

# THIN-R<sup>PIR</sup> INSULATION

## Partial Fill Cavity Walls

### XT/CW (T&G)

Robust tongue  
and groove jointing

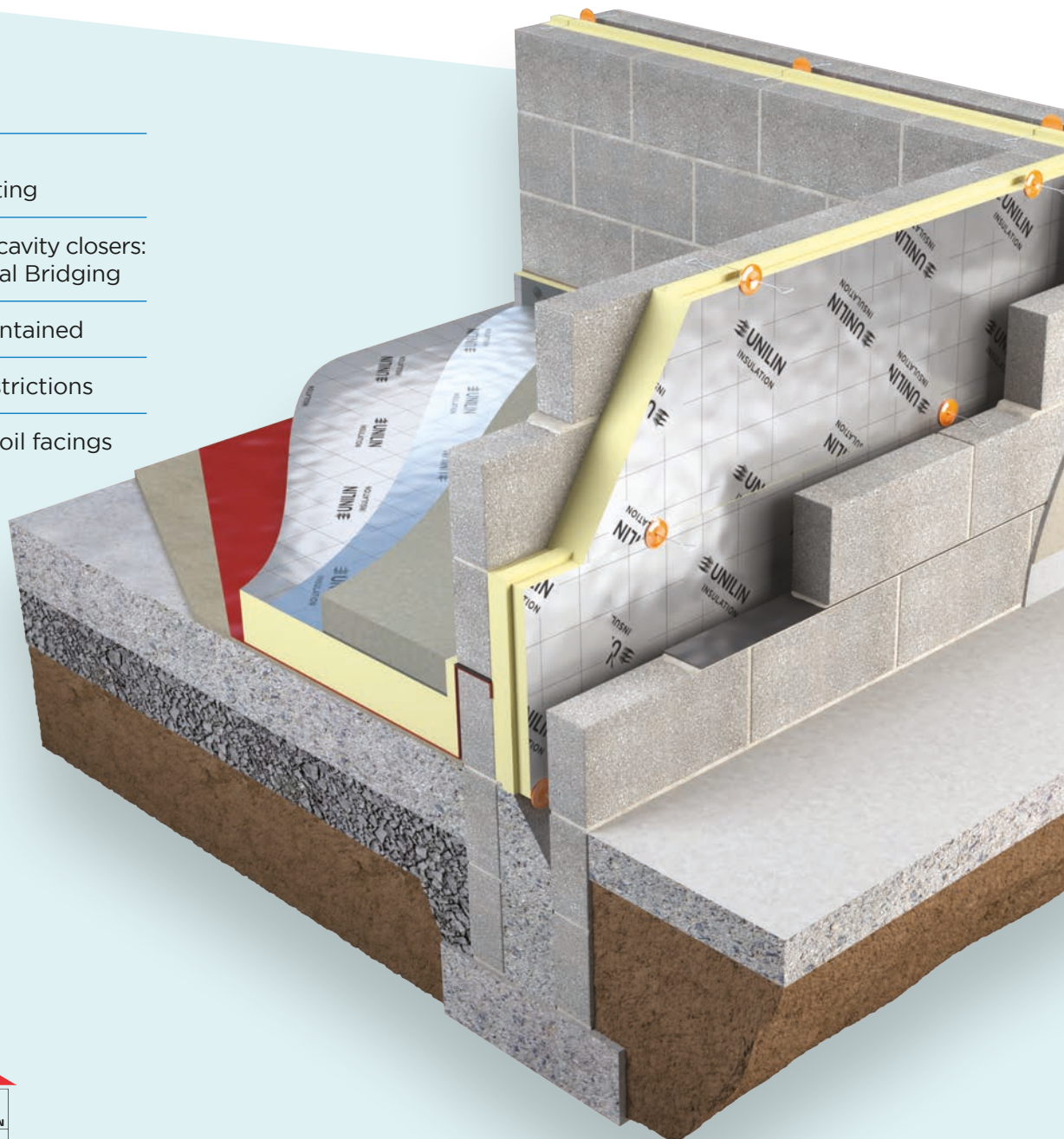
Corner panels & cavity closers:  
Reduced Thermal Bridging

Clear cavity maintained

No exposure restrictions

Low emissivity foil facings

Straight edge profile  
is also available



**THIN-R** PIR  
INSULATION

## Partial Fill Cavity Walls

## XT/CW (T&amp;G)

**Thin-R Partial Fill Cavity Wall (T&G)**

builds to a system thanks to its engineered tongue and grooved joints and pre-formed corners, ensuring insulation continuity and minimisation of Thermal Bridging.

