

Wetherby Building Systems Limited

1 Kid Glove Road
Golborne Enterprise Park
Golborne
Greater Manchester WA3 3GS

Tel: 01942 717100

e-mail: info@wbs-ltd.co.uk

website: www.wbs-ltd.co.uk



Agrément Certificate

19/5658

Product Sheet 1

WETHERBY INTERNAL WALL INSULATION SYSTEM

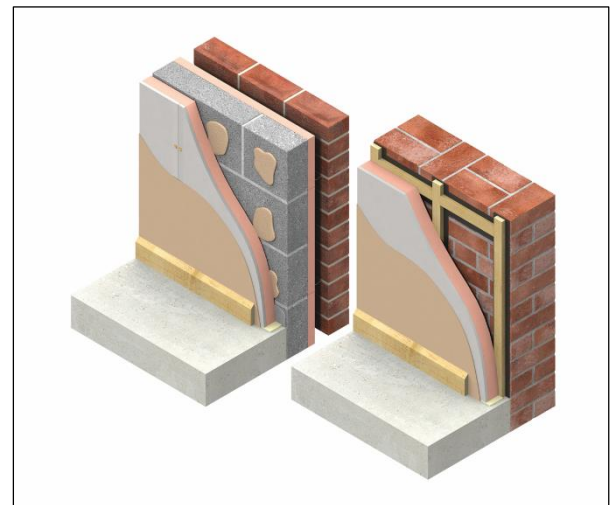
WETHERBY INTERNAL WALL INSULATION BOARD

This Agrément Certificate Product Sheet⁽¹⁾ relates to the Wetherby Internal Wall Insulation Board, comprising rigid phenolic (PF) board faced on one side with a perforated foil and on the other with an unperforated foil which is bonded to the plasterboard. The system is for use as an insulated dry lining for solid or cavity masonry walls and the underside of timber or steel rafters in pitched roofs, in new and existing dwellings and buildings of similar occupancy.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Thermal performance — the insulation component of the system has a declared thermal conductivity (λ_D) of $0.018 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (see section 6).

Condensation — the system can contribute to limiting the risk of surface condensation; however, the risk of interstitial condensation should be assessed for each case (see section 7).

Properties in relation to fire — Wetherby Internal Wall Insulation Board has a fire classification* of Class B-s1, d0 to BS EN 13501-1 : 2007 and its use is restricted under the national Building Regulations in some cases (see section 8).

Durability — the system is durable, rot proof and sufficiently stable to remain effective for the life of the building in which it is installed (see section 14).

The BBA has awarded this Certificate to the company named above for the system described herein. This system 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 First issue: 20 June 2019
Certificate amended on 25 November 2020 to update telephone number.

John Albon
Chief Scientific Officer

Claire Curtis-Thomas
Chief Executive

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

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

©2019

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, the Wetherby Internal Wall Insulation Board, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	B2(1)	Internal fire spread (linings)
Comment:		The system is unrestricted under this Requirement. See section 8.1 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The system is restricted by this Requirement. See section 8.1 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The system can contribute to satisfying this Requirement. See sections 7.1 and 7.5 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The system can contribute to satisfying this Requirement. See sections 6.1 and 6.3 of this Certificate.
Regulation:	7	Materials and workmanship (applicable to Wales only)
Regulation:	7(1)	Materials and workmanship (applicable to England only)
Comment:		The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation:	7(2)	Materials and workmanship (applicable to England only)
Comment:		The system is restricted by this Regulation. See section 8.2 of this Certificate.
Regulation:	26	CO₂ emission rates for new buildings
Regulation:	26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation:	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:		The system can contribute to satisfying these Regulations. See sections 6.1 and 6.3 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:		The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.5	Internal linings
Comment:		The system is unrestricted under this Standard, with reference to clause 2.5.1 ⁽¹⁾ . See sections 8.1 and 8.3 of this Certificate.
Standard:	3.15	Condensation
Comment:		The system 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 sections 7.1 and 7.6 of this Certificate.
Standard:	6.1 (b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The system can contribute to satisfying clauses, or parts of, 6.1.1 ⁽¹⁾ , 6.1.6 ⁽¹⁾ , 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾⁽²⁾ , 6.2.4 ⁽¹⁾⁽²⁾ , 6.2.5 ⁽¹⁾⁽²⁾ , 6.2.6 ⁽¹⁾⁽²⁾ , 6.2.7 ⁽¹⁾ , 6.2.8 ⁽²⁾ , 6.2.9 ⁽¹⁾⁽²⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾⁽²⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽¹⁾⁽²⁾ of these Standards. See sections 6.1 and 6.3 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability

Comment: The system 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 7.1.4⁽¹⁾⁽²⁾ [Aspects 1⁽¹⁾⁽²⁾ and 2⁽¹⁾], 7.1.6⁽¹⁾ [Aspects 1⁽¹⁾⁽²⁾ and 2⁽¹⁾] and 7.1.7⁽¹⁾⁽²⁾ [Aspect 1⁽¹⁾⁽²⁾]. See section 6.1 of this Certificate.

