

# XtroLiner

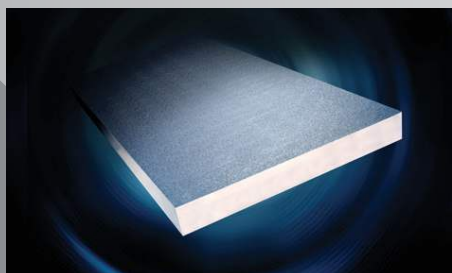
Superior  
Performance  
PIR Insulation



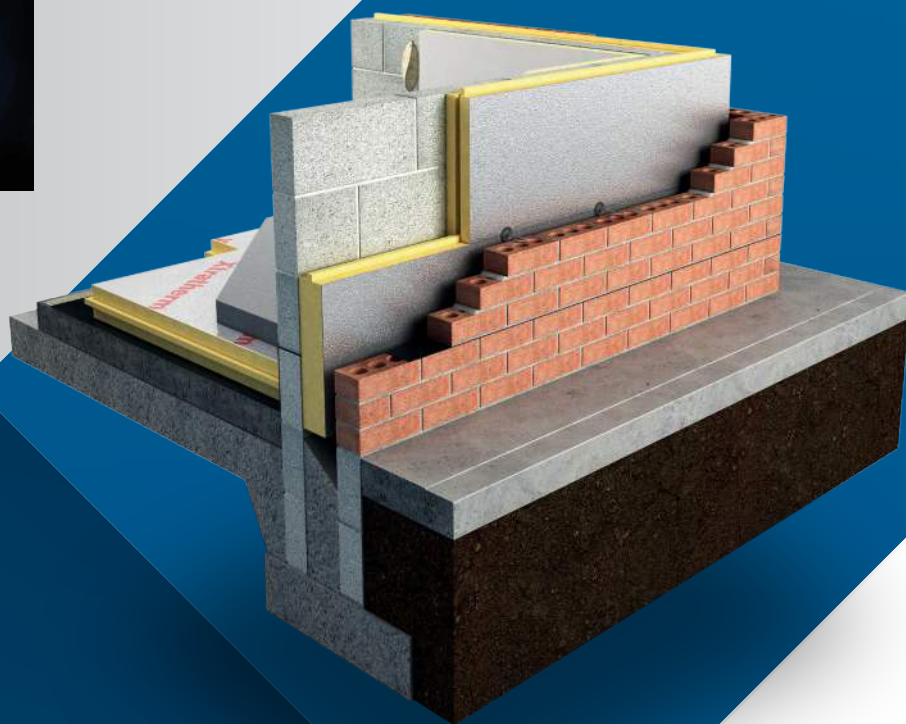
Innovative  
Products

## Walls

**XO/CW (T&G)**  
Insulation for  
Partial Fill Cavity walls



PLATINUM  
SERVICE



# Xtratherm<sup>®</sup>

More than insulation



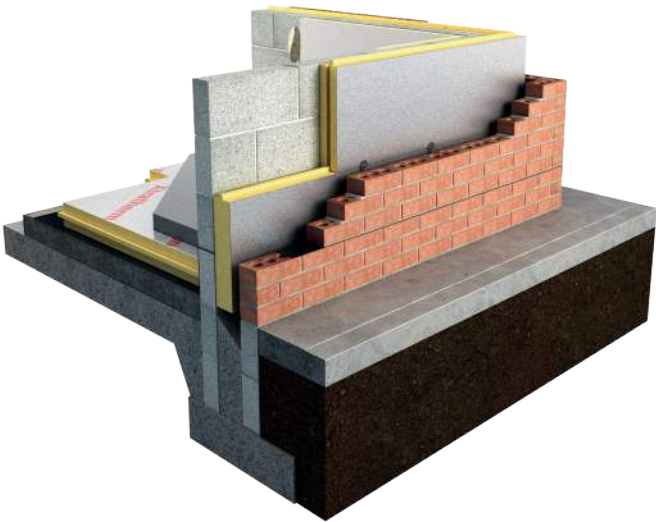
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**XtroLiner**  
Superior Performance PIR Insulation

**XO/CW (T&G)**  
Insulation for  
Partial Fill Cavity walls

**XO/CW (T&G) is an innovative partial fill wall insulation system incorporating robust facings, engineered jointing details, performed corners and a certified lambda of 0.021 W/mK.**

This lower lambda improves U-Values and meets Zero Carbon standards, proving an excellent choice for passive and low energy builds. XO/CW (T&G) can achieve a passive U-Value of 0.15 W/m²K in a traditional cavity wall. Building with XO/CW (T&G), a residual cavity is maintained, offering excellent protection against wind driven rain.



