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Agrément Certificate
25/7366
Product Sheet 1 Issue 1

CELOTEX INSULATION

CELOTEX PL4000 PIR PLASTERBOARD THERMAL LAMINATE

This Agrément Certificate Product Sheet(1) relates to Celotex PL4000 PIR Plasterboard Thermal Laminate, comprising rigid polyisocyanurate (PIR) foam boards bonded to plasterboard. The product is for use as an insulating dry lining to masonry (solid or cavity) walls and to horizontal or sloped timber roof ceilings of new and existing domestic and non-domestic buildings, with height restrictions.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

Process factors:

- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review

KEY FACTORS ASSESSED

Section 1. Mechanical resistance and stability
Section 2. Safety in case of fire
Section 3. Hygiene, health and the environment
Section 4. Safety and accessibility in use
Section 5. Protection against noise
Section 6. Energy economy and heat retention
Section 7. Sustainable use of natural resources
Section 8. Durability

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 Agrément

Date of issue: 26 March 2025

Hardy Giesler
Chief Executive Officer

This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.

The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).

Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

The Certificate should be read in full as it may be misleading to read clauses in isolation.

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

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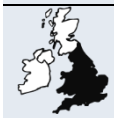
SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that Celotex PL4000 PIR Plasterboard Thermal Laminate, 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 Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**B2(1)**	**Internal fire spread (linings)**
Comment:		The product is unrestricted by this Requirement. See section 2 of this Certificate.
Requirement:	**B3(4)**	**Internal fire spread (structure)**
Comment:		The product can contribute to satisfying this Requirement. See section 2 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		The product is restricted by this Requirement. See section 2 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The product can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The product can contribute to satisfying this Requirement; however compensating fabric measures may be required. See section 6 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**7(2)**	**Materials and workmanship**
Comment:		The product is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	**25B**	**Nearly zero-energy requirements for new buildings**
Regulation:	**26**	**CO_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates (applicable to England only)**
Regulation:	**26A**	**Primary energy efficiency rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Regulation:	**26C**	**Target primary energy rates for new buildings (applicable to England only)**
Regulation:	**26C**	**Energy efficiency rating (applicable to Wales only)**
Comment:		The product can contribute to satisfying these Regulations; however, compensating fabric/service measures may be required. See section 6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Fitness and durability of materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**8(3)**	**Fitness and durability of materials and workmanship**
Comment:		The product is restricted by this Regulation. See section 2 of this Certificate.

Regulation:	**9**	**Building standards – construction**
Standard:	2.4	Cavities
Comment:		The product can contribute to satisfying this Standard, with reference to clause 2.4.2(1)(2) and is restricted by clauses 2.4.4(1) and 2.4.6(2). See section 2 of this Certificate.
Standard:	2.5	Internal linings
Comment:		The product is unrestricted by this Standard, with reference to clause 2.5.1(1)(2). See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is restricted by this Standard, with reference to clauses 2.6.5(1) and 2.6.6(2). See section 2 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1(1)(2), 3.15.3(1)(2), 3.15.4(1)(2), 3.15.5(1)(2), 3.15.6(1)(2) and 3.15.7(1)(2) . See section 3 of this Certificate.
Standard:	6.1(b)(c)	Energy demand
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 6.1.1(1) and 6.1.2(2); however, compensating fabric/service measures may be required. See section 6 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying this Standard, with reference to clauses, or parts of, 6.2.1(1)(2), 6.2.3(1), 6.2.4(1)(2), 6.2.5(2), 6.2.6(1), 6.2.7(1)(2), 6.2.8(1)(2), 6.2.9(1)(2), 6.2.10(1)(2), 6.2.11(1)(2) and 6.2.12(1); however, compensating fabric measures may be required. See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product can contribute to satisfying 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. In addition, the product can contribute to a construction meeting a higher level of sustainability as defined in this Standard with reference to clauses 7.1.3(2), 7.1.4(1), 7.1.6(1)(2), 7.1.9(2) and 7.1.10(2). See section 6 of this Certificate.
Regulation:	**12**	**Building standards – conversion**
Comment:		Comments made in relation to 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(1)(a)(i)**	**Fitness of materials and workmanship**
Comment:	**(iii)(b)(i)(ii)**	The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**23(2)**	**Fitness of materials and workmanship**
Comment:		The product is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.

Regulation:	**34(a)(b)**	**Internal fire spread - linings**
Comment:		The product is unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	**35(1)**	**Internal fire spread - structure**
Comment:		The product is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	**35(4)**	**Internal fire spread – structure**
Comment:		The product can contribute to satisfying this Regulation. See section 2 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The product is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Comment:		The product can contribute to satisfying this Regulation; however, compensating fabric measures may be required. See section 6 of this Certificate
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Regulation:	**43(1)(2)**	**Renovation of thermal elements**
Regulation:	**43B**	**Nearly zero-energy requirements for new buildings**
Comment:		The product can contribute to satisfying these Regulations; however, compensating fabric/service measures may be required. See section 6 of this Certificate.

