



## Between and Under Joist Applications

Flat Roof Insulation

**Celotex**  
Insulation Specialists

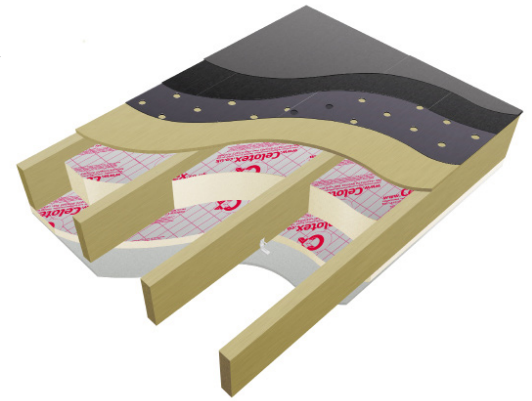
### Introduction

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.

Celotex: We know insulation inside and out.

Use a combination of **Celotex FR5000** with **Celotex GD5000 or GS5000** premium performance plasterboard thermal laminate in flat roof between and under joist applications to minimise insulation thickness and give the following benefits:

- Celotex GD5000 and GS5000 provides both the below joist insulation and plasterboard in one product helping reduce installation time
- Celotex GD5000 and GS5000 offers the installer maximum flexibility and installation speed due to the tapered edge plasterboard
- A perfect solution to upgrade older buildings
- Provides reliable long term energy savings for buildings
- No need to remove existing weatherproofing covering
- Ventilated cold roof construction
- The ideal renovation/conversion solution
- Helps to minimise any loss of internal headroom



Celotex FR5000 & GD5000/GS5000

### Celotex FR5000 Technical Data

Product Code	Thickness (mm)	R-value (m <sup>2</sup> K/W)	Weight (kg/m <sup>2</sup> )
FR5025	25	1.15	1.01
FR5040	40	1.90	1.49
FR5050	50	2.35	1.81
FR5060	60	2.85	2.16
FR5070	70	3.30	2.48
FR5075	75	3.55	2.64
FR5080	80	3.80	2.80
FR5090	90	4.25	3.12
FR5100	100	4.75	3.38
FR5120	120	5.70	4.02
FR5150	150	7.10	4.98

### 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)



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### Celotex GD5000 Technical Data

Product Code	Thickness (mm)	R-value (m <sup>2</sup> K/W)	Weight (kg/m <sup>2</sup> )
GD5025	25 + 9.5	1.20	7.02
GD5040	40 + 9.5	1.95	7.50
GD5050	50 + 9.5	2.40	7.82
GD5060	60 + 9.5	2.90	8.17

9.5mm tapered edge plasterboard is laminated to the specified insulation thickness

### Celotex GS5000 Technical Data

Product Code	Thickness (mm)	R-value (m <sup>2</sup> K/W)	Weight (kg/m <sup>2</sup> )
GS5025	25 + 9.5	1.20	7.20
GS5040	40 + 9.5	1.95	7.68
GS5050	50 + 9.5	2.40	8.00
GS5060	60 + 9.5	2.90	8.35

9.5mm tapered edge plasterboard is laminated to the specified insulation thickness

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### Example U-value Calculation: Cold Flat Roof - Between and Under Joists

Construction		125 deep joists Thickness (mm)	150 deep joists Thickness (mm)	175 deep joists Thickness (mm)
Outside surface resistance		-	-	-
Weather-proofing system		n/a	n/a	n/a
Plywood		19	19	19
Ventilated cavity		50	50	55
Celotex between joists @ 400 ctrs (11.7% brg)		FR5075	FR5100	FR5120
<b>Variable layer</b> (for below joists)		See below	See below	See below
Inside surface resistance		-	-	-
Celotex Product - Variable layer	Thickness (mm)	U-value (W/m <sup>2</sup> K)	U-value (W/m <sup>2</sup> K)	U-value (W/m <sup>2</sup> K)
Celotex GD/GS5000	25 + 9.5	-	-	0.19
Celotex GD/GS5000	40 + 9.5	-	0.18	0.16
Celotex GD/GS5000	50 + 9.5	0.19	0.17	0.15
Celotex GD/GS5000	60 + 9.5	0.18	0.15	0.14

### Installation Guidelines

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

- Make sure that there is enough joist depth to accommodate not only the thickness of the Celotex insulation, but also a 50mm ventilated airspace above the boards.
- Fix battens to the inside face of the joists so that the bottom of the batten is 50mm below the decking.
- Measure the space to be filled between the inside face of the joists prior to cutting the board.
- The Celotex Insulation Clip is designed to allow insulation boards to be installed between timber joists quickly and without nails or screws.
- Fit the clips at one metre maximum centres along the insulation.
- Push the boards into the void between the joists until they are tight up to the underside of stop battens, ensuring that the lateral joints are tightly butted.
- Secure Celotex GD5000/GS5000 to the underside of the joists.
- Joints between the boards must be tightly butted, taped and jointed using appropriate tape and jointing material to create the vapour control layer.

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Composite systems can be used to combine Celotex insulation under joist lining with quilt type insulant between the joists which will provide acoustic, as well as thermal insulation. This option is particularly useful when upgrading to modern acoustic insulation standards.

When updating an existing ceiling, Celotex GD5000/GS5000 can be fitted directly underneath the ceiling, providing there is no vapour check layer such as gloss paint or foil backed plasterboard. Always ensure that there is a 50mm minimum ventilation gap above any original insulation.

Ventilation must be provided above an insulated ceiling directly through the cold void. Failure to do so could result in serious condensation problems that may lead to decay and possible failure.

### 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.

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