Xtratherm UK Ltd
Park Road
Holmewood Industrial Park
Holmewood
Chesterfield

Tel: 0371 2221033 Fax: 0371 2221044
e-mail: info@xtratherm.com
website: www.xtratherm.com

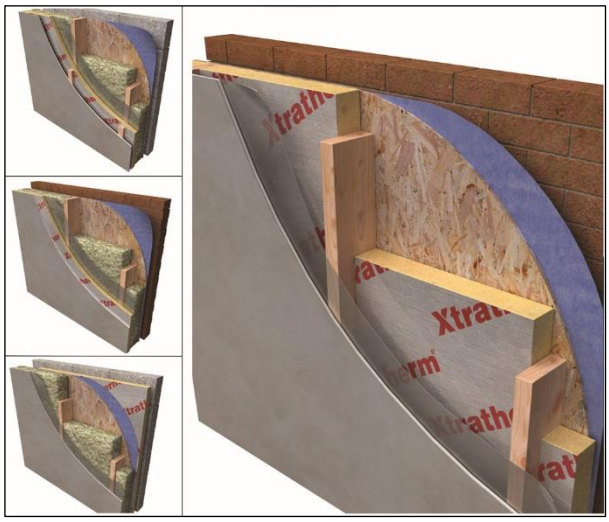
Agrément Certificate
08/4613
Product Sheet 1

XTRATHERM THIN-R INSULATION

XTRATHERM THIN-R TIMBER FRAME BOARD (XT/TF) AND (XT/TL) THERMAL LINER

This Agrément Certificate Product Sheet(1) relates to Xtratherm Thin-R Timber Frame Board (XT/TF) and Thermal Liner (XT/TL), rigid polyisocyanurate (PIR) foam boards with a composite foil facing on both sides. In addition, Thermal Liner (XT/TL) is bonded to 12.5mm plasterboard. The products are for use between studding, or as insulated lining or sheathing, in new or existing walls of conventional timber-frame dwellings up to 18 metres in height, with an external masonry leaf.

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

Condensation risk — the products can contribute to limiting the risk of condensation (see section 7).

Behaviour in relation to fire — the products have a 'No performance determined' reaction to fire rating and walls incorporating the products have been tested to BS 476-21 : 1987 (see section 8).

Water resistance — the products will resist water transfer across the cavity (see section 10).

Durability — the products are durable, rot proof and sufficiently stable to remain effective as insulation for the life of the building in which they are incorporated. (see section 14).

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 Third issue: 12 September 2017

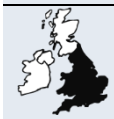
John Albon – Head of Approvals Construction Products

Claire Curtis-Thomas
Chief Executive

Originally certificated on 17 December 2008

Regulations

In the opinion of the BBA, Xtratherm Thin-R Timber Frame Board (XT/TF) and 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:	**B3(1)(4)**	**Internal fire spread (structure)**
Comment:		The products can contribute to satisfying this Requirement. See sections 8.1, 8.4 and 8.5 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The products can contribute to satisfying this Requirement. See section 10.1.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The products can contribute to satisfying this Requirement. See sections 7.1 and 7.4 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**	**Materials and workmanship**
Comment:		The products are acceptable. See section 14 and the *Installation* part of this Certificate.
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 consumption rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Comment:		The products can contribute to satisfying these Regulations; however, compensating fabric/services measures may be required. See section 6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Durability, workmanship and fitness of materials**
Comment:		The products are acceptable. See section 14 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	2.4	Cavities
Comment:		Use of the products is restricted under this Standard, with reference to clause 2.4.2(1). See section 8.3 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The products can contribute to satisfying this Standard, with reference to clause 2.6.1(1). See sections 8.1 and 8.2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The products can contribute to satisfying this Standard, with reference to clauses 3.10.1(1) and 3.10.3(1). See section 10.1 of this Certificate.
Standard:	3.15	Condensation
Comment:		The products 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 7.5 of this Certificate.

Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The products can contribute to satisfying this Standard, with reference to clauses, or parts of, 6.1.6(1), 6.2.1(1), 6.2.3(1), 6.2.9(1), 6.2.11(1). See section 6 of this Certificate.
Standard:	7.1(a)	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 7.1.4(1) [Aspects 1(1) and 2(1)], 7.1.6(1) [Aspects 1(1) and 2(1)] and 7.1.7(1) Aspect 1(1). See section 6 of this Certificate.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given to these products 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).