Regulation: 12 **Building standards applicable to conversions**
Comment: Comments 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⁾ and Schedule 6⁽¹⁾.

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



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

Regulation: 23 **Fitness of materials and workmanship**
Comment: The system is acceptable. See section 14 and the *Installation* part of this Certificate.

Regulation: 29 **Condensation**
Comment: The system can contribute to satisfying this Regulation. See section 7.1 of this Certificate.

Regulation: 34 **Internal fire spread — linings**
Comment: The system is unrestricted under this Regulation. See sections 8.1 and 8.3 of this Certificate.

Regulation: 39(a)(i) **Conservation measures**
Regulation: 40(2) **Target carbon dioxide emissions rate**
Comment: The system can contribute to satisfying these Regulations. See sections 6.1 and 6.3 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal contractor) to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* (3.3) and 16 *General* (16.7 and 16.8) of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, Wetherby Internal Wall Insulation Board, if installed, used and maintained in accordance with this Certificate, and provided the bonded plasterboard facing is a minimum of 12.5 mm thick, with the product mechanically fixed back to the structure, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 6.1 *External masonry walls*, 7.2 *Pitched roofs* and Chapter 9.2 *Wall and ceiling finishes*.

CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 13950 : 2014. An asterisk (*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 The Wetherby Internal Wall Insulation Board consists of phenolic (PF) insulation with a perforated and composite foil-facing on one face and a unperforated composite foil-facing on the other face which is factory-bonded to plasterboard.

1.2 The system is available with the nominal characteristics shown in Table 1.

Table 1 Nominal characteristics

Characteristic	Measure
Length	2400 mm
Width	1200 mm
Insulation thickness	20 mm to 80 mm
Nominal density of insulation	35 kg·m ⁻³
Thickness of plasterboard	12.5 mm
Weight of plasterboard	24 kg
Edge profile	Square and tapered edged
Minimum compressive strength for the insulation at 10% compression*	120 kPa

1.3 Ancillary items, which are outside the scope of this Certificate, include:

- gypsum-based drywall adhesive
- bonding agent
- acrylic sealant adhesive/ sealant
- PU foam adhesive/ sealant
- metal wall liner system
- pre-treated timber battens and dpc strips
- appropriate fixings
- edge, stop, movement and corner beads
- scrim tape, jointing tape, jointing compounds or plaster skim
- air grate louvres, vent duct covers
- fungicidal wash treatment.

2 Manufacture

2.1 Raw materials are injected onto the lower foil-facer on a conveyor belt. The exothermic reaction expands the foam, which then comes into contact with the upper foil-facer. An automated process cures and cuts the product to the required size.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control being operated by the manufacturer are being maintained.

2.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of ISO 9001 : 2015 by the Loss Prevention Certification Board (LPCB) (Certificate 388-1QMS).

3 Delivery and site handling

3.1 The boards are delivered to site shrink-wrapped in polythene on pallets. Each board has the manufacturing code printed on the surface and each pack carries a label with the product description and characteristics, manufacturer's name and the BBA logo incorporating the number of this Certificate.

3.2 It is essential that the boards are raised off the ground and stored inside or under cover on a flat, dry, level surface in a well-ventilated area. The boards must be protected from rain, snow and prolonged exposure to sunlight and any that become wet should not be used.

3.3 The boards must not be exposed to a naked flame or other ignition sources.

3.4 The boards can be cut using a fine-toothed saw, or by cutting through the insulation and paper backing of the plasterboard, then snapping the system face down over a straight edge and cutting the paper facing of the plasterboard on the other side.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Wetherby Internal Wall Insulation Board.

Design Considerations

4 General

4.1 Wetherby Internal Wall Insulation Board is installed using various adhesives and/or can be mechanically fixed, either directly onto the wall or onto the timber battens or metal furring (see the *Installation* part of this Certificate). The system is for use as an insulating dry lining to masonry (solid and cavity) walls and the underside of timber or steel rafters in pitched roofs, in new and existing dwellings and buildings of similar occupancy and in non-load bearing partitions.

4.2 The foil bonded to the plasterboard provides the integral vapour check for the product. It should be installed in accordance with the Certificate holder's instructions.

4.3 It is recommended that services which penetrate the dry lining, eg light switches and power outlets, are kept to a minimum to limit damage to vapour checks.

