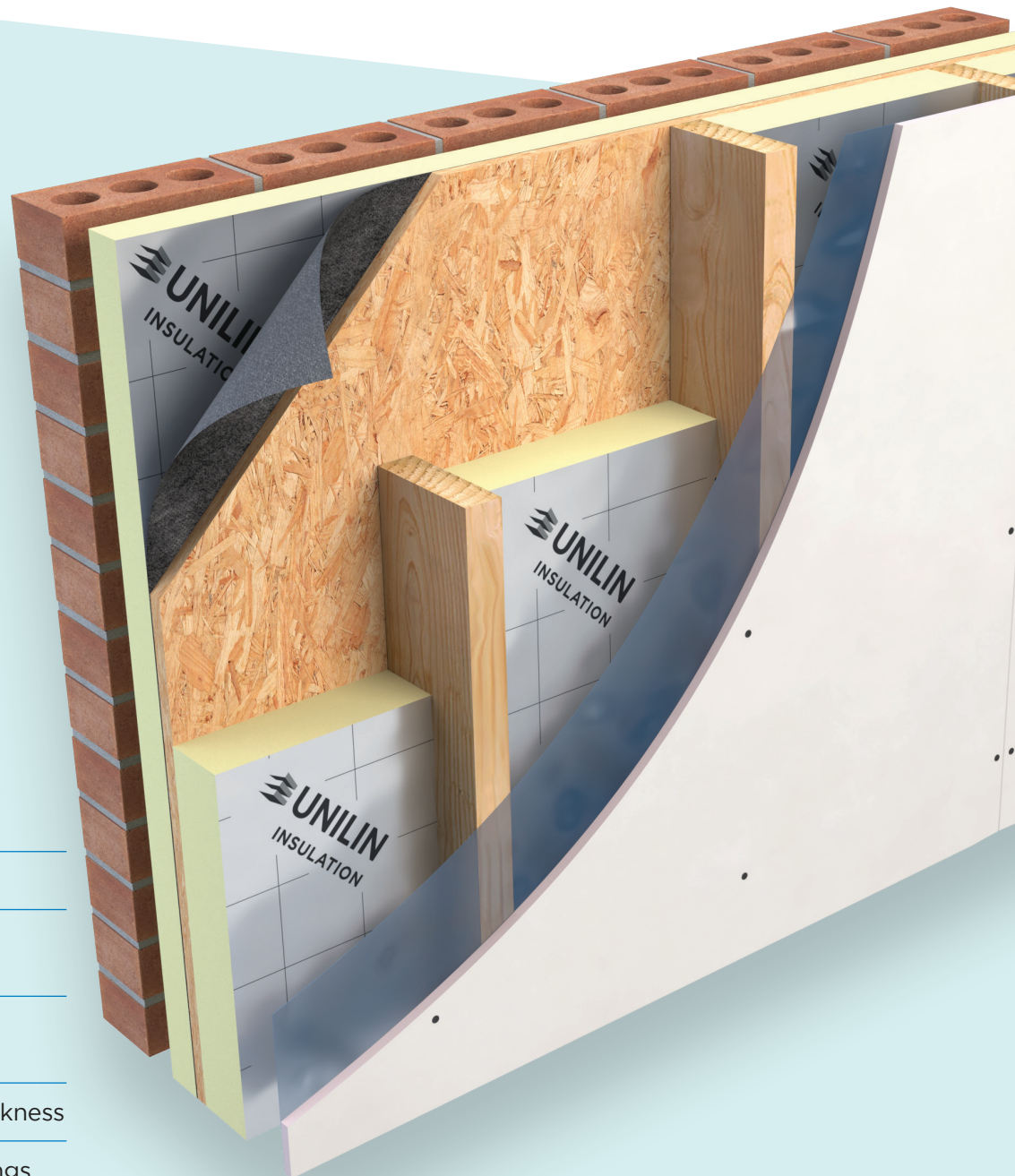


# THIN-R PIR INSULATION

## Timber Framed Walls

XT/TF



Rapid build system

Approved for use  
with fibre in stud

Suitable for new build  
and renovation

Reduced insulation thickness

Low emissivity foil facings



**THIN-R** PIR  
INSULATION

## Timber Framed Walls

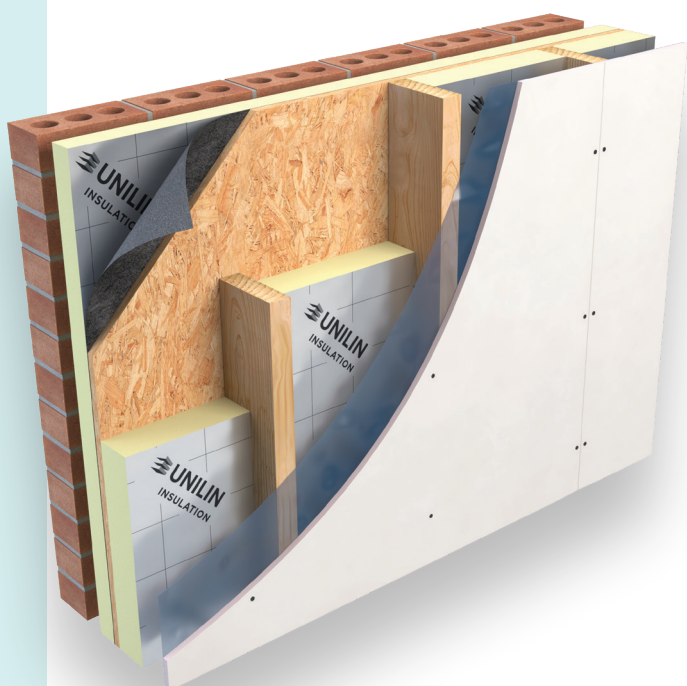
## XT/TF

Timber Frame construction is a fast, systematic method that results in high performing buildings with regard to energy efficiency in environmental terms.

Unilin's **Timber Frame Systems** bring timber framed wall insulation performance to new levels, surpassing the default values asked for in current building regulations. Using XT/TF in timber framed walls helps achieve NZEB fabric standards and Passive House Standards.

**Benefits**

- Rapid build system
- Approved for use with fibre in stud
- Suitable for new build and renovation
- Reduced insulation thickness
- Low emissivity foil facings

**Specification Clause**

The wall insulation shall be Thin-R XT/TF manufactured to EN 13165 by Unilin Insulation, comprising of a rigid Polyisocyanurate (PIR) core between low emissivity foil facings. The Thin-R XT/TF \_\_\_mm with a Agrément declared Lambda value of 0.022 W/mK to achieve a U-Value of \_\_\_ W/m<sup>2</sup>K for the timber frame wall element. To be installed in accordance with instructions issued by Unilin Insulation.

An Environmental Product Declaration (EPD), certified by IGBC is available for this product. Please contact technical support for further details.



Refer to NBS clause F30 155, K10 15, K10 205, F30 12, K10 245, K10 25, P10 180, P10 40.

**Thermal Resistances**

Thickness (mm)	R-Value (m <sup>2</sup> K/W)
25	1.10
40	1.80
50	2.25
60	2.70
80	3.60
100	4.50
125	5.65

**Resistance 'R' Values**

The resistance value of any thickness of Unilin insulation can be ascertained by simply dividing the thickness of the material (in metres) by its Agrément declared lambda value, for example: Lambda 0.022 W/mk and thickness 50mm -> 0.050/ 0.022 -> R-Value = 2.25. In accordance with EN 13165, R-Values should be rounded down to the nearest 0.05 (m<sup>2</sup>K/W).