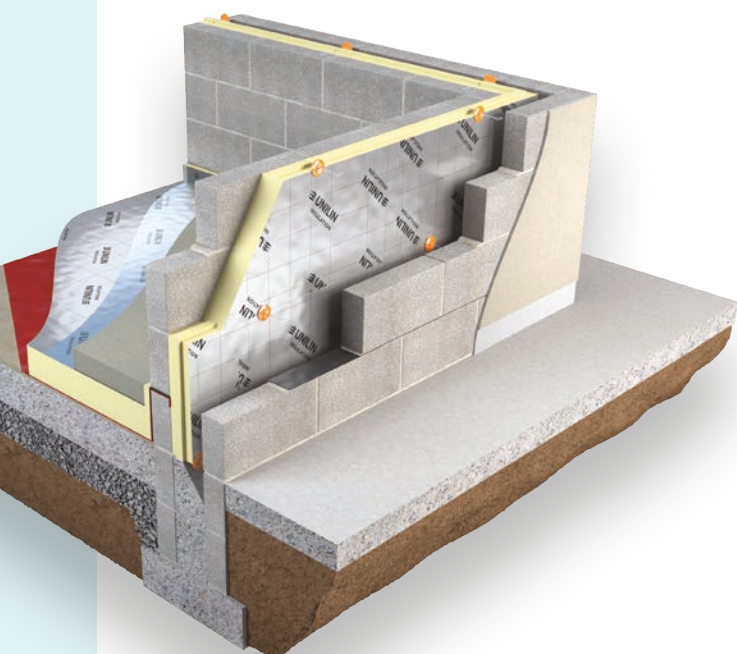
Cavity Wall (T&G) for use in traditional masonry walls, builds to the highest thermal standards whilst maintaining a residual cavity, offering protection from wind driven rain.

**Benefits**

- Robust tongue and groove jointing
- Corner panels and cavity closers:  
Reduced Thermal Bridging
- Clear cavity maintained
- No exposure restrictions
- Low emissivity foil facings



TONGUE  
& GROOVE  
JOINTING

**Specification Clause**

The partial fill cavity wall insulation shall be Thin-R XT/CW T&G manufactured to EN 13165 by Unilin Insulation, comprising of a rigid Polyisocyanurate (PIR) core between low emissivity foil facings. The Thin-R XT/CW T&G \_\_\_mm with an Agrément declared Lambda value of 0.022 W/mK to achieve a U-Value of \_\_\_ W/m<sup>2</sup>K for the 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, F30 12.

**Thermal Resistances**

Thickness (mm)	R-Value (m <sup>2</sup> K/W)
60	2.70
70	3.15
80	3.60
100	4.50
120	5.45

**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).

## XT/CW (T&G)

1. The Unilin Cavity Wall System includes an optional pre-formed corner panel (XT/CRN) that folds to 90 degrees to effectively insulate a corner junction that is normally vulnerable to Thermal Bridging and cold spots.



2. The Thin-R Cavity Wall (T&G) tongue and groove jointing offers a practical onsite solution that results in a more robust, continuous layer of insulation, minimising the threat of Thermal Bridging and improving the overall U-Value of the wall.



3. The low emissivity foil facing on XT/CW (T&G) improves the thermal performance of the wall. The residual cavity is the most effective method of preventing wind-driven rain penetrating a wall from the outside.

A residual cavity is the air space that remains when Cavity Wall insulation is placed against the inner leaf of the cavity of a wall. The recommended residual cavity width required is 50mm

in accordance with Building Regulations, however, a reduced cavity may be permissible in certain circumstances.



## XT/CW (T&G)

Length (mm)	1200
Width (mm)	450
Thickness (mm)	60, 70, 80, 90, 100, 110, 120, 125

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

## Property & Units

Thermal Conductivity	0.022 (W/mK)
Compressive Strength	>120 (kPa)
Reaction to Fire	Euroclass F

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

# INSTALLATION GUIDELINES

## XT/CW (T&G)

1. Under PD 6697:2019 Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2, it is recommended that no more than four courses of block are laid on the preceding skin before installation of the insulation. This allows for wall ties to be inserted accurately and without bending and thus distorting the physical characteristics of the wall ties. Ensure the wall is level and free of any protrusions before installing the insulation with all edges tightly interlocked.
2. Mortar should be struck from the inner cavity face of the block to ensure mortar squeeze is minimised on the cavity side. The inner and outer courses can then be built.
3. Insert wall ties maximum 600mm centres one block course below DPC. Wall ties should incorporate retaining clips, be Agrément approved and conform to BS EN 845-1: 2013 + A1: 2016.
4. Secure cavity boards tight against inner leaf with retaining clip on wall ties. Excess mortar should be removed from the inner leaf to ensure a tight fit against blockwork. Boards should be installed with the tongue uppermost and joints should be tightly butted.