Additional Information

NHBC Standards 2025

In the opinion of the BBA, Celotex PL4000 PIR Plasterboard Thermal Laminate, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 6.1 *External masonry walls* and 9.2 *Wall and ceiling finishes.*

Fulfilment of Requirements

The BBA has judged Celotex PL4000 PIR Plasterboard Thermal Laminate to be satisfactory for use as described in this Certificate. The product has been assessed for use an insulating dry lining to masonry (solid or cavity) walls and to horizontal or sloped timber roof ceilings, of new and existing domestic and non-domestic buildings, with height restrictions.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. Celotex PL4000 PIR Plasterboard Thermal Laminate consists of a rigid PIR foam board with composite foil/kraft paper-facings on both sides, bonded to a 12.5 mm gypsum plasterboard on one side.

The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Value
Board size (mm)	1200 x 2400
Insulation thickness (mm)	25 to 65
Plasterboard thickness (mm)	12.5
Facings	Composite foil/kraft paper-facing both sides
Edge profile	Square insulation with tapered plasterboard

Ancillary Items

The Certificate holder recommends the following ancillary items for use with the product, but these materials have not been assessed by the BBA and are outside the scope of this Certificate.

- treated timber battens
- metal furrings
- damp-proof course (DPC)
- breather membrane
- air and vapour control layer (AVCL)
- mechanical fixings
- dry lining adhesive compound
- edge and corner beads
- scrim tape and jointing compound or plaster for skim coat
- sealant.

Applications

The product is intended for internal use on external solid or cavity masonry walls (including clay and calcium silicate bricks, concrete blocks and natural and reconstituted stone blocks), and horizontal or sloped timber roof ceilings, in new and existing domestic and non-domestic buildings.

The product may be installed:

- on suitable cladded or sheltered solid masonry walls or cavity walls, either by:
  - direct bonding to the wall using plaster adhesive dabs, or
  - mechanical fixing directly to the wall or onto timber battens or metal furring systems
- on exposed solid masonry walls:
  - by mechanical fixing over a breather membrane, applied to treated vertical timber battens (minimum 25 mm with a DPC inserted between the masonry and timber batten). The cavity between the vertical battens is ventilated at the top and bottom of the wall to the external air
- on horizontal or sloped timber roof ceilings:
  - by mechanical fixing to timber rafters or ceiling joists.

Product assessment – key factors

The product was assessed for the following key factors, and the outcome of the assessments is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

1.1 Mechanical properties

1.1.1 The product was tested for mechanical properties and the results are given in Table 2.

Table 2 Compressive strength and adhesion/cohesion

Product assessed	Assessment method	Requirement	Result
Insulation component of Celotex PL4000 PIR Plasterboard Thermal Laminate	Compressive strength to BS EN 826 : 1996	Value achieved	≥ 120 kPa
Celotex PL4000 PIR Plasterboard Thermal Laminate	Bond strength to BS EN 13950 : 2014	> 0.017 MPa	Pass

1.1.2 On the basis of data assessed, the product has adequate mechanical properties.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 The product was tested for reaction to fire and the classification is given in Table 3.

Table 3 Reaction to fire classification

Product assessed	Assessment method	Requirement	Result[(1)]
Celotex PL4000 PIR Plasterboard Thermal Laminate	BS EN 13501-1 : 2018	Value achieved	B-s1, d0

(1) Warringtonfire, classification reports reference WF423283 Issue 2, dated 28 January 2025 and WF421862 Issue 3, dated 10 January 2020, copies available from the Certificate holder on request. The classification given is valid for:

- gypsum plasterboard thickness 12.5 mm
- insulation thickness 25 - 65 mm
- insulation foam density 26.78 – 36.23 $kg \cdot m^{-3}$ (Report WF424283) and 25.25 - 34.16 $kg \cdot m^{-3}$ (Report WF421862)
- panels adhered to a substrate using gypsum-based adhesive as specified in BS EN 14496 : 2017 or fixed mechanically directly to a substrate or to a wood or metal framework, with the PIR facing the substrate/framework
- joints between adjoining composite panels fully filled with jointing material as specified in BS EN 13963 : 2014.

2.1.2 The Certificate holder has not declared a reaction to fire classification to BS EN 13501-1 : 2018 for the reverse side (facing into the cavity) of the insulation component.

2.1.3 On the basis of data assessed, the product will be restricted in use under the documents supporting the national Building Regulations.

2.1.4 In England, the product must not be used on external walls of residential buildings with a storey 11 m or more in height or on other buildings with a floor at least 18 m above ground level.

2.1.5 In Wales and Northern Ireland, the product must not be used on external walls of buildings with a storey 18 m or more in height.

2.1.6 In Scotland, the product must not be used on external walls of buildings that have a storey at least 11 m above ground level or within 1 m of a relevant boundary.

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

2.2 Resistance to fire

Where the product is incorporated in a wall construction where fire resistance is required by the documents supporting the national Building Regulations, the fire resistance must be confirmed by a suitably experienced and competent individual.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Water vapour permeability

3.1.1 The product components were tested/assessed for water vapour resistivity/resistance and the results are given in Table 4.

