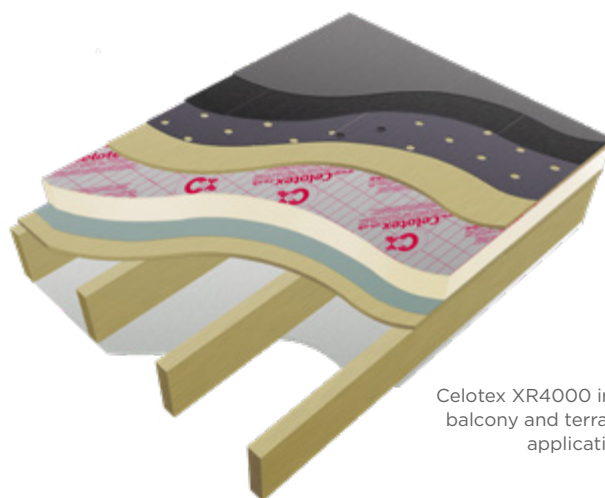


Use a combination of [Celotex GA4000](#) or [Celotex XR4000](#) high performance thermal insulation between 18mm plywood sheeting for use in warm flat roof deck [balcony applications](#) to minimise insulation thickness and give the following benefits:

- Warm roof construction due to over joist insulation
- Can be used to provide reliable long term energy savings for buildings
- Eliminates the need to insulate between joists
- Ventilation not required through roof void
- Robust deck structure copes with regular foot traffic
- Rapidly installed and weatherproofed



Celotex XR4000 in a balcony and terrace application

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

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



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: Flat Roof Insulating Deck - Balcony

Construction	Terrace BUR Thickness (mm)	Terrace SPM Thickness (mm)	Terrace BUR EX-J Thickness (mm)
Outside surface resistance	-	-	-
Built-up roofing or single-ply membrane	12	1.5	12
Plywood	18	18	18
Variable layer	See below	See below	See below
Polythene 1000 gauge, VCL	-	-	-
Plywood	18	18	18
Cavity between joist @ 400 ctrs - 11.7% bridging	150	150	n/a
Plasterboard	12.5	12.5	n/a
Plasterboard between joist - 11.7%	n/a	n/a	12.5
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)
Celotex XR4000	120	0.18	0.18	0.19
Celotex XR4000	130	0.17	0.17	0.18
Celotex XR4000	140	0.16	0.16	0.17
Celotex XR4000	150	0.15	0.15	0.16
Celotex XR4000	165	0.14	0.14	0.14
Celotex XR4000	200	0.12	0.12	0.12

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.

- Ensure the joist spacing is at no more than 600mm centres and that the dimension of the joist is sufficient to span and accept additional loads. If asphalt weathering is to be used, joists should be at no more than 400mm centres. Install firrings to give a fall of 1:80, or as appropriate to type of construction tolerance.
- Install 18mm plywood to top of joists/firrings and fit a suitable vapour control layer (VCL) for the waterproofing system.
- Install Celotex insulation to the required thickness and install secondary layer of 18mm plywood. Insulation boards should be laid break-bonded, either with their long edges at right angles to the edge of, or diagonally across the roof and with joints butted. There should be no gaps at abutments. Joints between boards should not coincide with those between the plywood sheets.
- Fix with corrosion-proof wood screws at a frequency to suit the design wind load. Refer to BS6399-2 Code of Practice for Wind Loads.
- Ensure that fixings are no less than 10mm in from the board edge or 50mm from each corner. They should be equally spaced along the supporting joists. Fixings should be long enough to penetrate at least 38mm into the supporting timber.
- Stagger opposing fixings where two board edges share the same joist.
- Provide a complete insulation envelope by extending the wall insulation board up to the underside of the roof deck.

- Ensure that the plywood is completely dry before any weathering system is applied.
- Built-up roofing (BUR): Always ensure that the vapour diffusion first layer is specified in line with BS 8747 when using BUR weathering systems.
- Single-ply membrane (SPM). Please consult the manufacturer or supplier or relevant trade association for installation guidelines on all SPM weathering systems.
- Temporary protection must be provided for both the insulation and the waterproofing, if significant foot traffic is anticipated either during or after installation.

Additional Installation Guidelines for Balconies

- Before commencement of works, consult with a structural engineer to ensure that the whole structure is adequate to take the additional loads of a balcony.
- The chosen weather proofing system should then be applied directly to the surface of the plywood and protected from foot traffic with promenade tiles, decking or a similar finish.

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 and XR4000 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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