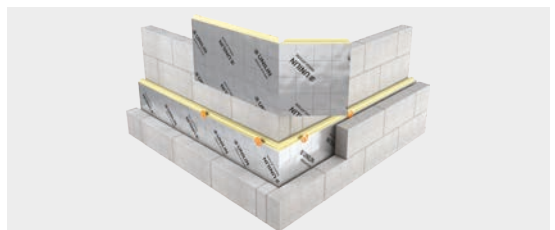
5. Ensure a minimum 150mm overlap with the floor insulation. The receiving block should be plumb to provide a flat surface to accept the insulation. As with setting out, installation should commence from adjacent corners using the Cavity Wall pre-formed corner boards. Alternate corner boards will achieve the offset break bonded pattern for the insulation.
6. Maintain a 50mm residual cavity to suit all exposure zones. In isolated

circumstances, where the cavity is obstructed, a minimum 25mm residual cavity should always be maintained and extra consideration should be given to fixings and weatherproofing. Any reduction in cavity width should be agreed with Building Control.

7. Place wall ties at maximum 900mm x 450mm centres, securing with a minimum of 3 wall ties per board.
8. Ensure block joints are fully bonded with unbroken mortar. Fix wall ties 225mm vertically and 150mm horizontally from face of unbonded jambs. Ensure wall ties and cavity are kept clean of mortar. Wall ties should be sloped downwards towards outer leaf.
9. A cavity board should be used to keep the cavity clean. Cavity Wall corner boards and cavity closers may be fitted to provide robust detailing.



10. Newly erected masonry should be covered to protect the insulation and to prevent the mortar being washed out of the joints by rain. Walls should be prevented from becoming saturated by covering the top of the wall with waterproof sheets; this is particularly important to minimise the incidence of efflorescence and lime bloom. When any working platform is not in use, the inner board should be turned away from the wall to prevent the splashing of the wall face.



ACDs must be followed to ensure that installation is in accordance with current Building Regulations and accounted for in the energy calculation.

# THERMAL PERFORMANCE

## XT/CW (T&G)

### Typical U-Values



**Table 1**

U-Value calculations to EN ISO:6946  
XT/CW (T&G) Cavity Wall Partial Fill

**Build up:**

- Plasterboard on dabs
- 100mm Inner Leaf Blockwork
- XT/CW (T&G)
- Low E Unventilated Cavity
- Brick

Wall ties taken as S/S wire at 3 ties per m<sup>2</sup>

Wet plaster finish: increase insulation thickness by 5mm

Thickness (mm)

	50mm	60mm	75mm	80mm	100mm
<b>0.11</b>	0.24	0.22	0.19	0.18	0.16
<b>0.15</b>	0.25	0.22	0.20	0.19	0.16
<b>0.46</b>	0.28	0.24	0.21	0.20	0.17
<b>1.13</b>	0.28	0.25	0.21	0.20	0.17

**Table 2**

U-Values achieved with additional Unilin XT/TL Thermal Liner

XT/TL 50.5mm thermal liner consisting of 38mm PIR and 12.5mm tapered edge plasterboard on adhesive dabs.

Thickness	Block Lambda	U-Value	Improved U-Value with XT/TL
<b>50mm</b>	0.11	0.24	0.18
<b>60mm</b>	0.15	0.22	0.16
<b>75mm</b>	0.46	0.21	0.15
<b>100mm</b>	1.13	0.17	0.13

## 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 the UK's largest manufacturers and suppliers of insulation. We have a 20-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 Trained Modelling
- BBA/TIMSA calculation competent
- Warranted Calculations available
- Immediate technical response
- SAP Qualified
- Insulation systems to deliver real onsite performance

#### Get in touch

T: +44 (0) 371 222 1055 E: [tech.ui@unilin.com](mailto:tech.ui@unilin.com) [unilininsulation.co.uk](http://unilininsulation.co.uk)



### Unilin Insulation UK Ltd

Park Road, Holmewood  
Chesterfield, Derbyshire  
United Kingdom  
S42 5UY

t. +44 (0) 371 222 1033

e. [info.ui@unilin.com](mailto:info.ui@unilin.com)

[unilininsulation.co.uk](http://unilininsulation.co.uk)

### 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 45001 Occupational Health & Safety Management Systems

ISO 9001 Quality Management Systems

ISO 14001 Environmental Management Systems