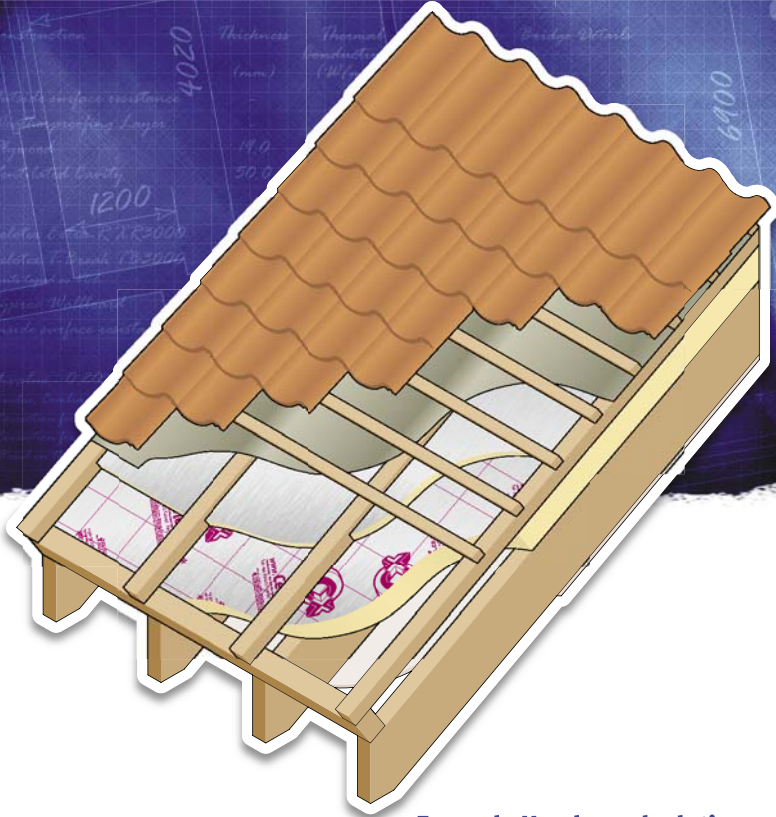


Pitched roof sarking



Example U-value calculation

Use **Celotex Extra-R™ XR3000**, **Celotex tuff-R™ GA3000** and **Celotex T-Break™ TB3000** high performance thermal insulation in pitched roof sarking applications to minimise insulation thickness and give the following benefits:

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

	Thickness (mm)	Thermal conductivity (W/mK)	Thermal resistance (m ² K/W)	Pitch & Bridge Details
Outside surface	–	–	0.040	
Tiling inc. batten space	–	–	0.120	
Breather membrane	–	–	–	
Cavity (counter batten) 22.0	–	–	0.454*	11.7%
Celotex insulation 25.0	–	0.023	1.087	11.7%
<i>between 47 x 47 mm counter battens @ 400 c/c</i>				
Celotex insulation 65.0	–	0.023	2.826	
<i>over rafter with taped joints</i>				
Cavity (low emissivity) 100.0	–	–	0.454*	11.7%
Gypsum wallboard 12.5	–	0.160	0.080	
Inside surface	–	–	0.100	

U-value = 0.20 W/m²K

GA3080 + TB3025 between battens achieves **0.18 W/m²K**

XR3100 + TB3025 between battens achieves **0.16 W/m²K**

* Airspace resistance calculated in accordance with BS EN ISO 6946: 1997 Annex B.2. Based on BBA certified emissivity values. Applicable only when using Celotex product.

