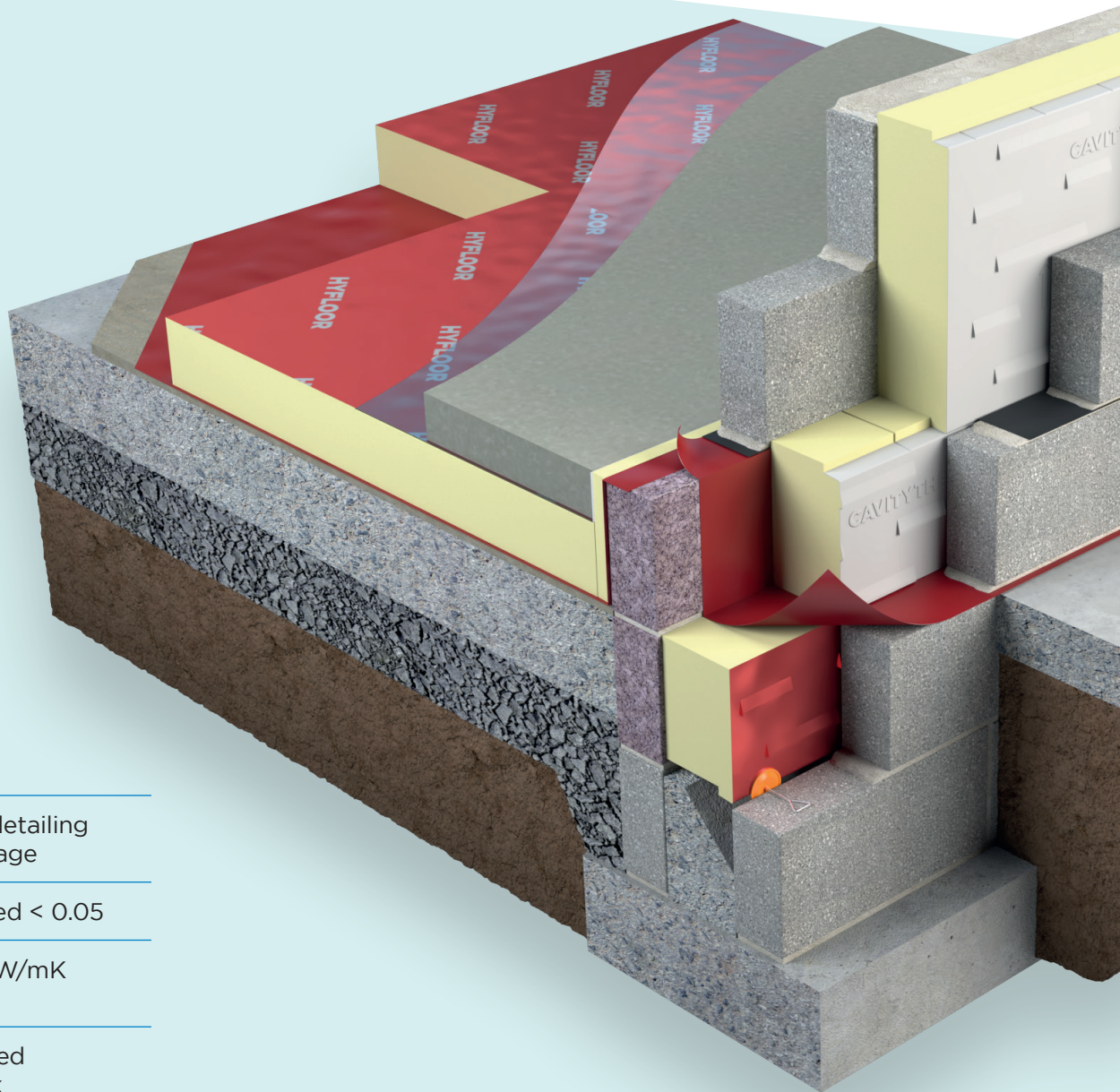


THIN-R PLUS

ENHANCED
PIR INSULATION

Ground Supported & Suspended Floors

HYFLOOR STRIP FOUNDATION SYSTEM



Addresses site detailing
from an early stage

Y-Values achieved < 0.05

Excellent 0.021 W/mK
lambda value

U-Values achieved
 $0.11 - 0.13 \text{ W/m}^2\text{k}$



THIN-R PLUS ENHANCED
PIR INSULATION

Ground Supported & Suspended Floors

HYFLOOR STRIP FOUNDATION SYSTEM**Hyfloor Strip Foundation System,**

combining engineered floor insulation with high performance foundation riser panels with medium density block, achieves both U-Values and Psi value detailing to achieve NZEB and passive floor performance.

