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Agrément Certificate

21/5897

Product Sheet 1

ALBOND ALUMINIUM COMPOSITE CLADDING PANELS

ALBOND 9000/FR CLADDING PANELS

This Agrément Certificate Product Sheet ⁽¹⁾ relates to Albond 9000⁽²⁾/FR Cladding Panels, flat aluminium composite panels, used in back ventilated and drained rain-screen cladding systems, to provide a decorative and protective façade over external masonry, steel- and timber-frame walls of new and existing commercial and residential buildings. Their use is restricted in some cases.

(1) Hereinafter referred to as 'Certificate'.

(2) Albond 9000 is a registered trademark.

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 actions normally encountered in the UK (see section 6).

Behaviour in relation to fire — the panels have a B-s1, d0 reaction to fire classification to NF EN 13501-1 :2013 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 panels have acceptable durability and will perform effectively as an external cladding with an expected service life of at least 30 years (see section 10).

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

On behalf of the British Board of Agrément

Date of First issue: 28 May 2021



Hardy Giesler
Chief Executive Officer

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

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

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

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Regulations

In the opinion of the BBA, Albond 9000/FR 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 as set out in sections 6.4 and 6.6 of this Certificate.
Requirement:	B3(4)	Internal fire spread (structure)
Comment:		The panels are restricted by this Requirement. See section 7.2 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The panels are restricted by this Requirement. See sections 7.1, 7.4 and 7.7 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The panels can contribute to satisfying this Requirement. See section 8.1 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The panels are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	7(2)	Materials and workmanship
Comment:		The panels are restricted by this Regulation. See sections 7.1, 7.4 and 7.7 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:		The panels can contribute to a construction satisfying this Regulation. See sections 9.1, 10 and 14 and the <i>Installation</i> 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 6.4 and 6.6 of this Certificate.
Standard:	2.4	Cavities
Comment:		The panels are restricted by this Standard, with reference to clauses 2.4.2 ⁽¹⁾⁽²⁾ . See section 7.2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The panels are restricted by this Standard, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See sections 7.1 and 7.5 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The panels are restricted by this Standard, with reference to clause 2.7.1 ⁽¹⁾⁽²⁾ . See sections 7.1, 7.5, 7.6 and 7.7 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The panels can contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ , 3.10.5 ⁽¹⁾⁽²⁾ and 3.10.6 ⁽¹⁾⁽²⁾ . See section 8.1 of this Certificate.

Standard: Comment:	7.1(a)	Statement of sustainability The panels 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(a)(i)(iii)	Fitness of materials and workmanship The panels are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: Comment:	28(b)	Resistance to moisture and weather The panels can contribute to satisfying this Regulation. See section 8.1 of this Certificate.
Regulation: Comment:	30	Stability The panels are acceptable as set out in sections 6.4 and 6.6 of this Certificate.
Regulation: Comment:	35(4)	Internal fire spread – Structure The panels are restricted by this Regulation. See section 7.2 of this Certificate.
Regulation: Comment:	36(a)	External fire spread The panels are restricted by this Regulation. See sections 7.1, 7.4 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 sections: 1 *Description* (1.2), 3 *Delivery and site handling* (3.4 to 3.6) and 14 *Repair* of this Certificate.