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

Regulation:	**23**	**Fitness of materials and workmanship**
Comment:		The products are acceptable. See section 14 and the *Installation* part of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The products can contribute to satisfying this Regulation. See section 10.1 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The products can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
Regulation:	**35(1)(4)**	**Internal fire spread — Structure**
		The products can contribute to satisfying this Regulation. See sections 8.1, 8.2 and 8.5 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Comment:		The products can contribute to satisfying these Regulations. See section 6 of this Certificate.

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

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

See sections: 3 *Delivery and site handling* (3.2 and 3.4) of this Certificate.

Additional Information

NHBC Standards 2017

In the opinion of the BBA, Xtratherm Thin-R Timber Frame Board (XT/TF) and Thermal Liner (XT/TL), if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 6.2 *External timber framed walls*, and Chapter 9.2 *Walls 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 13165 : 2012 for Xtratherm Thin-R Timber Frame Board XT/TF and BS EN 13950 : 2014 for XT/TL Thermal Liner. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

Description

1.1 Xtratherm Thin-R Timber Frame Board (XT/TF) and Thermal Liner (XT/TL) are rigid polyisocyanurate boards, faced on both sides with a composite foil facing. In addition, the XT/TL Thermal Liner is bonded to 12.5 mm plasterboard (type 1) to BS EN 520 : 2004.

1.2 The products are available with the nominal properties shown in Table 1.

Table 1 Nominal characteristics

Characteristics (units)	Application		
	Between studs(1)	Lining(1)(2)	Sheathing
Length(1) (mm)	2400	2400	1200
Width(1) (mm)	1200	1200	600
Thickness (mm)(1) (in 5 mm increments)	50 to 165	25 to 50	25 to 50
Core density (kg·m^{-3})	32	32	32
Edge detail	plain	plain	plain
Compressive strength* (kPa)	> 140	> 140	> 140

(1) Other sizes and thicknesses are available depending on quantity and lead time.
(2) Xtratherm XT/TL Thermal Liner insulation boards consist of 12.5 mm plasterboard laminated to the above thicknesses of polyisocyanurate insulation boards.

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 operated by the manufacturer are being maintained.

2.3 The management system of Xtratherm UK Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008, BS EN ISO 14001 : 2004 and OHSAS 18001: 2007, all by BRE (Certificates 718, 718EMS and 718-HS respectively).

3 Delivery and site handling

3.1 Xtratherm Thin-R Timber Frame Board XT/TF is delivered to site in polythene-wrapped packs, and the XT/TL Thermal Liner in wrapped polythene on pallets. Each pack contains a label bearing the manufacturer's name, board dimensions and the BBA logo incorporating the number of this Certificate.

3.2 The pallets should be mechanically unloaded and each XT/TL Thermal Liner board removed individually.

3.3 The products must be protected from prolonged exposure to sunlight, and stored dry, flat and raised above ground level (to avoid contact with ground moisture). Where possible, packs should be stored inside. If stored outside, the products should be under cover, or protected by opaque polythene sheeting.

3.4 The products must not be exposed to open 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 Timber Frame Board (XT/TF) and Thermal Liner (XT/TL).

Design Considerations

4 Use

4.1 Xtratherm Thin-R Timber Frame Board (XT/TF) and Thermal Liner (XT/TL) are suitable for use as insulation and are effective in reducing the U value (thermal transmittance) of external walls of timber-frame dwellings of up to 18 m in height and internal walls respectively. It is essential that such walls are designed and constructed to incorporate the normal precautions against moisture ingress, including the requirement for a minimum 50 mm residual cavity width and the incorporation of a breather membrane over the timber sheathing.

4.2 Buildings subject to the national Building Regulations should be designed and constructed in accordance with the relevant recommendations of:

- BS EN 1995-1-1 : 2004, BS EN 1996-1-1 : 2005 and BS EN 1996-2 : 2006 and their respective UK National Annexes
- BS EN 351-1 : 2007.