Providing effective insulation, that has been detailed and installed professionally at the initial stages of any building project, has multiple benefits. Detailing properly at floor level sets the standard for the thermal performances and installation accuracy of the total building envelope; get the floor right and good practice is set for the rest of the build.

Hyfloor Strip Foundation System provides U-Value and Thermal Bridging performance to meet NZEB standards along with assurance of high compressive strength at foundation level.

Benefits

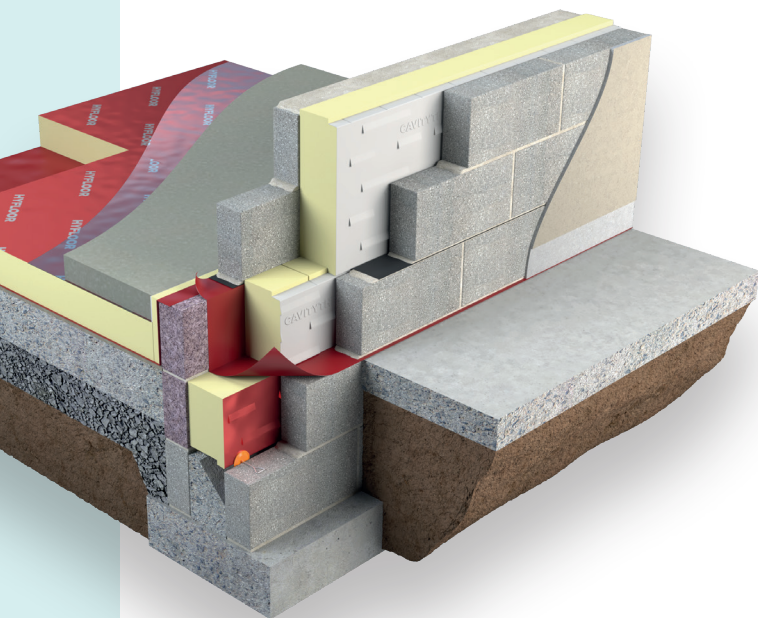
- Addresses site detailing from an early stage
- Y-Values achieved < 0.05
- Excellent 0.021 W/mK lambda value
- Floor U-Values achieved 0.11 - 0.13 W/m²k
- Using blocks suitable for multi-storey buildings with a high compressive strength
- Complies with standard construction ACDs

- Traditional construction, avoiding the need for engineering assurances
- Suitable for use with built-in full fill and partial fill wall insulation

Specification Clause

The floor insulation shall be Unilin Hyfloor Strip Foundation System manufactured to EN 13165 by Unilin, comprising of a rigid Jointed Polyisocyanurate (PIR) core between gas tight facings. The XT/HYF 150mm with Agrément certified Lambda value of 0.021 W/mK to achieve a U-Value of below 0.15 W/m²K for the floor element. The foundation strip insulation is to be Unilin Riser Panel to suitmm cavity, 225mm laid below DPC level as the riser wall is constructed. To be installed in accordance with instructions issued by Unilin.

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



Traditionally, insulating at floor level didn't receive the attention by designers and site operatives that is now required to meet NZEB or Passive standards; normally within a day, the insulation and all detailing are buried within the structure. The real disconnect however is the relationship between the installation of the floor insulation and the wall insulation. Typically completed as two separate skills at different times, and often by different teams, without consideration of the effect on Thermal Bridging at the wall/floor junction.

Threshold

Detailing at thresholds presents particular challenges in achieving the continuity of insulation. Avoiding Thermal Bridging, whilst maintaining level thresholds and avoiding water damage and degradation needs careful detailing. Contact Technical support for further details.