Table 4 Water vapour resistivity/resistance

Product assessed	Assessment method	Requirement	Result
PIR insulation core	BS EN ISO 10456 : 2007	Value achieved	300 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$
Composite foil facing			1000 $MN \cdot s \cdot g^{-1}$
Plasterboard			50 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$

3.1.2 For the purpose of assessing the risk of condensation, the water vapour resistivity/resistance values may be taken as stated in Table 4.

3.2 Condensation

3.2.1 The BBA has assessed the product for the risk of interstitial condensation, and the following must be implemented.

3.2.2 Where calculations to BS 5250 : 2021 indicate a risk of persistent interstitial condensation, a site-specific dynamic analysis to BS EN 15026 : 2023 must be carried out.

3.2.3 All joints between the product must be sealed in accordance with the Certificate holder's instructions (see Annex A of this Certificate), to ensure adequate resistance to water vapour transmission.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Data were assessed for the following characteristics.

6.1 Thermal conductivity

The insulation core and the plasterboard were tested/assessed for thermal conductivity and the results are given in Table 5.

Table 5 Thermal conductivity

Product assessed	Assessment method	Requirement	Result
PIR insulation core	BS EN 13165 : 2012	Declared value (λ_D)	0.022 $W \cdot m^{-1} \cdot K^{-1}$
Plasterboard	BS EN ISO 10456 : 2007	Declared value	0.25 $W \cdot m^{-1} \cdot K^{-1}$

6.2 Thermal performance

6.2.1 The foil-facing was tested for emissivity and the result is given in Table 6.

Table 6 Emissivity

Product assessed	Assessment method	Requirement	Result
Foil/kraft paper-facing	BS EN ISO 6946 : 2017	Design value	0.9

6.3 Conservation of fuel and power

6.3.1 The U value of a completed wall or roof will depend on the insulation thickness, number and type of fixings and its structure. Example U values are given in Tables 7,8 and 9 of this Certificate.

Table 7 Example U values — insulated dry lining to solid masonry wall

Target U value ($W \cdot m^{-2} \cdot K^{-1}$)	Insulation thickness (mm)	
	Celotex PL4000 Adhesively fixed[1] (dots and dabs)	Celotex PL4000 Mechanically fixed[2] (to timber battens)
0.13	—[3]	—[3]
0.15	—[3]	—[3]
0.17	—[3]	—[3]
0.18	—[3]	—[3]
0.21	—[3]	—[3]
0.26	—[3]	—[3]
0.28	65	—[3]
0.30	60	—[3]
0.35	50	60

(1) Wall construction, external to internal: 215 mm solid brickwork (λ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar ($\lambda$ = 0.94 $W \cdot m^{-1} \cdot K^{-1}$, 17.3% fraction); 15 mm plaster dabs cavity (R = 0.171 $m^2 \cdot K^{-1} \cdot W^{-1}$) with 20% adhesive coverage (λ = 0.43 $W \cdot m^{-1} \cdot K^{-1}$); Celotex PL4000 insulation adhesively fixed, including 3 fully penetrating supplementary steel fixings per board (λ = 50 $W \cdot m^{-1} \cdot K^{-1}$, 0.96 fixings per m^2, 12.5 mm^2 cross-section); 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$).

(2) Wall construction, external to internal: 215 mm solid brickwork (λ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar ($\lambda$ = 0.94 $W \cdot m^{-1} \cdot K^{-1}$, 17.3% fraction); airspace bridged by 25 mm deep timber battens (λ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$, 11.8% fraction); Celotex PL4000 insulation mechanically fixed with 12 fully penetrating steel fixings per board (λ = 50 $W \cdot m^{-1} \cdot K^{-1}$, 4.17 fixings per m^2, 9 mm^2 cross-section); 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$).

(3) See section 6.3.3.

Table 8 Example U values — insulated dry lining to existing insulated masonry cavity wall

Target U value ($W \cdot m^{-2} \cdot K^{-1}$)	Insulation thickness (mm)	
	Celotex PL4000 Adhesively fixed[1] (dots and dabs)	Celotex PL4000 Mechanically fixed[2] (to timber battens)
0.13	—[3]	—[3]
0.15	—[3]	—[3]
0.17	60	65
0.18	50	55
0.21	35	40
0.26	25	25
0.28	25	25
0.30	25	25

(1) Wall construction, external to internal: 102.5 mm solid brickwork (λ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar ($\lambda$ = 0.94 $W \cdot m^{-1} \cdot K^{-1}$, 17.3% fraction); 100 mm cavity fully filled with expanded polystyrene beads (λ_D = 0.038 $W \cdot m^{-1} \cdot K^{-1}$) bridged with mild steel double triangle ties (λ = 50 $W \cdot m^{-1} \cdot K^{-1}$, 2.50 fixings per m^2, 12.5 mm^2 cross-section); 100 mm dense blockwork (λ = 1.13 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar ($\lambda$ = 0.88 $W \cdot m^{-1} \cdot K^{-1}$, 6.7% fraction); 15 mm plaster dabs cavity (R = 0.171 $m^2 \cdot K^{-1} \cdot W^{-1}$) with 20% adhesive coverage (λ = 0.43 $W \cdot m^{-1} \cdot K^{-1}$); Celotex PL4000 insulation adhesively fixed, including 3 fully penetrating supplementary steel fixings per board (λ = 50 $W \cdot m^{-1} \cdot K^{-1}$, 1.04 fixings per m^2, 12.5 mm^2 cross-section); 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$).