4.3 Masonry leaf constructions (which includes masonry units and natural stone blocks) should be in accordance with BS 1996-3 : 2006, BS EN 1996-1-2 : 2006 and BS EN 1996-2 : 2006.

4.4 It is recommended that services which penetrate the dry lining (eg light switches, power outlets) are kept to a minimum to limit damage to vapour checks. In addition, any penetrations should be enclosed in plasterboard, stone mineral wool or a suitably tested proprietary fire-rated system.

4.5 Xtratherm sheathing and lining applications can be used with a timber frame that also contains mineral fibre insulation between the studs.

4.6 Installation must not be carried out until the moisture content of the timber frame is less than 20%.

4.7 When used as insulated sheathing, the product will not contribute to the structural performance of the timber frame.

Residual cavity width for insulated sheathing (buildings up to 18 metres high)

4.8 The residual cavity width to be maintained during construction is 50 mm. This may reduce to 25 mm in isolated areas due to individual construction features (a minimum of 50 mm residual cavity width is required by the NHBC). This may be achieved by designing a cavity width which takes into account the dimensional tolerances of the components which make up the wall (by reference to the British Standards relating to the bricks, blocks and slabs), or by using the data from the respective manufacturers. Allowances may need to be made for the quality of the building operatives and the degree of site supervision or control available. The limitations in respect of exposure of the proposed buildings as set out in Table 2 must also be observed.

Table 2 Maximum allowable total exposure factors of different constructions

Construction	Maximum allowable exposure factor $E^{(1)}$
All external masonry walls protected by: rendering (to BS EN 13914-1 : 2016), tile or slate hanging, or timber, plastic or metal weatherboarding or cladding	No restriction
One or more external masonry walls constructed from facing clay brickwork, or natural stone, the porosity of which exceeds 20% by volume. Mortar joints must be flush pointed or weatherstruck	100
One or more external masonry walls constructed from calcium silicate bricks, concrete blocks, reconstituted stone, or natural stone, the porosity of which is less than 20% by volume, or any material with raked mortar joints	88

(1) To BS 5618 : 1985.

4.9 From ground level, the maximum height of continuous cavity walls must not exceed 12 metres; above 12 metres, the maximum height of continuous cavity walls must not exceed 7 metres. In both cases, breaks should be in the form of continuous horizontal cavity trays and weepholes discharging to the outside.

4.10 An external render coat or other suitable finish should be applied in locations where such application would be normal practice; care should be taken to ensure that the residual cavity is not bridged by mortar.

5 Practicability of installation

The products are designed to be installed by a competent general builder, or a contractor, experienced with these types of products.

6 Thermal performance

6.1 Calculations of the thermal transmittance (U value) should be carried out in accordance with BS EN ISO 6946 : 2007 and BRE Report BR 443 : 2006 using the following values:

- PIR insulation core – declared thermal conductivity* (λ_D) of 0.022 $W \cdot m^{-1} \cdot K^{-1}$
- Composite foil-facings – for unprinted facing, an aged emissivity (ε_D) to BS EN 15976 : 2011 of 0.05.

6.2 The U value of a completed wall will depend on the selected insulation thickness, the insulating value of the external substrate masonry and the internal wall finish. Calculated U values for example constructions are given in Table 3.

Table 3 Example U values for new-build timber-framed external cavity wall[(1)]

U values ($W \cdot m^{-2} \cdot K^{-1}$)	Stud size (mm)	Xtratherm between studs only[(1)] (mm)[(3)]	Mineral wool[(2)] between studs (mm)[(3)]	Xtratherm as lining[(1)] (mm)[(3)]	Xtratherm as sheathing[(1)] (mm)[(3)]
0.18	89	—	89	—	60
0.19	89	—	89	—	50
0.23	89	—	89	—	35
0.22	140	—	140	25	—
0.27	89	—	89	30	—
0.28	89	—	89	25	—
0.25	140	100	—	—	—
0.30	140	70	—	—	—
0.35	89	60	—	—	—

(1) Typical timber-frame construction comprising 102 mm brick leaf, 50 mm unventilated air cavity, 13 mm sheathing board, 15% timber studs, 12.5 mm plasterboard and 3 mm plaster.
(2) Mineral wool has not been assessed as part of this assessment (λ = 0.040 $W \cdot m^{-1} \cdot K^{-1}$).
(3) Nearest available thickness.