THERMAL PERFORMANCE



HYFLOOR STRIP FOUNDATION SYSTEM

Table 1
Ground Supported Slab

Build up:

- 65mm screed
- Separating layer Polythene sheet
- XT/HYF Insulation with Perimeter strips
- DPM 1200 gauge Polythene or Radon barrier
- Concrete slab

Perimeter/Area Ratio

	0.40	0.50	0.60	0.70	0.80
75mm	0.19	0.20	0.20	0.21	0.21
100mm	0.15	0.16	0.16	0.17	0.17
125mm	0.13	0.13	0.14	0.14	0.14
150mm	0.11	0.12	0.12	0.12	0.12

Table 2
Suspended Hollow Core floor

Build up:

- 65mm screed
- Separating layer Polythene sheet
- XT/HYF Insulation with Perimeter strips
- Hollow core slab

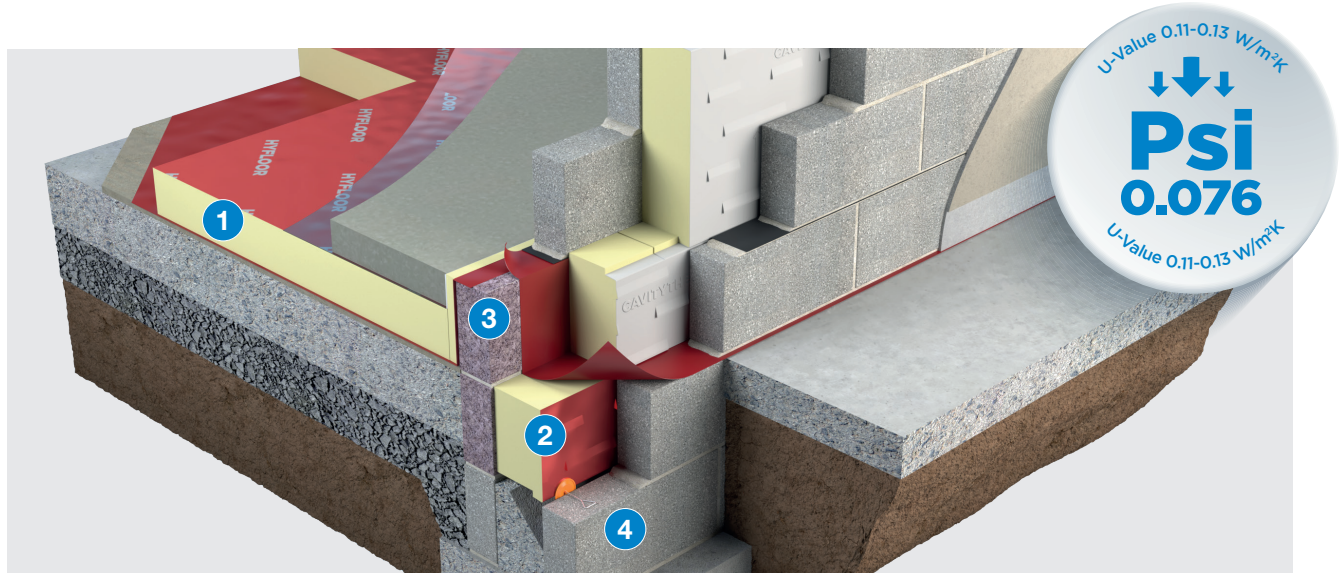
Perimeter/Area Ratio

	0.40	0.50	0.60	0.70	0.80
75mm	0.19	0.19	0.20	0.20	0.20
100mm	0.15	0.16	0.16	0.16	0.16
125mm	0.13	0.13	0.13	0.14	0.14
150mm	0.11	0.11	0.12	0.12	0.12

Thickness (mm)

INSTALLATION GUIDELINES

HYFLOOR STRIP FOUNDATION SYSTEM



Installing the Hyfloor insulation (1) along with the foundation strip insulation (2) at ground work stage ensures a thermally efficient junction. The inclusion of a medium density block (3) provides a suitable base for loading requirements. At this stage, (before the outer leaf is built) inspection and sign off of this critical junction can ensure compliance with the ACDs.

Traditionally, block work contractors are relied upon to provide this robust detailing after riser walls (4) have been built to DPC level. This normally entails pushing insulation into a cavity from above in contravention of SR325 guidance.

Notes for above image

1. 150mm Hyfloor
2. Hyfloor Foundation Strip
3. Medium Density Block
4. Riser walls

Where the DPC is folded at wall-floor junctions it doubles in thickness which pushes out the insulation and causes issues within the cavity.

