Soprema Insulation Limited
t/a Celotex
Lady Lane Industrial Estate
Hadleigh
Ipswich
Suffolk IP7 6BA

Tel: 0330 058 0668
e-mail: info@soprema.co.uk
website: www.soprema.co.uk

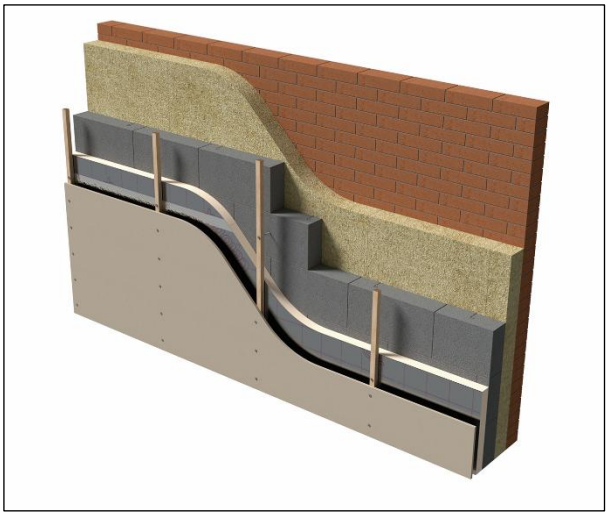
Agrément Certificate
25/7318
Product Sheet 1 Issue 1

CELOTEX INSULATION

CELOTEX TB4000, GA4000 AND XR4000 PIR INSULATION BOARDS FOR DRY LINING

This Agrément Certificate Product Sheet(1) relates to Celotex TB4000, GA4000 and XR4000 PIR Insulation Boards for Dry Lining, comprising rigid polyisocyanurate (PIR) foam boards with composite foil-facings. The products are for use as insulation within a dry lining system to improve the thermal insulation of new and existing (solid and cavity) external masonry walls of 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 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 issue: 10 January 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.

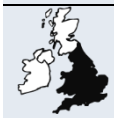
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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 TB4000, GA4000 and XR4000 PIR Insulation Boards for Dry Lining, 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:	**B3(4)**	**Internal fire spread (structure)**
Comment:		The products can contribute to satisfying this Requirement. See section 2 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		The products are restricted by this Requirement. See section 2 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The products can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The products can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**7(2)**	**Materials and workmanship**
Comment:		The products are 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 for new dwellings (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 products can contribute to satisfying these Regulations. 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 products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**8(3)**	**Fitness and durability of materials and workmanship**
Comment:		The products are restricted by this Regulation. See section 2 of this Certificate.

Regulation:	**9**	**Building standards – construction**
Standard:	2.4	Cavities
Comment:		The products can contribute to satisfying this Standard with reference to clause 2.4.2[(1)(2)] and are restricted by clauses 2.4.4[(1)] and 2.4.6[(2)]. See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The products are restricted by this Standard in some cases, 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 products can contribute to satisfying this Standard, with reference to clauses 3.15.1[(1)(2)], 3.15.4[(1)(2)] and 3.15.5[(1)(2)]. See section 3 of this Certificate.
Standard:	6.1(b)(c)	Energy demand
Comment:		The products can contribute to satisfying this Standard with reference to clauses 6.1.1[(1)] and 6.1.2[(2)]. See section 6 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The products can contribute to satisfying this Standard with reference to clauses, or parts of clauses, 6.2.1[(1)(2)], 6.2.3[(1)], 6.2.4[(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)]. See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The products 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 products can contribute to a construction meeting a higher level of sustainability as defined in this Standard with reference to clauses 7.1.2[(1)], 7.1.3[(2)], 7.1.6[(1)(2)], 7.1.7[(1)], 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 these 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:	**23(1)(a)(i) (iii)(b)(i)(ii)**	**Fitness of materials and workmanship**
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**23(2)**	**Fitness of materials and workmanship**
Comment:		The products are restricted by this Regulation. See section 2 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The products can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	**35(4)**	**Internal fire spread – structure**
Comment:		The products can contribute to satisfying this Regulation. See section 2 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The products are restricted by this Regulation. See section 2 of this Certificate.

Regulation:	**39(a)(i)**	**Conservation measures**
Comment:		The products can contribute to satisfying this Regulation. See section 6 of this Certificate
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Regulation:	**43(1)(2)**	**Renovation of thermal elements**
Regulation:	**43(B)**	**Nearly zero-energy requirements for new buildings**
Comment:		The products can contribute to satisfying these Regulations. See section 6 of this Certificate.