Installation guidelines

- Note that specific fixing requirements should be determined for each roof, taking into account roof design and location.
- For optimum thermal performance, the unprinted foil surface should face adjacent air cavities.
- 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 the long sides parallel to the rafter lines with both edges supported by rafters.
- Cut the boards to rake and splay at ridge and verges to ensure close butted joints.
- Use large headed nails to fix boards in place temporarily until permanently secured by counter battens.
- Apply self adhesive aluminium foil tape (minimum 50 mm wide) carefully to the top face of the boards to seal all joints prior to fixing the counter battens. Clean and dry the board surfaces before application of the tape.
- Position a preservative-treated timber counter batten (minimum 38 x 50 mm) over the 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 stainless helical spike fixings required by adding together the counter batten depth, the insulation thickness and depth of penetration required into the rafter (usually minimum 38 mm).
- Stainless steel helical spikes have been specifically developed for 'warm' pitched roofs and are especially appropriate for use with pre-trussed rafter constructions, allowing a much thinner gauge of fastener to be used, thus reducing the risk of splitting timber battens or rafters.
- Fix at maximum 400 mm 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.
- Cut a second layer of **Celotex** insulation, which should be at least 13 mm less than the counter batten thickness, to fit between the counter battens. Secure the bottom edge to the stop batten with large headed clout nails. Seal the joints between the boards with self-adhesive aluminium foil tape.
- Drape the breather membrane over the counter battens and secure with tile battens set out to the roof tile gauge. The void between the membrane and the insulation must be ventilated if using ordinary roofing felt.
- Fix the tile battens to the counter battens at an appropriate gauge to suit the slates or tiles selected.
- A variety of eaves and verge details may be achieved with this system. Eaves soffit ventilators are not generally required.
- 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 installation. A polythene vapour control layer laid directly over the plasterboard is recommended.

Product descriptions

Celotex T-Break™ TB3000 is a thin, foil faced insulation board with un-reinforced core foam and thicknesses ranging from 12 to 30 mm. The **T-Break** name stems from the design function of the range; which is to provide simple solutions to overcome localised thermal bridges. **Celotex** is unique in being able to offer boards as thin as 12 mm to the market for this purpose.

Always install Celotex T-Break TB3000 in accordance with the instructions supplied by Celotex Limited.

Standard board dimensions

1200 mm x 2400, 450, 300 & 150 mm*
(with grid markings to assist installation)

Physical properties

Thermal resistance (R) values for Celotex products are declared in accordance with BS EN 13165: 2001. These R-values equate to a Thermal Conductivity (λ_p) value of 0.023 W/mK.

Fire

Reaction to fire in accordance with
BS EN 13823: 2002 = Class D/s2/do
Surface spread of flame in accordance with
BS 476: 1997 Part 7 = Class 1

Product range

Product code	Thickness (mm)	R-value (m ² K/W)
TB3012	12	0.50
TB3020	20	0.85
TB3025	25	1.05
TB3030	30	1.30

Celotex tuff-R™ GA3000 has long been at the heart of the **Celotex** product range, providing a range of thermal insulation solutions to the builder. The **Celotex tuff-R GA3000** product is a foil faced thermal insulation board which has core foam uniquely reinforced with glassfibre. These products still feature the best reaction-to-fire performance (Euroclass D/S2/do) measured in accordance with new European Standards of any similar product on the market.

Always install Celotex tuff-R GA3000 in accordance with the instructions supplied by Celotex Limited.

Standard board dimensions

1200 mm x 2400 mm*
(with grid markings to assist installation)

Physical properties

Thermal resistance (R) values for Celotex products are declared in accordance with BS EN 13165: 2001. These R-values equate to a Thermal Conductivity (λ_p) value of 0.023 W/mK.

Fire

Reaction to fire in accordance with
BS EN 13823: 2002 = Class D/s2/do
Surface spread of flame in accordance with
BS 476: 1997 Part 7 = Class 1

Product range

Product code	Thickness (mm)	R-value (m ² K/W)
GA3035	35	1.50
GA3040	40	1.70
GA3045	45	1.95
GA3050	50	2.15
GA3055	55	2.35
GA3060	60	2.60
GA3065	65	2.80
GA3070	70	3.00
GA3075	75	3.25
GA3080	80	3.45
GA3090	90	3.90

**Note:* Products listed above are generally available ex-stock.

Other sizes and thicknesses are available, subject to minimum order quantity. Please check for availability before ordering.

Celotex Extra-R™ XR3000 is new to the **Celotex** range and is manufactured on our latest state-of-the-art restrained rise production line featuring our own unique jointless laydown technology. This technology enables us to offer thicker boards with no visible seams in the foam core. This foil faced product will be targeted at ‘cut-to-fit’ applications for insulation between rafters or joists and will enable users to achieve lower U-values with a single layer of insulation than has been previously possible and will help designers meet the present – and future – requirements of Approved Document L (2006) of the Building Regulations

*Always install **Celotex Extra-R XR3000** in accordance with the instructions supplied by **Celotex Limited**.*

Standard board dimensions

1200 mm x 2400 mm*

(with grid markings to assist installation)

Physical properties

Thermal resistance (R) values for Celotex products are declared in accordance with BS EN 13165: 2001. These R-values equate to a Thermal Conductivity (λ_p) value of 0.023 W/mK.

