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Agrément Certificate
19/5638
Product Sheet 1

ALPOLIC PANELS

ALPOLIC/FR AND A2 CLADDING PANELS

This Agrément Certificate Product Sheet(1) relates to ALPOLIC/fr and A2 Cladding Panels, aluminium composite panels used in open-jointed, back-ventilated and drained rainscreen cladding systems, for use over the external walls of new and 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 panels, when incorporated in a suitably designed cladding system, can safely resist the wind and impact actions normally encountered in the UK (see section 6).

Behaviour in relation to fire — the ALPOLIC/fr panel has a B-s1, d0, and the Alpolic A2 panel has an A2-s1, d0, reaction to fire classification to BS EN 13501-1 : 2007, and their use 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 will be removed by drainage and ventilation (see section 8).

Durability — under normal conditions, the products will perform effectively as an external cladding with a service life of at least 30 years. The FEVE coating and the real anodised layer will retain a good appearance for at least 20 years in non-corrosive environments and at least 15 years in severe industrial environments (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: 11 April 2019

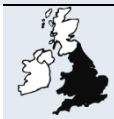
Paul Valentine
Technical Excellence Director

Claire Curtis-Thomas
Chief Executive

Certificate amended on 13 January 2020 to include new regulatory guidance for fire in Scotland and Wales.

Regulations

In the opinion of the BBA, ALPOLIC/fr and A2 Cladding Panels, 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:	**A1**	**Loading**
Comment:		The panels are acceptable for use as set out in sections 4.3 and 6 of this Certificate.
Requirement:	**B3(4)**	**Internal fire spread (Structure)**
Comment:		The panels are unrestricted by this Requirement. See section 7.1 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		The panels can contribute to satisfying this Requirement. See sections 7.1, 7.2, 7.4 to 7.8 and 7.11 of this Certificate.
Requirement:	**C2(b)(c)**	**Resistance to moisture**
Comment:		The panels will satisfy this Requirement. See section 8 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is acceptable. See sections 10.1 and 10.2 and the *Installation* part of this Certificate.
Regulation:	**7(2)**	**Materials and Workmanship**
Comment:		The products may be restricted by this Regulation in some cases. See sections 7.1, 7.2, 7.4 to 7.8 and 7.11 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Durability, workmanship and fitness of materials**
Comment:		The panels can contribute to a construction satisfying this Regulation. See sections 10.1 and 10.2 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	1.1(a)(b)	Structure
Comment:		The panels are acceptable, with reference to clauses 1.1.1$^{(1)(2)}$, 1.1.2$^{(1)(2)}$ and 1.1.3$^{(1)(2)}$ of this Standard. See sections 4.3 and 6 of this Certificate.
Standard:	2.4	Cavities
Comment:		The panels are unrestricted by this Standard, with reference to clauses 2.4.1$^{(1)(2)}$, 2.4.2$^{(1)(2)}$, 2.4.5$^{(1)(2)}$ and 2.4.9$^{(1)(2)}$ of this Standard. See section 7.1 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The panels can contribute to satisfying this Standard, with reference to clauses 2.6.4$^{(1)(2)}$, 2.6.5$^{(1)}$ and 2.6.6$^{(2)}$. See sections 7.1, 7.2 and 7.4 to 7.13 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, 7.2, 7.4 to 7.8 and 7.11 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The panels will contribute to satisfying 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 section 8 of this Certificate.

Standard: Comment:	7.1(a)(b)	Statement of sustainability The products 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.
Regulation: Comment:	**12**	**Building standards applicable to conversions** 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: Comment:	**23**	**Fitness of materials and workmanship** The panels are acceptable. See sections 10.1 and 10.2 and the *Installation* part of this Certificate.
Regulation: Comment:	**28**	**Resistance to moisture and weather** The panels will contribute to a roof satisfying this Regulation. See section 8 of this Certificate.
Regulation: Comment:	**30**	**Stability** The panels are acceptable as set out in sections 4.3 and 6 of this Certificate.
Regulation: Comment:	**35(4)**	**Internal fire spread - Structure** The panels are unrestricted by this Regulation. See section 7.1 of this Certificate.
Regulation: Comment:	**36(a)**	**External fire spread** The panels can contribute to satisfying this Regulation. See sections 7.1, 7.2, 7.4 to 7.8 and 7.11 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* (1.2), 3 *Delivery and site handling* (3.4) and 9 *Maintenance* (9.3) of this Certificate.