**Specification Clause**

The partial fill cavity wall insulation shall be Xtratherm XO/CW (T&G) manufactured to EN 13165 by Xtratherm, comprising a rigid modified Polyisocyanurate (PIR) core with textured robust low emissivity foil facings and engineered jointing. XO/CW (T&G) \_ \_ \_mm with Agrément certified Lambda value of 0.021 W/mK to achieve a U value of \_ \_ \_ W/m²K for the wall element. To be installed in accordance with instructions issued by Xtratherm.

Xtratherm PIR achieves an A + rating under the BRE Green Guide.



Refer to NBS clause  
F30 155, F30 12



**Thermal Resistances**

Thickness (mm)	R-Value (m² K/W)
50	2.35
60	2.85
75	3.55
80	3.80
100	4.75

**Resistance 'R' Values**

The resistance value of any thickness of Xtratherm insulation can be ascertained by simply dividing the thickness of the material (in metres) by its agrément declared lambda value, for example: Lambda 0.021 W/mk and thickness 50mm -> 0.050/ 0.021 -> R-Value = 2.35. In accordance with EN 13165, R-values should be rounded down to the nearest 0.05 (m²K/W).

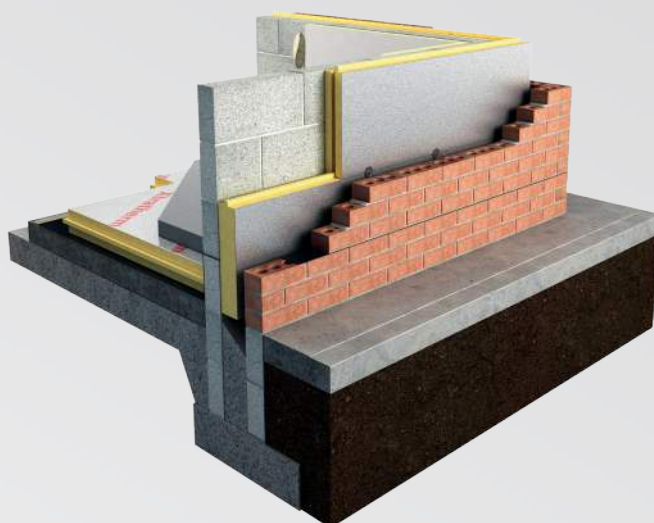
## Engineered Jointing

Corner Panels & Cavity Closers:  
Reduced Thermal Bridging

Clear Cavity Maintained

Lower Lambda Value for Improved U-Values

Robust Textured Foil



## 1

The Xtratherm Cavity Wall System includes an optional pre-formed corner panel (XO/CRN) that folds to 90 degrees to effectively insulate a corner junction that is normally vulnerable to thermal bridging and cold spots.

## 2

The XO/CW (T&G) tongue and groove jointing offers a practical on-site 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 XO/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.

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

Length (mm)	1200
Width (mm)	450
Thickness (mm)	50, 60, 75, 80, 100

## Property &amp; Units

Thermal Conductivity	0.021 (W/mK)
Compressive Strength	>120 (kPa)
Reaction to Fire	Euroclass C-s2, d0

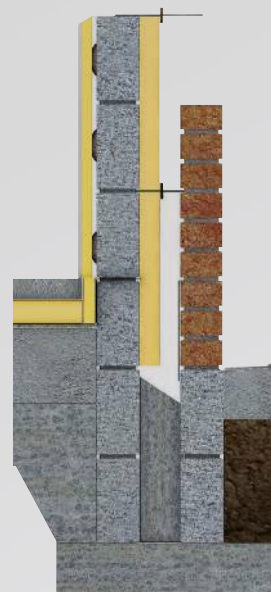
Xtratherm CE Declaration of Performance (DoP) for this product is available for download from our website.