Additional Information

NHBC Standards 2021

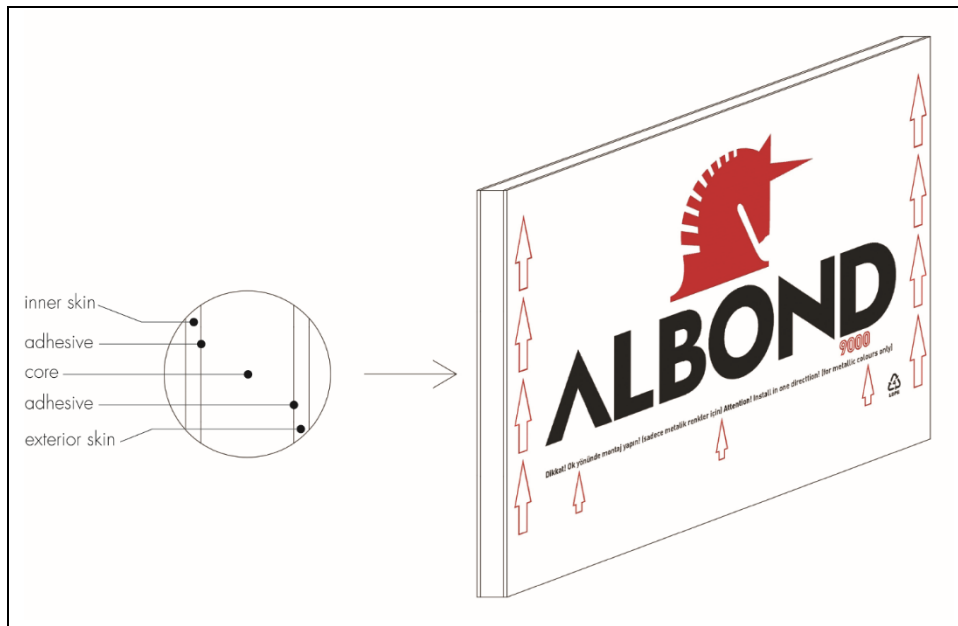
In the opinion of the BBA, Albond 9000/FR Cladding Panels, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards, Part 6 Superstructure (excluding roofs)*, Chapter 6.9 *Curtain walling and cladding*.

Technical Specification

1 Description

1.1 Albond 9000/FR Cladding Panels are flat composite cladding panels (see Figure 1) consisting of a 3 mm mineral reinforced filled core, bonded between two coated aluminium alloy sheets (grade EN AW 3105 H44 to BS EN 573-3 : 2019) using polymeric adhesive. The outward-facing aluminium sheet is coated with a 5-micron layer of polyester primer paint and 20-micron layer of polyvinylidene difluoride (PVDF) paint. The inner-facing aluminium sheet is coated with a 5-micron layer of protective primer epoxy polyester finish.

Figure 1 Albond 9000/FR Cladding Panels — typical panel detail



1.2 The panels have the nominal characteristics given in Table 1.

Table 1 Panel dimensions and Nominal characteristics	
Property	Albond 9000/FR
Overall thickness	4 mm (± 0.2 mm)
Mass per unit area	7.5 kg·m ⁻²
Outward facing aluminium sheet	Thickness: 0.50 Material: Aluminium, Alloy EN AW 3105 -H44 Paint type: Polyester Primer (PE) 5µm and Polyvinylidene Fluoride (PVDF) 20µm
Polymeric Adhesive	Material: Modified ethylene vinyl acetate (EVA) resin Colour: White Nominal Density: 930 kg·m ⁻³
Core	Material: Mineral Reinforced Filled Core Thickness: 3.0 Colour: White Nominal Density: 1550
Polymeric Adhesive	Material: Modified ethylene vinyl acetate (EVA) resin Colour: White Nominal Density: 930 kg·m ⁻³
Inner facing aluminium sheet	Thickness: 0.50 Material: Aluminium, Alloy EN AW 3105 -H44 Paint Type: Protective primer epoxy polyester (PE) Paint Thickness: 5µm Colour: Grey
Standard width (mm)	1000; 1250; 1500 (tolerance ± 2)
Standard length (mm)	2500; 3200; 4000 (tolerance ± 4)
Colours	All other colours ⁽¹⁾ in same type of paint ⁽²⁾

(1) Solid and metallic colours with smooth finish/aspect.

(2) CSTB – N°RA18-0221 dated 11 October 2018 and AFITI 3358T17 dated 08th March 2018.

1.3 The panels are mechanically fixed to vertical rails made of aluminium profiles by two types of fasteners, rivets or screws. The rails are fixed to the wall with adjustable brackets.

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

- blind rivets — flange head aluminium rivets: stainless steel mandrel A2 grade to BS EN ISO 15977 : 2002, 5 mm shaft diameter, 14 mm head diameter, length 12 mm, used to fix the panels to metal sub-frame
- screws — self-drilling stainless steel screw grade A2 to BS EN 10088-3:2014, 5.5 mm shaft diameter x 25 mm long self-drilling screws, 8 mm head diameter, used to fix the panels to metal sub-frame
- vertical rail profiles — T-profile aluminium (80 x 52 mm) EN AW 6060 T5 to BS EN 755-2:2016 and 2.5 mm thickness ref. 611024 (in 3 m lengths) or 611027 (in 6 m lengths) rails
- fixings — of the vertical profiles with L brackets on the structures (masonry or concrete, specified on a project basis)
- insulation (specified on a project basis)
- substrate wall
- breather membrane
- mesh or perforated sheet.

