



# Pitched Roof Sarking Applications

Pitched Roof Insulation

**Celotex**  
SAINT-GOBAIN

**IMPORTANT: On 1 September 2017, Celotex took the precautionary measure to temporarily suspend the supply of Celotex FR5000, Celotex CG5000, Celotex CF5000 and Celotex SL5000 while we investigate the results of recent tests (Parts 6 and 7 of British Standard 476). In addition, we have recently identified a compliance issue relating to our calculation and testing of the declared lambda value of products in the 4000 and 5000 ranges and the Crown-Bond and Crown-Fix products within the 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 the 5000 range products are for information only. Please note that all products in the TB4000, GA4000 below 100mm, PL4000 and CW4000 ranges manufactured after 15 December 2017 will be marketed from January as Celotex 3000 with a declared lambda value of 0.023 W/mK. To read the full statement please visit the Celotex website homepage.**

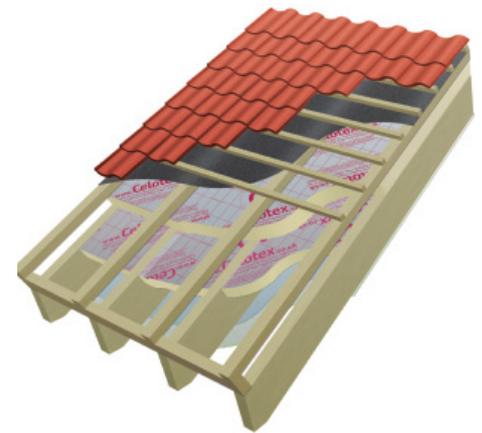
## Introduction

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 **Celotex TB4000**, **Celotex GA4000** and **Celotex XR4000** high performance thermal insulation in pitched roof sarking applications to minimise insulation thickness and give the following benefits:

- Highly efficient 'warm roof' insulation over rafters
- Provides reliable long term energy savings for buildings
- Low emissivity foil facers give improved thermal insulation performance within cavity air spaces
- Eliminates thermal bridging
- Optional single layer system
- Ideal for new build or major refurbishment projects
- Air-tight construction method



Celotex GA4000 & TB4000

## Celotex TB4000 Technical Data

Product Code	Thickness (mm)	R-value (m <sup>2</sup> K/W)	Weight (kg/m <sup>2</sup> )
TB4012	12	0.50	0.50
TB4025	25	1.10	0.85
TB4030	30	1.35	0.98
TB4040	40	1.80	1.26

## Celotex GA4000 Technical Data

Product Code	Thickness (mm)	R-value (m <sup>2</sup> K/W)	Weight (kg/m <sup>2</sup> )
GA4050	50	2.25	1.55
GA4060	60	2.70	1.90
GA4070	70	3.15	2.19
GA4075	75	3.40	2.34
GA4080	80	3.60	2.48
GA4090	90	4.05	2.76
GA4100	100	4.50	3.27

## 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 XR4000 Technical Data

Product Code	Thickness (mm)	R-value (m <sup>2</sup> K/W)	Weight (kg/m <sup>2</sup> )
XR4120	120	5.45	3.88
XR4130	130	5.90	4.19
XR4140	140	6.35	4.49
XR4150	150	6.80	4.79
XR4200	200	9.05	6.53



For premium performance including Class O fire performance Celotex FR5000 is suitable for this application. **(Product suspended, 1 September 2017)**

### Example U-value Calculation: Pitched Roof Sarking

Construction	Thickness (mm)	
Outside surface resistance	-	
Tiling including batten space	-	
Breather membrane	-	
Cavity / counter batten	22	
Celotex TB4000 between 47 x 47 counter battens @ 400 ctrs	25	
Variable layer	See below	
Cavity (low emissivity) rafter space (11.7% brg)	150	
Polythene 1000 gauge, VCL	-	
Plasterboard	12.5	
Inside surface resistance	-	
Celotex Product - Variable layer	Thickness (mm)	U-value (W/m <sup>2</sup> K)
Celotex GA4000, over rafter	70	0.19
Celotex GA4000, over rafter	75	0.18
Celotex GA4000, over rafter	80	0.18
Celotex GA4000, over rafter	90	0.16
Celotex GA4000, over rafter	100	0.15
Celotex XR4000, over rafter	120	0.13
Celotex XR4000, over rafter	130	0.13
Celotex XR4000, over rafter	140	0.12
Celotex XR4000, over rafter	150	0.11
Celotex XR4000, over rafter	200	0.09



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## Installation Guidelines

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

### Insulation over the rafters

- Note that specific fixing requirements should be determined for each roof, taking into account roof design and location.
- Fix a treated timber stop batten equal in thickness to the Celotex insulation across the rafters at the eaves. Butt boards directly against this batten.
- Install Celotex insulation boards with both edges supported by rafters.
- Cut the boards using the [Celotex Insulation Saw](#) to rake and splay at ridge and verges to ensure close butted joints.
- Use large headed nails to temporarily fix board in place, until permanently secured by counter battens.
- Install a breather membrane over the insulation.
- Position a preservative-treated timber counter batten (minimum 38mm x 50mm) over the breather membrane and insulation on the line of each rafter. Nail the lower end of each counter batten directly into the stop batten.
- Calculate the length of the suitable fixings required by adding together the counter batten depth, the insulation thickness and depth of penetration required to the rafter (usually minimum 38mm).
- Fix at maximum 400mm centres along the counter batten. Pre-drill pilot holes in the counter battens to ensure ease of nailing and to reduce the possible splitting of the timber.
- Fix the tile battens to the counter battens at an appropriate gauge to suit the slates or tiles selected.

### Insulation between the rafters

- For optimum thermal performance the unprinted foil surface should face the rafter air cavity.
- Accurately measure the width to be filled between the inside face of the rafters, prior to cutting the board.
- Use the [Celotex Insulation Saw](#) to cut the Celotex board at a slight angle, making the board width slightly oversized on one surface to achieve a 'friction fit'.
- Push the board into the void between the rafters until it is tight against the underside of the first layer of insulation.
- To hold the boards in place, use battens along the side of the rafters.
- Tightly fit the insulation to the ridge plate and carry over and tightly butt the wall plate at eaves.
- A vapour control layer (VCL) should be installed to the underside of the rafters. A polythene sheet of higher vapour resistance is recommended for high humidity areas such as kitchens or bathrooms.
- Finish with plasterboard or other suitable sheet material, fixed to the rafters.
- NB: Where exposed rafters are required, plasterboard (or any other suitable decorative board) may be laid over the rafters before fixing the insulation. Select longer fasteners to suit. Plasterboard should be protected from rain during the installation. A polythene vapour control layer (VCL) must be installed directly over the plasterboard.

## Certifications and Accreditations

Celotex products TB4000, GA4000, FR5000 and XR4000 are covered by BBA Agreement Certificate No 17/5405. To download a copy of this certificate, visit the '[literature](#)' pages of the website at [celotex.co.uk](#)

## Further Information

If you wish to contact Celotex, please visit [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](#)

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

**Celotex**

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