WALLS

## XT/TF

### Fabric First Approach

Building Regulations now concentrate on 'Whole House Performance'. Using Timber Frame will improve the efficiency of the building fabric, delivering excellent U-Values. Good detailing and attention to air tightness will also contribute to highly efficient constructions.

### Timber Framing & Lower U-Values

Due to the restriction that the stud depth presents, the only pragmatic solution to pushing timber frame wall performance towards NZEB fabric standards and Passive House Levels is to insulate the thermal bridge created by the timber studs. This can be achieved by either insulating internally or externally with XT/TF in a traditional cavity.

### Low Emissivity Foil Facings

The low emissivity foil facing on this board improves the thermal performance of the wall.

### White Paper

The BRE, with the support of Unilin, have published "SD 7 Insulation of timber-frame construction". Based on the constructions outlined in this publication, XT/TF can help you achieve U-Values as low as 0.14 W/m<sup>2</sup>K within a traditional timber frame construction.

### U-Values

The calculation of U-Values have been done in accordance with BR443 "Conventions for U-Value calculation".

Due to large variations of construction methods in timber frame wall systems, please contact our Unilin Technical Team for U-Value calculations.

### XT/TF

Length (mm)	2400
Width (mm)	1200
Thickness (mm)	25, 30, 40, 50, 60, 70, 75, 80, 90, 100, 110, 125, 150

Other thicknesses may be available depending on minimum order quantity and lead time.

### Property & Units

Thermal Conductivity	0.022 (W/mK)
Compressive Strength	>140(kPa)
Reaction to Fire	NPD

Unilin CE Declaration of Performance (DoP) for this product is available for download from our website.