2 Manufacture

2.1 The Albond 9000/FR Cladding Panels are a Composite construction material which are produced by using a mineral core bonded between two coated aluminium sheets, in a continuous process.

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 operated by the manufacturer are being maintained.

2.3 The quality management system of Albond Alüminyum Sanayi Ve Ticaret A.S have been assessed and registered as meeting the requirements of EN ISO 9001 : 2015 by TUV SUD (Certificate Q 0057T-2).

3 Delivery and site handling

3.1 The panels are delivered to site on wooden pallets with edge protection and wrapped in transparent plastic film. The pallets bear a product identification label including type, size, quantity, identification code, manufacturing references and colour.

3.2 Cardboard sheets are placed on the top and bottom of the stacked panels on wooden pallets. The panels are wrapped with a transparent plastic film to protect them from outside weather conditions (rain, etc) during transportation. Hard cardboard angles are placed to protect top edges and corners of the pallet from impacts. The pallet is fixed with a plastic strap over each cardboard angle.

3.3 The pallets should be stored on a clean, dry, floor under normal conditions and in an environment where the temperature is not unstable. Extreme temperature changes can cause distortions.

3.4 The panels should not be stored in a way that allows intermittent or constant submersion in water or any other liquid and high levels of humidity or contamination. The panels should be kept away from flammable substances, such as strong acidic chemicals, alkalis and solvents.

3.5 The panels should be stored horizontally. Vertical storing is not recommended. The panels are stacked on wooden pallets. No more than 6 pallets should be stacked. The storing period should not be more than 6 months

3.6 The panels should be handled with care to avoid damage. They should be lifted off, rather than slid across other panels. Care should be exercised when handling the panels to avoid injury from sharp edges. Protective clothing should be worn, and all Health and Safety measures must be observed.

3.7 The temporary protective film (aluminium foil) on the panels should be removed by pulling with 180-degree angle as soon as possible after installation or at the latest within one month.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Albond 9000/FR Cladding Panels.

Design Considerations

4 General

4.1 Albond 9000/FR Cladding Panels are satisfactory for use as cladding, in an open-jointed, back-ventilated and drained rain-screen cladding system over external masonry, steel- and timber-frame walls of new and existing buildings. Height restrictions may apply (see section 7).

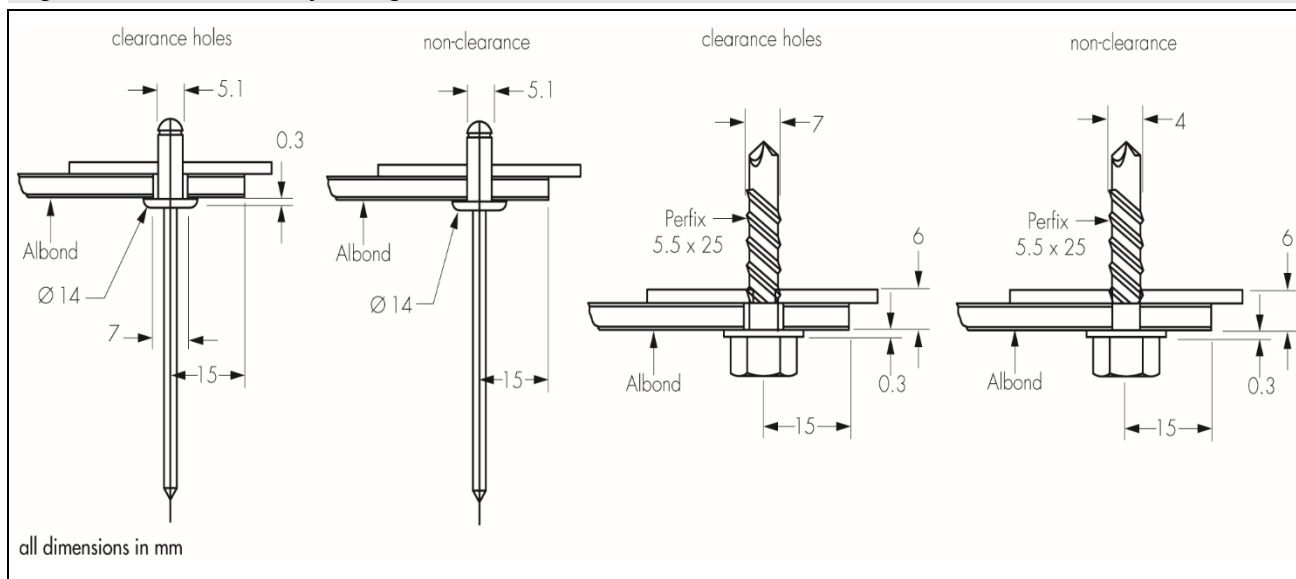
4.2 It is important for designers, planners, contractors and/or installers to ensure that the installation of the panels is in accordance with the Certificate holder's instructions and the information given in this Certificate. All design aspects should be checked by a suitably qualified and experienced 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 wall to which the products are to be fixed must be structurally sound, and designed and constructed in accordance with the requirements of the relevant national Building Regulations and Standards.

