Thin-R
High Performance PIR

System Approval

Thermal Conductivity

Extensive Range

High Performance PIR Wall Insulation Board

Walls

XT/TF
Insulation for Timber Framed Walls

Key Features

- High Thermal Performance
- Certified Thermal Conductivity as Low as 0.022W/mK
- Low Emissivity Foil Facings
- Dual Material System Approval
- HCFC/CFC free, GWP <5
- BRE Green Guide A+ Rated

BBA APPROVAL INSPECTION TESTING CERTIFICATION
08/4613

www.xtratherm.com

Xtratherm®
More than insulation

Thin-R | XT/TF Insulation for Timber Framed Walls

Xtratherm's Timber Frame Insulation Systems brings Timber Framed wall insulation performance to new levels, surpassing regulations default values and towards those standards indicated for Zero Carbon Fabric and Passive House Standards.

Building Timber Frame construction is a fast, systematic method that can result in buildings that perform well in Environmental terms and provide excellent Energy Performance ratings, if insulated to the highest standards.

Xtratherm Thin-R Polyisocyanurate is a thermoset closed cell rigid foam insulation that will deliver better thermal performance for timber framed constructions. Xtratherm Thin-R is a BRE Green Guide A+ rated insulation with a global warming potential (GWP) of less than 5. It also has full BBA certification.

U-values

The insulation performance of the building envelope, ie. wall, floor or roof is measured as a U-value, and is expressed as. Previous building regulation standards have quoted target U-values for walls of between 0.28 and 0.35 W/m2K, but recent changes have dispensed with issuing these target values and instead concentrate on 'Whole House Performance,' but the efficiency of the building fabric through efficient U-values, good detailing and airtightness remains the starting point for highly efficient construction.

Property & Units	
Density (Foam Core)	30 (Kg/m^3)
Compressive Strength	>140 (kPa)
Water Vapour Resistivity	>100 (MNs/gm)
Thermal Conductivity	0.022 (W/mK)
Service Temperature	-20 to 100°c
Surface Spread of Flame	Class 1

Xtratherm XT/TF	
Length (mm)	2400
Width (mm)	1200
Thickness (mm)	25, 30, 35, 40, 50, 60, 65, 70, 75, 90, 100, 110, 125, 150

Product Description

Xtratherm Thin-R XT/TF Timber Frame boards consists of a rigid Polyisocyanurate core and low emissivity gas tight aluminium foil facings on both sides. Xtratherm Thin-R XT/TL Thermal Liner is a composite insulated panel of Xtratherm Polyiso PIR core and low emissivity gas tight aluminium foil facing, bonded to plasterboard. Xtratherm XT/SB consists of a rigid Polyisocyanurate (Polyiso) core and low emissivity gas tight aluminium foil facings on both sides.

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Timber Framing & Lower U-Values

Placing insulation between the timber framing studding has proven effective until recent changes to building regulations have asked for U-values better than 0.27 W/m^{2}K. Improving the wall performance past this figure has proven difficult because of the amount of timber that bridges the insulation.
The timber studs, wall and foot plates, and noggins that cut through the insulation when it is placed between the studs, must be taken at a default of 15% of the total wall area, but can be higher in certain circumstances.

Layers	Thickness (mm)	Conductivity (W/mK)	Resistance (m2K/W)
Internal surface resistance	—	—	0.130
Plasterboard	13	0.180	0.069
Vapour control layer	1	000	0.000
Glass fibre/wood quilt between studs	140	0.044	2.527
Plywood sheathing	12	0.130	0.092
Breather membrane	1	000	0.000
Cavity unventilated	50	—	0.180
Concrete block (heavyweight)	100	1.150	0.087
External rendering (cement/sand)	19	0.570	0.033
External surface resistance	—	—	0.040
			U-value (W/m2K) 0.31

Upper/lower resistance 3.265 / 3.159 W/m2K

Correction for air gaps / mechanical fasteners 0.000 W/m2K

Glass fibre/wool quilt between studs

Is there repeating thermal bridging? Yes

Bridging conductivity [W/m K] 0.12

Bridging material studs

Bridging thickness [mm] 140

Fractional area of bridging [-] 0.15%

Correction for air gaps Air gaps present but no air circulation

Correction for mechanical fasteners Not applicable

Timber Framing & Lower U-values

Because of the restriction that stud depth presents, the only pragmatic solution to pushing timber frame wall performance toward 0.20 W/m2K is to actually insulate the thermal bridges (Timber studs) with either internal insulated lining or externally with an insulated sheathing board in the traditional cavity.

