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Agrément Certificate
19/5708
Product Sheet 2

FIBRE-CEMENT WALL BOARDS

RENDERFLEX

This Agrément Certificate Product Sheet(1) relates to Renderflex, a fibre-cement board for use internally as a wall liner and tilebacker board on non-loadbearing and loadbearing timber- and steel-frame substrate walls in new and existing domestic and non-domestic buildings, subject to height restrictions.

(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 board has sufficient strength to resist the loads likely to be encountered in service (see section 6).

Performance in relation to fire — the board has an A2- s1, d0 reaction to fire classification to BS EN 13501-1 : 2007. The use of the board on timber-frame walls is restricted in some cases (see section 7).

Resistance to moisture — the board has adequate moisture resistance (see section 8).

Durability — when used as liner board, the product should have a design life equal to the building in which it is installed, taken as 60 years (see section 12).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrement

Date of First issue: 9 December 2019

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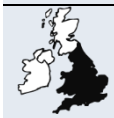
Regulations

In the opinion of the BBA, Renderflex, 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 board is acceptable. See section 6 of this Certificate.
Requirement:	**B2(1)(2)**	**Internal fire spread (linings)**
Requirement:	**B3(2)(3)(4)**	**Internal fire spread (structure)**
Comment:		The board can contribute to a construction satisfying this Requirement. See sections 7.1 to 7.6, 7.9 and 7.10 of this Certificate.
Regulation:	**7**	**Materials and workmanship (applicable to Wales only)**
Regulation:	**7(1)**	**Materials and workmanship (applicable to England only)**
Comment:		The board is acceptable. See section 12 and the *Installation* part of this Certificate.
Regulation:	**7(2)**	**Materials and workmanship (applicable to England only)**
Comment:		The board is unrestricted by this Regulation, but use on timber-frame substrate walls may be restricted. See sections 7.1 to 7.6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Durability, workmanship and fitness of materials**
Comment:		The use of the board satisfies the requirements of this Regulation. See section 12 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	1.1(a)(b)	Structure
Comment:		The board is acceptable, with reference to clause 1.1.1[(1)(2)] of this Standard. See section 6 of this Certificate.
Standard:	2.4	Cavities
Comment:		The board can contribute to satisfying this Standard with reference to clause 2.4.2[(1)(2)]. See sections 7.1, 7.2, 7.7 and 7.8 of this Certificate.
Standard:	2.5	Internal linings
Comment:		The board can contribute to an external wall satisfying the requirements of this Standard, with reference to clauses 2.4.1[(1)(2)], 2.4.2[(1)(2)], 2.4.3[(1)], 2.4.4[(1)], 2.4.5[(2)], 2.4.6[(2)], 2.4.7[(1)], 2.4.9[(2)] and 2.5.1[(1)(2)]. See sections 7.1 to 7.8 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The boards can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction satisfying a bronze level of sustainability as defined in this Standard.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given for the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1[(1)(2)] and Schedule 6[(1)(2).]

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

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

Regulation:	**23**	**Fitness of materials and workmanship**
Comment:		The board is acceptable. See section 12 and the *Installation* part of this Certificate.
Regulation:	**30**	**Stability**
Comment:		The board is acceptable. See section 6 of this Certificate.
Regulation:	**34**	**Internal fire spread — linings**
Regulation:	**35(4)**	**Internal fire spread — structure**
Comment:		The board is unrestricted by these Regulations. See sections 7.1 to 7.6 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: 3 *Delivery and site handling* (3.1 and 3.3) and 14 *Installation – General* (14.3 and 14.4) of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, Renderflex, 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)*, Chapters 6.2 *Timber frame,* 6.3 *Internal walls,* and Part 9 *Finishes,* Chapter 9.2 *Wall and ceiling finishes.*

CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 12467 : 2012.

Technical Specification

1 Description

1.1 Renderflex is a cellulose-fibre cement board comprising ordinary Portland cement, crystalline silica (quartz) and cellulose, and satisfy the requirements of Category A, Class 2 boards to BS EN 12467 : 2012.