A residual cavity is the air space that remains when XO/CW (T&G) is placed against the inner leaf of the cavity of a wall. The recommended residual cavity width required is 50mm in accordance with agrément certification, however a reduced cavity may be permissible in certain circumstances.

# Installation Guidelines

## Cavity Wall

1. Under Eurocode 6/S.R. 325 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 and be agrément approved.
4. Secure cavity boards tight against inner leaf with retaining clip on wall ties. 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 XO/CRN 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. XO/CRN 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.





## Handling, Cutting and Storage

**Xtratherm®**

Xtratherm 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.

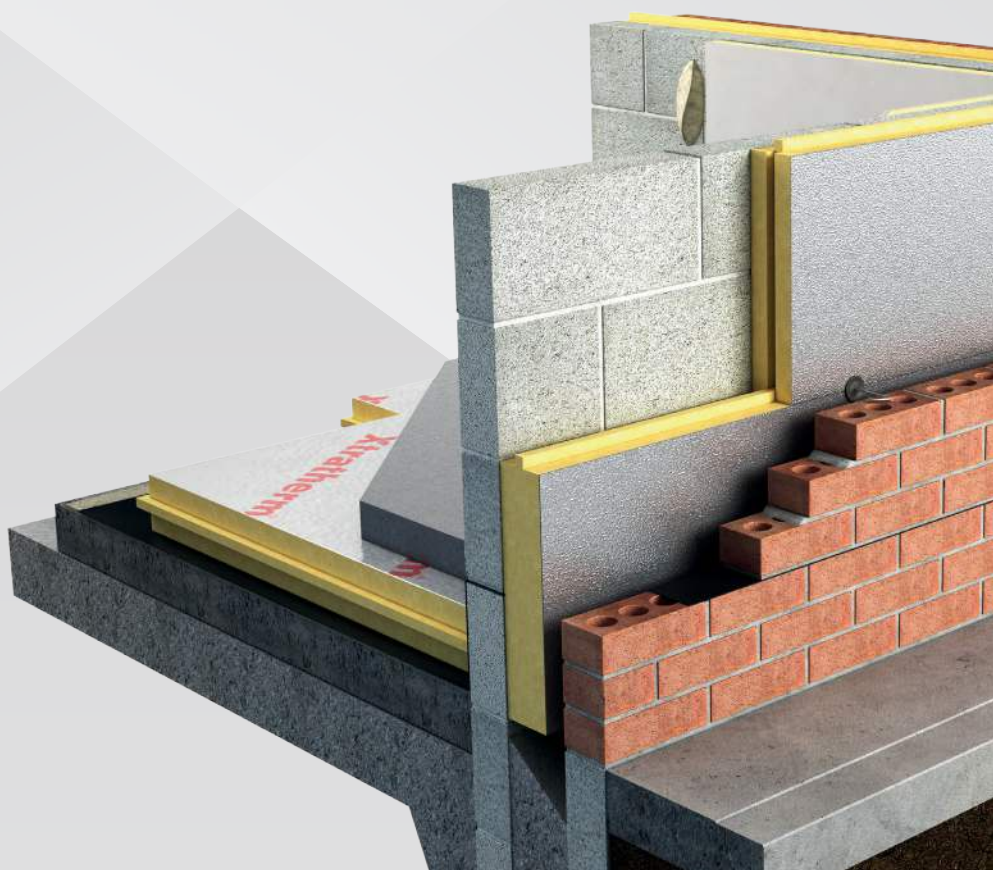
The insulation boards can be readily cut using a sharp knife or fine toothed saw. Ensure tight fitting of the insulation boards to achieve continuity of insulation as asked for within the ACDs. Appropriate PPE should be worn when handling insulation. Please refer to Health & Safety datasheets on our 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

Xtratherm Xtroliner 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.