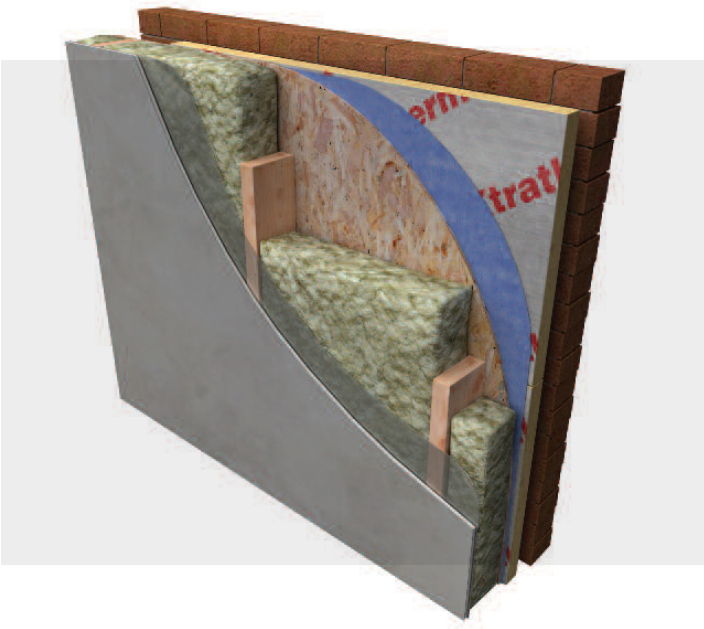
In the above example an additional 30mm of Xtratherm applied as an insulated sheathing improves the U-value to 0.20 W/m2K exactly. To achieve this U-value in the same example using fibre, the studs would have to be increased to 250mm.

The BRE with the support of Xtratherm have published a paper Insulation of Timber-Framed Construction - SD7, based on the constructions outlined in this publication the addition of Xtratherm PIR can help you achieve a very efficient 0.14 W/m2K. For your copy, please contact Xtratherm Technical Support.

Thin-R | XT/TF Insulation for Timber Framed Walls

1 System 1
Fibre between studs with Xtratherm Sheathing

Using a fibrous glass or stonewool type of material between studs is the most common method of insulating Timber Framed constructions. Although not as efficient in insulation values, the flexibility of the materials allows the insulation to be squeezed between studs with irregular spacings. Placing a lining of Xtratherm XT/SB Sheathing Boards into the traditional cavity of the construction, and effectively insulating the thermal bridging caused by the timber studding, drastically improves the insulation value of the walls.



Dimensions	Xtratherm XT/SB
Length (mm)	1200
Width (mm)	600
Thickness (mm)	30, 40, 50

Other sizes and thicknesses available depending on quantity and lead time.

Installation

Glass fibre insulation should be cut to fit snugly between the timber studding.

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

Place a sealed vapour control layer with lapped and sealed joints over the stud face.

Install cavity barriers into the cavity as normal practice.

Fix the Xtratherm XT/SB sheathing board outside the breather membrane on the external surface and temporarily fix with large headed clout nails.

Ensure boards are closely butted and stagger jointed.

DO NOT TAPE THE OUTER FACE OF THE XTRATHERM SHEATHING BOARDS

Apply the internal finish as normal.

Fix wall ties as recommended by timber frame supplier.

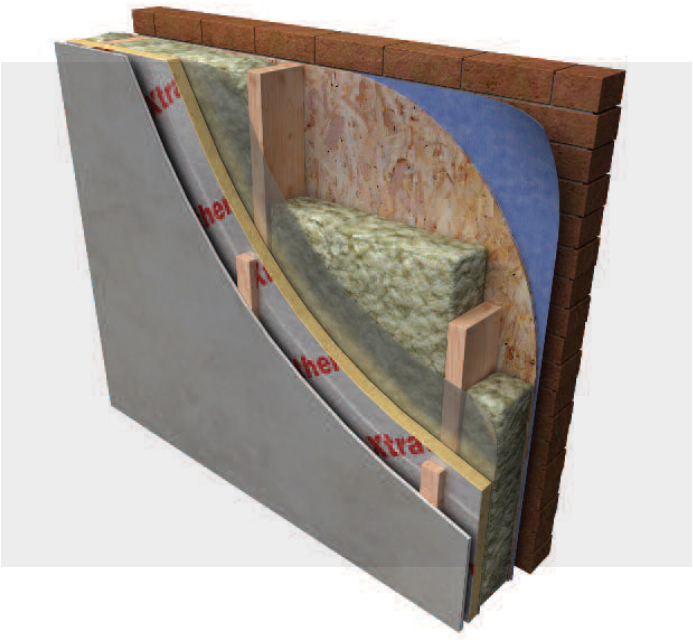
Relevant accredited details should be followed to ensure calculated performance.