Our riser board has a 20mm fleece which can compensate for this while still maintaining the thermal efficiency of the insulation and integrity of the cavity offering a simple solution to a typically complicated problem.

Thermal Bridging, the Y Value & NZEB

It might help to view the Y-Value that is used in DEAP to measure the effectiveness of detailing at junctions (basically how continuous the insulation system is) as a PENALTY U-Value. This U-Value is spread over the buildings to account for additional heat loss at junctions. Lets say you design your building element to achieve an average U-Value of 0.15 W/m²K. The default Y-Value when using the government published Acceptable Details is 0.08 W/m²K, bringing your average U-Value to 0.023 W/m²K. Unilin Detailing including the Unilin Riser can achieve Y-Value of <0.03 - the typical target to achieve NZEB.

Unilin's Floor & Foundation system supplies the designer with a traditional system that provides the thermal performance and detailing, using traditional materials to meet NZEB and Passive standards in Irish floor constructions.

Making use of readily available, medium density block that satisfies the structural requirement.

THERMAL BRIDGING

HYFLOOR STRIP FOUNDATION SYSTEM

Whether choosing an insulated foundation system or a traditional strip foundation, the method of measuring heat loss and comparing performance is simple:

- 1. The achieved U-Value for the floor itself.
- 2. The Psi value for heat loss through the wall/floor junction.
- 3. Adequate f (temperature) factor to avoid surface condensation and mould at skirting level.

U-Values of better than 0.15 W/m²K are generally sufficient to achieve NZEB standards. The achieved U-Value from any particular thickness of insulation is dependent on the ratio between floor perimeter and area (P/A), generally 150mm of Hyfloor will achieve a U-Value between 0.11 - 0.13 W/m²K.

The Psi Value is the measurement of heat loss through ‘non-repeating thermal bridges’ typically the junctions between plane building elements, e.g. at wall / roof, wall / floor junctions, and around openings where the continuity of the insulation is interrupted.

How is it accounted for?

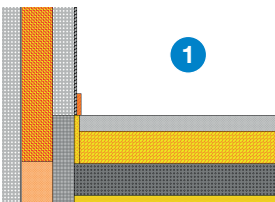
Thermal bridges are calculated as a linear thermal transmittance value - Psi (Ψ) measured in W/mK. DEAP is the software that is used to calculate a dwelling’s BER rating (SAP is used in Northern Ireland). Within DEAP, Thermal Bridging through junctions are accounted for as a ‘Y-Value.’

Passive Haus ask for Psi values below 0.010 W/mK for all junctions, but Passive Haus takes measurements externally when calculating. Within calculation methods, as per the guidance within current building regulations, measurements are taken internally; although the resultant Psi values differ, heat losses when compared are very similar.

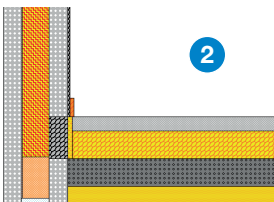
When designing to reduce heat loss at the floor junction other factors must be taken into account. Loadings, effects of ground water and build-ability are critical factors.

Hyfloor Strip Foundation System takes all these factors into consideration as part of the design delivering Psi values as low as 0.076 W/mK with the benefit of full structural capability.

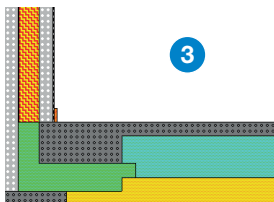
Method	Psi Value (Internal)	Strength	Engineers Calc Required
1. Hyfloor Riser Med Block 7n	0.076	7.5 N/mm ²	N
2. Lightweight Block System	0.061	2.9-7.5 N/mm ² (option)	Y
3. EPS Wrapped Foundation	0.105	Manufactured dependent	Y
4. HD Foamglas Break	0.056	2.9 N/mm ²	Y



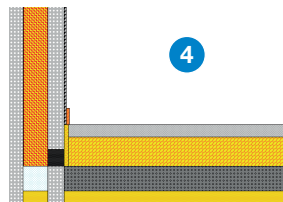
Hyfloor Riser Med Block 7n



Lightweight Block System



EPS Wrapped Foundation



HD Foamglas Break

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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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 CO₂ 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 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.