Typical U-Values



Table 1

U-Value calculations to EN ISO: 6946  
XO/CW (T&G) Insulation for Partial Fill Cavity walls

- Cavity Wall  
Partial Fill:
- Plasterboard Dot & Dab
  - 100mm Inner Leaf Blockwork
  - XO/CW (T&G)
  - Low E Unventilated Cavity
  - 100mm outer Leaf Blockwork
  - 19mm Sand/Cement Render

Wet plaster finish: increase insulation thickness by 5mm  
Wall ties taken as S/S wire at 3 ties per m2

Xtratherm Thickness (mm)

Block Lambda	Block	50	60	75	80	100
	0.11	0.23	0.21	0.18	0.17	0.15
	0.51	0.27	0.24	0.20	0.19	0.16
	1.13	0.27	0.24	0.21	0.20	0.17

## Fabric Energy Performance

The difference is in the detail

**Fabric Energy Efficiency is based on 3 main principles:**

1. U-values
2. Thermal Bridging
3. Air tightness

### What is Thermal Bridging?

Thermal bridging occurs in small areas where the insulation level is reduced significantly compared with the remainder of the element. They may be 'Repeating,' 'Random,' or 'Non-Repeating.'

### How is thermal bridging measured?

Thermal bridges are calculated as a linear thermal transmittance value - PSI ( $\Psi$ ) measured in W/mK. SAP and DEAP are the software program used to calculate a dwelling's energy rating. Within this software, thermal bridging through junctions is accounted for as a 'Y-value.'

## Thermal Bridging and Airtightness

A comparison between the Y-value and a hole in the construction



**Y= 0.15**

The equivalent of an open 'Garage Door' 2.1m x 3.3m (6.93m<sup>2</sup>) opening.



**Y= 0.08**

The equivalent of an open 'Patio Door' 2.1m x 1.8m (3.78m<sup>2</sup>) opening.



**Y= 0.03**

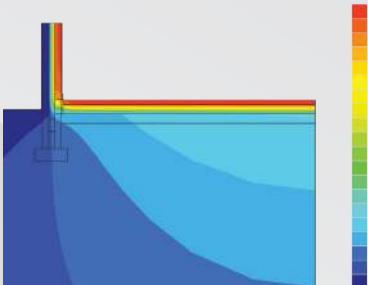
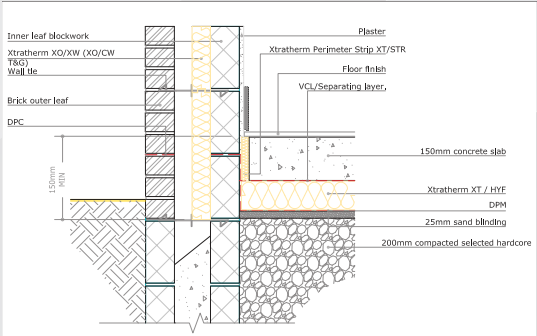
The equivalent of an open 'Window' 1.25m x 1.25m (1.56m<sup>2</sup>) opening

**Our innovative range of insulation products deliver the U-value requirements to meet Passive standards and building regulations, but it's not just about U-values any longer.**

How the system builds, how it interconnects at junctions and how it is witnessed and confirmed on site is as equally important. Good detailings deliver benefits:

- + More energy efficient building with lower running costs.
- + Less chance of condensation and mould forming at poorly detailed junctions.
- + A more cost effective method of achieving a low energy building.

To achieve good detailing, Accredited Construction Details (ACDs) should be followed during the planning, design and build process.



Xtratherm PSI Values			
Using Accredited Details			
Accredited Details	Block Type	75mm PSI	100mm PSI
MCI-GF-01 (E5)	Dense 1.13	0.150	0.147
MCI-GF-01 (E5)	Med 0.46	0.063	0.061
MCI-GF-01 (E5)	Light 0.15	0.018	0.010
MCI-WD-02 (E2)	Dense 1.13	0.028	0.031
MCI-WD-02 (E2)	Med 0.46	0.028	0.031
MCI-WD-02 (E2)	Light 0.15	0.030	0.033
MCI-WD-05 (E4)	Dense 1.13	0.024	0.027
MCI-WD-05 (E4)	Med 0.46	0.024	0.028
MCI-WD-05 (E4)	Light 0.15	0.026	0.029
MCI-WD-04 (E3)	Dense 1.13	0.036	0.039
MCI-WD-04 (E3)	Med 0.46	0.036	0.039
MCI-WD-04 (E3)	Light 0.15	0.038	0.041
E16	Dense 1.13	0.055	0.047
E16	Med 0.46	0.050	0.044
E16	Light 0.15	0.040	0.036

For further information on this topic: Xtratherm has published Thermal Bridging guidance, request your copy from our technical department. Further certificates are also available for download from our website.