Additional Information

NHBC Standards 2025

In the opinion of the BBA, Celotex TB4000, GA4000 and XR4000 PIR Insulation Boards for Dry Lining, 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 TB4000, GA4000 and XR4000 PIR Insulation Boards for Dry Lining to be satisfactory for use as described in this Certificate. The products have been assessed for use as insulation within a dry lining system to improve the thermal insulation of new and existing (solid and cavity) external masonry walls of domestic and non-domestic buildings.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the products under assessment. Celotex TB4000, GA4000 and XR4000 PIR Insulation Boards for Dry Lining consist of rigid PIR foam boards with composite foil-facings on both sides.

The products have the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Celotex PIR Insulation Boards		
	TB4000	GA4000	XR4000
Board size (mm)	1200 x 2400	1200 x 2400	1200 x 2400
Thickness (mm)	20 to 45	50 to 100	110 to 200
Edge profile	Square edge	Square edge	Square edge
Facings	Composite foil-facing on both sides (printed on one side only)	Composite foil-facing on both sides (printed on one side only)	Composite foil-facing on both sides (printed on one side only)

Ancillary Items

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

- pre-treated timber battens
- breather membrane
- mechanical fixings
- gypsum plasterboard lining
- air tightness tape
- sealant.

Applications

The products are intended for use as insulation within a dry-lining system and are applied to the internal face of suitable solid or cavity masonry walls (including clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks) of new and existing domestic and non-domestic buildings, with height restrictions (see section 2 of this Certificate).

The boards are installed either directly onto the inner face of the wall or onto treated timber battens. Treated timber battens are placed over the boards and fixed to the masonry substrate through the insulation.

Product assessment – key factors

The products were assessed for the following key factors, and the outcome of the assessments is shown below. Conclusions apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

Not applicable.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 The Certificate holder has declared a reaction to fire classification for the products of Class F to BS EN 13501-1 : 2018.

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

2.1.3 In England, the products must not be used on residential buildings with a storey 11 m or more in height, or on any other building with a storey 18 m or more above ground level.

2.1.4 In Wales and Northern Ireland, the products must not be used on buildings with a storey 18 m or more in height and above ground level.

2.1.5 In Scotland, the products must not be used on buildings with a storey 11 m or more above the ground, or 1 m or less from a relevant boundary.

2.1.6 The products must be contained by a fire-resistant lining board manufactured in accordance with BS EN 520 : 2004, with the lining board joints fully sealed and supported by timber studs or battens.

2.1.7 Designers must refer to the documents supporting the national Building Regulations for detailed conditions of use, particularly in respect of requirements for 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 products are incorporated in a wall construction where fire resistance is required by the documents supporting the national Building Regulations, the fire resistance and permissible areas of use must be established 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

For the purposes of assessing the risk of interstitial condensation, the water vapour resistivity / resistance values may be taken as given in Table 2.

Table 2 Water vapour resistivity / resistance

Material	Assessment method	Requirement	Result
PIR insulation	BS EN ISO 10456 : 2007	Declared value	300 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$
Composite foil facing	BS 5250 : 2021		1000 $MN \cdot s \cdot g^{-1}$

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 products were tested for thermal conductivity and the result is given in Table 3.

Table 3 Thermal conductivity

Product assessed	Assessment method	Requirement	Result
Celotex TB4000, GA4000 and XR4000	Thermal conductivity to BS EN 13165 : 2012	Declared value (λ_D)	0.022 $W \cdot m^{-1} \cdot K^{-1}$

6.2 Thermal performance

6.2.1 The foil-facing was tested for emissivity and the result is given in Table 4.

Table 4 Emissivity of the foil-facing

Product assessed	Assessment method	Requirement	Result
Foil-facing	Aged emissivity to BS EN 15976 : 2011	Declared value	0.05

6.2.2 The U value of a completed wall will depend on the insulation thickness, number and type of fixings, wall structure and finish. Example U-values are given in Tables 5 and 6 of this Certificate.