Additional Information

NHBC Standards 2019

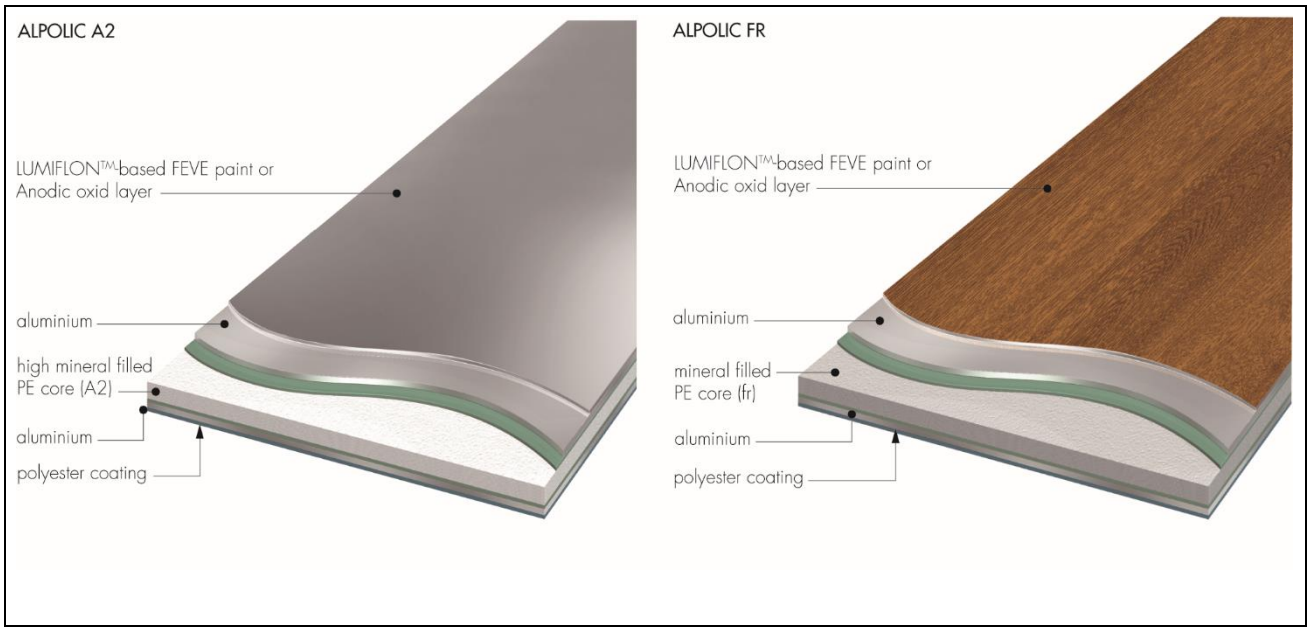
In the opinion of the BBA, ALPOLIC /fr and A2 Cladding Panels, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Part 6 *Superstructure (excluding roofs),* Chapter 6.9 *Curtain walling and cladding.*

Technical Specification

1 Description

1.1 ALPOLIC/fr and A2 Cladding Panels are flat aluminium composite panels comprising two 0.5 mm thick aluminium sheets (EN AW-3105-H44, 3005-H44, 5005-H14, 5004HH24 or 1085-H18 to BS EN 573-3 : 2013) bonded by an adhesive film to either side of a 3 mm thick core of low-density polyethylene filled with non-combustible inorganic fillers. The exposed face is coated with either a minimum of 25 µm layer of FEVE (fluoroethylene vinyl ether) paint or an 8 µm anodic oxide layer; a polyester-based wash coating protects the unexposed face (see Figure 1).

Figure 1 Alpolic panel build-up



1.2 The panels are available in two grades, differentiated by the composition of the panel core: /fr (grey) and A2 (white), each containing a different percentage of combustible material. Full details and characteristics of ALPOLIC Cladding Panels are shown in Table 1.

