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Agrément Certificate

04/4130

Product Sheet 1

XTRATHERM THIN-R INSULATION (XT)

XTRATHERM THIN-R THERMAL LINER (XT/TL)

This Agrément Certificate Product Sheet⁽¹⁾ relates to Xtratherm Thin-R Thermal Liner (XT/TL), comprising a rigid polyisocyanurate (PIR) foam board bonded to plasterboard, for use as insulating dry lining for internal solid or cavity masonry walls and horizontal or sloped timber roof ceilings, in new and existing domestic buildings.

(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 product has a declared thermal conductivity (λ_D) of $0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (see section 6).

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

Behaviour in relation to fire — the product has a fire classification of Class B-s1, d0 to BS EN 13501-1 : 2007 and its use is restricted in some cases (see section 8).

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

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 Second issue: 14 October 2020

Originally certificated on 11 August 2004

Hardy Giesler
Chief Executive Officer

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

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

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

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Regulations

In the opinion of the BBA, Xtratherm Thin-R Thermal Liner (XT/TL), 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: Comment:	B2(1)	Internal fire spread (linings) The use of the product is unrestricted by this Requirement. See sections 8.1 and 8.2 of this Certificate.
Requirement: Comment:	B4(1)	External fire spread The use of the product is restricted under this Requirement. See sections 8.1 and 8.3 of this Certificate.
Requirement: Comment:	C2(c)	Resistance to moisture The product can contribute to satisfying this Requirement. See sections 7.1 and 7.6 of this Certificate.
Requirement: Comment:	L1(a)(i)	Conservation of fuel and power The product can contribute to satisfying this Requirement. See sections 6.1 and 6.2 of this Certificate.
Regulation: Comment:	7(1)	Materials and workmanship The product is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation: Comment:	7(2)	Materials and workmanship The product is restricted by this Regulation. See section 8.3 of this Certificate
Regulation:	26	CO₂ emission rate for new buildings
Regulation:	26A	Fabric energy efficiency 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 product can contribute to satisfying these Regulations; however, compensatory fabric / service measures may be required. See sections 6.1 and 6.2 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: Comment:	8(1)	Durability, workmanship and fitness of materials The product is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard: Comment:	2.4	Cavities The use of the product is unrestricted by this Standard, with reference to clause 2.4.1 ⁽¹⁾ . See section 8.2 this Certificate.
Standard: Comment:	2.5	Internal linings The use of the product is unrestricted by this Standard, with reference to clause 2.5.1 ⁽¹⁾ . See sections 8.1 and 8.4 of this Certificate.
Standard: Comment:	3.15	Condensation The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾ , 3.15.4 ⁽¹⁾ and 3.15.5 ⁽¹⁾ . See sections 7.1 and 7.7 of this Certificate.

Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying these Standards, with reference to clauses, or parts of, 6.1.1 ⁽¹⁾ , 6.1.2 ⁽¹⁾ , 6.1.3 ⁽¹⁾ , 6.1.6 ⁽¹⁾ , 6.2.1 ⁽¹⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽¹⁾ , 6.2.5 ⁽¹⁾ , 6.2.6 ⁽¹⁾ , 6.2.7 ⁽¹⁾ , 6.2.9 ⁽¹⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾ and 6.2.13 ⁽¹⁾ . See sections 6.1 and 6.2 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 7.1.4 ⁽¹⁾ [Aspects 1 ⁽¹⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾ [Aspects 1 ⁽¹⁾ and 2 ⁽¹⁾] and 7.1.7 ⁽¹⁾⁽²⁾ [Aspect 1 ⁽¹⁾]. 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⁾⁽²⁾ .
(1) Technical Handbook (Domestic).		



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

Regulation:	23	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation:	29	Condensation
Comment:		The product can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
Regulation:	34	Internal fire spread - Linings
Comment:		The product is unrestricted by this Regulation. See sections 8.2 and 8.4 of this Certificate
Regulation:	35(4)	Internal fire spread – Structure
Comment:		The product is unrestricted by this Regulation. See section 8.1 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide emission rate
Comment:		The product can contribute to satisfying these Regulations. See sections 6.1 and 6.2 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 15 *General* (15.9) of this Certificate.

Additional Information

NHBC Standards 2020

In the opinion of the BBA, Xtratherm Thin-R Thermal Liner (XT/TL), 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* and 9.2 *Wall and ceiling finishes*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13950 : 2014.

