



FOR FLOORS

# Eco-UFH



Used for insulating screeded under floor heating systems and to provide a fast and secure method of installing UFH water pipes



Fibre free rigid polyisocyanurate (PIR)  
insulation core faced with tough, gridded  
woven aluminium facings on both sides





## Applications

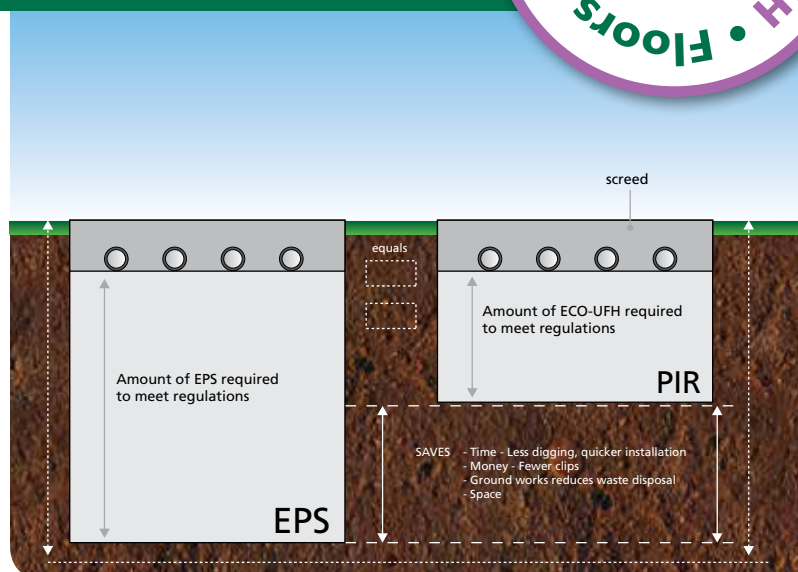
Used in conjunction with screeded under floor heating systems in new-build floors and for upgrading the thermal performance of existing floors. It provides a cost effective means of reducing CO<sub>2</sub> emissions and for compliance with building regulations.

## Description

EcoTherm Eco-UFH comprises a fibre free rigid polyisocyanurate (PIR) insulation core with a tough woven aluminium foil composite grid on both sides. It saves energy and building running costs by distributing the heat (upwards) evenly via the foil facing, and because of its low thermal conductivity it is significantly thinner than conventional Expanded Polystyrene (EPS) foam systems. This saves money for installers not having to dig so deep whilst providing the best thermal performance.

Equally suitable for housing and schools, hospitals, sports halls, commercial or light industrial applications.

It has inherent resistance to alkali attack and it is a high performance insulation suitable for use with screeded under floor heating systems. The tough woven grid gives a visual guide to enable



installers to lay the pipes quickly and the line grid system measures at 50mm intervals enabling any pipe centres to be chosen easily. Pipe clips fixed through the innovative facing are retained securely.

EcoTherm Eco-UFH board has a high compressive strength meaning it can stand up to foot traffic and it has excellent dimensional stability and resistance to bowing which can sometimes be a significant factor in screeded UFH systems.



## Product properties

### DIMENSIONS

**Width:** 1200mm

**Length:** 2400mm

**Thickness:** 25 to 100mm

**Weight:** See table 1 for board weights

### COMPRESSIVE STRENGTH

Typical compressive strength for the insulation exceeds 150kPa when tested to BS EN 826: 1996 Thermal Insulating Products for Building Applications-Determination of compressive behaviour.

### DURABILITY

The product is stable, rot proof and durable and will remain effective as an insulation system. Durability depends on the method of application, the supporting structure and conditions of use.

The fibre free insulation core and facings resist attack by mould and microbial growth, and do not provide any food value to vermin.

### RESISTANCE TO SOLVENTS

PIR insulation resists attack from alkalis, dilute acids, mineral oil and petrol. The fibre free insulation core is not resistant to ketonic solvents. Damaged boards should not be used.

The tough protected aluminium foil resists cement and screed attack.

### THERMAL CONDUCTIVITY

Eco-UFH has a gas-tight, low emissivity, gridded reflective foil.

The thermal conductivity (lambda/ $\lambda$ -value) of the insulation is 0.022 W/mK and the thermal resistances of the range within given constructions are shown in table 1.

EcoTherm PIR insulation lambda and thermal resistance values stated in this datasheet are in accordance with BS EN 13165: 2012 Thermal insulation products for buildings – Factory made rigid polyurethane foam products – Specification.

### WATER VAPOUR RESISTANCE

Foil facings have a water vapour resistance exceeding 70MNs/g and the fibre free insulation core has a water vapour resistance of 300MNs/g/m and will, therefore, provide significant resistance to water vapour transmission. This will minimise both surface and interstitial condensation.



## Design considerations

### ENVIRONMENTAL

EcoTherm insulation is manufactured with a blowing agent that is CFC/HCFC free and has zero Ozone Depletion Potential (ODP) with a low Global Warming Potential (GWP) of less than 5. Eco-UFH corresponds to the BRE Global Green Guide generic specification which achieves a summary rating of A.

EcoTherm Insulation is manufactured under an ISO 14001 Environmental Management System (LPCB certificate - 388 - 7EMS).

### FIRE

Details on the fire performance may be obtained from EcoTherm Technical Services.

### FLOOR LOADING

The product, covered with a screed overlay or concrete slab, can support design loadings for self-contained dwelling units as defined in BS 6399-1: 1996 Loading for buildings, Code of practice for dead and imposed loads without undue compression deflection.