Junctions

6.3 The products can contribute to maintaining continuity of thermal insulation at junctions with other elements and 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 will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2011, Annexes D and G, and the relevant guidance.

7.2 The foil-facings have a water vapour resistance of 7000 $MN \cdot s \cdot g^{-1}$, and the insulation core has a water vapour resistivity of 300 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$ and, therefore, will provide a significant resistance to water vapour transmission. Joints between boards are taped for over-stud applications.

7.3 If the products are to be used in the external walls of rooms expected to have high humidity, care must be taken to provide adequate permanent ventilation to avoid possible problems from the formation of interstitial condensation in the internal wall leaf.

Surface condensation

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

7.5 For building in Scotland, walls will adequately limit the risk of surface condensation 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 Annex G. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.3 of this Certificate.

Insulated lining

7.6 XT/TF boards used in the insulated dry lining application can provide a significant resistance to water vapour transmission when all joints between boards are taped. The Certificate holder can advise on a suitable tape for this purpose.

Insulated sheathing

7.7 When used as insulated sheathing, the joints between the Xtratherm XT/TF, boards must not be taped.

8 Behaviour in relation to fire

8.1 The products are not classified as non-combustible or of limited combustibility and the Certificate holder has not declared a reaction to fire classification in accordance with BS EN 13501-1 : 2007. Their use in an external cavity wall is therefore restricted to up to 18 m in height.

8.2 A fire-resistance test was carried out in accordance with BS 476-21 : 1987 on a load bearing, timber stud wall system. An assessment considered the likely fire resistance of four systems (as described in section 8.3) as if they had been tested to 476-21 : 1987. The main points of the assessment highlighted that:

- all four systems are suitable for applications where a fire resistance of up to 30 minutes is required against the loadbearing capacity, integrity and insulation criteria of BS 476-21 : 1987 (for fire exposure from the inside, when subject to a total imposed load of 60 kN [10 kN load per stud])

- for loads greater than this, a qualified structural engineer can utilise the fire-resistance test report (to BS 476-21 : 1987) and the accompanying assessment to alter the design of the timber frame to ensure that the residual timber after 30 minutes will be adequate. The Certificate holder should be contacted for the reports (pertaining to the 4 systems).

- openings for doors and windows should be framed out and any exposed timber covered with at least one layer of plasterboard (see also section 4.4).

8.3 The four systems are:

System 1 — Xtratherm sheathing[(1)]

Construction of internal to external leaf:

- Type 1 plasterboard, 12.5 mm thick
- polythene vapour control layer (joints lapped and sealed with tape)
- 140 mm by 38 mm timber studs at maximum 600 mm centres, with cross noggings at 1200 mm centres, staggered by 600 mm between bays
- cavity between studs filled with 140 mm glass or stone mineral wool insulation
- OSB board, 9 mm thick
- breather membrane
- Xtratherm XT/TF sheathing board, 50 mm thick
- residual cavity, 50 mm
- masonry, 102 mm thick.

System 2 — Xtratherm lining and service void[(1)]

Construction of internal to external leaf:

- Type 1 plasterboard, 12.5 mm thick
- battens, 50 mm by 25 mm
- polythene vapour control layer (joints lapped and sealed with tape)
- Xtratherm XT/TF insulation, 40 mm thick
- 140 mm by 38 mm timber studs at maximum 600 mm centres, with cross noggings at 1200 mm centres, staggered by 600 mm between bays
- cavity between studs filled with 140 mm glass or stone mineral wool insulation
- OSB board, 9 mm thick
- breather membrane
- residual cavity, 50 mm
- masonry, 102 mm thick

System 3 — Over studs (as insulated dry lining)[(1)]

Construction of internal to external leaf:

- Mechanically fixed Xtratherm Thermal Liner XT/TL (MF) 30 mm thick, foil-faced PIR insulation bonded to 12.5 mm thick Type 1 plasterboard)
- polythene vapour control layer (joints lapped and sealed with tape)
- 140 mm by 38 mm timber studs at maximum 600 mm centres, with cross noggins at 1200 mm centres, staggered by 600 mm between bays

- cavity between studs filled with 140 mm glass or stone mineral wool insulation
- OSB board, 9 mm thick
- breather membrane
- residual cavity, 50 mm
- masonry, 102 mm thick