4.4 It is essential that proper care and attention is given to maintaining the integrity/continuity of the vapour control layer (vcl) (see section 15).

Masonry walls

4.5 The system may be installed on masonry construction including clay and calcium silicate bricks, concrete blocks and natural and reconstituted stone blocks.

4.6 Walls should be designed and constructed in accordance with the relevant recommendations of:

- BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006 and their respective UK National Annexes
- BS 8000-0 : 2014
- BS 8000-3 : 2001.

4.7 Since insulating dry lining is not intended to offer resistance to rain penetration, walls to be insulated with dry lining must already be rain resistant and show no signs of water ingress.

4.8 If present, mould or fungal growth should be treated prior to the application of the system.

4.9 With dry lining 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 dry lining, making the chasing of the wall unnecessary.

Where the services have a greater depth than the void, the wall should be chased rather than the insulation. Suitable isolation methods, such as a conduit or capping, must be used to ensure cables do not come into contact with the insulation.

4.10 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 should be made to minimise the risk of thermal bridging at reveals and where heavy separating walls are attached to the external wall. New 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.

Pitched roofs

4.11 Pitched roofs should be designed and constructed in accordance with BS 5534 : 2003 (see sections 16.6 to 16.10) and incorporate normal precautions against moisture ingress.

4.12 In tiled or slated pitched roofs designed and constructed as stated in section 4.11, the system is suitable for use beneath the rafters in conjunction with a BBA-approved breathable membrane and, when necessary, a vcl (see section 7.3).

4.13 New constructions subject to the national Building Regulations should be designed in accordance with the relevant recommendations of BS 5268-2 : 2002 and Eurocode 3.

5 Practicability of installation

The system is designed to be installed by a competent general builder, or a contractor experienced with this type of system.

6 Thermal performance



6.1 Calculations of the thermal transmittance (U value) of a specific construction using insulated dry lining should be carried out in accordance with BS EN ISO 6946 : 2017, BRE Report BR 443 : 2006 and BRE Digest 465 : 2002, using the declared thermal conductivity* (λ_D) value of $0.018 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the insulation component and a design value of $0.19 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the plasterboard, and an emissivity of 0.05 for the foil-facer.

6.2 The U value of a completed wall construction will depend on the selected insulation thickness, number and type of fixings and the insulating value of the substrate masonry and its internal finish. Calculated U values for example wall constructions are given in Table 2.

Table 2 Example $U^{(1)}$ values for walls and sloping sides of the pitched roofs

Board thickness (mm)	Phenolic foam thickness (mm)	U value for lining to walls ($\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$)		U value for lining ⁽²⁾⁽³⁾ to pitched roofs ($\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$)
		Adhesively fixed ⁽⁴⁾ (dots and dabs)	Mechanically fixed ⁽⁵⁾	
32.5	20	0.53	0.56	0.75
42.5	30	0.41	0.46	0.61
52.5	40	0.33	0.39	0.51
62.5	50	0.28	0.34	0.44
72.5	60	0.24	0.30	0.38
82.5	70	0.22	0.27	0.34
92.5	80	0.19	0.24	0.30

(1) These calculations have been done on solid walls and pitched roofs without any existing insulation.

(2) Fixing correction is included as its contribution to U values is $\geq 3\%$ (steel fixings - $\lambda = 50 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, 16.66 fixings per m^2 , $d = 4.8 \text{ mm}$ and fixings fully penetrate insulation).

(3) Includes 150 mm airspace between the 150 mm rafters.

(4) Adhesively fixed with no fixing correction applied as the contribution of the supplementary fixings to U values is $< 3\%$.

(5) Includes fixing correction $\geq 3\%$ (steel fixings - $\lambda = 50 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, 10.76 fixings per m^2 , $d = 4.8 \text{ mm}$ and fixings fully penetrate insulation).

6.3 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

7 Condensation

Interstitial condensation



7.1 Walls and roofs incorporating the systems will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2011, Annexes G and H.

7.2 For each construction, a condensation risk analysis should be carried out in accordance with BS EN ISO 13788 : 2012 and BS 5250 : 2011 using the water vapour transmission values for each component given in Table 3 for each layer.

Material	Water vapour resistance ($MN \cdot s \cdot g^{-1}$)
Perforated composite foil	3
Phenolic foam	18.5
Unperforated composite foil	80

7.3 Where calculations to Annex D of BS 5250 : 2011 indicate a risk of persistent condensation, a site-specific dynamic analysis to BS EN 15026 : 2007 should be considered.

7.4 Provided all joints between the system are sealed in accordance with the Certificate holder's literature, the product can offer a significant resistance to water vapour transmission. This can be conducted by application of either a skim coat or taping and filling of the tapered edges of the plasterboards.