Table 1 Panels dimensions and characteristics

Characteristic (unit)	ALPOLIC/fr	ALPOLIC A2
Width (mm)	1035, 1285, 1535, 1785, 2050 ± 2.0	1000, 1250, 1500, 1750, 2015 ± 2.0
Length (mm)	1800 – 7200 ± 4.0	
Thickness (mm)	4 ± 0.2	
Mass per unit area (kg·m^{-2})	7.6	8.4
Colours	Solid, Metallic, Sparkling, Prismatic and NaturArt Series	

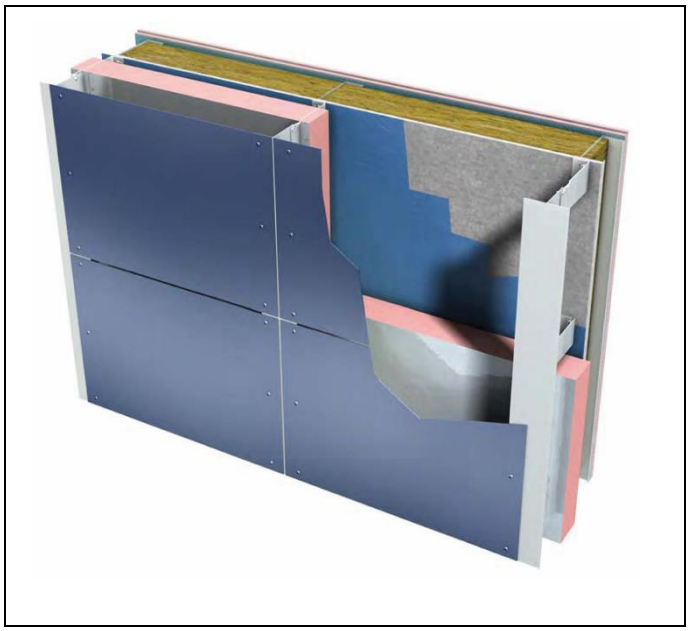
1.3 The panels are mechanically fastened to the aluminium rails(1) using aluminium rivets forming an open-jointed cladding system. The rivets, available in 5 mm diameter and in lengths depending on the specific application, are made of AlMg3 with a zinc-plated mandrel. The minimum edge distance is 16 mm. Details of panel mountings are shown in Figures 2 and 3.

(1) Outside the scope of this Certificate.

1.4 Items used with the products, but outside the scope of this Certificate, include:

- aluminium sub-frame (rails, wall brackets and fixings)
- substrate anchors — used to fix wall brackets to the substrate wall (specification dependent on the strength of the substrate)
- substrate wall
- insulation — rigid or semi-rigid insulation boards
- breather membrane
- cavity barriers
- protective cavity mesh.

Figure 2 ALPOLIC Cladding Panels and typical fixing system



2 Manufacture

2.1 The panels are manufactured by bonding the two pre-coated aluminium sheets to both sides of the extruded core in a continuous lamination process. Part of the waste from the manufacturing process is recycled into production.

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 panels, individually labelled with the batch number, are delivered to site in wooden crates and wrapped in protective sheets. The crates bear product details such as type, size, quantity, identification code, manufacturing references and colour.

3.2 The panels should be stored indoors in wooden crates using a flat or vertical rack system. In the vertical rack system, care should be taken in placing a rubber mat on the bottom, leaning panels closely against an inclined backing material within 10°. The protective film on the panels should be removed as soon after installation as possible.

3.3 The panels should be handled with care to avoid damage. They should be lifted off, rather than slid across, each other. For temporary support during installation, polystyrene or foam wedges may be used.

3.4 Care should be exercised when handling the panels to avoid injury from sharp edges. Protective clothing should be worn and all Health and Safety rules observed.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on ALPOLIC/fr and A2 Cladding Panels.

Design Considerations

4 Use

4.1 ALPOLIC/fr and A2 Cladding Panels are satisfactory for use in an open-jointed, back-ventilated and drained cladding system on the external walls of new and existing buildings. Height restrictions may apply (see section 7).

4.2 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. For advice on specific construction details, eg flue pipe penetrations, the Certificate holder should be consulted.