1.2 The board has the nominal characteristics given in Table 1.

Table 1 Board characteristics

Characteristic (units)	Value
Length (mm)	2400
Width (mm)	1200
Thickness (mm)	6, 7.5, 9, 12
Mass ($kg \cdot m^{-2}$)	8.3, 10.3, 12.4, 16.5(1)
Mean density ($kg \cdot m^{-3}$)	1375
Water vapour resistance factor (μ)	45
Edge	recessed / square
Finish	unsanded (recessed only)/light sanded (recessed or square)
Colour	pink

(1) The weight of the panels depends on the size.

1.3 The specification of the fixings is as follows:

- zinc coated wing tip screws, 4.80 mm shank diameter, 38 mm in length, with a 10 mm diameter countersunk head screw, with at least 500 hours salt-spray corrosion resistance, used to attach the board to steel-frame substrates at 300 mm centres to board edges and intermediate support
- ceramic coating screws, 4.20 mm shank diameter, 42 mm in length, with a 10 mm diameter countersunk head screw, with at least 500 hours salt-spray corrosion resistance, used to attach the board to timber frame substrate at 300 mm centres to board edges and intermediate support.

1.4 Components specified for use with the board, but outside the scope of this Certificate, include:

- steel-frame — light gauge metal frame with vertical studs at 600 mm maximum centres
- timber-frame — timber studs fixed vertically at 600 mm maximum centres
- corner beadings — perforated PVC (for wet) or metal (for dry) applications
- jointing compound — used to level the joints between recessed edges in dry lining applications
- tape — perforated paper tape used to cover square board joints in dry lining applications
- finishes
- ceramic tile adhesive – acrylic based.

2 Manufacture

2.1 The raw materials of ordinary Portland cement, crystalline silica and cellulose are mixed in a controlled process and picked up by the sieve cylinder to form the board prior to autoclaving. Once hardened, the board is finished by cutting and drying, before storage. The board is manufactured to the specification detailed in BS EN 12467 : 2012.

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 product is manufactured in Malaysia and is marketed in the UK by the Certificate holder.

3 Delivery and site handling

3.1 Boards are supplied covered with polythene on timber pallets and can be offloaded either by mechanical handling equipment or by manually removing individual boards. Each pallet bears a label including the load number, product name, product size, board quantity and the BBA logo incorporating the number of this Certificate.

3.2 The boards must be stored on a firm, flat and level surface with sufficient support to prevent bowing. The boards should be stored under cover and kept dry prior to fixing. If the board becomes wet, it must be sufficiently dried prior to use.

3.3 Manual off-loading of the boards should be carried out by a two-person lift, with care to avoid unnecessary strain and injury.

Assessment and Technical Investigations

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

Design Considerations

4 Use

4.1 Renderflex is for use as non-structural liner boards/tilebacker boards on loadbearing and non-loadbearing internal walls and on the inner face of external walls. The board is supported at 600 mm maximum centres between timber/steel studs. The use of the board is restricted in some cases (see section 7). The appropriate board thickness should be selected according to the intended application, as shown in Table 2.

Table 2 Board thickness

	Application		
	Fully supported dry lining	Stud supported dry lining	Tilebacker
Board thickness (mm)	6, 7.5, 9, 12	7.5, 9, 12	9, 12

4.2 The board satisfies Category A(1) requirements in accordance with BS EN 12467 : 2012.

(1) Sheets which are intended for applications where they may be subjected to heat, high moisture and severe frost.

4.3 The frame to which the board is fixed must be structurally sound, and designed and constructed in accordance with the requirements of the relevant national Building Regulations and Standards:

- timber-frame — in accordance with BS EN 1995-1-1 : 2004 and preservative-treated in accordance with BS EN 351-1 : 2007
- steel-frame — in accordance with BS EN 1993-1-1 : 2005 and BS EN 1993-1-3 : 2006.

4.4 In the tile backer board application, the board is for use with waterproof tile adhesive and grout in shower and wet areas (excluding floors).

4.5 Walls to be tiled should comply with the requirements of BS 5385-1 : 2018, including the provision of movement joints as appropriate. Where necessary, reference should also be made to BS 5385-4 : 2015.

4.6 The board may be incorporated as an internal lining in masonry constructions. Masonry walls of new buildings should be designed and constructed in accordance with BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and PD 6697 : 2010, and with the relevant recommendations of BS 8000-0 : 2014 and BS 8000-3 : 2001.