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 wall (or insulation if installed on the wall) must be at least 50 mm wide and ensure that a minimum ventilation area of 5000 mm² 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 10 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. Also see section 7.2 of this Certificate.

4.5 The panels must be mounted to allow for thermal expansion movement. When the panels are secured, allowance for expansion must also be made by the appropriate use of clearance holes at fixings defined in section 1.4. The size of the clearance holes for blind rivet and self-drilling screws (as defined in section 1.4) is 7 mm. (see figure 2). To allow for longitudinal expansion, a minimum gap of 10 mm between adjacent support rails should be provided. The panels must not straddle this gap.

Figure 2 Blind rivet and self-drilling screw clearance and non-clearance hole sizes



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 panels 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 actions 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 load factor of 1.5 be applied to the characteristic wind loading to determine the design wind load to be resisted by the cladding system incorporating the panels.

6.2 The supporting 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 sub-frame must have sufficient stiffness, such that its deformation does not affect the performance of the panels. The panels do not enhance the structural performance of the wall.

6.3 The designer should ensure that:

- the design of the cladding, sub-frame and their fixings have adequate resistance to the applied actions and in accordance with the relevant codes and Standards, such as to limit mid-span⁽¹⁾ deflections to span/200 and cantilever⁽²⁾ deflections to span/150
- the panels are fixed to the sub-frame using the specified fixing mechanisms (see section 1.4)
- the specified fixings of the panel to the sub-frame 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. An appropriate number of site-specific pull-out tests must be conducted on the wall as appropriate to determine the minimum pull-out resistance to failure of the fixings, as well as their characteristic pull-out resistance in accordance with the guidance given in BS EN 1990: 2002.

(1) Vertical distance between the fixing brackets.

(2) Vertical distance between the bracket and the end of the rail sub-frame.



6.4 For design purposes, the panels' properties as tested are given in Table 2 of this Certificate may be adopted.

Table 2 Albond 9000 FR - Panel properties (to DIN 53293 E : 1982)

	Bending Moment (M) at failure N·mm	Compressive stress Mpa	Tensile stress Mpa	Shear stress Mpa	Effective flexural strength (E·J) _{eff} in the range of L _s	Effective shear rigidity S _{eff} in the range of L _B
Average	3523	-28.20	28.20	4.93	0.08	-121.12
Standard deviation	45.77	.367	.367	.064	.0089	5.596

6.5 The fixings defined in section 1.4 should be used to attach the panels to the support frame. The design should ensure adequate capacity against wind suction actions.



6.6 When tested for pull-through resistance in conjunction with the fixings defined in section 1.4 for fixed holes (non-clearance holes), panels have achieved the characteristic pull-through failure load given in Table 3. An appropriate number of pull-through resistance tests of the cladding panels for both fixings defined in section 1.4 must be conducted in a UKAS or equivalent accredited laboratory to determine the characteristic pull through failure loads of the fixings for clearance holes.

Table 3 Characteristic pull-through failure load for non-clearance holes

Fixing type	Characteristic failure load by pull-through (KN)		
	Panel centre	Panel corner	Panel edge
Blind rivet	2.09	1.05	1.25
Self-drilling screw	2.34	1.35	1.47

Impact

6.7 The designer must ensure that a cladding system incorporating the product has adequate hard and soft body impact resistance for the intended use. Hard body and soft body impact resistance is a function of the panels, its sub-frame/support to the wall and their configuration, and must be evaluated through testing by a UKAS accredited (for the test) body in accordance with EAD 090062-00-0404, and the appropriate impact Use Category classification determined in accordance with the same Standard. The classification will establish the areas where the completed cladding system can be used (see EAD 090062-00-0404, Table G.2).