(2) Wall construction, external to internal: 102.5 mm solid brickwork (λ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar ($\lambda$ = 0.94 $W \cdot m^{-1} \cdot K^{-1}$, 17.3% fraction); 100 mm cavity fully filled with expanded polystyrene beads (λ_D = 0.038 $W \cdot m^{-1} \cdot K^{-1}$) bridged with mild steel double triangle ties (λ = 50 $W \cdot m^{-1} \cdot K^{-1}$, 2.50 fixings per m^2, 12.5 mm^2 cross-section); 100 mm dense blockwork (λ = 1.13 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar ($\lambda$ = 0.88 $W \cdot m^{-1} \cdot K^{-1}$, 6.7% fraction); airspace bridged by 22 mm deep timber battens (λ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$, 11.8% fraction); Celotex PL4000 insulation mechanically fixed with 12 fully penetrating steel fixings per board (λ = 50 $W \cdot m^{-1} \cdot K^{-1}$, 4.17 fixings per m^2, 12.5 mm^2 cross-section); 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$).

(3) See section 6.3.3.

Table 9 Example U values — insulated dry lining to warm pitched roof

Target U value ($W \cdot m^{-2} \cdot K^{-1}$)	Insulation thickness (mm)
	Celotex PL4000 Mechanically fixed to timber rafters/ceiling joists(1)
0.09	–(3)
0.11	–(3)
0.12	–(3)
0.13	–(3)
0.15	65
0.16	60
0.18	45
0.20	35

(1) Pitched roof construction: Concrete tiles and timber battens; breather membrane; 50 mm fully-ventilated cavity; 100 mm Celotex GA4000 insulation (λ_D = 0.022 $W \cdot m^{-1} \cdot K^{-1}$) fitted between 50 mm x 150 mm timber rafters at 400 mm centres (λ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$, 12.5% fraction); Celotex PL4000 insulation mechanically fixed with 12 fully penetrating steel fixings per board (λ = 50 $W \cdot m^{-1} \cdot K^{-1}$, 4.17 fixings per m^2, 9 mm^2 cross-section); 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$).

(2) See section 6.3.3.

6.3.2 On the basis of data assessed, the product can contribute towards a construction satisfying the national Building Regulations in respect of energy economy and heat retention.

6.3.3 For improved energy or carbon savings, designers must consider appropriate fabric and/or service measures.

7 Sustainable use of natural resources

Not applicable.

8 Durability

8.1 The potential mechanisms for degradation and the known performance characteristics of the materials in the product were assessed.

8.2 Specific test data were assessed as given in Table 10.

Table 10 Dimensional stability

Product assessed	Assessment method	Requirement	Result
PIR insulation core	BS EN 1604 : 2013 (70°C and 90-100% RH for 48 hours)	Length and width ≤ 2% change Thickness ≤ 6% change	Pass

8.3 Service life

Under normal service conditions, the product will have a service life equivalent to the structure in which it is incorporated, provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

PROCESS ASSESSMENT

Information provided by the Certificate holder was assessed for the following factors:

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed, and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 Since insulating dry linings are not intended to resist rain penetration or rising damp, walls to be insulated with the product must already be rain resistant and show no signs of water ingress or rising damp.

9.1.3 When insulating solid walls, particularly older exposed walls, designers must consider the extent to which the wall and components in the wall can tolerate the lower temperatures and prolonged drying time resulting from the application of the insulating dry lining. Care must also be taken to assess the risks of condensation forming on thermal bridges that cannot be effectively insulated.

9.1.4 All services which penetrate the product, eg light switches and power outlets, must be kept to a minimum to limit damage to vapour checks. All perimeters of the board, around service penetrations, openings, junctions and around the perimeter of suspended timber floors must be sealed with a suitable sealant. The Certificate holder can advise on suitable materials, but such advice and products are outside the scope of this Certificate.

9.1.5 It is essential that proper care and attention is given to maintaining the integrity/continuity of the air and vapour control layer (AVCL). The site must be surveyed, and provisions made for existing ventilation. There must be no gaps at the perimeter (such as floors or ceilings) or junctions (such as internal corners), or around openings or service penetrations. Existing gaps should be sealed before lining commences.

9.1.6 The detailed guidance given in the documents supporting the national Building Regulations for the provisions that are applicable when the product is installed in close proximity to certain flue pipes and/or heat producing appliances must be followed.

9.1.7 As with any form of insulation, de-rating of electrical cables must be considered where the insulation restricts the air cooling of cables.

9.1.8 With installations that form a void of 20 mm or more (ie timber batten or metal liner stud system and drywall adhesive dabs), services can be incorporated behind the product, making the chasing of the wall unnecessary. Where the services have a greater depth than the void, the wall must be chased, rather than the insulation. Suitable isolation methods, such as a conduit or capping, must be used to ensure cables do not meet the insulation.