4.7 A suitably qualified and experienced individual must check the design and method of installation of the boards.

5 Practicability of installation

The boards are designed to be installed by a competent contractor experienced with this type of product.

6 Strength and stability

6.1 The board has adequate strength and stiffness to support internal wall finishes, such as ceramic tiling, without undue deflection, when fixed to a suitably rigid substrate wall using the specified fixings (see section 1.3) at the correct centres and layout (see section 15.1)

6.2 When tested in accordance with BS EN 12467 : 2012, 6 mm thick boards achieved a mean modulus of rupture (MOR) of 9.26 MPa, therefore satisfying the Class 2 classification.

6.3 A 9 mm thick board tiled with 100 x 100 mm ceramic tiles using an acrylic-based organic dispersion with fibre strand technology tile adhesive and a proprietary tiling grout, when tested for bond strength between the board and tile, satisfied the minimum bond strength requirement specified in ETAG 004 : 2013, Clause 6.1.4.1.2, for dry and wet conditions.

6.4 When tested for hard body impacts of 3 Joules of energy and soft body impacts of 10 Joules of energy in accordance with EAD 090062-00-0404, the system comprising a 9 mm thick board, supported on timber battens at 600 mm centres and fixed at 300 mm vertical centres, achieved adequate resistance to impact for impact Use Categories III and IV (a zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects or a zone out of reach of ground level).

7 Performance in relation to fire

7.1 The reaction to fire classification(1) for the boards in accordance with BS EN 13501-1 : 2007 is A2-s1, d0.

(1) Designers should refer to BRE Global Fire Test Report No. 299576-2A Issue 1, available from the Certificate holder.

7.2 This classification may not be achieved when the product is coated; care, therefore, should be taken to select a finish with the appropriate performance in fire for the installation in question.

7.3 The board is not subject to any height or boundary restriction when used in a wall system provided the other components used in the system satisfy the non-combustibility requirement to the relevant national Building Regulations. When used in conjunction with materials which are not non-combustible, the whole wall construction must satisfy the requirements of BRE Report BR 135 : 2013, or it may be subject to height and proximity to boundary limitations. Restrictions apply to timber substrates, see Sections 7.7 to 7.9.

7.4 For resistance to fire, the performance of the whole wall incorporating the product must be determined by tests from a suitably accredited laboratory, and is outside the scope of this Certificate.

7.5 Fire must not be allowed to spread between or within cavities and must not bypass elements required to have fire resistance. Any cavities formed by the use of the product may need to be enclosed and subdivided in accordance with the guidance/requirements in the national Building Regulations.

7.6 Cavity barriers must be incorporated as required under the national Building Regulations, but must not block essential ventilation and drainage pathways. Guidance on fire barriers can be found in BRE Report BR 135 : 2013.

7.7 In Scotland, if used on timber substrate walls in non-domestic buildings, the board may only be used on walls more than 1 m from a boundary. For domestic buildings, there is no limitation on proximity to boundary.

7.8 If used on timber substrate external walls, the board 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 m^2, or on any hospital or residential care building with a total storey area more than 200 m^2.

7.9 In England, if used on timber substrate external walls, the board 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.

7.10 Designers should refer to the relevant national Building Regulations and guidance for alternative approaches and detailed conditions of use, particularly with regard to requirements for substrate fire performance, cavity barriers, fire stopping of services and combustibility limitations for other materials and components used in the overall wall construction (for example, thermal insulation).

8 Resistance to moisture

8.1 When tested for water impermeability in accordance with BS EN 12467 : 2012, no water droplets formed on the lower surface within 24 hours; the board, therefore, conform to the requirements of Category A as defined in the same Standard.

8.2 The board is not suitable for use where it may be in contact with water for prolonged periods.

9 Proximity of flues and appliances

When installing the board in close proximity to certain flue pipes or heat-producing appliances, the following provisions of the national Building Regulations must be satisfied:

England and Wales — Approved Document J
Scotland — Mandatory Standard 3.19, clauses 3.19.1[(1)(2)] to 3.19.4[(1)(2)] and 3.19.8[(1)(2)]

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet L.