4.3 The substrate wall and the sub-frame to which the panels are fixed should be structurally sound. The substrate wall must satisfy the requirements of the relevant national Building Regulations and Standards with regard to watertightness, and heat and sound transmission.

4.4 Ventilation and drainage must be provided behind the panels. As the panels are open-jointed, the clear cavity between the back of the panel and the substrate wall (or insulation if installed on the substrate wall) must be at least 40 mm wide and ensure that a minimum ventilation area of 5000 mm^2 per metre run is provided at the building base point and at the roof edge. Horizontal and vertical joint gaps between the panels must be between 10 and 20 mm wide. All ventilation openings around the periphery of a cladding system incorporating the panels should be suitably protected with a mesh or a perforated sheet or similar, to prevent the ingress of birds, vermin and insects.

4.5 To allow for longitudinal expansion, a minimum gap of 2 mm per metre length between adjacent support rails should be provided. The panels must not be installed across this gap. To allow for expansion, the panels are installed on the sub-frame with one fixed fitted point in the middle of the panel and oversized holes for the edge fixings (see section 13.6).

4.6 As the panels are open-jointed, any insulation installed behind the cladding must be suitably fixed to the supporting wall to resist forces generated by wind actions and insulation self-weight. Insulation should be of a rigid or semi-rigid type (eg boards) and, where its performance could be diminished by moisture, a breather membrane should be provided over its outer face.

5 Practicability of installation

The products are suitable for installation by cladding contractors provided they have undergone suitable training. The Certificate holder can provide advice on installation if required.

6 Strength and stability

Wind loading

6.1 The wind loads on the wall should be calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. Special consideration should be given to locations with high wind-load pressure coefficients, as additional fixings may be necessary. In accordance with BS EN 1990 : 2002, it is recommended that a partial factor of 1.5 be applied to the characteristic wind loading to determine the ultimate wind load to be resisted by the cladding system.

6.2 The supporting substrate wall must have sufficient strength to resist independently the loads imparted directly by the cladding system and wind actions normally experienced in the UK, as well as any in plane force effects. The supporting subframe must have sufficient stiffness, such that its deformation does not affect the performance of the panel. The panel does not enhance the structural performance of the substrate wall.

6.3 The designer should ensure that:

- the design of the sub-frame and its fixings is in accordance with the relevant codes and Standards, such as to limit mid-span[(1)] deflections to span/200 and cantilever deflections to span[(2)]/150
- the panels are fixed to the sub-frame using the specified fixing mechanisms (see section 1.3)

- the specified fixings of the panel to the substrate have adequate tensile and pull-out strength to resist the applied actions
- fixing of the support brackets to the supporting wall has adequate tensile pull-out strength and corrosion resistance (not covered by this Certificate). An appropriate number of site-specific pull-out tests must be conducted on the substrate wall to determine the minimum pull-out 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.

(1) Vertical distance between the fixing brackets.
(2) Vertical distance between the bracket and the end of the rail subframe.

6.4 For design purposes, the panel properties given in Table 2 may be adopted.

Table 2 Panel properties

Panel type	Panel thickness (mm)	Maximum bending stress σ_{max} ($N \cdot mm^{-2}$)	Flexural rigidity EI ($N \cdot m^2 \cdot m^{-1}$)
ALPOLIC/fr	4	152.3	237.8
ALPOLIC A2	4	168.3	241.4

6.5 Aluminium rivets should be used to attach the panels to the support frame (see section 1.3 and Figure 1). The design should ensure adequate capacity against wind pressure/suction. To allow for panel expansion, oversized holes as well as fitted holes are to be provided as described in section 13.6.

6.6 When tested for pull-though resistance in conjunction with the rivets defined in section 1.3, ALPOLIC/fr and A2 Cladding Panels achieved the characteristic pull-through resistance given in Table 3.

Table 3 Characteristic failure load by pull-through(1)

Panel type	Characteristic pull-through resistance (N)	
	Panel edge	Panel corner
ALPOLIC/fr	956.7	937.6
ALPOLIC A2	1077.4	947.5

(1) For design value calculations a partial factor of 2.4 must be applied.