9.1.9 The installation of an insulating dry lining system requires careful detailing around doors and windows to achieve a satisfactory surface for finishing. In addition, every attempt must be made to minimise the risk of thermal bridging at reveals and where heavy separating walls are attached to the external wall. Thinner boards must be selected to suit site-specific door and window reveal conditions. All work must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads and sills and in relation to ceiling height. Where the dimensions of fixtures are critical (eg bathrooms), these should be checked before installation.

9.1.10 Use of the product does not in itself promote infestation. The creation of voids within the structure may provide habitation for insects or vermin in areas already infested. All voids must be sealed, as any infestation may be difficult to eradicate. There is no food value in the materials used.

9.1.11 Calculations of thermal transmittance (U value) for a specific construction must be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2019.

9.1.12 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration, and the detailed guidance given in the documents supporting the national Building Regulations must be followed.

9.1.13 The fixing of items, except lightweight objects, to the wall is outside the scope of this Certificate. Heavy objects (such as sinks and cupboards) must be adequately supported by the substrate wall, not the product.

Masonry walls

9.1.14 Walls must be designed and constructed in accordance with the relevant recommendations of:

- BS 5250 : 2021
- BS 8000-3 : 2020
- BS EN 351-1 : 2023
- BS EN 1996-1-1 : 2022 and its UK National Annex
- BS EN 1996-1-2 : 2024 and its UK National Annex
- BS EN 1996-2 : 2024 and its UK National Annex
- BS EN 1996-3 : 2023 and its UK National Annex.

Pitched roofs

9.1.15 Pitched roofs must be designed and constructed in accordance with the relevant clauses of BS 5250 : 2021, BS 5534 : 2014 and BS 8212 : 1995 and incorporate normal precautions against moisture ingress.

9.1.16 In tiled or slated pitched roofs, the product is suitable for use beneath the rafters in conjunction with a BBA-approved breathable membrane and, when necessary, an AVCL.

9.1.17 New constructions subject to the national Building Regulations must be designed in accordance with the relevant recommendations of BS 5268-2 : 2002, and BS EN 1995-1-1 : 2004 and its UK National Annex.

Interstitial condensation

9.1.18 To limit the risk of interstitial condensation, walls and roofs must be designed and constructed in accordance with BS 5250 : 2021.

Surface condensation

9.1.19 In England and Wales, walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 0.7 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with section 9.1.12 of this Certificate.

9.1.20 In England and Wales, roofs will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 0.35 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with walls are designed in accordance with section 9.1.12 of this Certificate.

9.1.21 For buildings in Scotland, wall and roof constructions will be acceptable where the thermal transmittance (U value) does not exceed 1.2 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and openings and junctions with other elements comply with BS 5250 : 2021, BRE Report BR 262 : 2002 and section 9.1.12 of this Certificate.

9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.2 Installation must be carried out in accordance with this Certificate, the Certificate holder's instructions and the relevant sections of BS 8212 : 1995. A summary of instructions and guidance is provided in Annex A of this Certificate.

9.2.3 A qualified plumber is required to make alterations to heating systems. A qualified electrician must be used to make good the electrical wirings and services.

9.2.4 A detailed survey of the property must be carried out before work starts, which must include:

- suitability of substrate
- detailing around windows and doors
- position and number of electrical sockets and switches
- wall fittings and fixtures — including coving and skirting
- areas where flexible sealants must be used
- ventilation plates.

9.2.5 If present, mould or fungal growth must be treated prior to the application of the product.

9.2.6 Before starting to fit the product, the position of all main service cable and pipe runs must be clearly marked on the walls to avoid damage. All plaster coving, skirting board and laminate floor angle bead must be removed.

9.2.7 Before fixing the product, sufficient time must be allowed for damp-proofing treatments, where applied, to dry out. Reference must be made to BS 6576 : 2005 for dry lining in conjunction with a chemical DPC application.

9.2.8 A detailed inspection of existing timbers for dry or wet rot and insect attack must also be carried out, eg for the timber floor joists. Existing metal studs or joists must be inspected for corrosion. Decayed timbers or corroded metal must be replaced.

9.2.9 All insulating dry lining installations require careful planning and setting out. Installation must start from an internal corner or a window or door reveal, and vertical chalk guidelines must be marked on the wall at 1200 mm centres to indicate the positioning of the boards.

9.2.10 Additional consideration must also be given for the fixing of such features as cupboards and radiators.

9.2.11 The boards can be cut using a fine-toothed saw. Appropriate Personal Protective Equipment (PPE) must be used when cutting the boards and cutting must be carried out in a ventilated space, outside or in an area with dust extraction.

9.3 Workmanship

Practicability of installation was assessed by the BBA on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the product must be carried out by a competent general builder, or a contractor, experienced with this type of product.

9.4 Maintenance and repair

Under conditions of normal use, maintenance is not required. However, if the product is damaged during use, it can be removed and replaced.

10 Manufacture

10.1 The production processes for the product have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken has been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

† 10.2 The BBA has undertaken to review 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.