Technical Specification

1 Description

1.1 Xtratherm Thin-R Thermal Liner (XT/TL) comprises a rigid polyisocyanurate (PIR) foam board⁽¹⁾, with composite foil/kraft paper-facings, bonded to plasterboard⁽²⁾. The boards have the nominal characteristics shown in Table 1.

(1) Manufactured to comply with BS EN 13165 : 2012.

(2) Manufactured to comply with BS EN 520 : 2004.

Table 1 Nominal characteristics

Length (mm)	1200
Width (mm)	2400
Insulation thickness (mm)	35, 48, 60, 70, 80
Plasterboard thickness (mm)	12.5, 15
Minimum compressive strength at 10% compression (kPa)	140
Edge profile	square with tapered plasterboard

1.2 Ancillary items for use with this product but outside the scope of this Certificate, are:

- timber battens
- metal furrings
- dry lining adhesive compound
- dry wall screws or plasterboard nails
- nailable plugs
- vapour control layer
- edge and corner beads
- scrim tape and joining compound or plaster for skim coat.

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 the product and cuts it to the required size. The rigid polyisocyanurate foam insulation is then factory bonded to plasterboard using PVA adhesive.

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

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

2.3 The management system of Xtratherm Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by the Loss Prevention Certification Board (Certificates 851 and 851-EMS respectively).

3 Delivery and site handling

3.1 The product is delivered to site in polythene-wrapped packs on pallets. Each pack of boards contains a label bearing the manufacturer's name, board dimensions and the BBA logo incorporating the number of this Certificate.

3.2 The product should be stored raised off the ground, inside or under cover, on a dry, level surface in a well-ventilated area. The product must be protected from rain, snow and prolonged exposure to sunlight. If the product has become wet or is damaged, it must not be used. Nothing should be stored on top of the product.

3.3 The product must not be exposed to a naked flame or other ignition sources, or to solvents or other chemicals.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Xtratherm Thin-R Thermal Liner (XT/TL).

Design Considerations

4 Use

4.1 Xtratherm Thin-R Thermal Liner (XT/TL) is satisfactory for use as an insulating dry lining for solid or cavity masonry walls and horizontal or sloped timber roofs of new and existing domestic buildings. The boards have composite foil/kraft paper-facings allowing them to be installed by direct bonding to the wall using plaster adhesive dabs, or by mechanical fixing either directly to the wall or onto timber battens or metal furring systems (see the *Installation* part of this Certificate). The product should be installed in accordance with the Certificate holder's instructions.

4.2 The boards may be installed on masonry construction including clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks. It is essential that such walls are constructed having regard to the local wind-driven rain index.

4.3 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 8000-3 : 2001.

4.4 Pitched roofs should be designed and constructed in accordance with the relevant clauses of BS 5534 : 2014 and flat roof decks in accordance with the relevant clauses of either BS 6229 : 2003 or BS 8217 : 2005 and, where appropriate, *NHBC Standards 2020*, and incorporate normal precautions against moisture ingress.

4.5 The product is not intended to offer resistance to rain penetration; walls, therefore, must already be rain resistant and show no signs of water ingress, rain penetration or damp from ground moisture.

4.6 It is essential that the boards are butted as close as possible to minimise any gaps between them (see section 16 of this Certificate).

4.7 Services which penetrate the dry lining, eg light switches and power outlets, should 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.

4.8 It is essential that proper care and attention is given to maintaining the integrity/continuity of the insulation and facings.

4.9 With installations that form a void of 20 mm or more (ie timber batten or metal furring systems), 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 conduit or capping, must be used to ensure cables do not come into contact with the insulation.

4.10 The installation of the product 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. Thinner boards should 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.

4.11 Before fixing the product, sufficient time must be allowed for the dispersion of solvents contained in some wood preservatives and damp-proofing treatments, and for any damp-proofing treatments applied to dry lining (see also BS 6576 : 2005 for dry lining in conjunction with a chemical damp-proof course (dpc) application).

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

5 Practicability of installation

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

6 Thermal performance



6.1 Calculations of thermal transmittance (U value) of specific external wall constructions should be carried out in accordance with BS EN ISO 6946 : 2017, BRE Report BR 443 : 2006 and BRE Digest 465 : 2002, using the thermal conductivity (λ_D) value of $0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the insulation component, a tested value of $0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the 12.5 mm plasterboard, and an emissivity (ϵ) of 0.9 for the composite foil/kraft paper-facing.