7 Behaviour in relation to fire



7.1 The panels have a reaction to fire classification of B-s1, d0⁽¹⁾ in accordance to NF EN 13501-1 : 2013.

(1) CSTB – N°RA18-0221, dated 11 October 2018 and AFITI 3358T17, dated 08th March 2018 for the following end-use application:

- system — riveted or screwed system on metal substructure
- air-gap — ≥20 mm behind the metal substructure
- insulating material — without insulating material behind the metal substructure
- substrate — without substrate or with any A1 or A2-s1,d0 class substrate with a density ≥652 kg·m³ and a thickness ≥9 mm
- colours — all other colours in same type of paint.

Reports available from the Certificate holder on request.

7.2 The Certificate holder has not declared a reaction to fire classification to BS EN 13501-1: 2018 for the reverse side of the panel (facing into the cavity). Cavity barriers should be provided in accordance with the requirements of the documents supporting the national Building Regulations taking this into account. The cavity barriers should not impede drainage and ventilation pathways.

7.3 Designers should refer to the relevant national Building Regulations 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.



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



7.5 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.

7.6 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 or assembly building with a total storey area more than 500 m², or on any hospital or residential care building with a total storey area more than 200 m².



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

8 Air and water penetration



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

8.2 The wall to which the cladding is fixed must be weathertight and reasonably airtight satisfying the requirements of the relevant national Building Regulations and Standards.

8.3 The joints between panels are open, (ie gaps between panels are minimum 10 mm) but any water entering the cavity behind the panels by wind-driven rain or condensation will be minimal and 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 and opening joint width between panels is given in *NHBC Standards 2020*, Chapter 6.2 and 6.9. The ventilation pathway behind the cladding must not be allowed to become blocked and openings should be suitably protected, or baffled, to prevent the ingress of birds, vermin and rain. Also see section 7.2 of this Certificate.

8.5 The designer should ensure the cladding system is designed with appropriate compartmentation of the cavity, and in accordance with the requirements of the NHBC Standard 2020, chapter 6.9.

9 Maintenance



9.1 To maintain the product appearance, in most cases, annual maintenance (or as recommended by the Certificate holder depending on environmental conditions) would be required. Maintenance should also 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.

9.2 The painted panel surface panels may be cleaned using water and mild detergent, followed by a clean water rinse. If the dirt is still adhering after dry, then use of 5 – 10% IPA (Isopropyl Alcohol) solution will be necessary to clean.

9.3 After washing, the surface should be thoroughly rinsed with clean water, and the rinsed surface is air-dried or wiped with a squeegee or lint-free cloth. Abrasive pads such as wools or sandpapers must not be used for cleaning.

10 Durability



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

10.2 In a non-corrosive atmosphere, the panels can be expected to retain a good appearance for up to 20 years, and for 15 years in coastal or severe industrial regions.

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

11 Re-use and recyclability

The panels' aluminium sheets and core material can be recycled.

12 General

12.1 Albond 9000/FR Cladding Panels 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 The panels must only be installed by competent cladding contractors experienced with these types of products. The Certificate holder can provide advice on installation if required.

12.3 Installation of the panels should be carried out between temperatures of 5°C and 25°C. Extremes of temperature must be avoided.

12.4 The coefficient of linear thermal movement for the panel is 2.4 mm/m at 100°C ambient temperature difference.

12.5 The panels can be worked by conventional techniques in accordance with the Certificate holder's instructions. These include sawing, cutting, drilling 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 The panels may be fabricated for installation in the vertical plane. The panels may be predrilled in the factory or on site.

12.7 Suitable cavity barriers, as described in section 7.2 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 Accurate positioning and installation of the supporting frame is essential.

13.3 The vertical rail is fixed at a maximum 600 mm centres to the wall using brackets at the appropriate spacing depending on the size of panel used and the local wind load. Vertical distance between brackets do not exceed 1380 mm.

13.4 Brackets are installed at a maximum of 250 mm from the vertical rail ends using appropriate fixings to the wall.

13.5 If required, after the vertical rails are installed, a rigid or semi-rigid insulation, protected by a suitable breather membrane, can be installed on the wall. The thickness of the insulation should be such as to ensure a minimum ventilation cavity width at the back of the panel is maintained (see also section 8.4).

