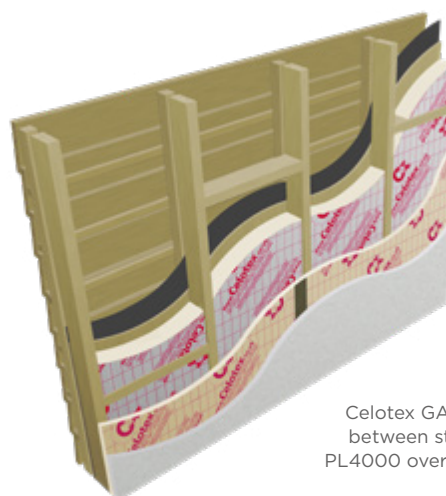


# Single Timber Frame Wall Lining and Dormer Cheeks

Celotex offers two solutions for [single timber frame wall lining](#) applications. The first utilises the low lambda values of [Celotex GA4000](#) or [XR4000](#) between the studs, followed by an internal lining of [Celotex PL4000](#) over the studs. This solution provides a thinner 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 the acoustic properties of a mineral wool product.



Celotex GA4000  
between studs &  
PL4000 over studs

## Celotex GA4000 Technical Data

Thickness (mm)	R-value (m <sup>2</sup> K/W)	Maximum Board Weight (kg/m <sup>2</sup> )
GA4050	2.25	1.92
GA4060	2.70	2.26
GA4070	3.15	2.61
GA4075	3.40	2.78
GA4080	3.60	2.96
GA4090	4.05	3.31
GA4100	4.50	4.15

## Celotex XR4000 Technical Data

Thickness (mm)	R-value (m <sup>2</sup> K/W)	Maximum Board Weight (kg/m <sup>2</sup> )
XR4110	5.00	4.54
XR4120	5.45	4.93
XR4130	5.90	5.32
XR4140	6.35	5.71
XR4150	6.80	6.10
XR4165	7.50	6.69
XR4200	9.05	8.06

## Celotex PL4000 Technical Data

Thickness (mm)	R-value (m <sup>2</sup> K/W)	Maximum Board Weight (kg/m <sup>2</sup> )
PL4015 + 12.5 <sup>†</sup>	0.70 <sup>‡</sup>	9.69 <sup>‡</sup>
PL4025 + 12.5 <sup>†</sup>	1.20 <sup>‡</sup>	9.99 <sup>‡</sup>
PL4040 + 12.5 <sup>†</sup>	1.85 <sup>‡</sup>	10.46 <sup>‡</sup>
PL4050 + 12.5 <sup>†</sup>	2.30 <sup>‡</sup>	10.96 <sup>‡</sup>
PL4060 + 12.5 <sup>†</sup>	2.75 <sup>‡</sup>	11.31 <sup>‡</sup>
PL4065 + 12.5 <sup>†</sup>	3.00 <sup>‡</sup>	11.48 <sup>‡</sup>

For product information for your project, please contact either our [technical team](#) or our [specification team](#).

<sup>†</sup> 12.5mm tapered edge plasterboard is laminated to the insulation thickness  
<sup>‡</sup> insulation component only



We have an experienced team of energy assessors who can carry out SAP calculations, water calculations, airtightness testing and much more. [Contact us](#).



Celotex presents a comprehensive range of thermal bridging models featuring our PIR insulation products. This tool helps you identify the build-up required to reduce heat loss through a typical junction of elements or at openings. [Sign up now](#).

## Example U-value calculation: single timber frame wall lining

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	
Variable layer (for over studs)	See below	See below	See below	See below	
Board joints sealed for VCL	-	-	-	-	
Plaster skim	-	-	-	-	
Inside surface resistance	-	-	-	-	
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 + 12.5 <sup>†</sup>	0.29	0.29	0.29	0.30
Celotex PL4000	25 + 12.5 <sup>†</sup>	0.25	0.25	0.25	0.26
Celotex PL4000	40 + 12.5 <sup>†</sup>	0.21	0.21	0.21	0.22
Celotex PL4000	50 + 12.5 <sup>†</sup>	0.19	0.19	0.19	0.20
Celotex PL4000	60 + 12.5 <sup>†</sup>	0.18	0.18	0.18	0.18
Celotex PL4000	65 + 12.5 <sup>†</sup>	0.17	0.17	0.17	0.17

<sup>†</sup> 12.5mm tapered edge plasterboard is laminated to the insulation thickness

When using lead clad, the plywood layer is moved to outside the ventilated batten airspace

### 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)

## 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.

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.

Not for use in buildings with a storey height above 18m.

Following the Independent Review of Building Regulations and Fire Safety (the Hackitt review), the UK government is considering changes to the Building Regulations. You should consult your building designer and Building Control Officer before specifying any particular product.

### Certifications and accreditations

Celotex products GA4000 and XR4000 are covered by BBA Agrément Certificate No [17/5405](#) and [17/5357](#). To download a copy of this certificate, visit the 'literature' pages on our website.

### Further information

If you wish to contact Celotex, please do so through the '[contact us](#)' page on our website.

For information regarding storage, installation and handling of Celotex products, or for health & safety information, please refer to our online 'literature' pages.

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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