6.2 The U value of a completed wall construction will depend on the insulation thickness, number and type of fixings, and the insulating value of the substrate and its internal finish. Calculated U values for example constructions are given in Tables 2 to 6.

Table 2 Example U values – external masonry wall with internal dry lining

U value ($\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$)	Xtratherm dry lining board thickness (mm)	
	Mechanically fixed to timber battens ⁽¹⁾	Fixed with dabs ⁽²⁾
0.18	-	-
0.19	-	-
0.25	80	80
0.26	70	70
0.27	70	70
0.28	70	70
0.30	60	60
0.35	48	60

(1) Wall construction: 215 mm thick external brickwork $\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (82.7%), bridged with mortar $\lambda = 0.94 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (17.3%), Xtratherm dry lining board on timber battens (22 mm cavity $R = 0.184 \text{ m}^2\cdot\text{K}\cdot\text{W}^{-1}$, bridged with timber $\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (11.8%).

(2) Wall construction: 215 mm thick external brickwork $\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (82.7%), bridged with mortar $\lambda = 0.94 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (17.3%), Xtratherm dry lining board on dabs (15 mm cavity $R = 0.17 \text{ m}^2\cdot\text{K}\cdot\text{W}^{-1}$, bridged with mortar $\lambda = 0.43 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ [20%]).

Table 3 Example U values – external brick / dense block masonry cavity wall with internal dry lining

U value ($W \cdot m^{-2} \cdot K^{-1}$)	Xtratherm dry lining board thickness (mm)	
	Mechanically fixed to timber battens ⁽¹⁾	Fixed with dabs ⁽²⁾
0.18	--	60
0.19	48	48
0.25	35	35
0.26	35	35
0.27	35	35
0.28	35	35
0.30	35	35
0.35	0	0

(1) Wall construction: 102 mm thick external brickwork $\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$, 100 mm cavity fully filled with cavity wall insulation $\lambda = 0.038 W \cdot m^{-1} \cdot K^{-1}$ (bridged with mild steel double triangle ties $\lambda = 50.0 W \cdot m^{-1} \cdot K^{-1}$ (12.5 mm²) at 2.5 per m²), 100 mm dense block inner leaf $\lambda = 1.13 W \cdot m^{-1} \cdot K^{-1}$, Xtratherm dry lining board on battens (22 mm cavity $R = 0.184 m^2 \cdot K \cdot W^{-1}$, bridged with timber $\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$ [11.8%]).

(2) Wall construction: 102 mm thick external brickwork $\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$, 100 mm cavity fully filled with cavity wall insulation $\lambda = 0.038 W \cdot m^{-1} \cdot K^{-1}$ (bridged with mild steel double triangle ties $\lambda = 50.0 W \cdot m^{-1} \cdot K^{-1}$ (12.5 mm²) at 2.5 per m²), 100 mm dense block inner leaf $\lambda = 1.13 W \cdot m^{-1} \cdot K^{-1}$, Xtratherm dry lining board on dabs (15 mm cavity $R = 0.17 m^2 \cdot K \cdot W^{-1}$, bridged with mortar $\lambda = 0.43 W \cdot m^{-1} \cdot K^{-1}$ [20%]).

Table 4 Example U values – external brick / light block masonry cavity wall with internal dry lining

U value ($W \cdot m^{-2} \cdot K^{-1}$)	Xtratherm dry lining board thickness (mm)	
	Mechanically fixed to timber battens ⁽¹⁾	Fixed with dabs ⁽²⁾
0.18	35	48
0.19	35	35
0.25	35	35
0.26	35	35
0.27	35	35
0.28	0	35
0.30	0	0
0.35	0	0

(1) Wall construction: 102 mm thick external brickwork $\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$, 100 mm cavity fully filled with cavity wall insulation $\lambda = 0.038 W \cdot m^{-1} \cdot K^{-1}$ (bridged with mild steel double triangle ties $\lambda = 50.0 W \cdot m^{-1} \cdot K^{-1}$ (12.5 mm²) at 2.5 per m²), 100 mm light block inner leaf $\lambda = 0.12 W \cdot m^{-1} \cdot K^{-1}$ (bridged with mortar $\lambda = 0.88 W \cdot m^{-1} \cdot K^{-1}$ [6.7%]), Xtratherm dry lining board on battens (22 mm cavity $R = 0.18 m^2 \cdot K \cdot W^{-1}$, bridged with timber $\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$ [11.8%]).