10 Wall-mounted fittings

Wall-mounted fittings (outside the scope of this Certificate) must be fixed through the board into the steel or timber studs, using suitable fixings. The recommendations of the manufacturer must be followed.

11 Maintenance

11.1 As the board has suitable durability, will normally be confined within the building structure and, in most cases, will be covered with finishes, maintenance is not required.

11.2 Under normal conditions of use, the board is unlikely to suffer damage, but if damage does occur, the boards should be replaced.

12 Durability

Provided the board is used in accordance with this Certificate and the Certificate holder's instructions, and incorporated in a building designed in accordance with BS EN 1993-1-1 : 2005 or BS EN 1995-1-1 : 2004, it will have a design life equivalent to the building in which they are incorporated (taken as 60 years).

13 Reuse and recyclability

The board can be readily recycled.

Installation

14 General

14.1 Renderflex must be installed in accordance with this Certificate and the Certificate holder's instructions.

14.2 Reasonable precautions must be taken to ensure the board is not damaged during installation.

14.3 When cutting the board, power and hand tools should be used with care and in accordance with the Certificate holder's recommendations. Power tools should only be used by individuals who have been instructed and trained to use them safely. Appropriate personal protective equipment (PPE) should be used and monitoring of exposure levels during this activity should be considered.

14.4 It is important to observe appropriate health and safety legislation when working on site. The Certificate holder should be consulted for material safety data sheets and advice. When working in enclosed areas, precautions should be taken to ensure dust levels are controlled in accordance with the current issue of EH40/2005.

15 Procedure

15.1 The board is fixed to the steel/timber studs using the specified screws (see section 1.3), ensuring that the screws are flush-fitted (that is, not overtightened), and positioned at a minimum of 12 mm from the edge of the board and a minimum of 50 mm from the corners (see Figure 1). Fixings are installed at 200 mm centres on the board edges and 300 mm centres on the intermediate studs. For tiling purposes, fixings should be at 200 mm centres at board edges and intermediate studs.

15.2 Once the first board is installed, subsequent boards are installed with a nominal 2 to 5 mm joint gap.

Dry-lining

15.3 In dry wall liner applications, the position of fixings should be staggered on adjacent boards. The recessed edge allows the joint to be masked using perforated paper tape; flush-jointing compound is applied to give a seamless smooth finish.

Tiling

15.4 In wet area lining such as bathrooms, tiled finishes are applied in accordance with the manufacturer's instructions. The joint between the boards and the floor must be protected to prevent water penetrating the adjoining space.

15.5 Tiles should be installed and grouted in accordance with the tile manufacturer's instructions, BS 5385-1 : 2018 and BS 5385-4 : 2015, and conventional good practice.