Surface condensation



7.5 Walls and roofs incorporating the system will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $0.7 W \cdot m^{-2} \cdot K^{-1}$ and $0.35 W \cdot m^{-2} \cdot K^{-1}$ respectively at any point and the junctions with other elements are designed in accordance with the guidance referred to section 6.3.



7.6 For buildings in Scotland, wall and roof 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 : 2011 Annexes G and H. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.3.

8 Behaviour in relation to fire



8.1 Wetherby Internal Wall Insulation Board has been classified* as Class B-s1, d0 to BS EN 13501 : 2007.



8.2 In England, the system should not be used on buildings with a storey more than 18 m above the ground but may be used on buildings at any proximity to a boundary.



8.3 In Wales, Scotland and Northern Ireland, the use of the system is unrestricted by the national Building Regulations.

9 Proximity of flues and appliances

When the systems are installed in close proximity to certain flue pipes and or heat-producing appliances, the relevant provisions of the national Building Regulations should be satisfied:

England and Wales — Approved Document J

Scotland — Mandatory Standard 3.19, clauses 3.19.1⁽¹⁾⁽²⁾ to 3.19.9⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet L, sections 1 to 6.

10 Materials in contact — wiring installations

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

10.2 Electrical cables that are likely to come into contact with the insulation component of the thermal liner are not 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.

11 Infestation

The use of the system does not in itself promote infestation. The creation of voids within the structure (for example, gaps between the wall or roof lining and the system) may provide habitation for insects or vermin in areas already infested. Care should be taken to ensure, wherever possible, that all voids are sealed, as any infestation may be difficult to eradicate. There is no food value in the materials used.

12 Wall-mounted fittings

The recommendations of the Certificate holder must be followed. Any object fixed to the wall, other than lightweight items, is outside the scope of this Certificate.

13 Maintenance

If the system is damaged during use, it can be readily removed and replaced.

14 Durability



The durability of the materials is satisfactory. Provided the system is fixed to satisfactory stable and durable backgrounds, the system will have a life equal to the building in which it is installed. Under normal conditions of occupancy it is unlikely to suffer damage but, if damage does occur, repairs are readily carried out.

Installation

15 Pre-installation survey

15.1 The Certificate holder's instructions must be followed.

15.2 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 system and its ancillary items are installed.

15.3 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 materials (if any) should be checked. For existing buildings, there is no dpc, the requirement for one must be determined.

15.4 The suitability of projecting window sills, verge and eaves overhangs should be checked. Mortar joints should also be examined and repointed, if required.

15.5 The existing ventilation provision should be assessed and updated if necessary.

15.6 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 lining commences.

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

16 General

16.1 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.

16.2 Before fixing the system, 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).

16.3 Existing wallpaper, skirting, picture rails, gloss paint and projecting window boards may need to be removed. The amount of preparation and removal of such items depends on the method of attachment. The wall surface should be dry and stable, and any friable materials removed if required. Existing finishes such as vinyl wallpaper, gloss paint etc can be scored or sanded as an alternative to complete removal.

16.4 All penetrations through the system are sealed using flexible polyurethane foam and/or flexible sealant or equivalent.

16.5 Guidance provided by the manufacturer on the adhesive, metal wall liner system etc. should be followed. In the absence of such guidance, an installation procedure which follows the principles and recommendations of BS 8212 : 1995 should be followed.

16.6 Installation of the system to a wall must be carried out with the Wetherby Internal Wall Insulation Board fixed with its long edges running vertically. When installed horizontally, the number of noggins or straps or bands of adhesive should be increased as per the Certificate Holder's instruction, in order to provide more support to the board edges.

16.7 The boards can be cut using a fine-toothed saw. Cutting should be done in a ventilated space, outside or in an area with dust extraction.