(2) Wall construction: 102 mm thick external brickwork $\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$, 100 mm cavity fully filled with cavity wall insulation $\lambda = 0.038 W \cdot m^{-1} \cdot K^{-1}$ (bridged with mild steel double triangle ties $\lambda = 50.0 W \cdot m^{-1} \cdot K^{-1}$ (12.5 mm²) at 2.5 per m²), 100 mm light block inner leaf $\lambda = 0.12 W \cdot m^{-1} \cdot K^{-1}$ (bridged with mortar $\lambda = 0.88 W \cdot m^{-1} \cdot K^{-1}$ [6.7%]), Xtratherm dry lining board on dabs (15 mm cavity $R = 0.17 m^2 \cdot K \cdot W^{-1}$, bridged with mortar $\lambda = 0.43 W \cdot m^{-1} \cdot K^{-1}$ [20%]).

Table 5 Example U values – cold pitched roof with internal dry lining

U value ($W \cdot m^{-2} \cdot K^{-1}$)	Xtratherm dry lining board thickness (mm)
0.13	-
0.15	-
0.16	80
0.18	70
0.20	60
0.25	35

Note:

Ceiling construction — Xtratherm dry lining board, under 50 mm by 150 mm ceiling joists at 400 mm centres (11.75%) filled with 100 mm insulation $\lambda = 0.04 W \cdot m^{-1} \cdot K^{-1}$.

Table 6 Example U values – warm pitched roof with internal dry lining

U value ($W \cdot m^{-2} \cdot K^{-1}$)	Xtratherm dry lining board thickness (mm)
0.13	-
0.15	70
0.16	60
0.18	48
0.20	35
0.25	35

Note:

Roof construction: 100 mm Xtratherm Thin-R XT/PR insulation $\lambda = 0.022 W \cdot m^{-1} \cdot K^{-1}$ between timber rafters $\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$ (11.75%); with Xtratherm dry lining board on the underside.

Junctions

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 risk

Interstitial condensation



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

7.2 The risk of summer condensation on the foil component 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.

7.3 A condensation risk analysis of the specific construction should be undertaken to BS EN ISO 13788 : 2012 using the water vapour transmission values for each component given in Table 7 for each layer.

Table 7 Water vapour transmission factors

Material	Water vapour resistance ($MN \cdot s \cdot g^{-1}$)	Water vapour resistivity ($MN \cdot s \cdot g^{-1} \cdot m^{-1}$)	Water vapour resistance factor (μ)
PIR insulation		300	60
Foil facing	7000	-	-
Plasterboard	-	-	30 (dry) 50 (wet)

7.4 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.

7.5 Provided all joints between the product are sealed (see section 4.6 and the *Installation* part of this Certificate) in accordance with the Certificate holder's instructions, the product can offer significant resistance to water vapour transmission.

Surface condensation



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



7.7 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 of this Certificate.

8 Behaviour in relation to fire



8.1 Xtratherm Thin-R Thermal Liner (XT/TL) boards have been classified as B-s1,d0 to BS EN 13501-1 : 2007⁽¹⁾.

(1) EFACTIS UK/Ireland Limited, EUI-18-000114, 19 June 2019. Copies can be obtained from the Certificate holder.

8.2 The Certificate holder has not declared a reaction to fire classification for the reverse side and so where this forms the face of an internal cavity, the cavity should be subdivided with cavity barriers in accordance with the requirements of the documents supporting the national Building Regulations.



8.3 In England and Wales, this 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.



8.4 In Scotland and Northern Ireland, the use of the system is unrestricted by the national Building Regulations in terms of height and proximity to a boundary.

9 Proximity of flues and appliances

When the product is installed in close proximity to certain flue pipes and/or heat-producing appliances, the following provisions to the national Building Regulations are applicable:

England and Wales — Approved Document J

Scotland — Mandatory Standard 3.19, clauses 3.19.1⁽¹⁾ to 3.19.4⁽¹⁾

(1) Technical Handbook (Domestic).

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

10 Materials in contact — wiring installations

10.1 As with any 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 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

Use of the product does not in itself promote infestation. The creation of voids within the structure, for example gaps between the wall lining and the product, 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's instructions must be followed. Any objects fixed to the wall, other than lightweight items, are outside the scope of this Certificate.

13 Maintenance

The product, if damaged during use, can be readily removed and replaced.

14 Durability



The durability of the product is satisfactory. Provided the product is fixed to a satisfactory stable and durable substrate, it 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 easily carried out.

