



## Celotex FI5000 Underfloor Heating Applications

Premium Flooring Insulation Board

**Celotex**  
SAINT-GOBAIN

**IMPORTANT: We have recently identified a compliance issue relating to our calculation and testing of the lambda value of products in our 4000 and 5000 range and the Crown-Bond and Crown-Fix products within Crown Flat Roofing range. Due to this issue, the suspension of the 5000 range will continue and now includes the FI5000 and GD5000 products. Materials relating to this product are for information only.**

### Introduction

Celotex is the brand leading manufacturer of PIR insulation boards, with its range encompassing the thinnest and thickest boards available to the construction industry today. All of the Company's products are manufactured at its plant in Suffolk, from where the dedicated Celotex Technical Centre offers advice and calculations for compliance with current regulations and legislation.

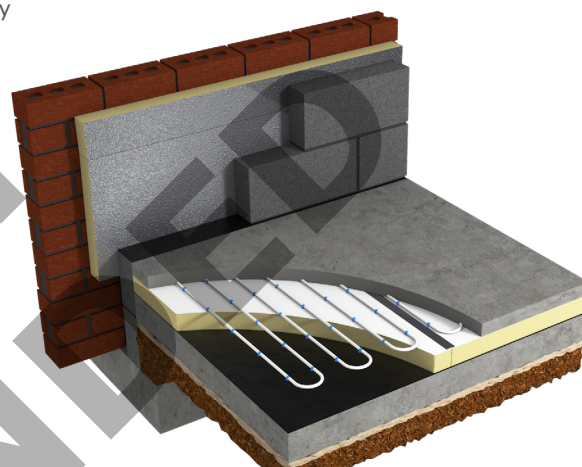
Use **Celotex FI5000** premium performance thermal insulation in underfloor heating applications to minimise insulation thickness and give the following benefits:

- A lower thermal conductivity value (0.021 W/mK) compared with other typical PIR insulation boards providing enhanced thermal performance
- Ensures minimal downward heat loss into structure
- Has an enhanced compressive strength value of  $\geq 175$  kPa
- Has an innovative composite facer featuring a built-in vapour control layer (VCL), enabling direct screed, without the need for an additional separating layer.
- Is easy to cut and install
- Pipe retaining clips may be inserted directly into the Celotex insulation
- Future proofs the energy performance of new and existing buildings

Wet underfloor heating systems may be used with Celotex FI5000. The Celotex insulation is positioned above the concrete slab or floor deck. Compatibility with any given system should be checked with the system manufacturer. Underfloor heating systems must be installed carefully in line with the manufacturers recommendations.

### Celotex FI5000 Technical Data

Product Code	Thickness (mm)	R-value (m <sup>2</sup> K/W)	Weight (kg/m <sup>2</sup> )
FI5075	75	3.55	3.36
FI5100	100	4.75	4.32
FI5125	125	5.95	5.28



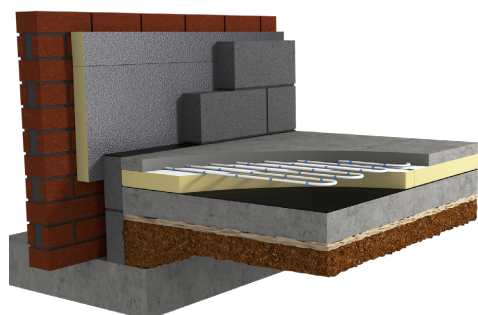
Celotex FI5000 in an underfloor heating application

### Sustainable Insulation

Celotex PIR insulation has been independently assessed by BRE Global and has been accredited with an A+ rating when compared to the BRE Green Guide.

The results also show that Celotex offers a lower environmental impact than other typical PIR manufacturers.