Fire

Reaction to fire in accordance with BS EN 13823: 2002 = Class E
Surface spread of flame in accordance with BS 476: 1997 Part 7 = Class TBA

Product range

Product code	Thickness (mm)	R-value (m ² K/W)
XR3100	100	4.30
XR3110	110	4.75
XR3120	120	5.20
XR3130	130	5.65
XR3140	140	6.05
XR3150	150	6.50

Celotex tuff-R CW3000 provides a simple cavity wall insulation solution with a foil faced thermal insulation board which has core foam uniquely reinforced with glassfibre. These products feature the best reaction-to-fire performance (Euroclass D/S2/do) measured in accordance with new European Standards of any similar product on the market.

*Always install **Celotex tuff-R CW3000** in accordance with the instructions supplied by **Celotex Limited**.*

Standard board dimensions

1200 mm x 450 mm*

Physical properties

Thermal resistance (R) values for Celotex products are declared in accordance with BS EN 13165: 2001. These R-values equate to a Thermal Conductivity (λ_p) value of 0.023 W/mK.

Fire

Reaction to fire in accordance with BS EN 13823: 2002 = Class D/s2/do
Surface spread of flame in accordance with BS 476: 1997 Part 7 = Class 1

Product range

Product code	Thickness (mm)	R-value (m ² K/W)
CW3035	35	1.50
CW3040	40	1.70
CW3045	45	1.95
CW3050	50	2.15
CW3055	55	2.35
CW3060	60	2.60
CW3065	65	2.80
CW3070	70	3.00
CW3080	80	3.45
CW3090	90	3.90

General information

Storage and handling

- **Celotex** insulation boards should be stored dry, flat and clear of the ground. Only as much material as can be installed during a single working period should be removed from storage at any one time. If boards are stored under tarpaulins, care should be taken to prevent rope damage to the boards.
- Care should also be taken to ensure that packs are not dropped onto corners or edges.
- Where possible, cut the product using a trimming knife, rather than a saw, to minimise dust creation.
- If using a saw, dust extraction equipment, eye protection and face masks must be provided. Dust or particles in the eyes should be washed out with liberal quantities of water.
- Aluminium foil edges may be sharp. Avoid sliding bare hands along board edges.

Characteristics, properties or performance of materials described herein are derived from data obtained under controlled test conditions. **Celotex Limited** makes no warranty, express or implied as to their characteristics under any variations from such conditions in actual constructions.

All products are supplied subject to our standard terms and conditions of sale, a copy of which is available on request.

Typical details shown in this brochure are provided for guidance only and are not to scale. **Celotex Limited** makes no warranty, express or implied as to the suitability of such details for any particular project. It is the responsibility of the designer to ensure that any design or construction details used are suitable for the project, having due regard to the environmental and structural factors which are beyond the control of **Celotex Limited**.

Notwithstanding the foregoing, nothing herein stated shall exclude or restrict:

- 1 The liability of **Celotex Limited** in respect of death or personal injury pursuant to the relevant provisions of the *Unfair Contract Terms Act 1977*, or
- 2 The liability of **Celotex Limited** in respect of any damage caused by a defect to the extent that such comes within the relevant provisions of the *Consumer Protection Act 1987*.

Health and safety

Full guidance on the appropriate measures to be taken by an employer in accordance with the *COSHH Regulations* is provided in the **Celotex Health and Safety Data Sheet** which can be downloaded from our web site.

Quality assurance

Product and application development is a priority at **Celotex**, with a focus on high performance, durability and usability. This is achieved through a quality management system which has been fully assessed and certified as meeting the requirements of BS EN ISO 9001: 2000.



Other products

Celotex offers a comprehensive range of insulation products for floor, wall and roof applications. For information please visit www.celotex.co.uk or contact our **Sales Department**.

Ancillary components

A list of suppliers of ancillary components for the fixing and sealing of **Celotex** products is available from www.celotex.co.uk or by contacting our **Technical Advisory Service**.

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