Table 5 Example U values — dry lining to 215 mm solid brickwork wall[1]

Target U value ($W \cdot m^{-2} \cdot K^{-1}$)	Insulation thickness (mm)
	Celotex TB4000, GA4000 and XR4000
0.13	145[2]
0.15	120[2]
0.17	110[2]
0.18	100[3]
0.21	85[3]
0.26	65[3]
0.28	55[3]
0.30	50[3]

(1) Construction comprises 215 mm thick external brickwork solid wall (λ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$), Celotex insulation board, 22 mm deep timber battens (11.8%, λ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$), 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$). Timber battens fixed through Celotex boards using 3.4 mm diameter stainless steel fixings – 4.17 fixings per m^2 (12 fixings per board).
(2) XR4000.
(3) GA4000.

Table 6 Example U values — dry lining to existing uninsulated masonry cavity wall[1]

Target U value ($W \cdot m^{-2} \cdot K^{-1}$)	Insulation thickness (mm)
	Celotex TB4000, GA4000 and XR4000
0.13	140[2]
0.15	120[2]
0.17	105[2]
0.18	95[3]
0.21	80[3]
0.26	60[3]
0.28	55[3]
0.30	50[3]

(1) Existing construction comprises 102.5 mm thick external brickwork (λ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$), 50 mm clear cavity, 100 mm thick dense blockwork (λ = 1.13 $W \cdot m^{-1} \cdot K^{-1}$), Celotex insulation board, 22 mm deep timber battens (11.8%, λ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$), 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$). Timber battens fixed through Celotex boards using 3.4 mm diameter stainless steel fixings — 4.17 fixings per m^2 (12 fixings per board).
(2) XR4000.
(3) GA4000.

6.2.3 The products can contribute towards a construction satisfying the national Building Regulations in respect of energy economy and heat retention.

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 products were assessed.

8.2 Specific test data were assessed as given in Table 7.

Table 7 Durability

Product assessed	Assessment method	Requirement	Result
Celotex TB4000 Celotex GA4000	Dimensional stability to BS EN 1604 : 2013 (70°C and 90-100% RH for 48 hours)	Length and width ≤ 2% change Thickness ≤ 6% change	Pass
Celotex XR4000	Dimensional stability to BS EN 1604 : 2013 (-20°C for 48 hours)	Length and width ≤ 1% change Thickness ≤ 2% change	Pass

8.3 Service life

Under normal service conditions, the products will have a service life equivalent to the structure in which they incorporated, provided they are 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 Walls must be designed and constructed in accordance with the relevant clauses of:

- BS 5250 : 2021
- BS 8000-3 : 2001
- BS EN 1996-1-1 : 2005 and its UK National Annex
- BS EN 1996-1-2 : 2005 and its UK National Annex
- BS EN 1996-2 : 2006 and its UK National Annex
- BS EN 1996-3 : 2006 and its UK National Annex.

9.1.3 All walls must be in a good state of repair without evidence of rain penetration, damp or frost damage, and must be at least two bricks or 200 mm in thickness.

9.1.4 It is essential that proper care and attention is given to maintaining the integrity/continuity of the air and vapour control layer (AVCL).

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

9.1.6 Services can be incorporated in the void formed between the insulation and the lining boards, making 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 conduit or capping, must be used to ensure cables do not come into contact with the insulation. Electrical cables that are likely to come into contact with the insulation are required to be protected by a suitable conduit or PVC-U trunking. The installation of electrical services must be carried out in accordance with BS 7671 : 2018.

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 All services which penetrate the dry lining, 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 for this purpose, but such advice and products are outside the scope of this Certificate

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

9.1.10 The boards must be butted as close together as possible to minimise any gaps between them.

9.1.11 The successful 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 must be checked before installation.

9.1.12 Any object fixed to the wall, other than lightweight items, eg framed pictures, must be fixed through the lining board and insulation into the wall behind, using recommended proprietary fixings. The recommendations of the Certificate holder must be followed.

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

9.1.14 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 found in the documents supporting the national Building Regulations must be followed.

Interstitial condensation

9.1.15 Walls incorporating the products will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2021.

9.1.16 A condensation risk analysis of the specific construction must be undertaken to BS EN ISO 13788 : 2012 and BS 5250 : 2021, using the water vapour transmission values for each component given in Table 2 of this Certificate.

9.1.17 The risk of summer condensation on the foil facing must be considered for solid masonry walls, orientated from ESE through south to WSW, in accordance with BRE Report BR 262 : 2002, Section 3.10. A site-specific dynamic analysis to BS EN 15026 : 2023 must be considered.