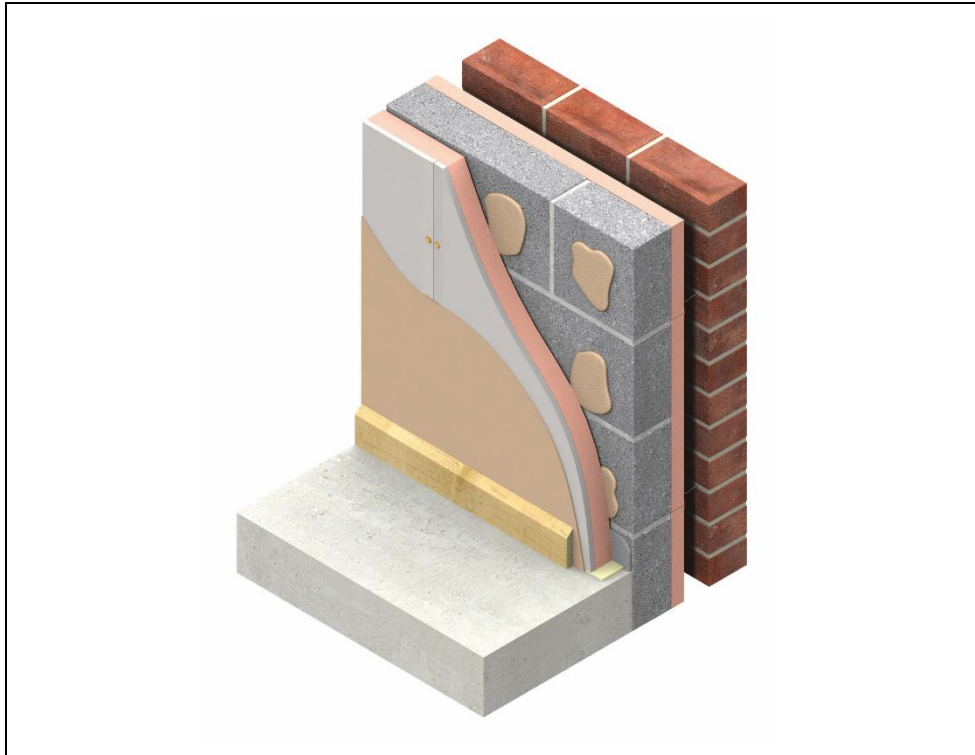
16.8 Appropriate Personal Protective Equipment (PPE) must be used when cutting the boards.

16.9 All joints between the Wetherby Internal Wall Insulation Board are sealed in accordance with the Certificate holder's literature, either by application of a skim coat or by taping and filling tapered edge plasterboard.

17 Procedure

The System secured with adhesive and supplementary fixings onto fair-faced brick, block or concrete cavity walls or rendered (or equivalent) solid walls (see Figure 1).

Figure 1 Wetherby internal wall insulation board secured with drywall adhesive dabs



17.1 If required, background mechanical key or suction can be reduced or improved by the application of a bonding agent (PVAc conforming to BS 5270-1 : 1989 or equivalent for high or low suction backgrounds).

17.2 A distance of 10 mm plus the equivalent of the thickness of the Wetherby Internal Wall Insulation Board must be allowed away from the wall's high point and a line must be drawn across the floor. It must then be plumbed for alignment before transferring the line to the ceiling, extending to the room corners. A mark must be made on the walls at 1200 mm centres to indicate the Wetherby Internal Wall Insulation Board positioning.

17.3 A band of adhesive is applied around the perimeter, services and openings. The adhesive must be approximately 25 mm in from the edge, to avoid bridging the joint.

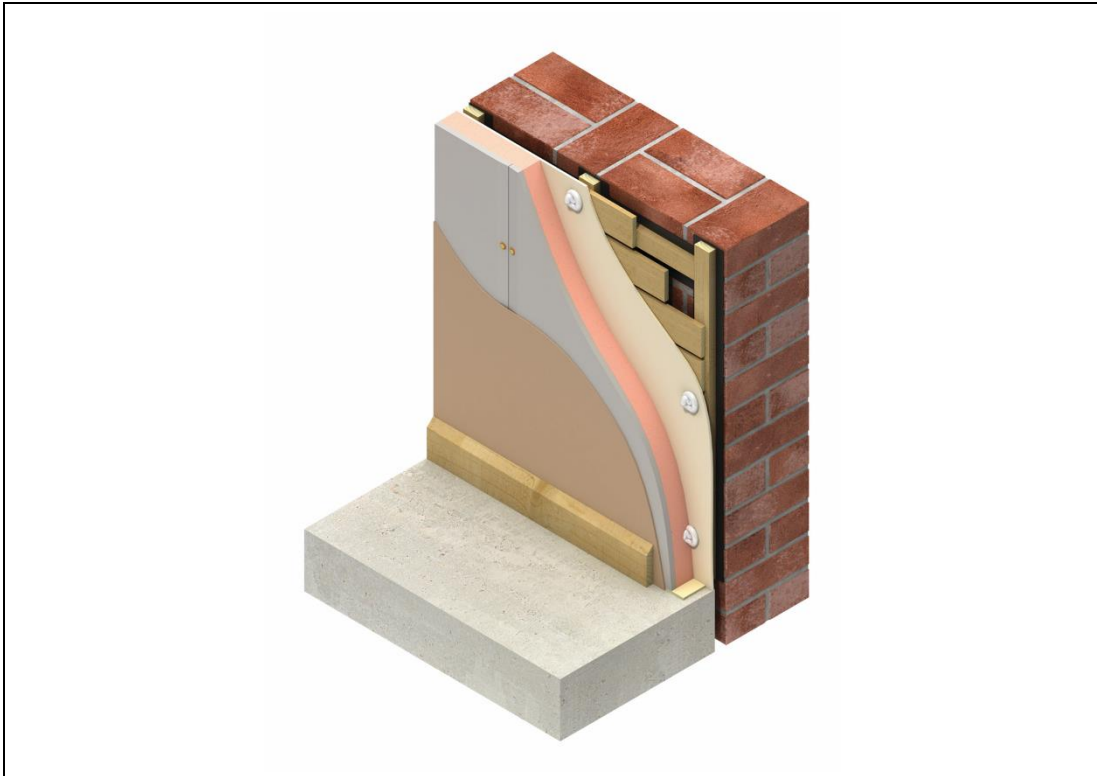
17.4 Dabs are applied in three rows, as appropriate, but with a 20% minimum coverage per board. Each dab should be 50 to 75 mm wide, approximately 250 mm long and positioned vertically at 300 mm centres and horizontally at 600 mm centres.