Installation

15 General

15.1 Xtratherm Thin-R Thermal Liner (XT/TL) must be installed in accordance with this Certificate and the Certificate holder's instructions.

15.2 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.

15.3 The dwelling should 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.

15.4 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.

15.5 Before fixing the system, sufficient time must be allowed for damp-proofing treatments, where applied, to dry out (for information see in BS 6576 : 2005 for dry lining in conjunction with a chemical damp-proof course application).

15.6 Care must be taken when exposing electrical cables (see section 10).

15.7 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 4.

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

15.9 The boards can be cut using 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.

15.10 To avoid thermal bridging, the boards should be used to line window reveals. 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. Further guidance can be obtained from BRE Report BR 262 : 2002 (see Figure 4).

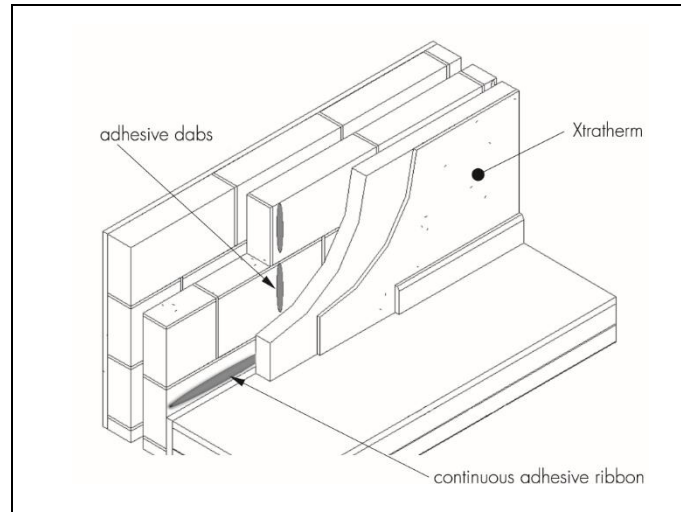
16 Procedure

16.1 The product can be installed mechanically or adhesively.

Adhesive dab installation (with additional mechanical fixings)

16.2 Adhesive dabs should be applied to the wall, ensuring a 50 mm ribbon top and bottom, around corners, openings and service penetrations. Dabs should be applied in accordance with BS 8212 : 1995 and BS 8000-8 : 1994.

Figure 1 Adhesive dab installation



16.3 The board is placed onto the wall and positioned using wedges. Pressure is applied to level the board until it is firmly embedded into the adhesive.

16.4 A minimum of two metal fixings should be provided for each board, applied after the adhesive is set, in accordance with BS 8212 : 1995 and the Certificate holder's instructions.

Mechanically fixed directly to wall

16.5 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 chalk lines on the floor and ceiling.

16.6 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 appropriate stainless steel mechanical fixings at 300 mm centres from the vertical and horizontal board edges, with a minimum of 12 fixings per board.

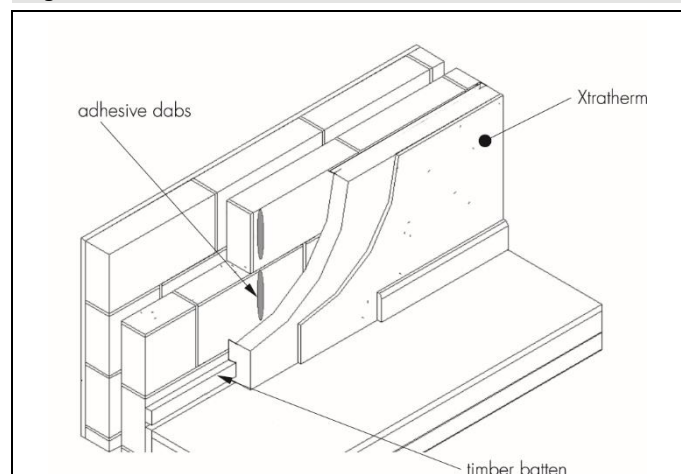
16.7 Other boards should be installed closely butted together using the same technique.

Adhesive dabs and batten installation

16.8 Pre-treated timber battens are fixed horizontally at ceiling level and 20 mm above the finished floor level.

16.9 Where necessary, the insulation component should be cut back at the top and bottom of the board to accommodate the timber battens. The insulation should also be cut back at external corners to accommodate adjoining panels.

Figure 2 Adhesive dab and batten installation



16.10 Adhesive dabs are applied to the back of the board, and continuous ribbons of adhesive are placed around any openings or service penetrations.