13.6 Special care must be taken to ensure all panels are installed in the same directions (indicated by the arrows on the protective film).

13.7 Starting at the base, panels are riveted or screwed to vertical rails at maximum 600 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. See also section 4.5 and 6.6 of the Certificate.

13.8 Typical installation details are given in Figure 3.

Figure 3 Typical installation details for Albond 9000/FR Cladding Panels

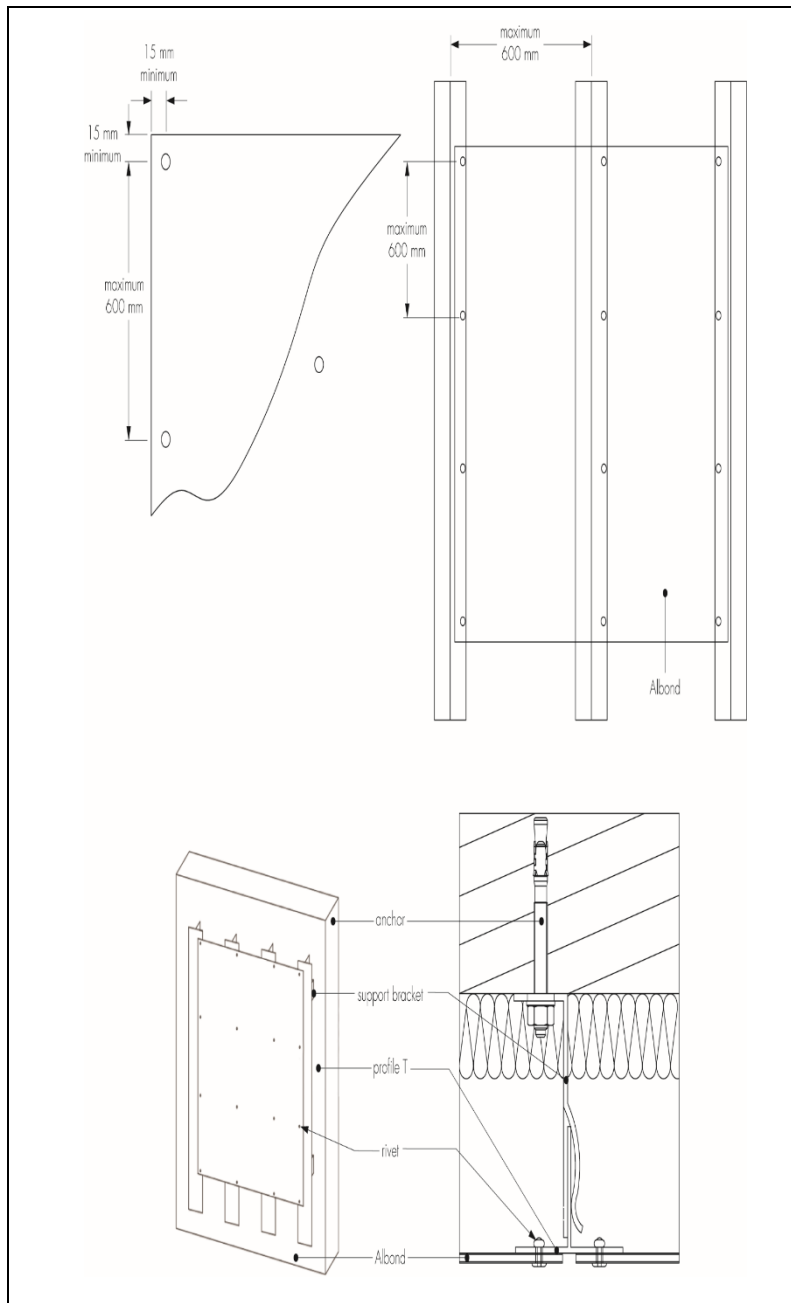


Figure 3 Typical installation details for Albond 9000/FR Cladding Panels (continued)

