacbond PE and Stacbond FR panels achieved a reaction to fire classifications of F and B-s1,d0 respectively. The aluminium support rails are non-combustible.

7.2 The Stacbond FR cladding panel is capable of meeting a Class 0 surface or a 'low risk' material in relation to the national Building Regulations.

7.3 This performance may not be achieved by all colours of the panel and the designations of a particular colour should be confirmed by:

England and Wales — test or assessment in accordance with Approved Document B, Appendix A, Clause 1

Scotland — test to conform with Regulation 9, Annex 2C⁽¹⁾, Table, or Annex 2E⁽²⁾

Northern Ireland — test or assessment by a UKAS accredited laboratory or an independent consultant with appropriate experience.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

7.4 For resistance to fire, the performance of a wall incorporating the system can only be determined by tests from a suitably accredited laboratory and has not been assessed as part of this Certificate.

7.5 Cavity barriers should be incorporated behind the cladding as required under the national Building Regulations, for example, by use of intumescent cavity barriers or overhanging non-combustible breaks at each floor level. Care must be taken to ensure that cavity barriers do not block essential ventilation pathways.

7.6 The incorporation of combustible material behind the cladding must be avoided wherever possible. Where insulation is used it must be of a non-combustible type.

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 as given in *NHBC Standards 2013*, Chapter 6.9, 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 As the open joints ensure pressure equalisation the air cushion within the cavity will reduce the amount of water passing through the joints. 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.

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

8.7 Consideration should be given to providing a vapour permeable membrane to protect the inner wall from precipitation. In such cases, the Certificate holder's advice should be sought.

9 Maintenance



9.1 To maintain the panel appearance, an annual cleaning regime should be carried out using soapy water (i.e. 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 system will perform effectively as a cladding with an ultimate 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.

12 General

12.1 Stacbond PE and Stacbond FR 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 7.5), 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.

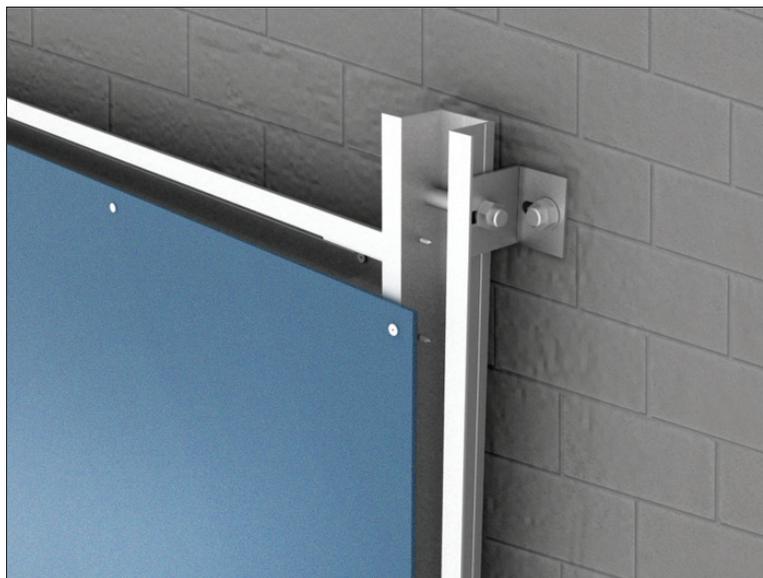
13.2 The vertical support rail is fixed to the substrate wall using support brackets at the appropriate spacing depending on the size of panel used and the local wind load (see section 6). Support brackets are installed at a maximum of 250 mm from the support rail ends using appropriate fixings to the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

Flat panel — STB-Riveted support system — Flat panels (see Figure 3)

Figure 3 Flat panel riveted fixing detail



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 of 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.

Tray panel — STB-CH hanging support system (see Figure 4)



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 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
- airborne sound insulation.

15.3 An assessment was also made of the manufacturing process.

Bibliography

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

BS EN 12020-1 : 2008 *Aluminium and aluminium alloys. Extruded precision profiles in alloys EN AW-6060 and EN AW-6063. Technical conditions for inspection and delivery*

BS EN 12020-2 : 2008 *Aluminium and aluminium alloys. Extruded precision profiles in alloys EN AW-6060 and EN AW-6063. Tolerances on dimensions and form*

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

ETAG 034 : 2012 *Guideline For European Technical Approval Of Kits For External Wall Claddings.*

Conditions of Certification

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.