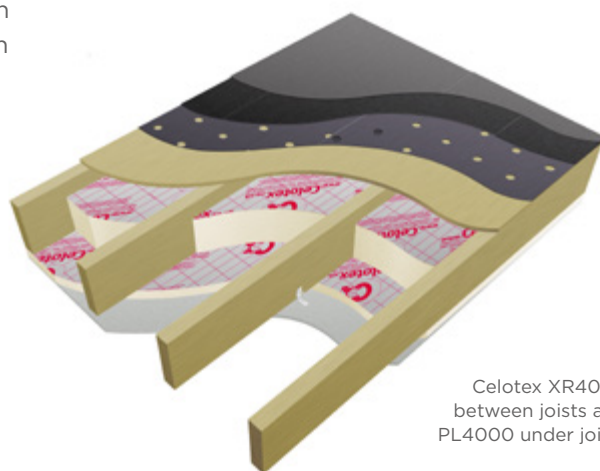


Use a combination of [Celotex GA4000](#) or [Celotex XR4000](#) with [Celotex PL4000](#) high performance plasterboard thermal laminate in flat roof [between and under joist applications](#) to minimise insulation thickness and give the following benefits:

- Celotex PL4000 provides both the below joist insulation and plasterboard in one product helping reduce installation time
- Celotex PL4000 offers the installer maximum flexibility and installation speed due to the tapered edge plasterboard
- An effective solution to upgrade older buildings
- Can be used to provide reliable long term energy savings for buildings
- No need to remove existing weatherproofing covering
- The ideal renovation/conversion solution
- Helps to minimise any loss of internal headroom



Celotex XR4000
between joists and
PL4000 under joists

Celotex GA4000 Technical Data

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

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

[†] 12.5mm tapered edge plasterboard is laminated to the insulation thickness
[‡] 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: Cold Flat Roof - Between and Under Joists

Construction		100 deep joists Thickness (mm)	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	n/a
Plywood		18	18	18	18
Ventilated cavity		50	50	50	55
Celotex between joists @ 400 ctrs (11.7% brg)		GA4050	GA4075	GA4100	XR4120
Variable layer (for below joists)		See below	See below	See below	See below
Board joints taped for VCL		-	-	-	-
Plaster skim		-	-	-	-
Inside surface resistance		-	-	-	-
Variable Layer	Thickness (mm)	U-value (W/m ² K)	U-value (W/m ² K)	U-value (W/m ² K)	U-value (W/m ² K)
Celotex PL4000	15 + 12.5 [†]	-	-	-	-
Celotex PL4000	25 + 12.5 [†]	-	-	-	0.19
Celotex PL4000	40 + 12.5 [†]	-	-	0.19	0.17
Celotex PL4000	50 + 12.5 [†]	-	0.20	0.17	0.15
Celotex PL4000	60 + 12.5 [†]	-	0.18	0.16	0.14
Celotex PL4000	65 + 12.5 [†]	0.20	0.17	0.15	0.14

[†] 12.5mm tapered edge plasterboard is laminated to the insulation thickness

U-value

For U-values see variable layer list. U-values will vary depending on application.

To calculate a specific U-value, please visit our online calculator at 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 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 PL4000 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.

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 PL4000 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.

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.

Installation guidelines

Installation of Celotex GA4000, XR4000 and PL4000 will depend on application type. For installation details please refer to our online 'applications' pages.

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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