The timber frame insulation shall be Xtratherm Thin-R XT/SB Zero ODP …….. mm thick manufactured to EN ISO 9001: 2000 by Xtratherm comprising a CFC/HCFC free rigid Polyisocyanurate (PIR) core between low emissivity foil facings. The timber frame insulation shall be installed in accordance with instructions issued by Xtratherm. Refer to NBS clause F30 151, K10 14, K10 205, P10 210.

Xtratherm®
More than insulation

2 System 2
Fibre between studs with Xtratherm Sheathing

As with system 1, using a fibrous glass or stonewool type of material between studs allows the insulation to be squeezed between studs with irregular spacings. An alternative to applying a Sheathing Insulation into the cavity to improve the thermal bridging factor of the timber, is to place a lining of Xtratherm XT/TF over the studding to the inside face of the construction, thus improving the insulation value of the wall. An insulated service duct can be created by placing counterbattens between the Xtratherm and plasterboard finish allowing services to be placed without compromising the integrity of the vapour control layer and enhancing the air tightness.



Dimensions	Xtratherm XT/TF
Length (mm)	2400
Width (mm)	1200
Thickness (mm)	30, 40, 50

Other sizes and thicknesses available depending on quantity and lead time.

Installation

Glass fibre insulation should be cut to fit snugly between the timber studding.

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

Place a sealed vapour control layer with lapped and sealed joints over the stud face.

Temporarily fix the Xtratherm XT/TF board to the inner face of the timber studding ensuring that the insulation makes contact or over laps with ceiling and floor insulation.

Mark the line of the timber studs on the Xtratherm XT/TF boards to allow fixing of counterbatten.

Boards should be butted tightly against each other to prevent gaps, and tape joints with aluminium tape.

Taping the joints with aluminium tape provides and effective vapour control layer and excellent air permeability barrier.

Seal the insulation at all service penetrations.

Fix counterbatten through the insulation to the timber studding and ensure that battens along the top and bottom of each sheet and around all openings (doors, windows etc).

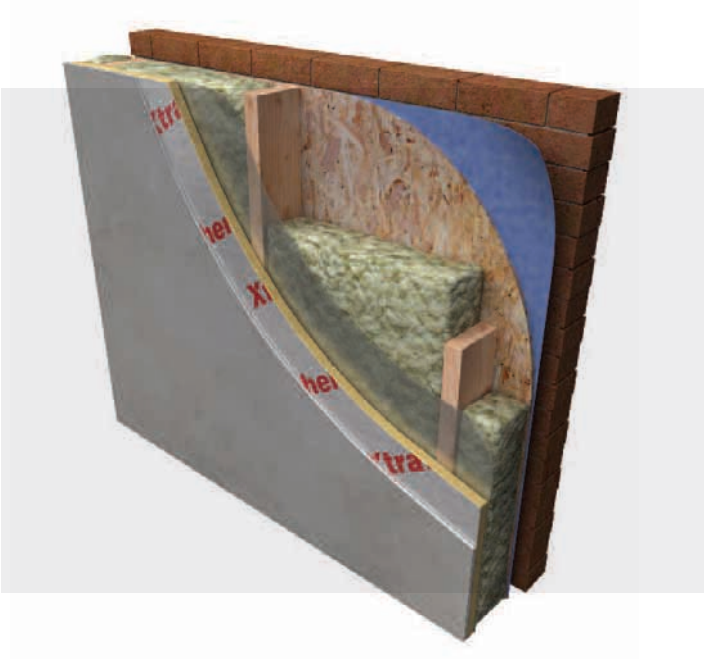
Fix plasterboard to counterbattens and secure with approved nails or screws to the appropriate length, finish as normal.

Relevant accredited details should be followed to ensure calculated performance.