11 Delivery and site handling

11.1 The Certificate holder stated that the product is delivered to site in polythene-wrapped packs on pallets. Each pack of boards contains a label with the Certificate holder's name, product name and characteristics, board dimensions, year of manufacture, batch code and the BBA logo incorporating the number of this Certificate.

11.2 Delivery and site handing must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.1 The pallets must be mechanically unloaded, and each board removed individually.

11.2.2 The product must be protected from prolonged exposure to sunlight, and stored dry, flat and raised above ground level. Where possible, packs should be stored inside. If stored outside, they must be under cover or protected with opaque polythene sheeting.

11.2.3 The product must not be exposed to open flame or other ignition sources, or to solvents or other chemicals.

†ANNEX A – SUPPLEMENTARY INFORMATION

Supporting information in this Annex is relevant to the product but has not formed part of the material assessed for the 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.

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the product in accordance with Designated Standard EN 13950 : 2014.

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by BSI Assurance UK Ltd (Certificates FM 781023 and EMS 781017 respectively).

Additional information on installation

Preparation

A.1 Guidance on installation is given in the DBEIS publication *Retrofit Internal Wall Insulation – Guide to Best Practice,* September 2021.

A.2 Prior to installation onto existing walls, steps should be taken to assess whether a wall is solid or cavity or has insulation already installed, including, where appropriate, intrusive works to understand the structure. Similarly, the wall should be assessed to ensure that it is in a suitable condition to receive the product. It is recommended, and mandatory for Government schemes, that assessment and design in accordance with the latest version of PAS 2035 is undertaken before any internal wall insulation measure is installed.

A.3 A detailed survey of the property should be carried out before work starts. The walls must be made good if required and be dry and structurally sound with no evidence of damp, contamination or frost damage, before the product and ancillary items are installed.

A.4 The survey should include a detailed examination of the internal and external fabric of the building, ensuring that any leaking external pipework and blocked gutters are made good. The efficiency, type and continuity of existing DPC materials should be checked. For existing buildings where there is no DPC, the requirement for one must be determined.

A.5 The building must be examined for the following:

- suitability of substrate
- detailing around windows and doors
- position and number of electrical sockets and switches
- wall fittings and fixtures – including coving and skirting
- areas where flexible sealants must be used
- ventilation plates.

A.6 A suitably experienced and competent plumber is required to make alterations to heating systems. A suitably experienced and competent electrician must be used to make good the electrical wirings and services.

A.7 Before starting to fit the product, the position of all main service cable and pipe runs must be clearly marked on the walls to avoid damage. All plaster coving, skirting board and laminate floor angle beads must be removed.

A.8 There should be no gaps at the perimeter (such as floors and ceilings) or junctions (such as internal corners), or around openings or service penetrations. Existing gaps should be sealed before installation commences.

A.9 For existing walls, the wallpaper, skirting, picture rails, gloss paint and projecting window boards should be removed to expose bare walls. The wall surface should be clean and dust free.

A.10 Before fixing the product, sufficient time must be allowed for damp-proofing treatments, where applied, to dry out (see BS 6576 : 2005 for dry-lining in conjunction with a chemical DPC application).

A.11 Care must be taken when exposing electrical cables (see sections 9.1.7 and 9.1.8).

A.12 All insulating dry lining installations require careful planning and setting out. Installation should start from an internal corner or a window or door reveal, and laser or vertical chalk guidelines should be marked on the wall at 1200 mm centres to indicate the positioning of the boards. Installation should be in accordance with BS 8212 : 1995, good dry lining practice and the Certificate holder's instructions. Typical installation methods are shown in Figures 1 to 3.

A.13 Additional consideration should also be given to the fixing of such features as cupboards and radiators.

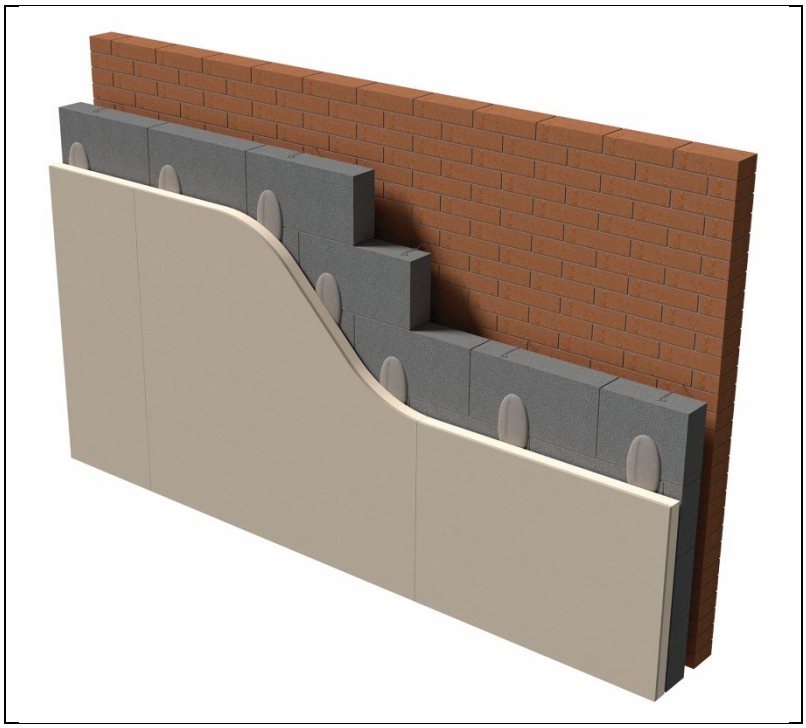
A.14 The boards can be cut using an insulation saw or a fine-toothed saw. Appropriate Personal Protective Equipment (PPE) must be used when cutting the boards, and cutting should be done in a ventilated space, outside or in an area with dust extraction.