6.7 When tested for dynamic wind load, a built-up system including 4 mm thick ALPOLIC/fr panels (1500 mm wide and 2500 mm long) fixed to vertical rails spaced 600 mm apart with the rivets specified in section 1.3, spaced 300 mm vertically and 600 mm horizontally, achieved a design wind load resistance of 2.6 kPa(1). A similar system, differentiated by a 500 mm vertical spacing between the rivets, achieved a design wind load resistance of 1.7 kPa(1). The results obtained for ALPOLIC/fr panels can be equally applied to ALPOLIC A2 panels.

(1) Obtained applying a safety factor of 2 to the test failure value.

6.8 For system arrangements other those stated in section 6.7, the wind load resistance should be taken as the lesser value between that obtained by considering the panels flexural rigidity (see Table 2) and the resistance to pull-through of the panels in conjunction with specified fixings (see Table 3), also taking into consideration the aspects specified in section 6.3.

Impact

6.9 When tested for resistance to hard and soft body impacts, a system comprising 4 mm thick ALPOLIC/fr panels (1200 mm wide and 1800 mm long) supported by vertical aluminium rails spaced 600 mm apart, was found to be suitable for use in Use Categories I to IV, as defined in Table 4 of ETAG 034 : 2012, Part 1 (an extract of which is shown in Table 4 of this Certificate). The results(1) obtained for ALPOLIC/fr panels can be equally applied to ALPOLIC A2 panels.

(1) The results apply only to the system configuration tested.

Table 4 Definition of Use Categories (from ETAG 034 : 2012, Part 1)

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 reaction to fire classification in accordance with BS EN 13501-1 : 2007 for ALPOLIC/fr and A2 Cladding Panels are shown in Table 5. This relates to the full thickness, colour range and mounting methods referred to in section 1.

Table 5 Fire classifications of panels

Panels	Fire classification(1)	National Building Regulation or Standard
ALPOLIC A2	A2-s1, d0	BS EN 13501-1 : 2007
ALPOLIC/fr	B-s1, d0	BS EN 13501-1 : 2007

(1) This classification is valid only for the system configuration tested below:
- Thickness range of the panels from 4 mm to 6 mm
- An air gap of at least 40 mm between the panels and the substrate
- Surface-application with or without joints ≤ 20 mm
- Mechanical fixings made of metal profiles.

7.2 The fixings and support system are classified as non-combustible or limited combustibility in accordance with the relevant national regulatory guidance.

7.3 Designers should refer to the relevant national Building Regulation guidance for 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, for example, thermal insulation.

ALPOLIC A2 Panels

7.4 ALPOLIC A2 panels are classified 'limited combustibility' ('non-combustible' in Scotland) in relation to the national Building Regulations, and are not subject to any restriction on building height or proximity to boundaries when used on a substrate and with components that satisfy the non-combustibility requirements of materials in the relevant national Building Regulations.

7.5 The panels are suitable for use on, or at any distance from, the boundary, subject to the limitations imposed by the national Building Regulations.

7.6 With the exception of buildings covered by Regulation 7(4) in England, there is no restriction on height or boundary for the panels when included in the following wall specifications, which, when tested(1), met the performance criteria in BRE Report BR 135 : 2013(1)(2), Annex A:

- a system comprising 4 mm thick Alpolic A2 panels fixed to an aluminium subframe by means of steel rivets, at 450 mm horizontal spacings and 375 mm vertical spacings, so to leave a 20 mm panel gap between adjacent panels and a 50 mm cavity between the backside of the panel and the insulation. The insulation, 100 mm thick Kingspan Kooltherm K15, was secured to a masonry substrate wall by means of stainless steel screws [see BRE Report No P109971-1000 Issue: 1(3)]
- a system comprising 4 mm thick Alpolic A2 panels fixed to an aluminium subframe by means of steel rivets, at 640 mm horizontal spacings and 320 mm vertical spacings, so to leave a 20 mm panel gap between adjacent panels and a 50 mm cavity between the backside of the panel and the insulation. The insulation, 100 mm thick Kingspan Kooltherm K15, was secured to a steel-frame substrate wall overlaid by two 12 mm thick plasterboards by means of stainless steel screws [see BRE Report No P109938-1000 Issue: 2(3)].