For further information about Celotex' sustainable insulation solutions, visit the sustainability pages of the website at [celotex.co.uk](http://celotex.co.uk)



Celotex US4000, insulation upstand, available now!  
Visit [celotex.co.uk](http://celotex.co.uk) for more information

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## Example U-value Calculation: Celotex FI5000 for use with Underfloor Heating

	Celotex Product	Thickness (mm)	Perimeter / Area Ratio									
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Concrete Slab Based on 65mm screed and 25mm insulation as perimeter upstand	FI5000	75	0.11	0.15	0.17	0.18	0.19	0.20	0.20	0.21	0.21	0.22
	FI5000	100	0.09	0.12	0.14	0.15	0.16	0.16	0.16	0.17	0.17	0.17
	FI5000	125	0.08	0.11	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.14
Beam & Block Based on 65mm screed and 25mm insulation as perimeter upstand	FI5000	75	0.14	0.17	0.18	0.19	0.20	0.21	0.21	0.21	0.21	0.21
	FI5000	100	0.12	0.14	0.15	0.16	0.16	0.17	0.17	0.17	0.17	0.17
	FI5000	125	0.10	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14
Suspended Timber Floor Based on timbers @ 400 ctrs	FI5000	75	0.15	0.20	0.23	0.24	0.26	0.26	0.27	0.28	0.28	0.29
	FI5000	100	0.14	0.17	0.19	0.21	0.22	0.22	0.23	0.23	0.23	0.24
	FI5000	125	0.12	0.15	0.17	0.18	0.19	0.19	0.19	0.20	0.20	0.20

U-value  
For U-values see variable layer list, or for more options, refer to our online U-value calculator at [celotex.co.uk](http://celotex.co.uk)

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## Installation Guidelines

Celotex insulation boards should not be installed when the temperature is below 4°C or at 4°C and falling.

### Pre-installation guidelines for concrete slab floor applications only

- Install a damp proof membrane below the Celotex. This can either be over the top or below the slab. The damp proof membrane must provide continuity with the damp proof course in the surrounding walls.
- Level the surface of the slab; it should be smooth and free of projections.
- If required, use a thin layer of sand blinding on a rough, tamped slab to ensure that the insulation boards are continuously supported.
- Use scaffold boards or other protection to prevent wheelbarrows and other traffic damaging the insulation.

### Installation guidelines for concrete slab and beam & block floor applications

- Use the **Celotex Insulation Saw** to cut and fit Celotex US4025 upstand to floor perimeter. The upstand depth should be equal to the sum of the slab insulation and the screed thickness. The upstand thickness should not exceed the combined thickness of the wall lining.
- Lay the insulation boards directly onto the prepared slab / beam and block with all joints tightly butted. In order to ensure a continuous separating layer across the insulation facer, board joints must be taped.
- Lay a proprietary underfloor heating system, generally comprising pipework in coils. Pipe retaining clips may be inserted directly into the Celotex insulation.
- Apply the screed over the Celotex insulation boards to a thickness recommended by the manufacturer of the underfloor heating system (normally 75mm).
- Compact the screed solidly when laid.
- Allow the screed to dry thoroughly before an impermeable surface, such as a vinyl finish, is applied. (Consult a specialist flooring contractor).

These recommendations are suitable for normal domestic floor loadings. If higher loadings are required, it may be necessary to increase the screed thickness and provide reinforcement within the screed. Consult a structural engineer or a specialist flooring contractor.

### Installation guidelines for suspended timber floor applications

- Install joists in the conventional manner, with solid or diagonal strut bracing as necessary. (NB: diagonal bracing may lead to thermal bridging).
- Fix battens to the sides of the joists to support the insulation and to form a cavity for the underfloor heating, between the insulation and floor boards.
- Use the **Celotex Insulation Saw** to cut the Celotex FI5000 insulation to achieve a tight fit, then push the boards firmly down between the joists.
- Insulate the gaps between the joists and wall to prevent thermal bridging.
- Lay a proprietary underfloor heating system within the cavity, generally comprising pipework in coils, to the manufacturer's guidelines.
- Install either chipboard or soft woodfloor boarding directly onto the joists.

## Further Information

If you wish to contact Celotex, please visit [celotex.co.uk](http://celotex.co.uk) and click on the 'contact us' page.

For information regarding **storage, installation and handling** of Celotex products, or for **Health and Safety** advice, please refer to the 'literature' pages of the website at [celotex.co.uk](http://celotex.co.uk)

Celotex has a policy of continuous product development and reserves the right to alter product designs or specifications without prior notice.

**Celotex**  
Lady Lane Industrial Estate,  
Hadleigh, Ipswich  
Suffolk IP7 6BA