The timber frame insulation shall be Xtratherm Thin-R XT/TF Zero ODP.....mm thick manufactured to EN ISO 9001: 2000 by Xtratherm comprising a CFC/HCFC free rigid Polyisocyanurate (PIR) core between low emissivity foil facings. The timber frame insulation shall be installed in accordance with instructions issued by Xtratherm. Refer to NBS clause F30 151, K10 14, K10 205, P10 210.

3 System 3
Fibre between studs with Xtratherm Lining

As with systems 1 & 2, using a fibrous glass or stonewool type of material between studs allows the insulation to be squeezed between studs with irregular spacings. An alternative insulation lining system to improve the thermal bridging factor of the timber, is to place a lining of Xtratherm over the studding to the inside face of the construction.



Dimensions	Xtratherm XT/TF
Length (mm)	2400
Width (mm)	1200
Thickness (mm)	30, 40, 50

Other sizes and thicknesses available depending on quantity and lead time.

Installation

Fibrous insulation should be cut to fit snugly between the timber studding.

The full depth of the stud should be filled with insulation. Place a sealed vapour control layer with lapped and sealed joints over the stud face.

Temporarily fix the Xtratherm XT/TF board to the inner face of the timber studding ensuring that the insulation makes contact or overlaps with ceiling and floor insulation.

Mark the line of the timber studs on the Xtratherm XT/TF boards to allow fixing of plasterboard.

Boards should be butted tightly against each other to prevent gaps. Taping the joints with aluminium tape provides an effective vapour control layer and excellent air permeability barrier.

Seal the insulation at all service penetrations.

Fix plasterboard over the Xtratherm XT/TF board and secure with approved nails or screws to the appropriate length, and finish as normal.

Alternatively, Xtratherm XT/TL Thermal laminate may be placed over the timber studding onto which a vapour control layer of 1000g polythene with fully lapped and sealed and joints has been installed, providing insulation and plasterboard in one fixing operation.

Relevant accredited details should be followed to ensure calculated performance.

The timber frame insulation shall be full fill fibre between studs with Xtratherm Thin-R XT/TF Liner Zero ODP.....mm thick manufactured to EN ISO 9001: 2000 by Xtratherm comprising a CFC/HCFC free rigid Polyisocyanurate (PIR) core between low emissivity foil facings. The timber frame insulation shall be installed in accordance with instructions issued by Xtratherm. Refer to NBS clause F30 151, K10 14, K10 205, P10 210.

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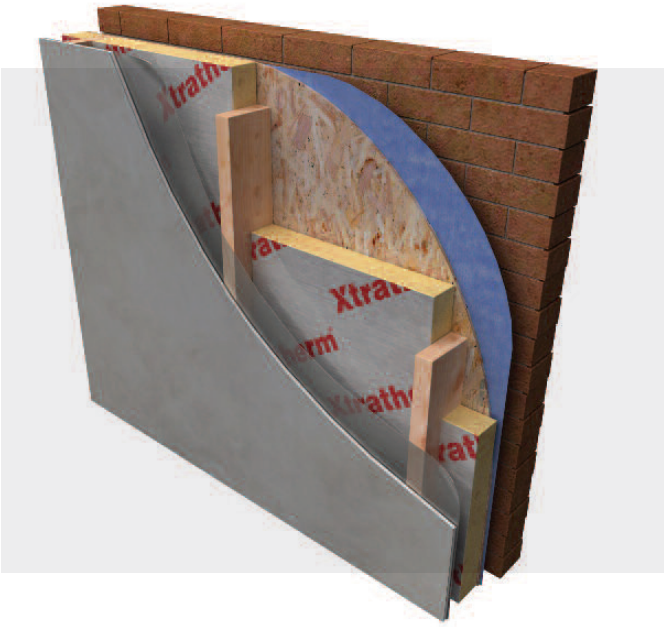
4 System 4
Xtratherm between studs only

The traditional method of insulating Timber Framed walls is to provide insulation between the studs only. Typically 80mm of Xtratherm XT/TF will achieve a U-value of 0.27W/m^{2}K.



Dimensions	Xtratherm XT/TF
Length (mm)	2400
Width (mm)	1200
Thickness (mm)	75, 80, 90, 100, 125

Other sizes and thicknesses available depending on quantity and lead time.

Installation

Xtratherm XT/TF boards should be cut to fit tightly between the timber studding.

The Xtratherm should be positioned against the sheathing board.