(1) Performance in relation to the tests referenced in this section are strictly dependant on the specific wall construction subjected to testing; all components used in these tests, other than the Alpolic panels are outside the scope of this Certificate
(2) The nature of the mechanical performance, also included in the test and classification reports, should be considered as part of the overall risk assessment when specifying the system
(3) Full details of this test are available from the Certificate holder.

ALPOLIC/fr Panels

7.7 In England, Wales and Northern Ireland, the panels are not classified as non-combustible or of limited combustibility and may be used on buildings at any proximity to a boundary. For buildings with a storey more than 18 m above the ground, designers should consider the impact on the risk of fire spread over the wall. See also section 7.8.

7.8 In England and Wales, the panels should not be used on buildings that have a storey at least 18 m above ground level and 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.

7.9 In Scotland, the panels are not classified as no-combustible and 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.

7.10 In Scotland, the panels should not be used on buildings with a storey more than 11 m above the ground, or on any entertainment or assembly building with a total storey area more than 500 m^2, or on any hospital or residential care building with a total storey area more than 200 m^2.

7.11 With the exception of buildings covered by Regulation 7(4) in England, there is no restriction on height or boundary for the panels when included in the following wall specifications, which, when tested(1), satisfied the performance criteria in BRE Report BR 135 : 2013(1)(2), Annex A:

- a system comprising 4 mm thick ALPOLIC/fr panels fixed to an aluminium subframe by means of steel rivets, at 400 mm horizontal spacings and 300 mm vertical spacings, so to leave a 4 mm panel gap between adjacent panels and a 50 mm cavity between the backside of the panel and the insulation. The insulation, 100 mm thick Kingspan Kooltherm K15, was secured to a masonry substrate wall by means of stainless steel screws [see BRE Report No P107017-1000 Issue: 1(3)]
- a system comprising 4 mm thick ALPOLIC/fr panels fixed to an aluminium subframe by means of steel rivets, at 400 mm horizontal spacings and 300 mm vertical spacings, so to leave a 10 mm panel gap between adjacent panels and a 50 mm cavity between the backside of the panel and the insulation. The insulation, 100 mm thick Kingspan Kooltherm K15, was secured to a masonry substrate wall by means of stainless steel screws [see BRE Report No P109939-1000 Issue: 1(3)]
- a system comprising 4 mm thick ALPOLIC/fr panels fixed to an aluminium subframe by means of steel rivets, at 450 mm horizontal spacings and 375mm vertical spacings, so to leave a 20 mm panel gap between adjacent panels and a 50 mm cavity between the backside of the panel and the insulation. The insulation, 180 mm thick Rockwool Duoslab, was secured to a masonry substrate wall by means of stainless steel screws [see BRE Report No P109974-1000 Issue: 2(3)].

(1) Performance in relation to the tests referenced in this section are strictly dependant on the specific wall construction subjected to testing; all components used in these tests, other than the Alpolic panels are outside the scope of this Certificate.
(2) The nature of the mechanical performance, also included in the test and classification reports, should be considered as part of the overall risk assessment when specifying the system.
(3) Full details of this test are available from the Certificate holder.

7.12 To limit the risk of fire spread between floors in buildings subject to the national Building Regulations, fire barriers must be incorporated in the cavity behind the panels as required under these Regulations, but should not block essential ventilation pathways. Openings through the cladding panels should be adequately sealed to prevent fire spreading to the cavity. Guidance on fire barriers can be found in BRE Report BR 135 : 2013.

7.13 For resistance to fire, the performance of a wall incorporating the products can only be determined by tests from a suitably accredited laboratory for the specific complete wall construction under consideration, and is not covered by this Certificate.

8 Air and water penetration

8.1 The panels are suitable for use in back-ventilated and drained cladding systems.

8.2 The substrate wall must be watertight and reasonably airtight.

8.3 The amount of water entering the cavity by wind-driven rain will be minimal. Water collecting in the cavity owing to rain or condensation will be removed by drainage and ventilation.