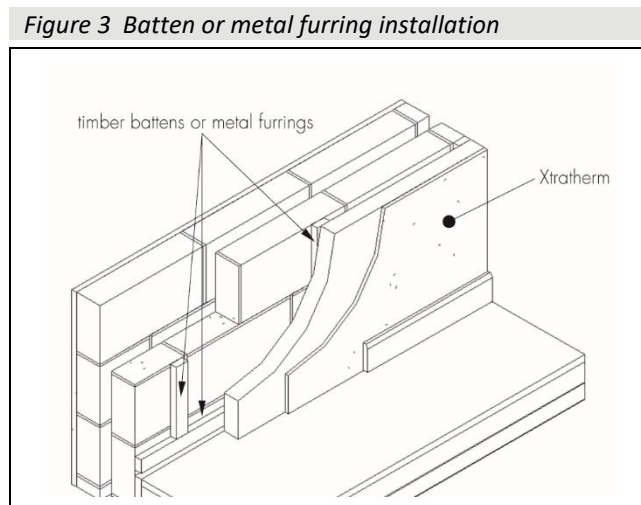
16.11 The board is placed onto the wall and positioned using wedges. Pressure is applied to level the board until it is firmly embedded into the adhesive.

16.12 The board is fixed to the top and bottom battens using screws placed at a minimum of 150 mm centres. Screws must be placed at least 12 mm from the edge of the board and they should penetrate a minimum of 25 mm into the timber batten. A minimum of three nailable plugs should be used per sheet.

Mechanical — batten or metal furrings installation

16.13 Pre-treated timber battens or metal furrings are fixed horizontally at ceiling level and 20 mm above the finished floor. Vertical timber or steel members should be fixed at a maximum of 600 mm centres and additional battens/metal furrings should be used to support all board edges. All openings should be trimmed with timber or metal furrings.

16.14 Care must be taken to ensure the battens/metal furrings are wide enough to offer a minimum of 20 mm support to all four edges of the plasterboard.



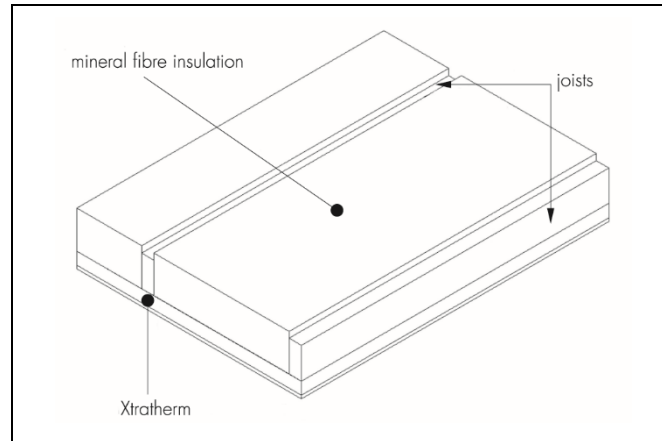
16.15 Where necessary, external corners of the insulation component of the board should be cut back to accommodate adjoining panels.

16.16 The board is placed onto the wall and positioned using wedges and is fixed to the battens using screws placed at a minimum of 150 mm centres. Screws must be placed at least 12 mm from the edge of the board and they should penetrate a minimum of 25 mm into the timber batten.

Ceiling installation

16.17 The product may be used to line horizontal or sloped ceilings. All four edges of the liners should be supported by rafters, joists or battens by at least 19 mm. This may necessitate the addition of timber noggings.

Figure 4 Ceiling installation



16.18 The board should be fixed using suitable large headed clout nails, sheradised nails or dry lining screws.

16.19 The board should be fixed to all the rafters at a minimum of 250 mm centres. Fixings should be at least 12 mm from the edge of the thermal liner and must penetrate a minimum of 25 mm into the timber.

Finishing

16.20 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.

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

Technical Investigations

17 Tests

Results of tests were assessed to determine:

- dimensional accuracy
- dimensional stability
- compressive strength
- thermal conductivity
- emissivity
- density
- water vapour transmission
- offset of the insulation over the plasterboard
- adhesion/cohesion of the insulating material
- soft body impact resistance
- hard body impact resistance.

18 Investigations

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

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

18.3 A series of U value calculations was carried out.

18.4 A condensation risk analysis was carried out.

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

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19 Conditions

19.1 This Certificate:

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

19.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

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

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

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

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

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

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