**Download the report**

<https://www.thenbs.com/PublicationIndex/documents/details?Pub=BRE&DocID=287354>

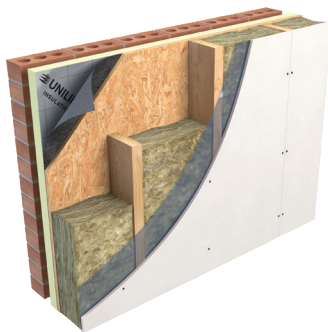
# INSTALLATION GUIDELINES

## XT/TF

Unilin Timber Frame Boards can be used either between timber studs or as an external or internal lining that effectively reduces Thermal Bridging and delivers improved U-Values.

### System 1

Fibre or XT/TF between studs with Unilin Sheathing (External). Using a glass fibre material between studs is the most common method of insulating Timber Framed constructions whereby the flexibility of the materials allows the insulation to be squeezed between studs with irregular spacings. Placing a lining of Timber Frame as a sheathing board into the traditional cavity of the construction and effectively insulating the Thermal Bridging caused by the timber studding, improves the insulation value of the walls.

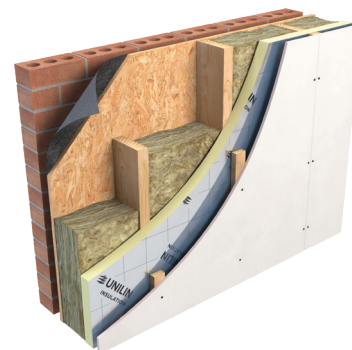


1. Cut insulation to fit snugly between the timber studding. Typically the full depth of the stud should be filled with insulation.
2. Mechanically fasten OSB or plywood sheathing to the outside face of the timber frame
3. A breather membrane should be fitted, refer to manufacturer's Agrément certification.
4. Fix the XT/TF 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 joints on the outer face.
5. Install cavity barriers into the cavity as per normal practice.
6. Place a sealed vapour control layer (VCL) with lapped and sealed joints over the stud face.

7. Fix plasterboard with drylining screws or large-headed galvanized clout nails. Screw fix every 150mm, 12mm from edge of boards ensuring a minimum 25mm penetration into the frame or alternatively follow plasterboard manufacturer installation guidance. Finish wall construction as normal.

### System 2

Fibre or XT/TF between studs with Unilin PIR sheathing (Internal). As with System 1, using a glass fibre material between the studs allows the insulation to be squeezed snugly between studs with irregular spacings. An alternative to applying a sheathing insulation in the cavity is to place a lining of Unilin Timber Frame over the studding to the inside face of the construction. An insulated service duct can be created by placing counter battens between the insulation and the plasterboard finish, allowing services to be placed without compromising the integrity of the vapour control layer and enhancing the air tightness.



1. Cut glass fibre or Unilin PIR insulation to fit snugly between the timber studding. Typically the full depth of the stud should be filled with insulation.
2. Temporarily fix XT/TF to the inner face of the timber studding with large headed clout nails. Ensure boards

## XT/TF

are closely butted and stagger jointed and that the insulation makes contact, or overlaps with, ceiling and floor insulation.

3. Place a sealed vapour control layer (VCL) with lapped and sealed joints over the insulation face. Alternatively taping the joints with aluminium tape provides an effective VCL and excellent air permeability barrier. Seal the insulation at all service penetrations.
4. Mark the line of the timber studs on the boards to allow fixing of counterbatten.
5. Fix counterbatten through the insulation to the timber studding and ensure that battens are continuous along the top and bottom of each sheet and around all openings (doors, windows etc.).
6. Fix plasterboard with drylining screws or large-headed galvanized clout nails. Screw fix every 150mm, 12mm from edge of boards ensuring a minimum 25mm penetration into the frame or alternatively follow plasterboard manufacturer installations guidance. Finish wall construction as normal.
7. Mechanically fasten OSB or plywood sheathing to the outside face of the timber frame.
8. A breather membrane should be fitted, refer to manufacturer's Agrément certification. Finish wall construction as normal.

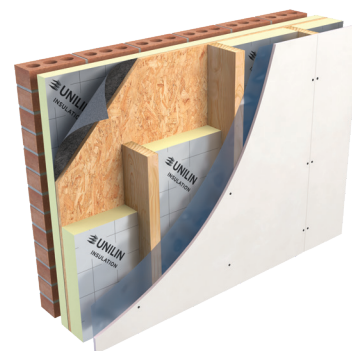
### System 3

Fibre or XT/TF between studs with Unilin PIR Lining. An alternative insulation lining system is to place a lining of Unilin over the studding to the inside face of the construction.

1. Cut insulation to fit snugly between the timber studding. Typically the full depth of the stud would be filled with insulation.
2. Place a sealed vapour control layer (VCL) with lapped and sealed joints over the stud face.
3. Temporarily fix insulation to the inner

face of the timber studding with large headed clout nails. Ensure boards are closely butted and stagger jointed and that the insulation makes contact, or overlaps with, ceiling and floor insulation.