8.4 The air space between the back of the panels and the supporting wall or insulation must be at least 50 mm wide and allow for conventional building tolerances. Guidance on recommended cavity widths is given in *NHBC Standards* 2019, Chapter 6.9.

9 Maintenance

9.1 The painted panel surface may be cleaned using hot and cold water with a mild cleaning agent using a non-abrasive pad or sponge. General household cleaners should not be used. After cleaning, the surface should be rinsed with clean water. For more difficult chemical soiling, the Certificate holder's specialist advice must be sought.

9.2 Annual maintenance inspections should be carried out to ensure that protective cavity mesh, gutters and downpipes are clear and in a good state, and that ancillary features such as flashings and seals are in place and secure.

9.3 Damaged panels should be replaced as soon as practicable; work carried out should follow the Certificate holder's instructions and all necessary Health and Safety regulations should be observed.

10 Durability

10.1 Based on historical evidence and testing, the products, when incorporated in a wall cladding system, can be expected to have a service of at least 30 years.

10.2 The performance of the colour coating will depend upon the colour chosen, the building location, the façade aspect and the immediate environment. Colour change will be generally small and uniform on any one elevation.

10.3 When coated with either a PVDF paint or an anodised oxide layer, and in a non-corrosive atmosphere, the products can be expected to retain a good appearance for at least 20 years. In coastal or severe industrial environments, this is reduced to at least 15 years. Colour change will be generally small and uniform on any one elevation.

11 Reuse and recyclability

The panels are partially composed of aluminium, which can be separated from the core and recycled.

Installation

12 General

12.1 ALPOLIC/fr and A2 Cladding Panels 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 and experienced individual.

12.2 Installers must be suitably trained and experienced cladding contractors. The Certificate holder can provide advice on installation if required.

12.3 Installation should not be carried in extremes of temperature. It is recommended that it takes place at temperatures of between 5 and 25°C.

12.4 If significant colour variations between batches is likely, it may be necessary to mix the panels from different pallets so as to obtain a uniform shade over the façade.

12.5 Suitable cavity barriers, as described in section 7.9, should be installed behind the cladding as necessary, to comply with the relevant national Building Regulations relating to fire safety.

13 Procedure

13.1 Based on a preliminary survey of the wall and the architectural/structural design, a grid layout for the sub-frame (wall brackets and vertical rails) is prepared.

13.2 Wall brackets are fixed to the substrate using appropriate fixings. Vertical spacing between wall brackets should be as specified.

13.3 If required, a rigid or semi-rigid insulation, protected by a suitable breather membrane, can be installed on the substrate wall. The thickness of the insulation should be such as to ensure a minimum of 50 mm ventilation cavity width at the back of the panel.

13.4 Vertical support rails are fixed to the brackets with the top fixing tight and the remainder of the fixings sufficiently free to allow for movement. In addition, an expansion gap between adjacent vertical rails must be provided (see section 4.5).