A.15 The boards are cut to fit around windows, doors and air bricks. Care must be taken when trimming the insulation of the product to ensure the foil facing is not damaged. It is essential that cut pieces completely fill the spaces for which they are intended and are adequately secured. Thinner boards are available to suit door and window reveal conditions. Suitable provisions will also need to be adopted at junctions and other details such as separating floors. A minimum 400 mm return is suggested on the internal/external wall junction. Suitable provisions will also need to be adopted at junctions and other details such as separating floors. Further guidance can be obtained from BRE Report BR 262 : 2002.

Procedure

Clad/sheltered solid masonry walls or cavity walls *(see also DBEIS Retrofit Internal Wall Insulation – Guide to Best Practice – 2021 clauses 46 and 48)*

Figure 1 PL4000 bonded to masonry cavity walls using plaster adhesive dabs



Direct bonding using plaster adhesive dabs

A.16 A continuous bed of adhesive should be applied around the perimeter of the wall as well as around any services or other openings. All conduits and piping should be installed prior to commencement of all works. The insulating backing of the laminate must not be removed to accommodate services.

A.17 Adhesive dabs (each approximately 75 by 250 mm) should be applied in three rows. Intermediate dabs at ceiling level should be applied and individual dabs should not bridge boards. The dabs should cover at least 20% of the board area.

A.18 The board should be cut approximately 15 mm short of the floor to ceiling height and positioned with the bottom edge resting on packing strips. The boards are tapped into position with a straight-edge, and alignment checked with the laser / chalk guidelines.

A.19 Once positioned, the board should be lifted to the ceiling edge using a floor lifter and supported until the adhesive has set. Once set, a minimum of two nailable fixings should be applied at the mid-point of the board and approximately 25 mm from the board edge. Nailable plugs should penetrate the background through the dab by at least 40 mm.

A.20 Other boards should be installed closely butted together using the same technique.

Mechanically fixed direct to wall

A.21 The board should be cut approximately 15 mm short of the floor to ceiling height and positioned with the bottom edge resting on packing strips. The boards are placed into position, and alignment checked with the laser / chalk guidelines on the floor and ceiling.

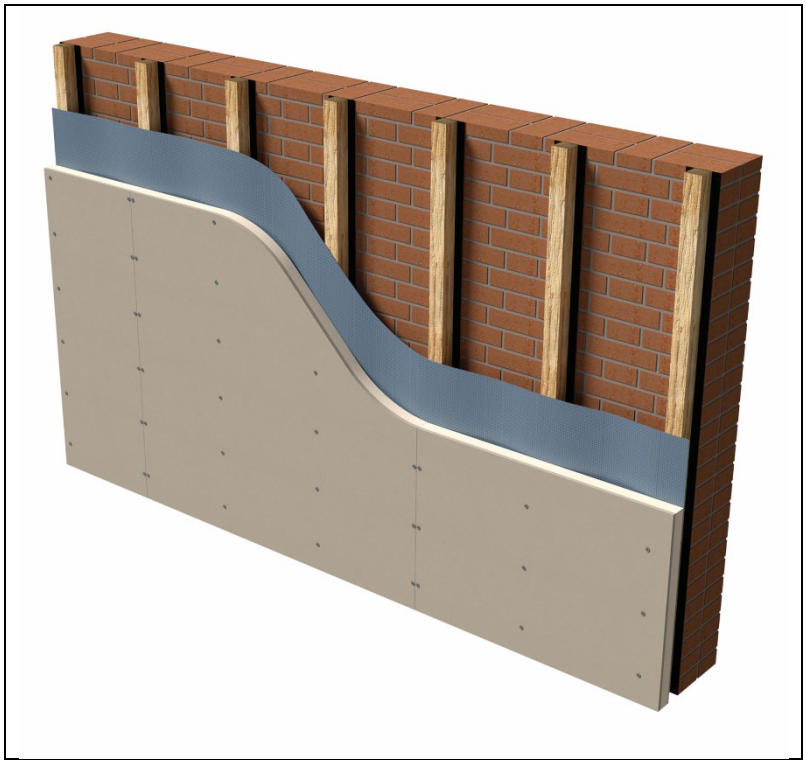
A.22 Once positioned, the board should be lifted to the ceiling edge using a floor lifter and supported with additional packing at the base of the board. The board should be fixed to the wall using suitable stainless steel mechanical fixings at 300 mm centres from the vertical and horizontal board edges, with a minimum of 12 fixings per board.

A.23 Other boards should be installed closely butted together using the same technique.

A.24 Jointing and finishing of the lining is carried out in the appropriate manner. Timber skirting can be fixed into the horizontal batten at floor level.