4. Taping the joints with aluminium tape provides an effective VCL and excellent air permeability barrier. Seal the insulation at all service penetrations.
5. Mark the line of the timber studs on the installation boards to allow fixing of plasterboard.
6. Fix plasterboard with drylining screws. Screw fix every 150mm, 12mm from edge of boards ensuring a minimum 25mm penetration into the frame or alternatively follow plasterboard manufacturer installations guidance. Finish wall construction as normal.
7. Mechanically fasten OSB or plywood sheathing to the outside face of the timber frame.
8. A breather membrane should be fitted. Refer to manufacturer's Agrément certification. Finish wall construction as normal.
9. Alternatively, place Unilin Thermal Liner drylining board over the timber studding, providing insulation and plasterboard in one fixing operation. For further guidance please see the Unilin XT/TL MF literature.



## HANDLING, CUTTING & STORAGE

Unilin insulation 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. Care should be taken to protect the insulation in storage and during the build process.


The insulation boards 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 within the ACDs. Appropriate PPE should be worn when handling insulation. Please refer to Health & Safety data sheets on our website.

The boards are wrapped in polythene packs and each pack is labelled with details of grade/type, size and number of pieces per pack.

### Durability

Unilin Insulation products are stable, rot proof, provide no food value to vermin and will remain effective for the lifetime 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.





# Expect more Knowledge

Unilin Insulation, formerly Xtratherm, is one of Ireland's largest manufacturers and suppliers of insulation. We have a 30 plus year history of working in partnership with construction professionals to close the gap between design and as-built performance.

Higher standards of fabric performance call for greater adherence to best practice detailing. To achieve this and to 'close the gap' between design and build, we provide a dedicated Technical Team, all qualified to the highest standards of competency in U-Value calculation and condensation risk analysis.

#### Here to support you

- BRE listed Thermal Bridging Detailing
- BRE/NSAI Trained Modelling
- BBA/TIMSA calculation competent
- Warranted Calculations available
- Immediate technical response
- DEAP Qualified
- Insulation systems to deliver real onsite performance

#### Get in touch

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**FREE**  
One-to-one  
advice



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### The Sustainable Solution

Specifying Unilin Insulation is a real commitment to minimising energy consumption, harmful CO<sub>2</sub> emissions and their impact on the environment. Using our products is one of the most effective ways to reduce energy consumption – in fact, after just eight months the energy they save far outweighs the energy used in their production. In addition, our manufacturing facilities operate to an ISO 14001 certified Environmental Management System.

### Environmental Product Declaration (EPD)

An Environmental Product Declaration or EPD for a construction product indicates a transparent, robust and credible step in the pursuit and achievement of real sustainability in practice, it is a public declaration of the environmental impacts associated with specified life cycle stages of that product. Unilin EPDs have been independently verified in accordance with EN 15804+A2:2019 and ISO 14025 accounting for stages of the LCA from A1 to A3, with options A4-A5 and modules C1-C4 and D included. The process of creating an EPD allows us to improve performance and reduce resource wastage through improvements in product design and manufacturing efficiency. They play a crucial role in manufacturing and construction and are increasingly asked for by industry.

### EPDs and BREEAM

BREEAM is primarily trying to encourage designers to take EPDs into consideration when specifying products. BREEAM requires EPDs to be verified by a third-party. For the Mat O2 category, points are awarded based on whether EPDs are generic, manufacturer-specific, or product-specific. Non 3rd party verified EPDs to EN 15804 cannot be accepted. All of Unilin EPDs are externally verified.

### Responsible Sourcing

Unilin has BES 6001 certification for responsible sourcing. The second BREEAM credit under that category is based on responsibly-sourced materials – at least 80% of the total insulation used in roofs, walls, ground floors and services must meet any of tier levels 1 to 6 in the BREEAM table of certification schemes. Our Environmental Management System is certified under EN ISO 14001, and our raw materials come from companies with similarly certified EMS (copies of all certificates are available for BREEAM assessments). This level of responsible sourcing meets tier level 6 in the BREEAM table.

Good workmanship and appropriate site procedures are necessary to achieve expected thermal and airtightness performance. Installation should be undertaken by professional tradespersons. The example calculations are indicative only, for specific U-Value calculations contact Unilin Insulation Technical Support. Unilin technical literature, Agrément certifications and Declarations of Performance are available for download on the Unilin Insulation website. The information contained in this publication is, to the best of our knowledge, true and accurate at the time of publication but any recommendations or suggestions which may be made are without guarantee since the conditions of use are beyond our control. Updated resources may be available on our websites. All images and content within this publication remain the property of Unilin Insulation.



ISO 9001 Quality Management Systems  
ISO 14001 Environmental Management Systems