### STANDARDS AND APPROVALS

EcoTherm Insulation is manufactured under an ISO 9001 Quality Management System (LPCB certificate 388 – 7QMS), ISO 14001 Environmental Management System (LPCB certificate - 388 – 7EMS) and BS OHSAS 18001 Occupational Health and Safety Management

System (LPCB certificate 388 – 7HS). All certificates are available for download from [www.ecotherm.co.uk](http://www.ecotherm.co.uk)

All EcoTherm insulation products have a CE Declaration of Performance available for download from [www.ecotherm.co.uk](http://www.ecotherm.co.uk)

Consideration should be given to the recommendations of UHMA (Under Floor Heating Manufacturer's Association) and BRUFMA (British Rigid Urethane Foam Manufacturers' Association) and BRE Good Building Guide 45, Insulating Ground Floors.

CP102:1973 Code of Practice for protection of buildings against water from the ground.

### SPECIFICATION CLAUSE

The insulation shall be EcoTherm Eco-UFH \_\_\_mm thick. Fibre free rigid polyisocyanurate (PIR) insulation core with aluminium woven grids on both sides. It shall be manufactured in accordance to Quality Management System ISO 9001: 2008, Environmental Management System ISO 14001: 2004 and Occupational Health & Safety Management System BS OHSAS 18001: 2007. EcoTherm Eco-UFH must be installed in accordance with instructions issued by EcoTherm insulation UK.

### TYPICAL U-VALUES

EcoTherm Eco-UFH gives typical insulation values as shown in table 1. These calculations take into account the floor construction involved and the Perimeter/Area ratio for the room involved.

U-value calculations for a given P/A rating are available from EcoTherm Technical Services on request.

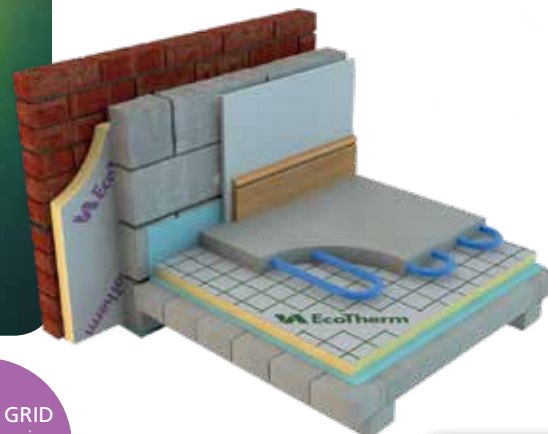


**SUPERB CLIP RETENTION**  
heavy duty facing holds clips tight

**BUILT IN MEMBRANE**  
no need for a polythene overlay

**IT'S THIN**  
superior rigid insulation

**PRINTED GRID**  
makes it easier to align the pipes



**FOR FREE TECHNICAL ADVICE**  
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**Email: technical@ecotherm.co.uk**



## Site work

### HANDLING

- Do not drop boards
- To cut use a sharp knife or fine tooth saw
- Wear eye protection when cutting
- Damaged boards should not be used

Cutting with power tools generates dust so should be kept to a minimum. Ideally all operations which produce dust should be carried out in well ventilated conditions; where possible a dust mask selected in accordance with BS EN 149 and eye protection should be worn.

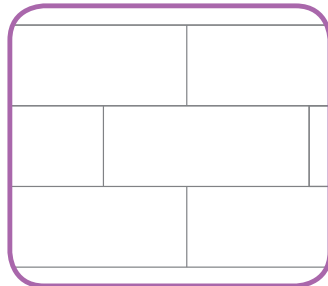
Ensure accurate trimming to achieve close butt joints and continuity of insulation, particularly around projections.

### LAYING PATTERN

Lay with closely-butted, staggered cross-joints, ensuring that the insulation fits tightly around any service penetrations and all spaces are completely filled.

Eco-UFH has a built in membrane, so there is no need for a polythene membrane prior to screeding as with some other foil-faced insulation types.

We recommend taping joints if a liquid screed is used.



### MOISTURE TOLERANCE

The fibre free PIR core of EcoTherm Insulation boards has a low moisture absorption capacity.

The product must be used above the damp proof membrane and must not be used where it may come into contact with moisture from the ground.

### STORAGE

At no time should the insulation boards be left exposed to rain. Packs are stretch wrapped in recyclable polythene.

Store boards in a flat, dry area off the ground away from mechanical damage and sources of ignition. Boards should be completely covered with weatherproof sheeting. The boards must be kept dry at all times.

The boards must be protected from prolonged exposure to sunlight and should be stored either under cover or covered with opaque polyethylene sheets.

### HEALTH & SAFETY

This PIR product is chemically inert and safe to use, product safety information is available to download from [www.ecotherm.co.uk](http://www.ecotherm.co.uk)

Table 1

(P/A - 0.5)

Thickness (mm)	Length (mm)	Width (mm)	Weight per board (kg)	R-value (m <sup>2</sup> K/W)	Typical U-value Solid floor (W/m <sup>2</sup> K)	Typical U-value Suspended Beam & Block (W/m <sup>2</sup> K)
25	2400	1200	3.4	1.14	0.36	0.40
30	2400	1200	3.8	1.36	0.33	0.37
35	2400	1200	4.3	1.59	0.31	0.34
40	2400	1200	4.7	1.82	0.28	0.31
50	2400	1200	5.6	2.27	0.25	0.27
60	2400	1200	6.5	2.73	0.22	0.24
75	2400	1200	7.8	3.41	0.19	0.21
80	2400	1200	8.3	3.64	0.19	0.20
90	2400	1200	9.2	4.09	0.17	0.18
100	2400	1200	10.1	4.55	0.16	0.17

The U-values quoted above are for guidance only. Detailed U-value calculations should be complete for each project by EcoTherm Technical Services. Please call for bespoke thicknesses

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Please consult EcoTherm for details of BBA certificate numbers for specific products  
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