9.1.18 Provided all joints between the products are sealed in accordance with the Certificate holder's literature, they can offer significant resistance to water vapour transmission.

Surface condensation

9.1.19 In England and Wales, walls incorporating the products 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 the guidance referred to in section 9.1.14 of this Certificate.

9.1.20 For buildings in Scotland, wall constructions will be acceptable when the thermal transmittance (U value) does not exceed 1.2 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with the guidance referred to in BS 5250 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002. and section 9.1.14 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 and the Certificate holder's instructions. A summary of instructions and guidance is provided in Annex A of this Certificate.

9.2.3 Existing constructions must be in a good state of repair, with no evidence of rain penetration or damp. Defects must be made good prior to installation.

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 products must be carried out by a competent general builder, or a contractor, experienced with these types of products.

9.4 Maintenance and repair

Under conditions of normal use, maintenance is not required. However, if the products are damaged during use, they can be readily removed and replaced.

10 Manufacture

10.1 The production processes for the products 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 have 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 products are delivered to site in packaging bearing the product name, the Certificate holder's name, batch number 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 products must be protected from prolonged exposure to sunlight and must be stored either under cover or protected with opaque polythene sheeting. Where possible, packs should be stored inside. If outside, the products must be stacked flat and raised above ground level and not be in contact with ground moisture.

11.2.2 Care must be taken when handling the products to avoid crushing the edges or corners.

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

11.2.4 If damaged or wet, the products must be discarded.

ANNEX A – SUPPLEMENTARY INFORMATION †

Supporting information in this Annex is relevant to the products 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 products in accordance with Designated Standard EN 13165 : 2012.

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 PAS2035 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 products 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 damp-proof course (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 products, 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 products, 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 9.1.6 and 9.1.7).

A.12 All insulated dry lining installations require careful planning and setting out. Installation should start from an internal corner or a window or door reveal, and 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 products 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)*

A.16 The insulation boards are cut to fit and placed directly against the wall; joints and perforations are sealed with an appropriate air-tightness tape. The Certificate holder can advise on suitable materials for this purpose, but such advice and products are outside the scope of this Certificate

A.17 The insulation boards are temporarily secured in place. The timber battens are placed against the insulation boards and mechanically fixed through the top, centre and bottom of the insulation into the wall substrate. Permanent fixing of the internal lining board is carried out using suitable mechanical fixings into the timber battens (see Figures 1 and 2).

A.18 The battens must be of sufficient thickness and spacing (up to 600 mm) to provide adequate grounds to which the lining board can be fixed and provide for any services that are to be incorporated into the void between the insulation board and lining board. Horizontal battens should be fitted at the top and bottom of walls and openings.

A.19 It is recommended that the timber battens are treated with a suitable wood preservative.

A.20 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)*

A.21 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.

A.22 The cavity is ventilated at the top and bottom, to the external air, as recommended by DBEIS *Retrofit Internal Wall Insulation*.

A.23 A breather membrane is secured to the battens to ensure airtightness following manufacturers guidance.

A.24 The insulation boards are cut to fit and placed against the breather membrane covered timber battens; joints and perforations are sealed with appropriate air-tightness tape. The insulation boards are temporarily secured in place. Permanent fixing of the internal lining board is carried out using suitable mechanical fixings into the timber battens (see Figures 1 and 3). The timber battens are placed against the insulation boards and mechanically fixed through the top, centre, and bottom of the insulation into the wall substrate.

A.25 The battens must be of sufficient thickness and spacing (up to 600 mm) to provide adequate grounds to which the lining board can be fixed and provide for any services that are to be incorporated into the void between the insulation board and lining board. Horizontal battens should be fitted at the top and bottom of walls and openings.

A.26 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.