System 4 — Xtratherm between studs only(1)

Construction of internal to external leaf:

- Type 1 plasterboard, 12.5 mm thick
- polythene vapour control layer (joints lapped and sealed with tape)
- 140 mm by 38 mm timber studs at maximum 600 mm centres, with cross noggins at 1200 mm centres, staggered by 600 mm between bays
- cavity between studs filled with 80/90 mm Xtratherm XT/TF insulation
- OSB board, 9 mm thick
- breather membrane
- residual cavity, 50 mm
- masonry, 102 mm thick.

(1) Fixings.
  - plasterboard: Systems 1, 2 and 4 – 50 mm by 3.5 mm drywall screws at nominal 150 mm centres
  - thermal liner: System 3 — 85 mm by 4.1 mm drywall screws at nominal 150 mm centres to a fixing depth of 40 mm
  - OSB: System 1 — 25 mm by 3.5 mm cross-head screws at nominal 600 mm centres
  - OSB: Systems 2, 3 and 4 — 50 mm by 3.5 mm cross-head screws at nominal 600 centres
  - Xtratherm sheathing insulation: System 1 — clips on wall ties (minimum of three ties per square metre)
  - timber battens: System 2 – 4.1 mm cross head screws at nominal 300 mm centres to a fixing depth of 40 mm into the studs.

8.4 For buildings in Scotland, cavity barriers must be provided to comply with:

Mandatory Standard 2.4, clauses 2.4.1(1), 2.4.2(1) and 2.4.7(1).

(1) Technical Handbook (Domestic).

8.5 Cavity barriers must be provided to comply with:

Mandatory Standard 2.4, clauses 2.4.1(1), 2.4.2(1) and 2.4.7(1).

(1) Technical Handbook (Domestic).

9 Proximity of flues and appliances

When installing the products in close proximity to certain flue pipes and/or heat-producing appliances, the following provisions to the national Building Regulations are acceptable:

England and Wales — Approved Document J, sections 1 to 4
Scotland — Mandatory Standard 3.19, clauses 3.19.1(1) to 3.19.9(1)

(1) Technical Handbook (Domestic).

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

10 Water resistance

10.1 Constructions incorporating the products as insulated sheathing, and built in accordance with the Standards listed in section 4.2 of this Certificate, will resist the transfer of precipitation to the inner leaf and contribute to satisfying the requirements of the national Building Regulations.

10.2 In all situations it is particularly important to ensure during installation that:

- wall ties and fixings are installed correctly and are thoroughly clean
- excess mortar is cleaned from the cavity face of the brick leaf and any debris removed from the cavity
- mortar droppings are cleaned from the exposed edges of installed boards
- installation is carried out to the highest level on each wall or the top edge of the insulation is protected by a cavity tray
- at lintel level, a cavity tray, stop ends and weepholes must be provided
- raked or recessed mortar joints are avoided in very severe exposure areas.

11 De-rating of electrical cables

De-rating of electric cables should be considered in areas where the product restricts the flow of air. The use of suitable conduit or trunking is recommended.

12 Infestation

Use of the products does not in itself promote infestation. The creation of voids within the structure, (ie gaps between the wall lining and the boards) 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.

13 Maintenance

As the products are confined behind the wall lining and have suitable durability (see section 14), maintenance is not required. However, minor damage to the plasterboard component of the XT/TL Thermal Liner can be repaired in accordance with the Certificate holder's instructions.

14 Durability

The products are unaffected by the normal conditions in a wall and are durable, rot proof, water resistant and sufficiently stable to remain effective as insulation for the life of the building.

Installation

15 General

15.1 Installation of Xtratherm Thin-R Timber Frame Board (XT/TF) and Thermal Liner (XT/TL) must be in accordance with this Certificate, the relevant clauses of BS EN 1995-1-1 : 2004 and the Certificate holder's instructions.

15.2 The products are light to handle and can be cut easily using a fine-toothed saw. Care must be taken in handling to prevent damage, particularly at edges. Damaged boards should not be used although small areas of damaged faces may be repaired with self-adhesive aluminium foil-tape.