Exposed solid masonry *(see also DBEIS* Retrofit Internal Wall Insulation – Guide to Best Practice, *clause 45)*

Figure 2 PL4000 mechanically fixed to existing solid masonry walls ensuring a vented cavity



Mechanically fixed direct to timber battens or metal furrings

A.25 Treated timber battens (minimum 25 mm thick x 47 mm wide) are fixed against DPC strips applied around the perimeter of the wall, openings and services, then vertically at maximum 600 mm centres to the substrate, using appropriate fixings. Additional lengths of timber batten or metal furring should be installed to coincide with horizontal board joints and around services, doors and windows. The framing must provide a minimum of 20 mm bearing to each system at joints and must be of sufficient depth to accommodate the fixings for the system.

A.26 The cavity is ventilated at the top and bottom, to the external air, as recommended by DBEIS *Retrofit Internal Wall Insulation*.

A.27 A breather membrane is secured to the battens/furrings to ensure airtightness following the manufacturer's instructions.

A.28 The board should be cut approximately 15 mm short of the floor to ceiling height and positioned with the bottom edge resting on packing strips. The boards are placed onto the breather membrane over the timber or metal frame, and alignment checked with the position of the timber batten or metal furring and chalk guidelines on the floor and ceiling.

A.29 Once positioned, the board should be lifted to the ceiling edge using a floor lifter and supported with additional packing at the base of the board. The board is fixed to the timber battens or metal frame using appropriate dry wall screws. Fixings should be installed at 300 mm centres across the horizontal and vertical elements of the frame.

A.30 Other boards should be installed closely butted together using the same technique.

A.31 Jointing and finishing of the lining is carried out in the appropriate manner. Timber skirting can be fixed into the horizontal batten at floor level.

Ceilings

A.32 The product can be used to line horizontal or sloped ceilings. All four edges of the board should be supported by rafters, joists or battens by at least 20 mm.

A.33 Boards should be fixed using suitable plasterboard nails or drywall screws, at a minimum of 250 mm centres with fixings at least 12 mm from the edge of the board.

Bibliography

BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*

BRE Report BR 443 : 2019 *Conventions for U-value calculations*

BS 5250 : 2021 *Management of moisture in buildings — Code of practice*

BS 5268-2 : 2002 *Structural use of timber - Code of practice for permissible stress design, materials and workmanship*

BS 5534 : 2014 + A2 : 2018 *Slating and tiling for pitched roofs and vertical cladding - Code of practice*

BS 6576 : 2005 + A1 : 2012 *Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses*

BS 8000-3 : 2020 *Workmanship on Building Sites — Code of Practice for Masonry*

BS 8212 : 1995 *Code of practice for dry lining and partitioning using gypsum plasterboard*

BS EN 351-1 : 2023 *Durability of wood and wood-based products - Preservative-treated solid wood - Classification of preservative penetration and retention*

BS EN 826 : 1996 *Thermal insulating products for building applications - Determination of compression behaviour*

BS EN 1604 : 2013 *Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions*

BS EN 1995-1-1 : 2004 + A2 : 2014 *Eurocode 5: Design of timber structures - General - Common rules and rules for buildings*
NA to BS EN 1995-1-1 : 2004 + A2 : 2014 UK National Annex to *Eurocode 5: Design of timber structures - General - Common rules and rules for buildings*

BS EN 1996-1-1 : 2022 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
NA to BS EN 1996-1-1 : 2022 UK National Annex to *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
BS EN 1996-1-2 : 2024 *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
NA to BS EN 1996-1-2 : 2005 UK National Annex to *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
BS EN 1996-2 : 2024 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution*
NA to BS EN 1996-2 : 2006 UK National Annex to *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
BS EN 1996-3 : 2023 *Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*
NA to BS EN 1996-3 : 2006 + A1 : 2014 UK National Annex to *Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*

BS EN 13165 : 2012 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PU) products — Specification*

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

BS EN 13950 : 2014 *Gypsum board thermal/acoustic insulation composite panels — Definitions, requirements and test methods*

BS EN 13963 : 2014 *Jointing materials for gypsum boards — Definitions, requirements and test methods*

BS EN 14496 : 2017 *Gypsum based adhesives for thermal/acoustic insulation composite panels and gypsum boards — Definitions, requirements and test methods*

BS EN 15026 : 2023 *Hygrothermal performance of building components and building elements — Assessment of moisture transfer by numerical simulation*

BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

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

BS EN ISO 10456 : 2007 *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*

BS EN ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*

DBEIS *Retrofit Internal Wall Insulation – Guide to Best Practice* : September 2021

Conditions

1 This Certificate:

- relates only to the product 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
- 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
- and any matter arising out of or in connection with it or its subject matter (including non-contractual disputes or claims) is governed by and construed in accordance with the law of England and Wales.
- the courts of England and Wales shall have exclusive jurisdiction to settle any matter arising out of or in connection with this Certificate or its subject matter (including non-contractual disputes or claims).

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.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product 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.

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

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 or any other product
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product
- actual installations of the product, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to UKCA marking and CE marking.

6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product 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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