



# Single Timber Frame Wall Lining and Dormer Cheeks

Wall Insulation

**Celotex**  
 Insulation Specialists

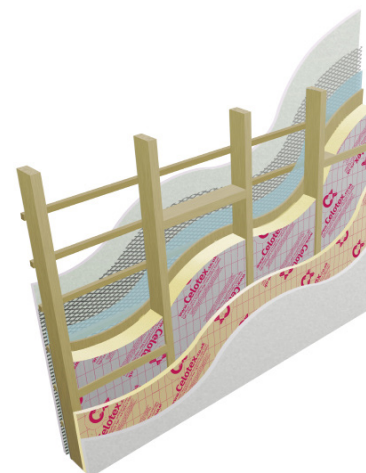
## Introduction

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.

Celotex offers two solutions for single timber frame wall lining applications. The first utilises the low lambda values of **Celotex GA4000** between the studs, followed by an internal lining of **Celotex PL4000** over the studs. This solution provides the thinnest build-up with better thermal insulation. The **Celotex PL4000** provides the over stud insulation and plasterboard in one product; helping reduce installation time.

The second option is to use mineral wool batts fitted between the studs, followed by an internal lining of **Celotex PL4000** over the studs. This solution gives a thicker build-up but offers improved acoustic insulation.



Celotex PL4000 - rendered

## 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
GA4055	55	2.50	1.74
GA4060	60	2.70	1.90
GA4065	65	2.95	2.05
GA4070	70	3.15	2.19
GA4075	75	3.40	2.34
GA4080	80	3.60	2.48
GA4085	85	3.85	2.62
GA4090	90	4.05	2.76
GA4100	100	4.50	3.27

## Celotex PL4000 Technical Data

Product Code	Thickness (mm)	R-value (m <sup>2</sup> K/W)	Weight (kg/m <sup>2</sup> )
PL4015	15 + 9.5	0.70	6.62
PL4025	25 + 12.5	1.20	9.06
PL4040	40 + 12.5	1.85	9.52
PL4045	45 + 12.5	2.10	9.67
PL4050	50 + 12.5	2.30	9.83
PL4055	55 + 12.5	2.55	10.01
PL4060	60 + 12.5	2.75	10.15
PL4065	65 + 12.5	3.00	10.30

12.5mm tapered edge plasterboard is laminated to the specified insulation thickness  
 9.5mm tapered edge plasterboard is laminated to PL4015

## 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)



For premium performance including Class O fire performance Celotex FR5000 is suitable for this application.

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## Example U-value Calculation: Single Timber Frame Wall

Construction	Weatherboarding Thickness (mm)	Tile Hung Thickness (mm)	Rendered Thickness (mm)	Lead Clad Thickness (mm)	
Outside surface resistance	-	-	-	-	
Weatherboard - Tiles - Rendered - Code 4 Lead	any	any	20	1.8	
Ventilated cavity batten air space	25	n/a	25	25	
Breather membrane	-	-	-	-	
Plywood	12	12	12	12+	
Celotex between 100mm studs @ 400 ctrs (11.7% brg) GA4060		GA4060	GA4060	GA4060	
Low emissivity cavity between studs @ 400 ctrs (15% brg)		40	40	40 40	
<b>Variable layer</b> (for over studs)	See below	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)	U-value (W/m <sup>2</sup> K)
Celotex PL4000	15 + 9.5	0.29	0.29	0.29	0.30
Celotex PL4000	25 + 12.5	0.25	0.25	0.25	-
Celotex PL4000	40 + 12.5	0.21	0.21	0.21	0.22
Celotex PL4000	45 + 12.5	0.20	0.20	0.20	0.21
Celotex PL4000	50 + 12.5	0.19	0.19	0.19	0.20
Celotex PL4000	55 + 12.5	0.19	0.19	0.19	0.19
Celotex PL4000	60 + 12.5	0.18	0.18	0.18	0.18
Celotex PL4000	65 + 12.5	0.17	0.17	0.17	0.17

## Installation Guidelines

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

- Make sure all studs and rails are flush, with no projections, and that services are correctly installed.
- Fit Celotex insulation or mineral wool batts tightly in-between all studs and push up to plywood sheathing.
- For optimum thermal performance, the unprinted foil surface should face the air cavity within the studwork.
- Cut boards for infill panels, using off-cuts where possible, making sure there are no air gaps at wall abutments.
- Install Celotex PL4000 insulation over the studs.
- Tightly butt edges of boards together, making sure there are no gaps and fix back to solid timber, both at stud lines and at top and bottom rails.
- Joints between the boards must be tightly butted, taped and jointed using appropriate tape and jointing material to create the vapour control layer (VCL).
- Vapour seal all perimeter abutments using sealant.
- Seal around all penetrations for electrical outlets and switch boxes.

NB: Some building insurance companies may require additional third party approval when using insulation in timber frame applications. Advice should be sought from the relevant parties prior to specifying the insulation required. Celotex insulation is covered by BBA certificate number 09/4667.

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### Certifications and Accreditations

Celotex product GA4000 is covered by BBA Agreement Certificate No 95/3197 & 09/4667. To download a copy of this certificate, visit the 'literature' pages of the website at [celotex.co.uk](http://celotex.co.uk)

### 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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