Figure 1 General configuration

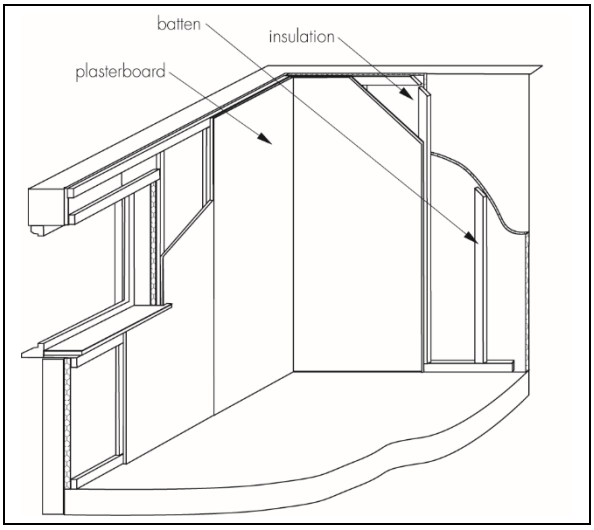


Figure 2 Opening detail

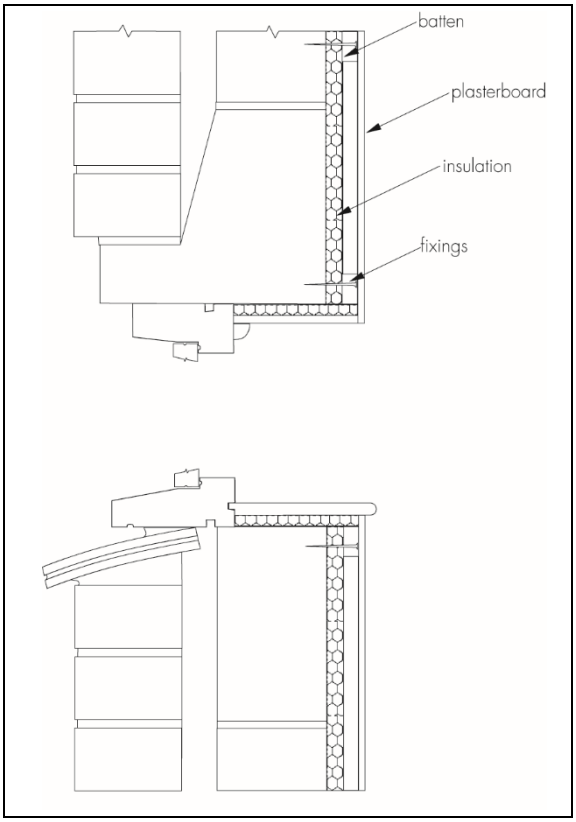
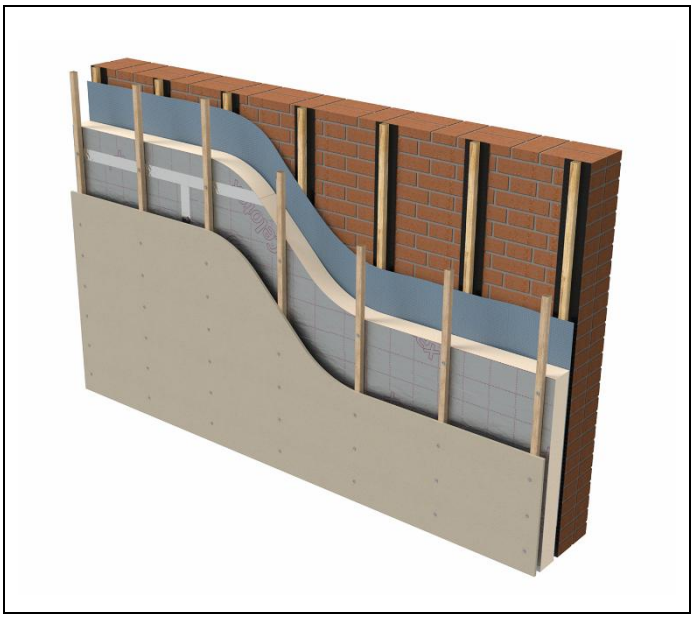


Figure 3 Existing solid masonry



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

BS 7671 : 2018 *Requirements for Electrical Installations — IET Wiring Regulations*

BS 8000-3 : 2001 *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 520 : 2004 + A1 : 2009 *Gypsum plasterboards — Definitions, requirements and test methods*

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

BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
NA to BS EN 1996-1-1 : 2005 + A1 : 2012 UK National Annex to *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*
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 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
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 : 2006 *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 15026 : 2023 *Hygrothermal performance of building components and building elements — Assessment of moisture transfer by numerical simulation*

BS EN 15976 : 2011 *Flexible sheets for waterproofing — Determination of emissivity*

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 13788 : 2012 *Hygrothermal performance of building components and building elements — Internal surface temperature to avoid critical surface humidity and interstitial condensation — Calculation methods*

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

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British Board of Agrément
1st Floor, Building 3, Hatters Lane
Croxley Park, Watford
Herts WD18 8YG
tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk