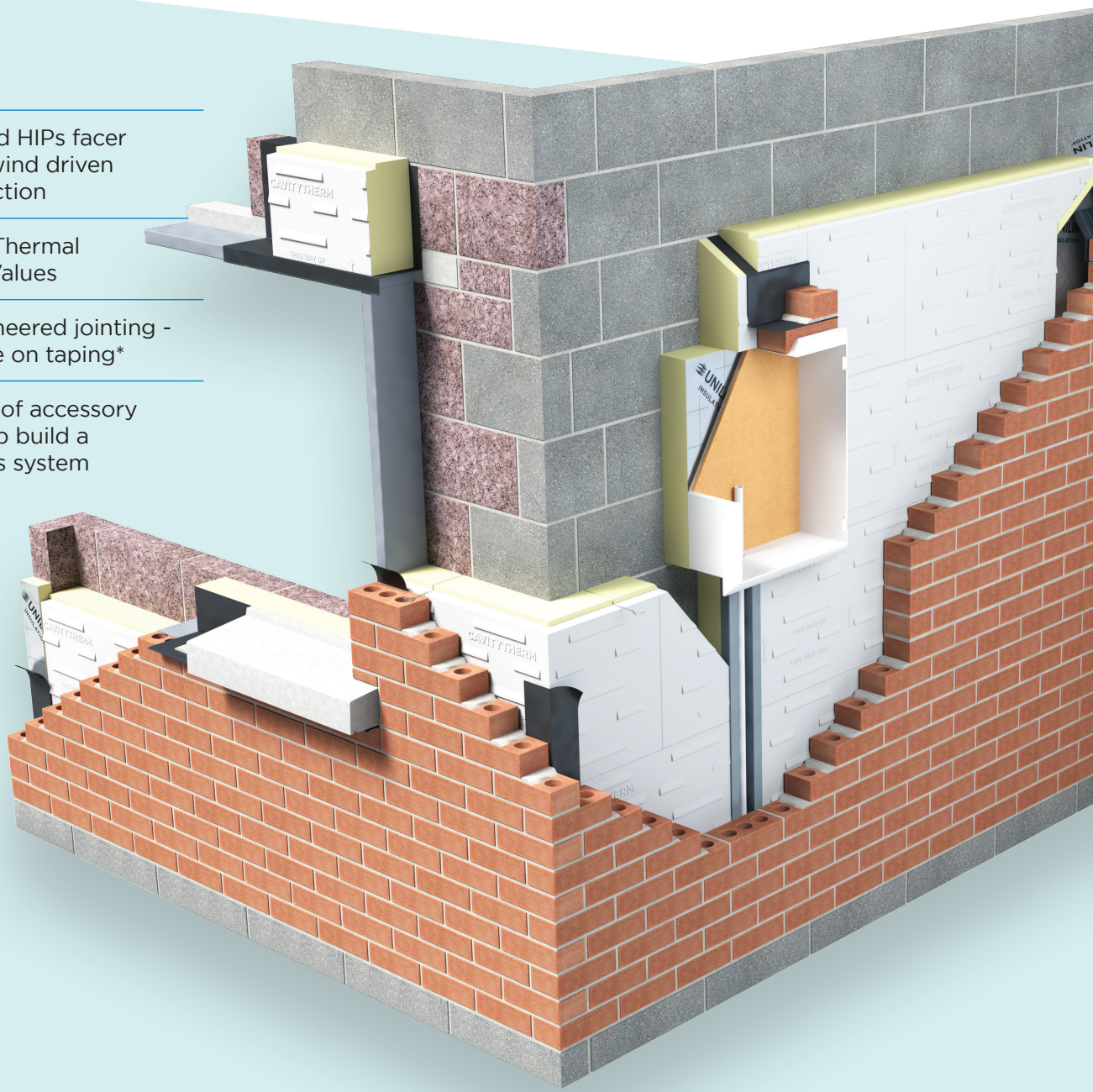
CAVITYTHERM BUILT IN FULL FILL WALL INSULATION

Full Fill Cavity Walls

CT/PIR

- Engineered HIPs facer provides wind driven rain protection
- Excellent Thermal Bridging Values
- Fully engineered jointing - no reliance on taping*
- Full range of accessory pieces help build a continuous system



UNILIN INSULATION

Real performance on site

CavityTherm is a high performance composite board of enhanced PIR with a lambda value of 0.021 W/mK, for full fill cavity wall applications.

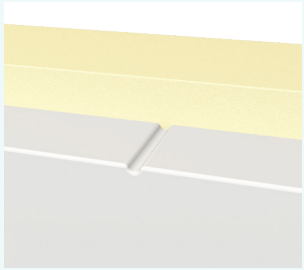
CavityTherm's unique engineered profiled facing directs any moisture that might penetrate the external wall down the protective facing and back onto the external leaf, giving added protection from wind driven rain.

The board includes specifically designed rebated edge detailing on all four edges to allow the system to tightly interlock when installed. This engineered jointing of the insulation layer, with the addition of bespoke ancillary pieces to insulate effectively around services such as hockey sticks, meter boxes and corner details, ensures continuity and results in excellent Thermal Bridging detailing.

Key Features

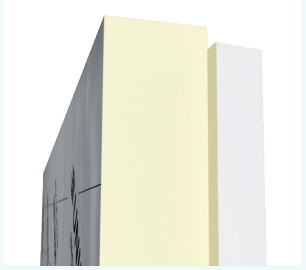
Engineered HIPS skin redirects moisture back onto external leaf

Engineered jointing on all edges to provide continuity of insulation layer



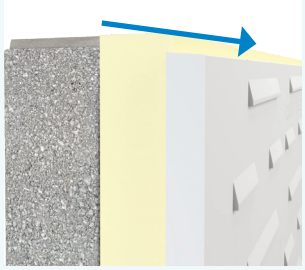
Preformed slots for wall ties that prevent board creep

Flutes to deflect moisture onto outer leaf

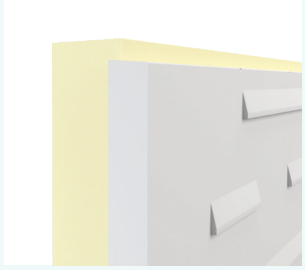


High performance core: 0.021 W/mk thermal conductivity

NSAI and BBA approved



Edging sloped towards outer leaf to ensure wall ties sloped down



Raised insulation at junction acts as a barrier against mortar squeeze

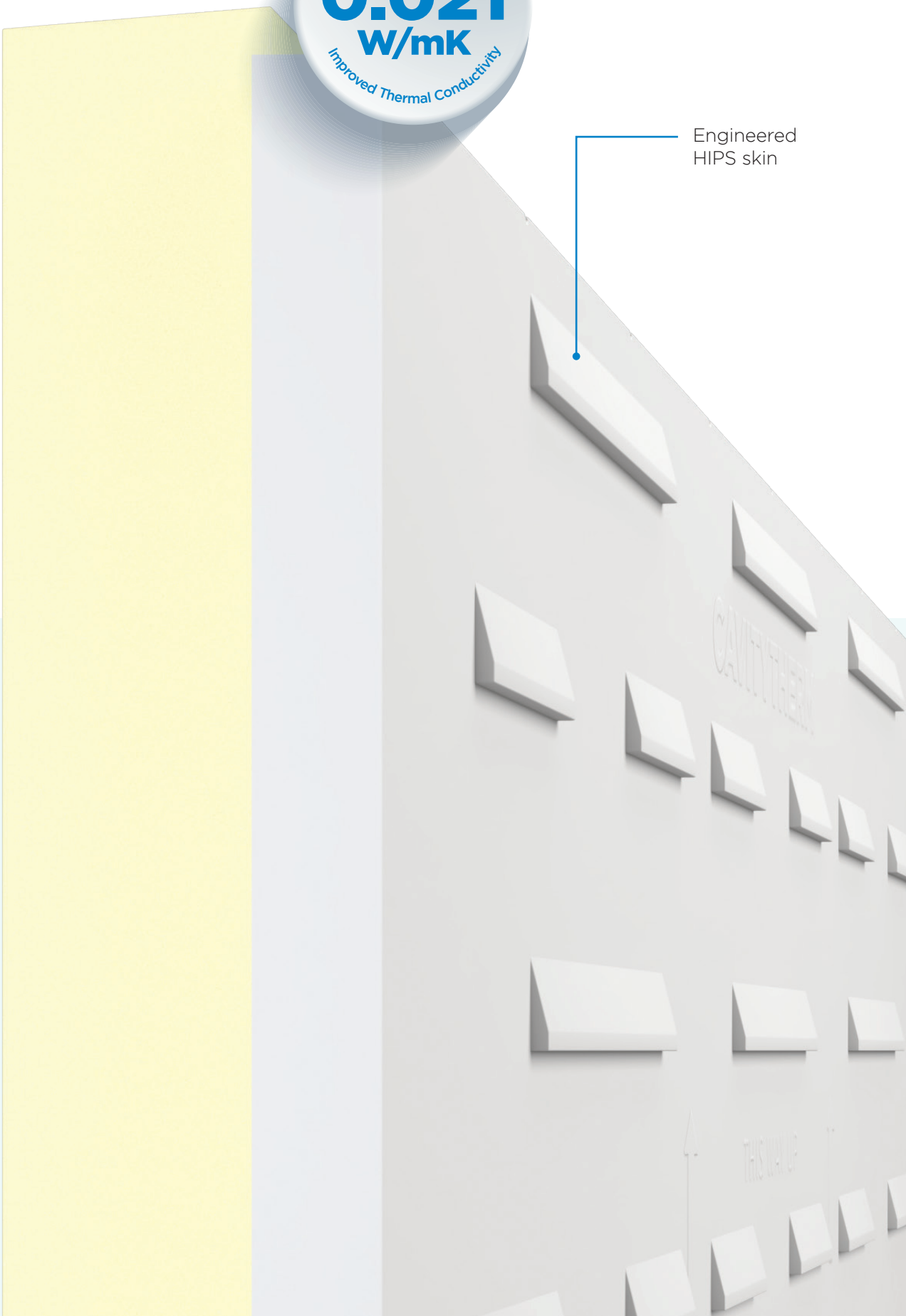
WALLS

Improved Thermal Conductivity

0.021 W/mK

Improved Thermal Conductivity

Engineered
HIPS skin



Why CavityTherm?

Under building regulations there are set targets for U-Values, Thermal Bridging and air tightness. So what should you be aiming for to achieve an energy efficient standard?

Actually, there are a number of sources where best practice figures have been suggested. Our own Part L was published with a regulatory impact assessment giving indicative targets for fabric best practice.

Passive House also sets targets for fabric* with U-Values achieving 0.15 W/m^{2}K or better, excellent thermal bridge detailing and very low air permeability. Looking towards these examples gives a good indication of the targets we should be trying to achieve when choosing wall insulation.

Taken from The Regulatory Impact Analysis for Conservation of fuel and energy in new dwelling proposed amendments to building regulations Part L and technical guidance document 2019:

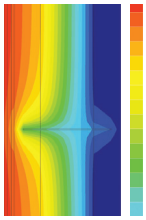
"The suggested solutions for a natural gas fuelled semi-detached: because the floor U-Value is easily improved to 0.13 W/m^{2}K, by using 150mm of Unilin PIR this will allow the easing of the roof and wall U-Values to 0.15 W/m^{2}K, matching Passive House targets, achievable with a reasonable construction."

Passive House for Ireland?

Taken from publications 'Passive Homes Guidelines for the design and construction of Passive House dwellings in Ireland.' Published by Sustainable Energy Ireland and foreworded by Dr Wolfgang Feist, founder of the Passive House Institute Germany, 2007.

It's not just about simple U-Values

Insulation performance is no longer about simple U-Values. How that insulation interconnects with other elements and junctions in the design is critical. The aim is to achieve a continuous thermal layer that minimises heat loss at those junctions. This is Thermal Bridging and is measured and accounted for as a Y-Value in the DEAP calculation. For full information on Thermal Bridging and CavityTherm please contact the Technical team.



The Affordable Solution

Apart from the practical reasons for maintaining the traditional cavity width, there are also cost implications that must be considered when the decision has been taken to widen a cavity over 150mm.

In the publication issued by the Zero Carbon Hub, 'Defining a Fabric Energy Efficiency Standard for zero carbon homes Appendix D Cost analysis', the cost involved in increasing a wall cavity from 85mm to 210mm added an additional **€3,250.00** to a typical semi-detached and **€5,710.00** to a detached property.

To increase a cavity out to 200mm on the semi-detached property could add up to €36.00 per square metre of external wall area - before insulation costs.

The Technical Solution Achieving Fabric Energy Efficiency Standards

Building to the higher 'A2' (Nearly Zero Energy Buildings target) or Passive Standards, CavityTherm in a traditional cavity wall with a 150mm cavity will get you there!

nearly zero energy buildings

NZEB Solutions

Semi-detached Scheme Development

Element	U-Values (W/m²k)
Floor	0.11
Cavity	0.16
Ceiling	0.12
Windows	1.40
Door	1.00
Thermal Bridging	Y=0.04
Air Permeability	5

Detached: Self Build

Element	U-Values (W/m²k)
Floor	0.11
Cavity	0.13
Ceiling	0.12
Windows	1.40
Door	1.00
Thermal Bridging	Y=0.02
Air Permeability	5

The Practical Solution

CavityTherm is proven to provide the most cost effective answer, not only reaching NZEB fabric U-Values but also achieving Thermal Bridging targets.

CavityTherm built into a traditional 100-150mm cavity using standard foundation widths, building skills and local materials achieves U-Values down to 0.13 W/m²K. A practical, affordable solution to low energy design, that results in traditional, desirable homes preferred by homeowners in Ireland and the UK.

You design your homes to a high standard. They are homes that people want, the traditional look, using the skills and materials that are familiar to you and your customers. With the skills of the traditional builder, attention to detail and CavityTherm from Unilin, we've got it sorted!

Full range of accessory pieces available to build a continuous system

CAVITYTHERM BUILT IN FULL FILL WALL INSULATION

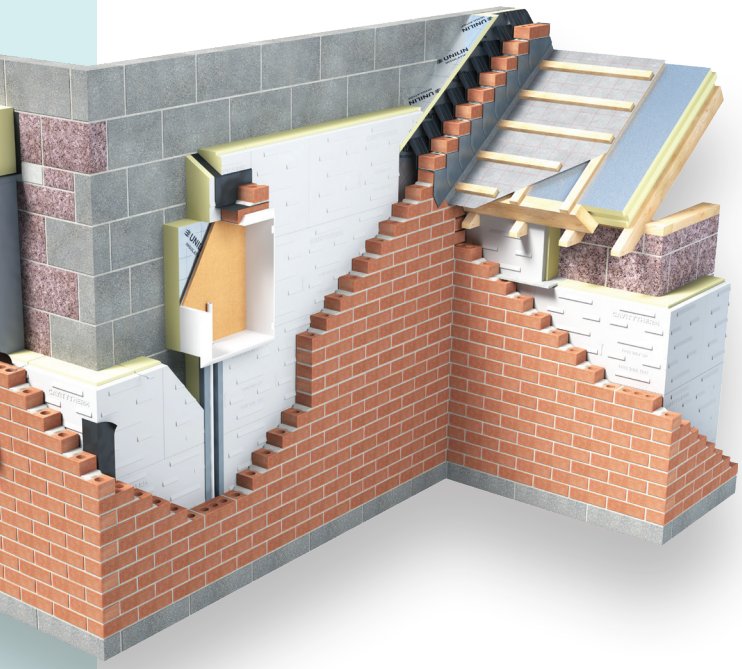
Full Fill Cavity Walls

CT/PIR

CavityTherm is an innovative, built-in insulation for traditional walls that achieves passive level U-Values as low as 0.13 W/m²K with excellent Thermal Bridging detailing in traditional cavity widths up to 150mm wide.

Benefits

- Engineered HIPs facer provides wind driven rain protection
- Moisture redirected to outer surface
- Prepositioned slots for sloping wall ties - no creep
- Fully engineered jointing - no reliance on taping
- Full range of accessory pieces build continuous system
- Excellent Thermal Bridging values



Specification Clause

The built-in full fill cavity wall insulation shall be CavityTherm CT/PIR manufactured to EN 13165 by Unilin Insulation, including corner boards and ancillary detail components, comprising a rigid Polyisocyanurate (PIR) core between low emissivity foil facings with engineered HIPS outer skin. The CavityTherm CT/PIR_ _ _mm with an Agrément declared 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 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 150, F30 12.

CT/PIR

Thermal Conductivity	0.021 (W/mK)
Length (mm)	1200
Width (mm)	450
Thickness (mm)	100, 110, 125, 150
Typical R-Value*	4.50, 5.00, 5.70, 6.90

*Overall thickness

THERMAL PERFORMANCE

WALLS

CT/PIR

Typical U-Values

BBA CERTIFICATE CS/nnnn-n U Value Competency Scheme

Table 1
CavityTherm (Inner block 100)

Build up:

- Plaster
- 100mm Inner Leaf Blockwork
- CT/PIR
- Unventilated Cavity
- 100mm Outer Leaf Blockwork
- 19mm Sand/Cement Render

		Thickness (mm)			
Block Lambda		100mm	110mm	125mm	150mm
	1.13	0.20	0.18	0.16	0.13

Flexible Fleece backing to ensure tight fit against uneven surfaces

CAVITYTHERM FLEX BUILT IN FULL FILL WALL INSULATION

Full Fill Cavity Walls

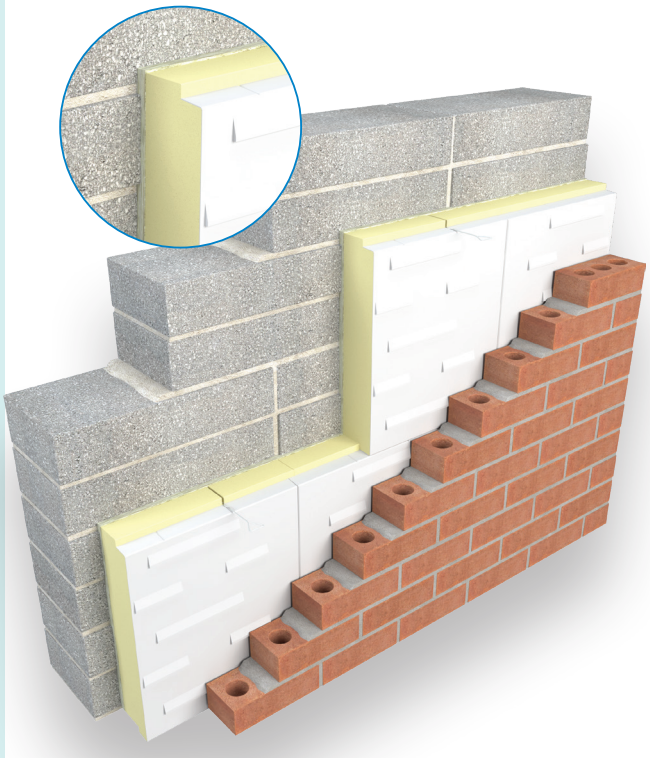
CT/PIR FLEX

CavityTherm Flex is the perfect solution when insulating fair faced inner block walls or when block is laid flat resulting in an uneven surface to accept the insulation. The 25mm flexible fleece absorbs any variations due to block tolerances, providing a continuous, unbroken bond between insulation layer and block. Achieve passive level U-Values as low as 0.14 W/m²K with excellent Thermal Bridging detailing in cavities less than 150mm wide.

Benefits

- Engineered HIPs facer provides wind driven rain protection
- Moisture redirected to outer surface
- Flexible backing to eliminate indentations
- Prepositioned slots for sloping wall ties - no creep
- Fully engineered jointing - no reliance
- on taping*
  Full range of accessory pieces build continuous system
- Excellent Thermal Bridging values

*Where the boards are butt jointed tape is required



Specification Clause

The built-in full fill cavity wall insulation shall be CavityTherm Flex CT/FXPIR manufactured to EN 13165 by Unilin Insulation, including corner boards and ancillary detail components, comprising a rigid Polyisocyanurate (PIR) core between low emissivity foil facings with engineered HIPS outer skin and Flexible backing to eliminate indentations. The CavityTherm Flex_ _ _mm with a 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 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 150, F30 12.

CT/PIR Flex

Thermal Conductivity	0.021 (W/mK)
Length (mm)	1200
Width (mm)	450
Thickness (mm)	125, 150
Typical R-Value*	5.50, 6.70

*Overall thickness

Preformed corners also available with CavityTherm Flex.

THERMAL PERFORMANCE

WALLS

CT/PIR FLEX

Typical U-Values

BBA CERTIFICATE CS/nnnn-n U Value Competency Scheme

Table 1
CavityTherm Flex (Inner block 100mm)

Build up:

- Plaster
- 100mm Inner Leaf Blockwork
- CT/PIR FLEX
- Unventilated Cavity
- 100mm Outer Leaf Blockwork
- 19mm Sand/Cement Render

	Thickness (mm)	
Block Lambda	125mm	150mm
1.13	0.17	0.14

ACCESSORIES

CT/PIR | CT/PIR Flex

The Complete Cavity Wall System

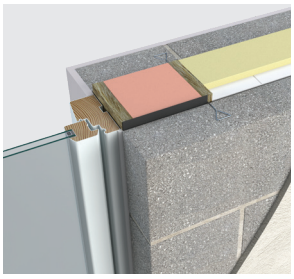
CavityTherm provides a 'system' that delivers on U-Values, is practical, and with a full range of innovative detailing accessories – it delivers on continuity.

Safe-R Close-R

A high performance EN fire-rated cavity closer providing compliance with structural and thermal regulations in Ireland. Achieved in excess of 4 hour fire rating in a 150mm cavity when tested to EN1366-4.

Size
1200mm x 200mm

Thicknesses
100mm, 125mm, 150mm,
75mm Return block



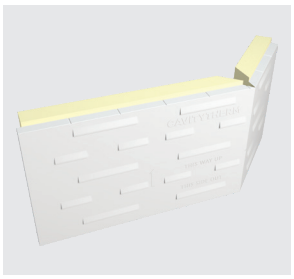
Preformed Corner Panels

A preformed panel of CavityTherm that folds to provide a 90° corner either external or internal. The corner boards ensure excellent detailing and provide a template for setting out of outer brickwork.

*Cavitytherm Flex corners only available in 125mm and 150mm

Size
1200mm x 450mm

Thicknesses*
100mm, 110mm, 125mm, 150mm

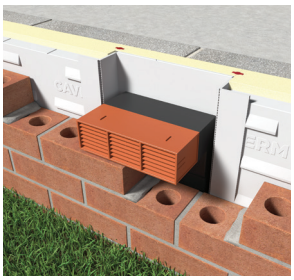


Service Void Panels

A preformed panel that creates an insulated Service Void for Periscopic Floor Vents in suspended floor situations.

Size
375mm x 265mm

Thicknesses
45mm



Meter Box Panels

The preformed meter box accessory allows a recess space for placement of meter box, leaving the insulation to run in a continuous plane.

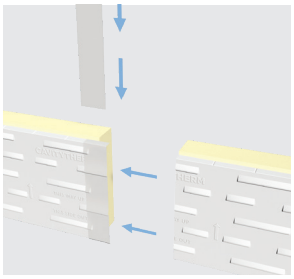
Size
1200mm x 600mm

Thicknesses
50mm, 75mm, 100mm

Jointing Strip

When building from the inner leaf to the outer leaf, board joints can be protected and taped with the jointing strips.

Size
100mm x 450mm



Hockey Stick Insulation

The Hockey service voids allows for easy access to the cable that supplies the meter box and is preformed to fit the insulation.

Size
1200mm

Thicknesses
100mm, 110mm,
125mm, 150mm

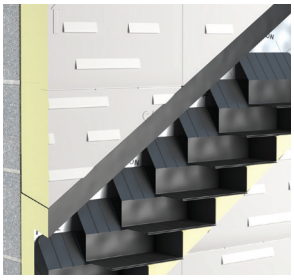
Cavity Tray Channel

An insulated channel to allow for insulation continuity around stepped cavity trays at gable junctions.

1200mm	L	Channel Length
100mm	C	Cavity width
350mm	IVH	Internal Void Height
60mm	T	PIR Insulation Thickness

Size
1200mm L x 100mm C x
350mm IVH x 60mm T

Thicknesses
100mm, 110mm,
125mm, 150mm



Top Panel

A CavityTherm half-board that is used to finish wall insulation heights when a full board is not required, reducing cost and wastage on site.

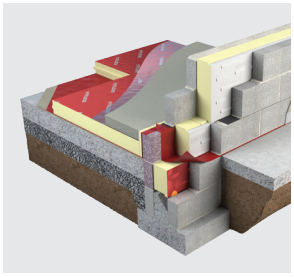
Size
1200mm x 225mm

Thicknesses
100mm, 110mm,
125mm, 150mm

Hyfloor Strip Foundation System

Hyfloor Strip Foundation System provides U-Value and Thermal Bridging performance to meet NZEB standards.

Size
225mm x 450mm



ACCEPTABLE DETAILING

CT/PIR | CT/PIR Flex

Like all other inputs into a building energy calculation, the way that insulation is installed to avoid Thermal Bridging has a numerical input into the software which is called a Y-Value.

A set of 'good practice' details have been available in the form of 'Acceptable Construction Details' (ACDs) published by the Department of Housing in Ireland. These details are a set of design drawings for the junctions listed in Table D1-D6 of Part L which are most prone to heat loss*. They detail, using traditional construction methods and materials, how insulation should be installed at these critical junctions in order to improve not only the heat loss but also airtightness results. This also helps reduce the risk of condensation by ensuring surface temperatures are within a safe margin.

*Refer to table K1 in the SAP manual for UK

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.'

Where does Non-Repeating occur?
Non-repeating thermal bridges typically occur at the junctions between plane building elements, e.g. at wall / roof, wall / floor junctions, and around openings, e.g. at window jambs, sills and also corners where the continuity of the insulation is interrupted.

How is it accounted for?
Thermal bridges are calculated as a linear thermal transmittance value - PSI (Ψ) measured in W/mK. DEAP is the software that is used to calculate a dwellings BER rating (SAP is used in Northern Ireland). Within DEAP Thermal Bridging through junctions are accounted for as a 'Y-Value.'

Are all junctions accounted for within DEAP?
No. The major critical junctions are those that account for the majority of the heat loss. However reasonable care should be taken to insulate all bridges that occur on-site to avoid condensation.

Unilin PSI Values Using Acceptable Details

Using 100mm CavityTherm*

Acceptable Details	Block Type	PSI
1.01a GF	Dense 1.13	0.167
1.01b GF	Med 0.33	0.091
1.01b GF	Light 0.20	0.067
1.23.2 Lintel Close-R	Dense 1.13	0.002
1.23.2 Lintel Close-R	Med 0.33	0.001
1.25 Jamb Close-R	Dense 1.13	0.003
1.25 Jamb Close-R	Med 0.33	0.001
1.26 Sill Forward	Dense 1.13	0.025
1.26 Sill Forward	Med 0.33	0.023
1.27.1 Corner	Dense 1.13	0.050
1.27.1 Corner	Med 0.33	0.042

*Using 100mm CavityTherm. PSI values for other thicknesses can be requested from our technical department.

Using 125mm CavityTherm Flex*

Acceptable Details	Block Type	PSI
1.01a GF	Dense 1.13	0.166
1.01b GF	Med 0.33	0.090
1.01b GF	Light 0.20	0.067
1.23.2 Lintel Close-R	Dense 1.13	0.001
1.23.2 Lintel Close-R	Med 0.33	0.000
1.25 Jamb Close-R	Dense 1.13	0.002
1.25 Jamb Close-R	Med 0.33	0.000
1.26 Sill Forward	Dense 1.13	0.019
1.26 Sill Forward	Med 0.33	0.018
1.27.1 Corner	Dense 1.13	0.048
1.27.1 Corner	Med 0.33	0.040

*Using 125mm CavityTherm Flex. PSI values for other thicknesses can be requested from our technical department.

For full CAD details and Thermal Bridging certificates specifically for Irish constructions visit **www.unilininsulation.ie**

THERMAL BRIDGING

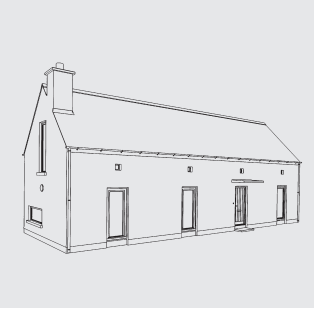
CT/PIR | CT/PIR Flex

CavityTherm is not unique amongst Unilin products in delivering thermal performance beyond simple U-Values.

Below we show a self-build project (simplified to allow junctions to be identified).
Let's look at how the specification needs to be improved to compensate for poor detailing.

	Y-Value 0.03 using Unilin Xi range with approved PSI values - within Acceptable Details and calculated	Y-Value of 0.08 based on the use of Acceptable Details but not calculated by the Assessor	No particular detailing specified or witnessed Default value
Y-Value Details Used	**0.03 Acceptable Details DOE**	**0.08 Acceptable Details DOE**	**0.15 Unspecified / or Witnessed Details**
Front Door	1.5	1.5	—
Glazing	1.15	1.15	—
Permeability	5	3	—
Ventilation	Natural	MV	—
Space Heating Primary	Oil - 94.8%	AW UFH	—
Space Heating Secondary	Stove - Wood	Stove & Immersion	—
Water Heating	6m Evacuated Tubes	Removed	—
EE Lighting	100%	100%	—
Renewables	—	Air to Water Heat Pump	—
Energy kWhr/m^2/yr	59.39	60.50	—
CO_2 kg/CO_2/m^2/yr	13.56	12.71	—
CPC	**Pass**	**Pass**	**Fail**
EPC	**Pass**	**Pass**	**Fail**

How the insulation system builds within a construction, how it interconnects at junctions and how it is witnessed and confirmed on site are of equal importance to U-Values. Better U-Values should not be used unless detailing is improved to match those levels.

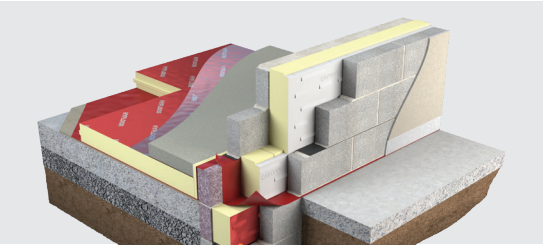


INSTALLATION GUIDELINES

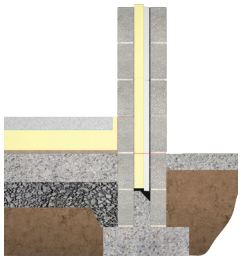
CT/PIR | CT/PIR Flex

Procedure: Internal and external build methods

1. CavityTherm can be built into cavity walls where either the outer or inner leaf is built first. Riser boards should be used below DPC level to ensure a min 225mm overlap with the floor insulation. The receiving block should be plumb to provide a flat surface to accept the insulation. If this is not possible CavityTherm Flex should be considered.



2. Where required, Radon barriers or DPCs should be dressed over the cavity either dissecting the board or dressed behind the riser boards and across the cavity below the insulation. The insulation should be butted tightly either side of the barrier to provide thermal continuity. Preformed detailing of radon barriers provides a more accurate solution. Contact the membrane manufacturer for further guidance on installation and best practice.



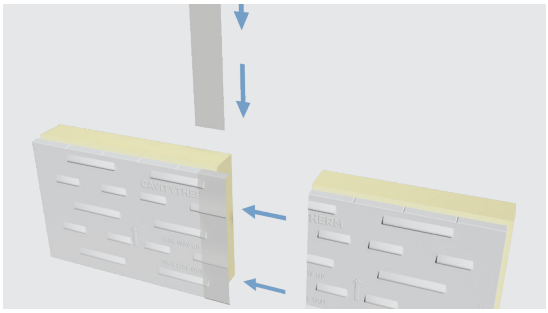
3. As with setting out, installation should commence from adjacent corners using the Unilin preformed corner boards. As per the current NSAI certificate, it is recommended that vertical DPC's are used at corners. Alternate Corner Pieces will achieve the offset break-bonded pattern for the insulation.

4. Install the first row of insulation boards, allowing for the floor insulation overlap, supported by at least 2 wall ties per board. Boards should be installed with the tongue upper most and the profiled face outer most, placed tightly against the inner face of the outer blockwork.
5. Wall ties conforming to S.R. 325 should be used and placed at approx. 600mm centres, do not place directly on the DPC.
6. The type and spacing of wall ties are dependent on geographical area, cavity width, wall length and height and opening sizes. They should be placed at centres recommended by manufacturers to suit the wall specification and placed within the preformed notches of the CavityTherm.
7. In cavities up to 150mm, typically SS wire ties at 2.5/m^2 meet structural requirements, at these specifications the ties do not have a detrimental effect on the thermal performance (larger wall ties will reduce the thermal performance)
8. Slots should be cut into the exposed foam edge of the board to follow the sloped surface of the facing to allow the ties to run down towards the outer leaf.
9. Under 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.
10. Mortar should be struck from the inner cavity face of the block to ensure mortar squeeze is minimised on the cavity side. The two courses of blockwork can then be built, ensuring the mortar is struck back from the cavity face to prevent mortar squeeze. The second skin of block should be built tight against the CavityTherm.

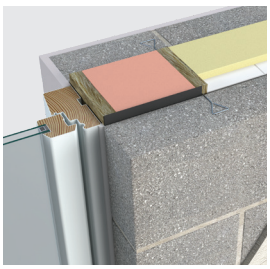
CT/PIR | CT/PIR Flex

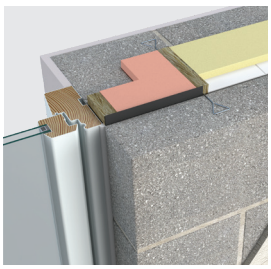
11. All boards should be tightly interlocked with vertical joints staggered. Continue the installation until a reveal is reached or boards abut mid wall. To form a butt join, remove the end profile from the abutting board(s) and fit tightly against the cut edge of the adjoining board.

12. In the case of smaller sections of board being joined, when building from the outside, the junction can be taped with proprietary tape from Bostik or Venture Tapes. If building from the inside on smaller sections, tape can be applied and adjoined sections are lifted into the cavity. On larger sections, the Unilin jointing strip can be used, ensure the joint is well butted (see diagram).



13. Alternate boards should be cut to different lengths to create a break-bonded pattern if the corner boards have not been used.





14. It is recommended (to avoid piercing the boards with additional wall ties at reveal openings), that the Safe-R Close-R reveal panel is used to achieve a 4 hour fire rating and ensure wall ties are placed in the correct position ie. wall ties placed within 225mm of the opening on each board course. Alternatively, where a return block is used the Safe-R Close-R 75mm Return product accommodates wall ties to be placed within 225mm of the opening without the need to penetrate the CavityTherm board engineered facer.

15. In accordance with S.R. 325 a vertical DPC should be provided that extends 25mm beyond the width of the closer.

16. Continue installation to total wall height or if truncated, protect by an approved cavity tray, installed to manufacturer recommendations in accordance with S.R. 325 CavityTherm should be separated from any flues with min 200mm of non-combustible material.

17. Where openings such as doors and windows are in close proximity, it is recommended that a continuous lintel or cavity tray is used. Damp-proofing at lintels, sills and penetrations must be provided with DPCs/Trays with stop ends and weep holes, where required.

18. Acceptable Detailing must be followed and ensure that installation is in accordance with Part L and accounted for in the DEAP calculation for BER certificate.

19. At service voids and penetrations, bespoke detail pieces are available to provide insulation continuity (see page 10/11).

20. Contact our Technical team for further resources on installation best practice, such as on-site 'Tool Box Talk' training, on-line animations and instructions.

NOTE

Internal & external corners can be formed on site by either butt jointed or mitred methods. Preformed corners are also available from Unilin.

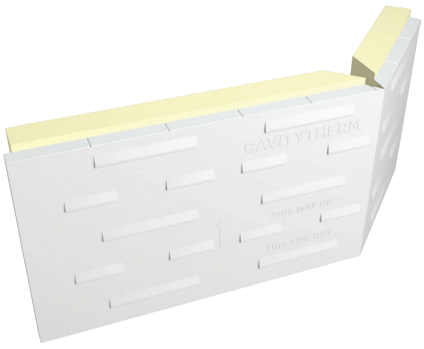
INSTALLATION GUIDELINES

CT/PIR | CT/PIR Flex

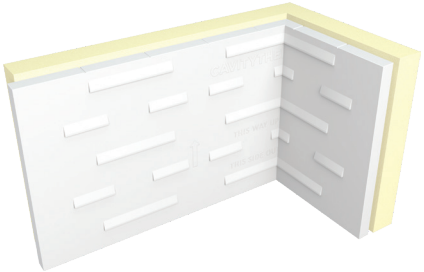
Corners

1. Preformed corner panels are available from Unilin and are recommended to ensure accuracy is achieved at this crucial junction. Alternatively, internal & external corners can be formed on site by either butt jointed or mitred methods. Corners should be protected with a vertical DPC.
2. Internal & external butted corner details are formed by closely butting the boards. It is important that they are closely jointed, the end profile should be removed to create square edges then cut and flatten the profiled flutes 100mm in from the board edge.
3. Alternatively the boards are cut at an angle to create a mitred junction so that all interfaces are uninterrupted.

Note
It is a requirement that all corner details should incorporate a vertical DPC, built in during the build process.



External corner



Internal corner

DPCs

In accordance S.R. 325 DPC design should be based on the assumption that rain will penetrate the outer leaf of the wall and run down the inside of the outer leaf. Where the cavity is bridged, e.g. by cavity fill, lintels, structural beams, floor slabs or pipes, there is a danger that water will be conducted across it to cause dampness inside the building. To avoid this problem, it is essential that watertight cavity trays are provided above all bridges of the cavity (other than wall ties), so that water is diverted to the outer leaf or clear of the bridges'.

- Boards should be protected from weather during breaks in the installation.
- Full animations of board's features, jointing procedures and installation are available on the web site at **www.unilininsulation.ie**

Standard Recommendation S.R. 325

Recommendations for the design of masonry structures in Ireland to S.R. 325 6.6.2 Protection against rain

Newly erected masonry should be protected 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.

FAQS

CT/PIR | CT/PIR Flex

What is CavityTherm?
CavityTherm wall insulation board is a high performance composite board of PIR core with a lambda value of 0.021 W/mK. The boards have gas tight facings with one face bonded to a profiled HIPS skin during manufacture to provide a drainage plane. CavityTherm's unique profiled facing directs any moisture that might have penetrated the external wall down the protective facing and back onto the external leaf. The board includes specifically designed rebated edge detailing on all four edges to allow the system to tightly interlock when installed.

What is the real benefit using CavityTherm?
Put simply, the U-Values achieved by placing CavityTherm into your standard 150mm cavity meet the Passive House standards for Ireland. It builds as a 'system to ensure continuity. You can physically see that the procedures on site are being followed. It's a very practical, affordable solution to low energy design.

What wall ties do I use with CavityTherm?
Standard S/S wire wall ties are used with CavityTherm. At up to 2.5 ties/m^2 the thermal impact is negligible because the cavity is kept to a reasonable width. Pushing the cavity wider and adding greater amounts of insulation will necessitate low conductivity ties, and result in worse Thermal Bridging at junctions. It is for this reason that a U-Value of around 0.15W/m^2K is seen as optimum by regulations and Passive House.

Why slope the wall ties down to the outer face?
This is not specific to CavityTherm, all wall ties in any construction should slope slightly down to prevent water travelling along the wall ties into the construction. Wall ties must be kept clean and free of mortar.

What thicknesses of CavityTherm are available?
CavityTherm is manufactured for 100mm, 110mm, 125mm and 150mm cavities, and achieves U-Values as low as 0.13 W/m^2K. Greater thicknesses may be available subject to quantity and lead time.

What building types can use CavityTherm?
CavityTherm can be used in new external masonry cavity walls up to 25m in height in domestic and non-domestic buildings.

CavityTherm has a lot of accessories as part of the 'system', what are they for?
An excellent wall U-Value is not the only item that must be addressed to achieve NZEB fabric performance. Airtightness and Thermal Bridging must also be improved. Thermal Bridging is in fact just 'good detailing' and is accounted for in DEAP. Unilin is the only insulation board manufacturer that addresses gaps or breaks within the continuity of the insulation layer. How do you detail insulation around stepped cavity trays, periscope vents in suspended floors or at corners, or meter boxes? Unilin has developed bespoke insulated pieces to ensure that these details are well insulated so as to avoid Thermal Bridging and possible condensation and mould growth.

CavityTherm addresses Thermal Bridging, but how do I use this in my DEAP calculation?
All the details available to download from the CavityTherm web site have been based on the Irish Acceptable Construction Details (ACDs) published by the Department of Housing. These are standard details that have been accounted for in DEAP for over many years. What Unilin has done is just replaced the generic insulation included within them with CavityTherm, this has vastly improved the resultant thermal transmittance through all the specified junctions; corners, wall/floor, reveals etc, and will deliver a Y-Value for most dwellings below the 0.05 target asked for under Part L. Unilin has fully BRE qualified Thermal Bridging assessors with the added assurance that the technical team members you speak with are fully trained. U-Value and condensation risk analysis calculations are covered by the BBA/TIMSA competency scheme.

Is there a benefit in the 'Engineered edge detail'?
The Building Regulations now ask that insulation systems be 'continuous' and are installed in accordance with acceptable detailing. The jointing system in Unilin products achieves this, encourages a more accurate build, and avoids the 0.01 U-Value penalty that should be applied when calculating to BR443.

When a board is cut what tape do I use to make the join?
When two abutting boards are to join, cut the profiled edge from each board and ensure that they are closely butted. The joint should be sealed. When building the inner leaf first - seal with a waterproof tape. The tape should be applied to a dry surface. When building from the inside a preparatory self adhesive jointing strip is available to insert over the join. Any penetrations or small repairs can be made with the tape or sealant. Any services running through the insulation layer should be sloped to the outside. DPCs should be dressed over services as per S.R. 325.

You recommend the use of a 'Cavity Board' – what is that?
The use of a cavity board is recommended during construction. It is a board that is placed over the installed boards as the inner leaf is raised to catch any mortar drops that might fall. If mortar does fall onto the upper edge of the CavityTherm the HIPS skin is easily cleaned with a damp cloth.

Where do I get further information?
Full details relating to compliance with Building Regulations, independently verified technical specification, assessment criteria and technical investigations, design considerations and installation guidance are available on www.unilininsulation.ie.

HANDLING, CUTTING & STORAGE

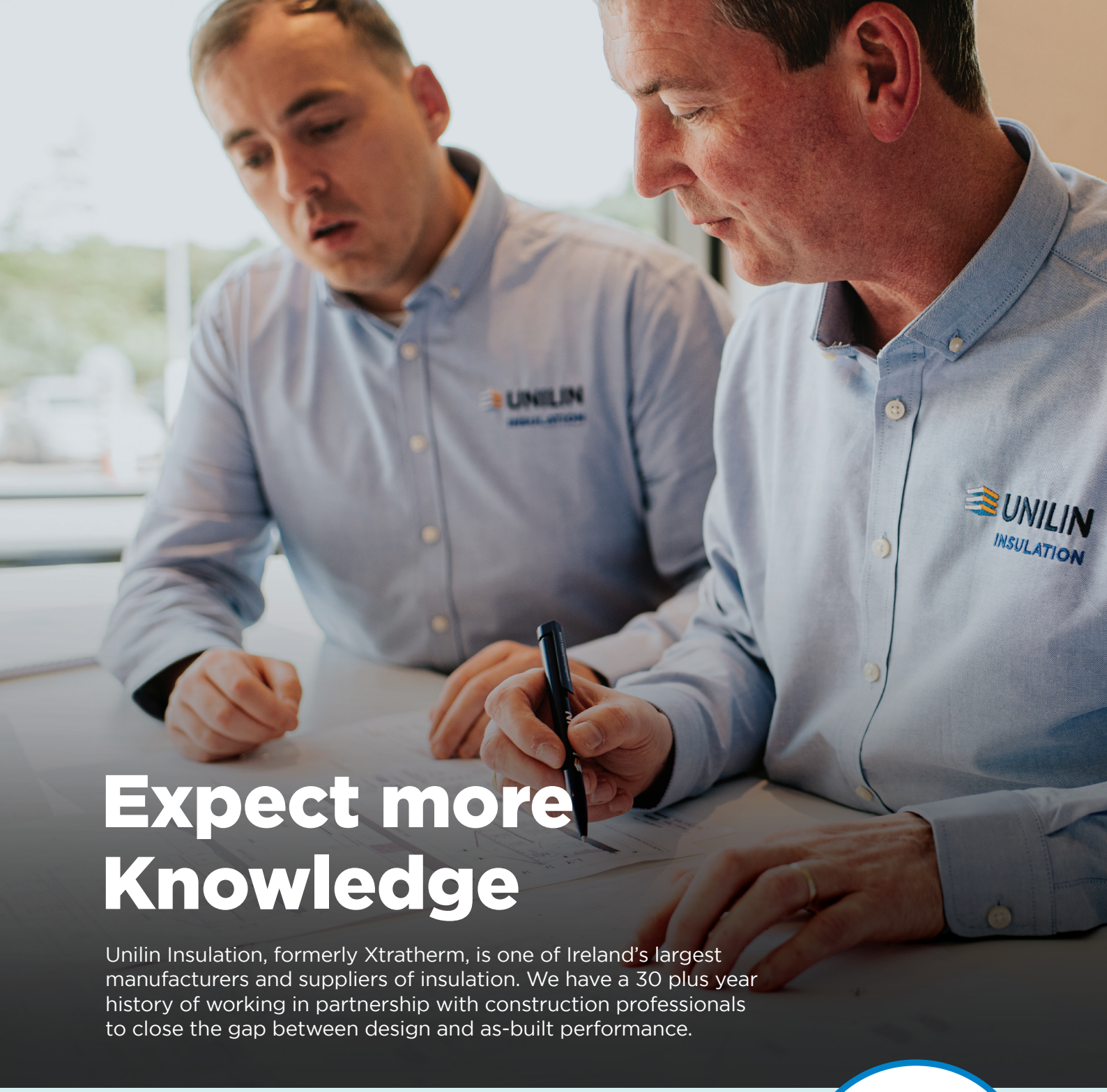
Unilin insulation should be stored off the ground, on a clean, flat surface and must be stored under cover. The polythene wrapping is not considered adequate protection for outside exposure. Care should be taken to protect the insulation in storage and during the build process.

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.

FREE
One-to-one advice

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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BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 10/4786

NSAI
16-0387

CE

ASSOCIATE MEMBER SPRA
Single Ply Roofing Association

LRWA
Liquid Roofing and Waterproofing Association

bre

ISO 9001 Quality Management Systems
ISO 14001 Environmental Management Systems

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The Sustainable Solution

Specifying Unilin Insulation is a real commitment to minimising energy consumption, harmful CO_2 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 and 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 02 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.