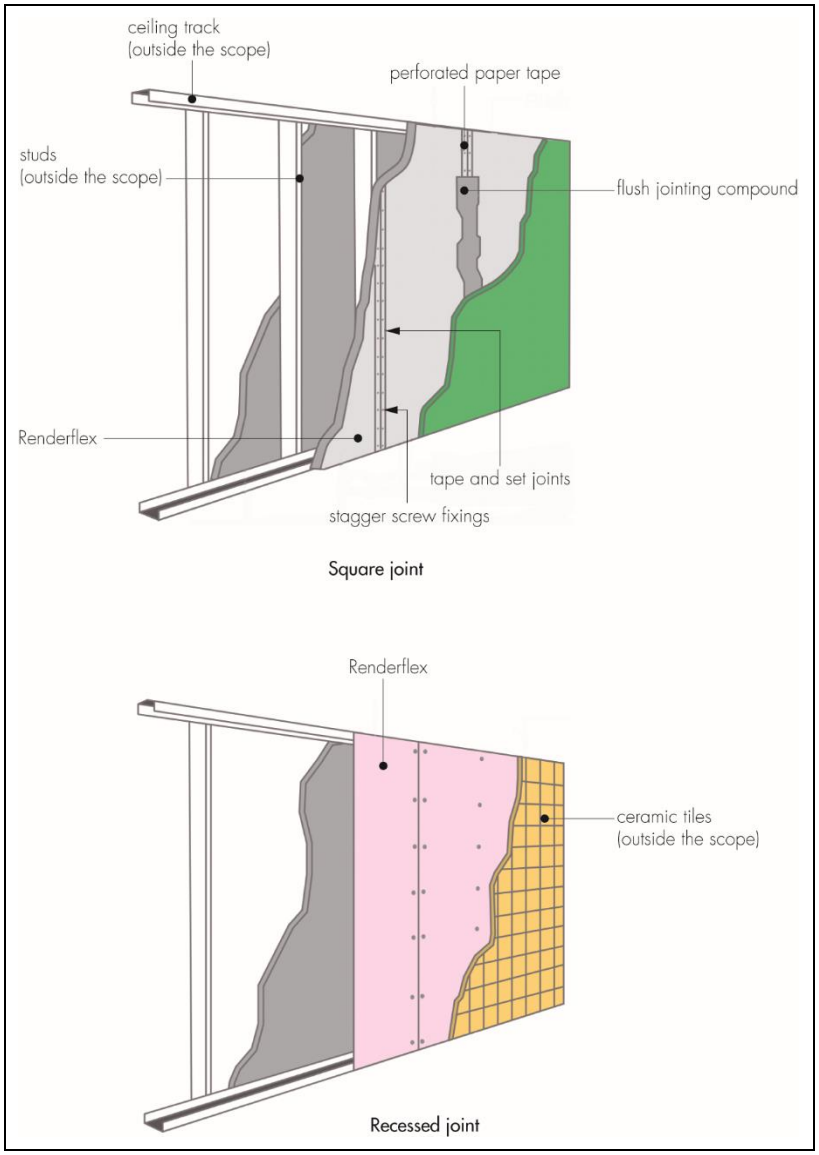
Finishes

15.6 The Certificate holder should be consulted regarding suitable primers, paint systems and decorative finishes. These are outside the scope of this Certificate.

16 Repair

As is good practice, any damaged boards must be replaced.

Figure 1 Typical installation



Technical Investigations

17 Tests

Tests were conducted and the results assessed to determine:

- dimensional stability
- density
- resistance to pull-through of fixings
- flexural strength
- water impermeability
- resistance to freeze/thaw cycling
- resistance to heat/rain cycling
- resistance to water soak
- resistance to soak/dry cycling
- water vapour permeability
- bond strength of ceramic tiles to the board.

18 Investigations

18.1 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.

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

Bibliography

BRE Report BR 135 : 2013 *Fire performance of external insulation for walls of multi-storey buildings*

BS 5385-1 : 2018 *Wall and floor tiling — Design and installation of ceramic, natural stone and mosaic wall tiling in normal internal conditions — Code of practice*

BS 5385-4 : 2015 *Wall and floor tiling — Design and installation of ceramic and mosaic tiling in specific conditions — Code of practice*

BS 8000-0 : 2014 - *Workmanship on construction sites — Introduction and general principles*
BS 8000-3 : 2001 - *Workmanship on building sites — Code of practice for masonry*

BS EN 351-1 : 2007 *Durability of wood and wood-based boards — Preservative-treated solid wood — Classification of preservative penetration and retention*

BS EN 1993-1-1 : 2005 + A1 : 2014 *Eurocode 3 : Design of steel structures — General rules and rules for buildings*
BS EN 1993-1-3 : 2006 *Eurocode 3 : Design of steel structures – General rules*

BS EN 1995-1-1 : 2004 + A2 : 2014 *Eurocode 5 : Design of timber structures — General*

BS EN 1996-1-1 : 2005 + A1 : 2012 - *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
BS EN 1996-1-2 : 2005 *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
BS EN 1996-2 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
BS EN 1996-3 : 2006 *Eurocode 6 : Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

BS EN 12467 : 2012 + A1 : 2016 *Fibre-cement flat sheets — Product specification and test methods*

BS EN 13501-1 : 2007 + A1 : 2009 *Fire classification of construction boards and building elements — Classification using test data from reaction to fire tests*

EAD 090062-00-0404 *Kit to establish a fully glazed corner to be used in facades in buildings*

ETAG 004 : 2013 *Guideline for European Technical Approval of External Thermal Insulation Composite System (ETICS) with Rendering*

EH40 : 2005 *Workplace exposure limits – Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations 2002 (as amended)*

PD 6697 : 2010 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

19 Conditions

19.1 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.

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