17.5 Wetherby Internal Wall Insulation Board is cut approximately 15 mm short of the floor to ceiling height. The boards are taped into position and supported by packers until the adhesive is set.

17.6 Once the adhesive sets, a minimum of 6 appropriate fixings per sheet are added and positioned no less than 15 mm in from the edges. Fixings should be selected to provide a 25 mm penetration into the masonry wall.

The system secured with adhesive and supplementary fixings onto existing linings (plaster, lath and plaster or plasterboard on framework) or flat fair-faced brick, block or concrete cavity walls or rendered (or equivalent) solid walls. (see Figure 2)

Figure 2 Wetherby internal wall insulation board secured with acrylic sealant or PU foam adhesive



17.7 A distance of 2 to 3 mm plus the equivalent of the thickness of the Wetherby Internal Wall Insulation Board must be allowed away from the wall's high point and a line must be drawn across the floor. It must then be plumbed for alignment before transferring the line to the ceiling, extending to the room corners. A mark must be made on the walls at 1200 mm centres to indicate the board positioning.

17.8 Wetherby Internal Wall Insulation Board must be cut 15 mm short of the floor to the ceiling height. Acrylic sealant adhesive or PU foam adhesive is applied to the substrate or back of the board. Acrylic adhesive should be applied in blobs approximately 25 mm in diameter and positioned at 300 mm centres horizontally and vertically. PU foam adhesive should be applied in beads approximately 20 to 25 mm wide. A continuous bead of adhesive is also applied around the perimeter of the board, plus one down the middle of each board. Guidance should be sought from the adhesive manufacturers as the adhesive pattern and quantity may increase.

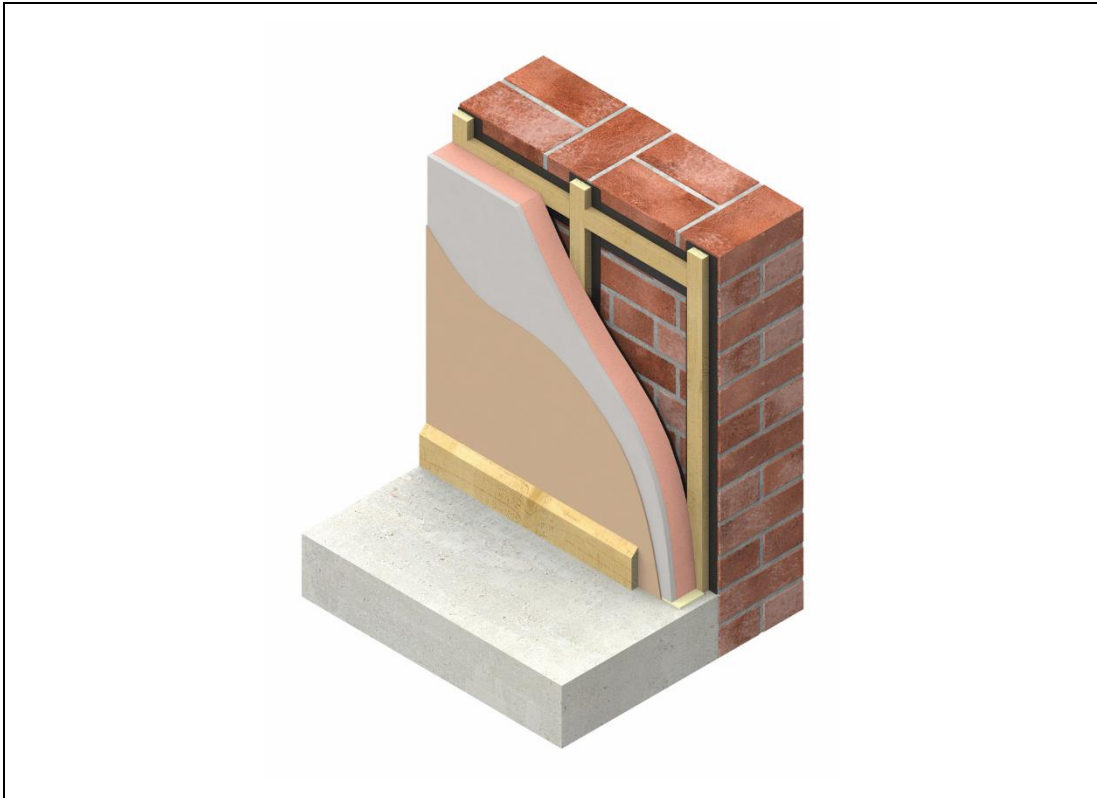
17.9 The adhesive should be applied approximately 25 mm in from the edge of the boards to avoid bridging the joint. Boards are tapped into position and supported until the adhesive is set. Once the adhesive is set, no less than 2 appropriate fixings per sheet must be added, no less than 15 mm from each edge.