Xtratherm has an extensive library of downloads available on our website.

These include the ACDs, BIM files, CAD drawings and Agrément certificates. Xtratherm also offers CPD training on thermal bridging as well as a wide variety of building regulation topics.



**Brochures**  
Download brochures for all Xtratherm products.



**Certs & DOPs**  
See facts & figures on how Xtratherm performs.



**CPDs**  
Find out more about Xtratherm CPD offerings in the Xi Academy.



**ACDs (PDF)**  
Download Xtratherm's Accredited/Acceptable Details for Construction (ACDs).



**Packing Lists**  
Get size and dimension specifications



**Education**  
Xtratherm have developed educational resources for secondary and third level colleges



**ACDs (CAD)**  
Download CAD files of Xtratherm Products and Accessories.



**BIM Files**  
Download BIM objects of Xtratherm Products and Accessories.



**Sustainability**  
Find out more about Xtratherm's Corporate Sustainability Strategy



# Expect More **KNOWLEDGE**

At Xtratherm we understand the importance of giving our customers the best technical advice.

We have taken the unique industry step of training every one of our technical team that deals directly with our customers, to the highest industry standards of competency in U-Value calculation and condensation risk analysis. We have Thermal Bridging covered also under the BRE/NSAI Thermal modelling competency scheme, using the most comprehensive 3D software available.

**Our team and products are certified in the UK and Ireland and through the following certifications bodies:**

- BRE Thermal bridging modelling competency certification
- NSAI Thermal modelling competency scheme
- TIMSA-BBA competency scheme for U-Value calculation and condensation risk analysis
- BBA and NSAI certification of the Xtratherm insulation boards
- SAP and DEAP energy assessment

**Our technical team can also provide:**

- Thermal calculations
- Technical advice on building regulations in the UK and Ireland
- Technical papers on a variety of topics
- Certified CPDs
- BIM modelling
- NBS Specifications
- Educational resources for technical secondary and tertiary colleges

**Please refer to the Resources section of our website for more details**



The **Xtratherm** Innovation Centre

The Xtratherm exhibition space and training academy has been developed to assist construction professionals in understanding the principles of specifying and achieving on-site, best practice insulation standards for new dwellings, commercial envelope solutions and refurbishment projects.



**Get in touch**

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Thermal Calculations, Technical  
Advice or to arrange a technical visit:  
**[info@xtratherm.com](mailto:info@xtratherm.com)**

# Xtratherm<sup>®</sup>

More than insulation

## The Sustainable Solution

Specifying Xtratherm is a real commitment to minimising energy consumption, harmful CO<sup>2</sup> 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.

## The BRE Green Guide

The 2008 Green Guide to Specification produced by the BRE gives Xtratherm Insulation products a rating of A or A+. Green Guide ratings are used to gain credits in BREEAM (BRE Environmental Assessment Method) for non-residential buildings, and under 'Mat 4 – Insulation' the first credit requires the building to have an Insulation Index of 2 or greater – only achievable if the weighted average rating of the insulation is A or A+. This shows that all our products have been made with materials that have been responsibly sourced. The standard sets out organisational governance, supply chain management and environmental and social aspects that are verified and ensure responsible sourcing of materials.

## Responsible Sourcing

Xtratherm 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.

## Global Warming and Ozone Depletion

All Xtratherm Insulation products use CFC- and HCFC-free materials, and are manufactured using a blowing agent with a low GWP and zero ODP.

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 Xtratherm Technical Support. Xtratherm technical literature, Agrément certifications and Declarations of Performance are available for download on the Xtratherm 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 Xtratherm.



**PLATINUM  
SERVICE**

Specifying products supported by the Xtratherm Platinum Service gives you the highest level of assistance from design stage to delivery of real performance on site, through the assurance of a validation process from calculation to installation.

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**ISO 9001** | Quality Management Systems

**ISO 14001** | Environmental Management Systems



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