15.3 In all applications, a sealed polythene vapour control layer with a minimum thickness of 125 µm (500 gauge) and lapped and sealed joints is placed over the stud face, before the internal finish is applied.

16 Procedure

Between studs

16.1 The XT/TF product should be cut to fit tightly between the timber studding and positioned against the inner face of sheathing board. Any gaps should be filled with expanding insulation foam. The insulation is held in place by nails or timber battens to the warm side of the insulation.

16.2 The void created by space between the inner surface of the product and the dry lining can be utilised as an insulated service duct.

Over studs (as insulated dry lining)

16.3 Mineral wool insulation should be cut to fit snuggly between the timber studding.

16.4 The full depth of the stud should be filled with insulation.

16.5 The XT/TF product is temporarily fixed to the inner face of the timber studding, ensuring that the insulation makes contact or overlaps with ceiling and floor insulation.

16.6 The line of the timber studs is marked on the product to allow fixing of plasterboard.

16.7 The products are butted tightly against each other to prevent gaps and taped (see section 7.6 of this Certificate). To achieve an adequate bond, the boards should be thoroughly clean and free from any contamination.

16.8 The insulation is sealed at all service penetrations.

16.9 Plasterboard is fixed over the product and secured with conventional nails or screws of the appropriate length, and finished as normal.

Xtratherm lining and service void

16.10 The procedure starts in the same manner as for the over studs application (see sections 16.4 to 16.5).

16.11 The line of the timber studs is marked on the XT/TF product to allow fixing of counter battens.

16.12 The products should be butted tightly against each other to prevent gaps and taped as described in section 7.6 of this Certificate. To achieve an adequate bond, the boards should be thoroughly clean and free from any contamination.

16.13 Insulation is sealed at all service penetrations.

16.14 The counter batten should be fixed through the insulation to the timber studding, along the top and bottom of each board and around all openings (eg doors and windows).

16.15 Plasterboard is fixed to counter battens and secured with conventional nails or screws of the appropriate length, and finish as normal.

Over studs (or sheathing)

16.16 The procedure starts in the same manner as stated for over studs application (see sections 16.4 and 16.5).

16.17 Xtratherm XT/TF sheathing boards are fixed outside the breather membrane on the external surface and temporarily fixed with large-headed clout nails.

16.18 The products are closely butted and joints are staggered.

16.19 The outer face of the products must not be taped (boards are marked with same reference).

16.20 Ties securing the external leaf are fixed through the products to the studs and the sheathing is held in place by the retaining discs on the wall ties.

16.21 Internal finishes are applied as normal.

Technical Investigations

17 Investigations

An assessment was made of the results of test data on Xtratherm Thin-R Timber Frame Board (XT/TF) and Thermal Liner (XT/TL) relating to:

- water vapour resistance
- density
- thermal conductivity
- compressive strength
- dimensional accuracy
- dimensional stability with temperature and humidity
- condensation risk.

Bibliography

BS 476-21 : 1987 *Fire tests on building materials and structures — Methods for determination of the fire resistance of loadbearing elements of construction*

BS 5250 : 2011 *Code of practice for control of condensation in buildings*

BS 5618 : 1985 *Code of practice for thermal insulation of cavity walls (with masonry or concrete inner and outer leaves) by filling with urea-formaldehyde (UF) foam systems*

BS 7671 : 2008 *Requirements for Electrical Installations — IET Wiring Regulations*

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

BS EN 520 : 2004 *Gypsum plasterboards — Definitions, requirements and test methods*

BS EN 1995-1-1 : 2004 + A2 : 2014 *Eurocode 5: Design of timber structures — General — Common rules and rules for buildings*
NA to BS EN 1995-1-1 : 2004 + A1 : 2008 UK National Annex to *Eurocode 5: Design of timber structures — General — Common rules and rules for buildings*

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

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

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

BS EN 13914-1 : 2016 *Design, preparation and application of external rendering and internal plastering — External rendering*

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

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

BS EN ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

OHSAS 18001 : 2007 *Occupational health and safety management systems — Requirements*

18 Conditions

18.1 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 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.

18.2 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.

18.3 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.

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

18.5 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.

18.6 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.

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA

tel: 01923 665300
fax: 01923 665301
clientservices@bbacerts.co.uk
www.bbacerts.co.uk