17.10 Appropriate fixings of sufficient length are selected to give a 25 mm penetration into the masonry (excluding the plaster) or timber and to give a 10 mm penetration into metal framework

17.11 Alternatively, the Wetherby Internal Wall Insulation Board may be mechanically fixed directly onto flat masonry substrates with appropriate supplementary fixings. The same guidelines as above would apply, except a minimum of 12 fixings per board are required.

The system secured to pre-treated timber battens lined with a dpc onto any dry, stable masonry construction. (see Figure 3)

Figure 3 Wetherby internal wall insulation board fixed to pre-treated timber battens



17.12 Timber battens are to be fixed around the perimeter of the wall, openings and services, then vertically at maximum 600 mm centres.

17.13 All timbers are screwed with the dpc to the substrate using appropriate fixings. Fixings are to be made approximately 75 mm from the ends and positioned no more than 600 mm centres apart.

17.14 Timber battens must provide a minimum 19 mm bearing to support the board edge. The Wetherby Internal Wall Insulation Board is cut approximately 5 mm short of the floor to the ceiling height, then located centrally over the timber battens.

17.15 The system is to be fixed with drywall screws located at 300 mm centres, reducing to 200 mm centres for external corners. Alternatively, the system can be fixed with plasterboard nails located at 150 mm centres. The length of screw or nail used should be at least 25 mm greater than the thickness of the system (22.5 mm when using 25 mm deep battens).

The system secured to a proprietary metal wall liner (brackets, tracks and lining channels stud system) onto any dry, stable masonry construction (see Figure 4)

Figure 4 Wetherby internal wall insulation board fixed to metal wall liner



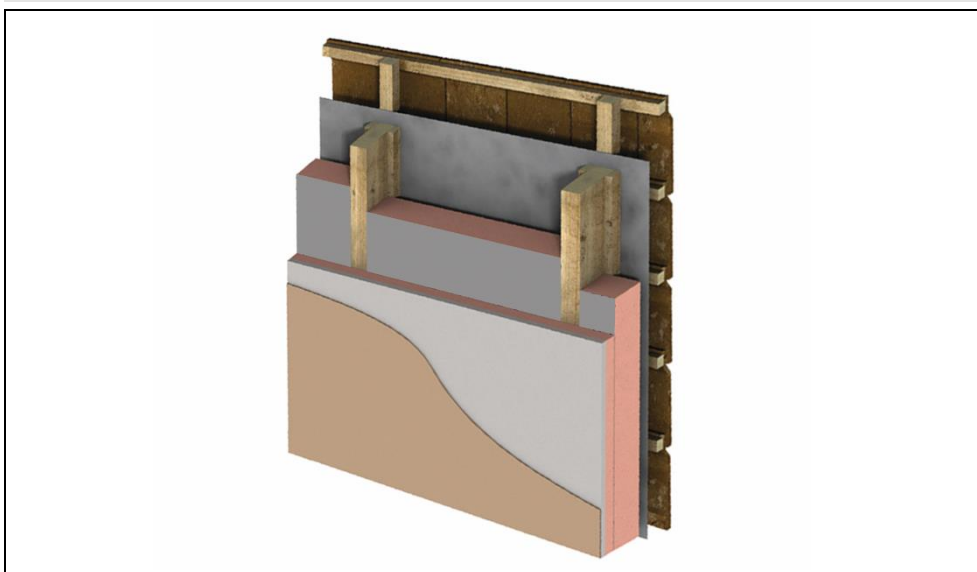
17.16 The maximum undulation (high point) of the substrate or service protrusion is identified, to enable the required cavity depth to be determined. Lines are marked to the floor and ceiling to indicate position of the metal tracks, which are then fixed in place using appropriate fixings.