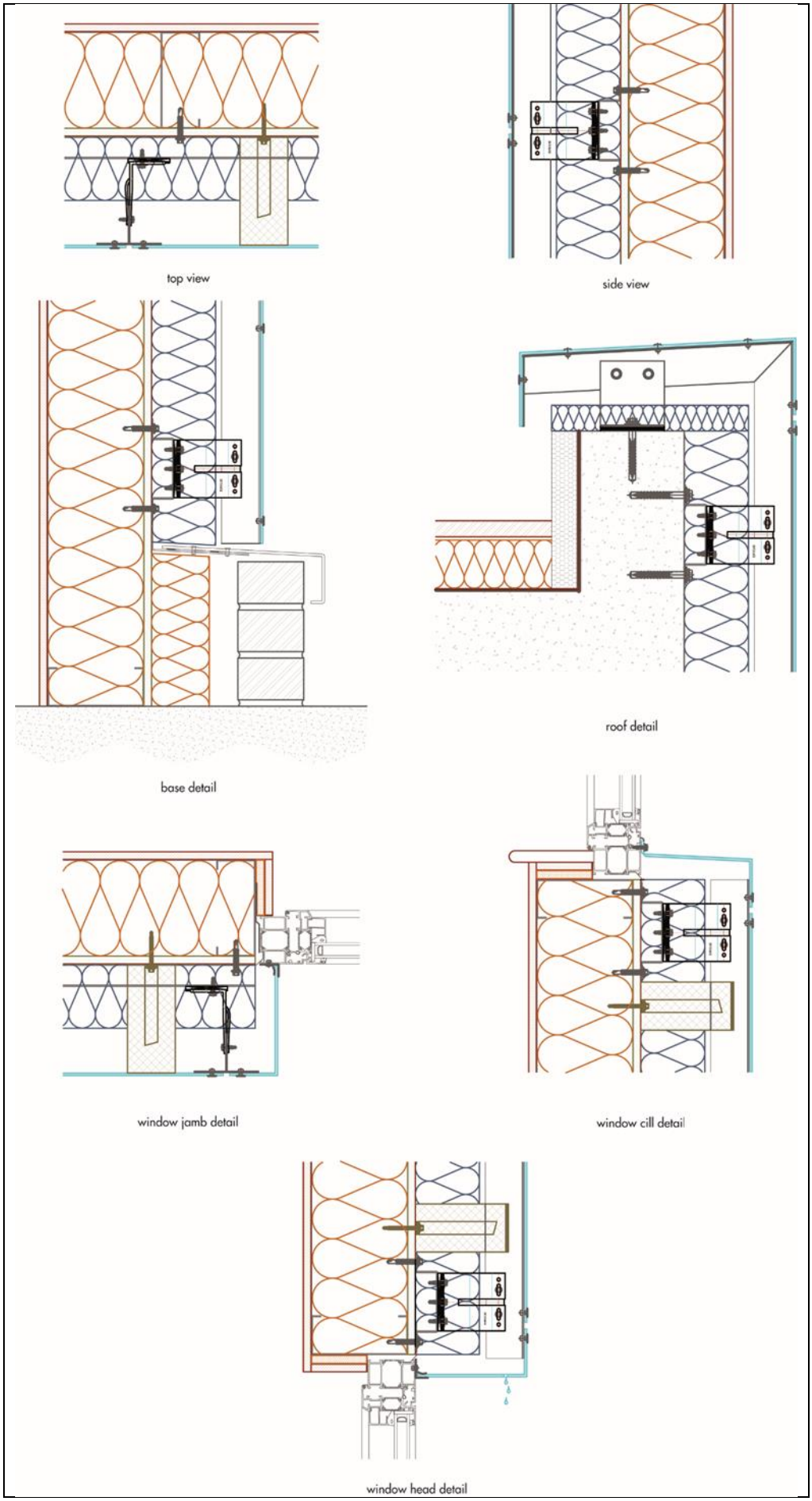
13.5 The panels are riveted to vertical rails with vertical and horizontal gaps between panels of between 10 and 20 mm. Rivets are fixed commencing at the middle of each side working to the corners at spacings of a maximum 500 mm along the supporting rails ensuring a minimum edge distance of 16 mm.

13.6 To allow for thermal expansion, the panels must be provided with 6 and 8.5 mm drill holes for fixed and sliding point fixing, respectively. The fixed point should be arranged as close as possible to the centre of the panel. Rivets are centrally placed in the drill holes and tightened by using a distance gauge (distance ≥0.3 mm).

13.7 A mesh should be installed around the periphery of the cladding system, permitting adequate ventilation as specified in section 4.4 but preventing the intrusion of rodents. Refer to the manufacturer's guidance for the installation procedure of ancillary items.

13.8 Reference should be made to Figure 3 when reading the installation details given in this section.

Figure 3 Typical installation details for ALPOLIC Cladding Panels



14 Investigations

14.1 Based on independent test data, an assessment was made of:

- resistance to wind loading
- impact strength
- material characteristics
- durability
- behaviour in relation to fire.

14.2 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.

Bibliography

BRE Report BR 135 : 2013 *Fire Performance of External Insulation For Walls of Multistorey Buildings*

BS EN 573-3 : 2013 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Chemical composition and form of products*

BS EN 1990 : 2002 + A1 : 2005 *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 13501-1 : 2007 + A1 : 2009 *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*

EOTA Technical Report TR055 : 2016 *Design of fastenings based on EAD 330232-00-0601*

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
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