The boards should be held in place by nails or a timber batten to the warm side of the insulation.

This void may be utilised as an insulated service duct.

Place a sealed vapour control layer with lapped and sealed joints over the stud face before applying the internal finish.

Relevant accredited details should be followed to ensure calculated performance.

Standards

Xtratherm Thin-R range is manufactured to EN ISO 13165 under quality systems approved to EN ISO 9001:2008 Quality Management, EN ISO 14001:2004 Environmental Management and BS OHSAS 18001 Health and Safety Management System.

Storage

Xtratherm Thin-R should be stored off the ground, on a clean, flat surface and must be stored under cover. The polythene wrapping is not considered adequate protection for outside exposure.

Cutting

Xtratherm Thin-R can be readily cut using a sharp knife or fine toothed saw. Ensure tight fitting of the insulation boards to achieve continuity of insulation as asked for in accredited details.

Packaging

Xtratherm Thin-R is wrapped in polythene packs and each pack is labelled with details of grade/type, size and number of pieces per pack.

Availability

Xtratherm products are available through builder s merchants and specialist distributors throughout the UK and Ireland. For the location of your nearest stockist contact Xtratherm.

Environmental

Xtratherm Thin-R is manufactured under ISO 14001:2004 Environmental Management with all major components sourced under 14001 accredited suppliers. It is manufactured without the use of CFC's or HCFC's and has Zero Ozone Depletion Potential with a GWP of less than 5. Thin-R has been awarded an A+ Rating under the BRE Green Guide.

Durability

Xtratherm Thin-R products are stable, rot proof and will remain effective for the life span of the building, dependent on specification and installation. Care should be taken to avoid contact with acids, petrol, alkalis and mineral oil, when contact is made, clean materials in a safe manner before installation. Solvent based adhesive containing methyl ethyl keytone, should not be used.

The timber frame insulation shall be Xtratherm Thin-R XT/TF Zero ODP.....mm thick manufactured to EN ISO 9001: 2000 by Xtratherm comprising a CFC/HCFC free rigid Polyisocyanurate (PIR) core between low emissivity foil facings. The timber frame insulation shall be installed in accordance with instructions issued by Xtratherm. Refer to NBS clause F30 151, K10 14, K10 205, P10 210.

Thin-R

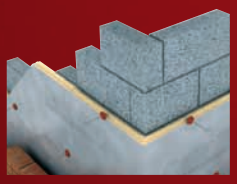
High Performance PIR

Xtratherm Technical Services

All the members of our technical team are individually BBA accredited to help you reach your low energy goals. BBA qualified in U-value calculation, condensation risk and also Thermal Bridging 3D analysis backed by BRE accreditation – when you call Xtratherm, you can be assured you're speaking to a qualified person.

XT/CW (T&G)

Walls:
Insulation for Partial Fill Cavity Wall



XT/CWP

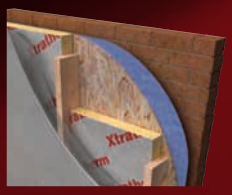
Walls:
Insulation with enhanced performance for Partial Fill Cavity Walls

XT/TL

Walls:
Insulation for Drylining walls Fixed with Adhesive Dabs

XT/TL-MF

Walls:
Insulation for Drylining walls Mechanically Fixed to Battens



XT/TF

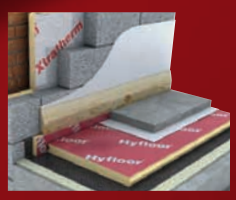
Walls:
Insulation for Timber Framed Walls

CT/PIR

Walls:
Full Fill Built-in Insulation for Traditional Build

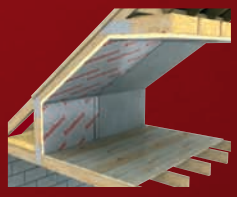
XT/UF

Floors:
Insulation for Ground Supported and Suspended Floors



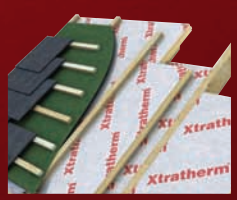
XT/HYF

Floors:
Insulation for Ground Supported and Suspended Floors with Engineered Jointing.



XT/PR

Roofs:
Insulation for Pitched Roofs



XT/SK

Roofs:
Insulation for Sarking (Warm Roof) Constructions with Engineered Jointing

Rigid Insulation

Flexible Solutions

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