17.17 Brackets should be fixed using appropriate fixings.

17.18 The Wetherby Internal Wall Insulation Board should be cut 5 mm short of the floor to ceiling height then the board is located centrally over the lining channels with the system fixed with self-tapping drywall screws at 300 mm centres, reduced to 200 mm centres at external corners. The length of screw used when fixing to metal should be at least 10 mm greater than the thickness of the system.

Roof dry lining system – the system fixed to timber rafters or ceiling joists (see Figure 5)

Figure 5 Wetherby internal wall insulation board fixed to timber rafters or ceiling joists



17.19 Wetherby Internal Wall Insulation Board should be placed below the rafters with no air gap between the boards and the already existing insulation boards between the rafters or ceiling joists.

17.20 The framing should be set at a maximum of 600 mm centres, and the framing should be wide enough to provide at least a 19 mm bearing in order to support each board edge. Noggings or straps will be required at the perimeter. When the joists/rafters are set at 600 mm centres, additional noggings or straps will be required perpendicular to the main framing in order to provide the necessary support for board edges.

17.21 The system should be cut to allow for a 5 mm height clearance and fixed using plasterboard nails located at 150 mm centres for timber only or drywall screws located at 230 mm centres maximum for timber or metal framing. Penetration depths into the framework should be a minimum of 25 mm for timber or 10 mm for metal.

Additional installation procedures

17.22 Flexible polyurethane foam and/or flexible sealant or equivalent must be applied around the perimeter of the system where the board abuts adjacent surfaces, window/door frames, ceilings and floors.

17.23 Window or door reveals should be insulated with a minimum thickness of 32.5 mm Wetherby Internal Wall Insulation Board.

17.24 At external angles, the system should be extended past the corner and the insulation cut back.

Roof dry lining system – system fixed to timber rafters or ceiling joists

17.25 The boards must then be placed below the rafters with no air gap between the boards and existing insulation boards between the rafters or ceiling joists. The Certificate holder's instructions must be sought.

18 Finishing

18.1 Jointing and finishing of the plasterboard lining are carried out in the appropriate manner in accordance with BS EN 13914-2 : 2016, applying plasterer's tape to all joints. A finishing skim coat of 2 mm of plaster should be applied to complete the installation.

18.2 Any gaps between the ceiling and the wall must be filled.

Technical Investigations

19 Tests

Results of tests were assessed to determine:

- thermal conductivity
- squareness
- density
- dimensional accuracy
- flatness
- dimensional stability at specific temperatures and humidity
- behaviour in relation to fire
- vapour resistance
- interlaminar bond strength
- hard and soft body impact resistance

20 Investigations

20.1 Existing data on durability and properties in relation to fire were evaluated.

20.2 A calculation was undertaken to confirm the thermal conductivity (λ_D value).

20.3 A series of U value calculations was carried out.

20.4 A condensation risk analysis was carried out.

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

Bibliography

- BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*
- BS 5270-1 : 1989 *Bonding agents for use with gypsum plasters and cement — Specification for polyvinyl acetate (PVAC) emulsion bonding agents for indoor use with gypsum building plasters*
- BS 5268-2 : 2002 *Structural use of timber — Code of practice for permissible stress design, materials and workmanship*
- BS 5534 : 2003 + A1 : 2010 *Code of practice for slating and tiling (including shingles)*
- 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 8000-0 : 2014 *Workmanship on building sites — Introduction and general principles*
- 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 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 *UK National Annex to Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*
- BS EN 13501-1 : 2007 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN 13914-2 : 2016 *Design, preparation and application of external rendering and internal plastering – Internal plastering*
- BS EN 13950 : 2014 *Gypsum plasterboard thermal/acoustic insulation composite panels — Definitions, requirements and test methods*
- BS EN 15026 : 2007 *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 13788 : 2012 *Hygrothermal performance of building components and building elements – Internal surface temperature to avoid critical surface humidity and interstitial condensation – Calculation methods*
- BRE Digest 465 : 2002 *U-values for light steel-frame construction*
- BRE Report (BR 262 : 2002) *Thermal insulation: avoiding risks*
- BRE Report (BR 443 : 2006) *Conventions for U-value calculations*

21 Conditions

21.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

21.2 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.

21.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

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

21.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

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

21.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.