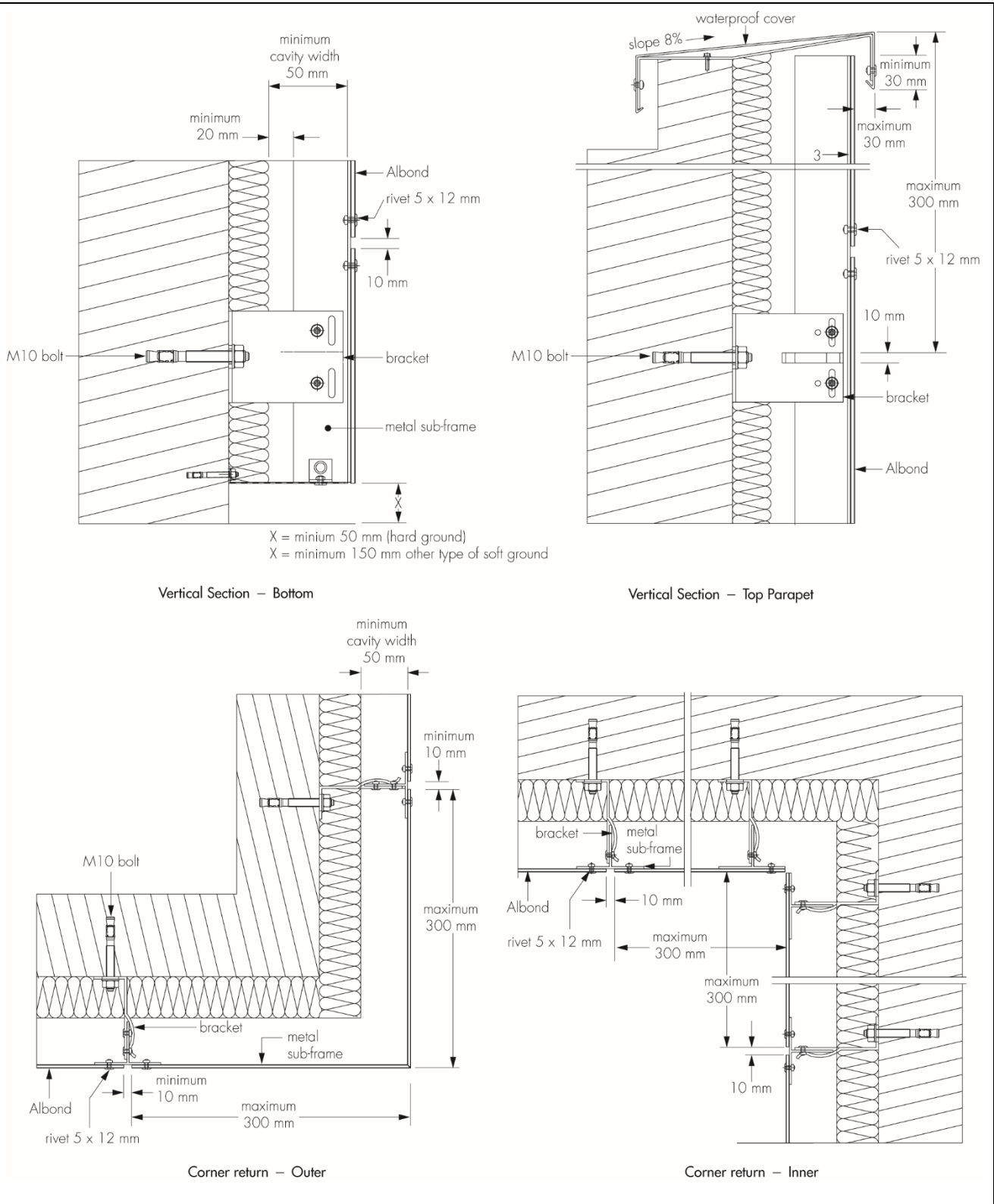
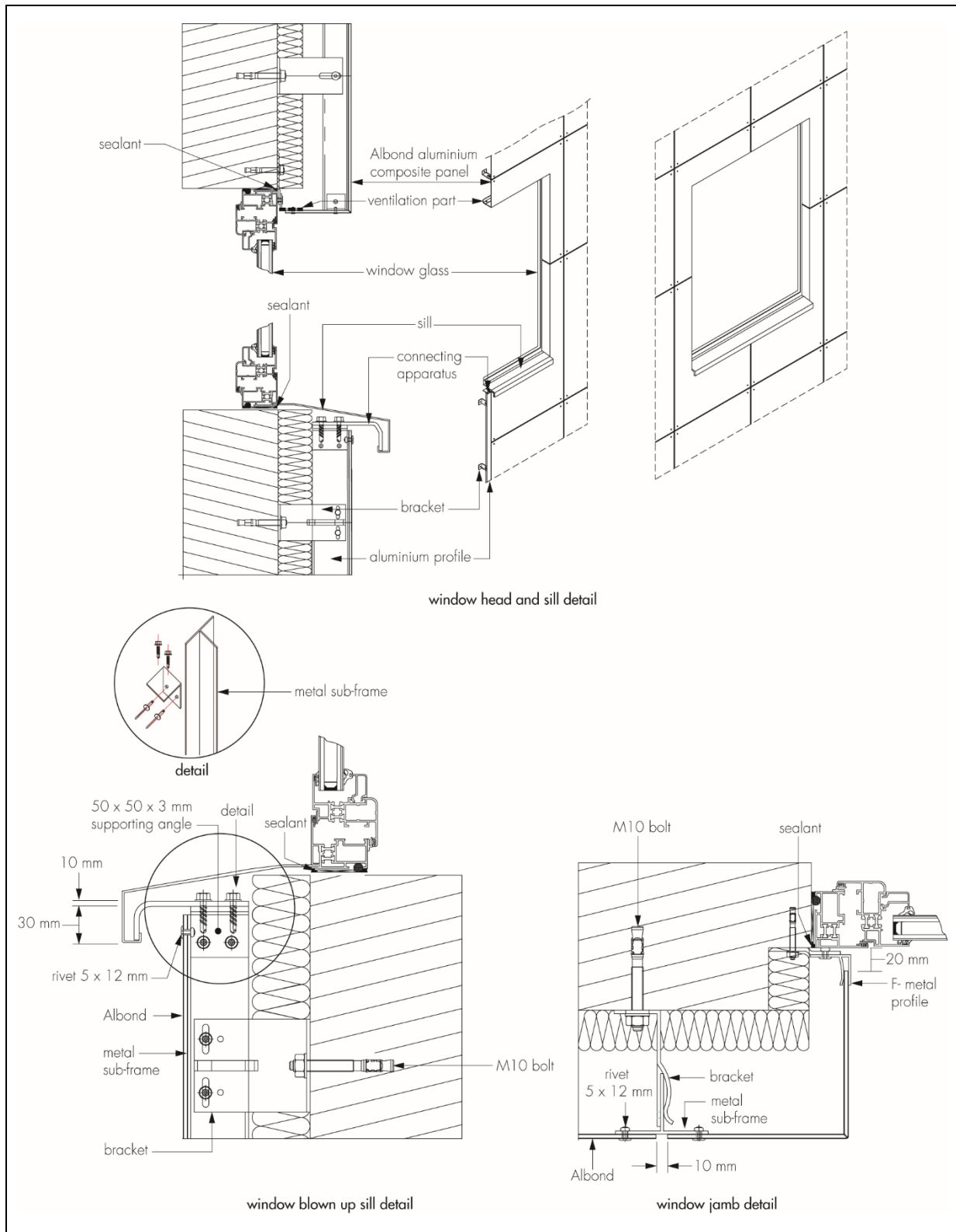


Figure 3 Typical installation details for Albond 9000/FR Cladding Panels (continued)



14 Repair



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.

15 Tests

Tests were carried out on Albond 9000/FR Cladding Panels by the BBA and the results assessed to determine:

- density
- mechanical characteristics
- bond strength
- pull-through resistance
- pull-through resistance under shear loads
- resistance to horizontal point load
- corrosion resistance
- colour stability
- cross cut
- abrasion resistance
- scratch resistance
- T-bend.

16 Investigations

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

16.2 An assessment was made of test reports relating to the reaction to fire classification of the product to BS EN 13501-1 : 2007.

16.3 An assessment was made of the practicability of installation.

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 10088-3 : 2014 *Stainless steels — Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes.*

BS EN ISO 15977 : 2002 *Open end blind rivets with break pull mandrel and protruding head — AIA/St View details*

BS EN 755-2 : 2016 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Mechanical properties*

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*

NF EN 13501-1+A1:2013 *This classification report defines the classification assigned to the product in accordance with the procedures given in the NF EN 13501-1 + A1 : 2013 standard.*

BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*

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

DIN 53293 E : 1982 *Testing of sandwiches — Bending test*

17 Conditions

17.1 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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.