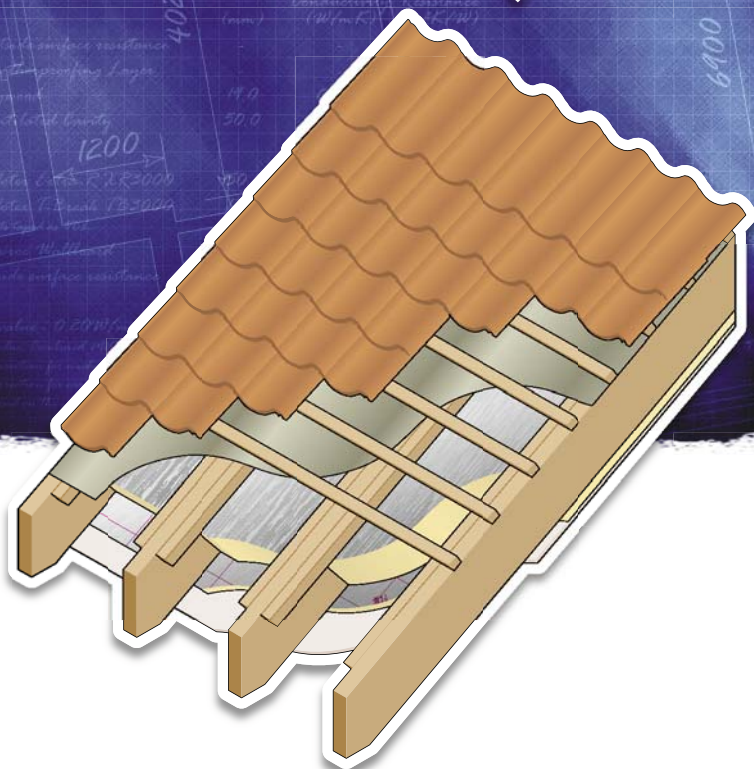


# Insulation between or between & under rafters



Use **Celotex Extra-R™ XR3000** and **Celotex tuff-R™ GA3000** high performance thermal insulation in pitched roofs either between and under rafter or between the rafter applications to minimise insulation thickness and give the following benefits:

- Ideal for use where headroom is limited
- Provides reliable long term energy savings for buildings
- Low emissivity foil facers give improved thermal insulation with cavity air spaces
- Creates a warm habitable roof space
- No need to insulate water pipes and tanks
- Suitable for new build and major refurbishment projects
- Minimised additional loading to the structure
- Ideal for loft conversions/room in roof applications

## U-value calculations

As there can be multiple solutions when insulating between or between and under rafters and limited space in this **Handy Guide**, please contact our **Technical Advisory Service** (details are on the rear cover) or visit our website at [www.celotex.co.uk](http://www.celotex.co.uk) and use our **Online U-value Calculator**.

## Insulation between rafters

### Installation guidelines: ventilated

- Make sure there is enough rafter depth to accommodate not only the thickness of the **Celotex** insulation but also a 50 mm ventilated airspace above the boards.
- Fix battens to the inside face of the rafter so that the bottom of the batten is 50 mm below the sarking felt.

### Installation guidelines: unventilated

- Install the breather membrane over rafters by either fixing battens to the sides of the rafters and allowing the membrane to sag between the rafters, or by fixing counter battens over the membrane, leaving the entire rafter depth to be filled with insulation. All details are to be in accordance with the membrane manufacturer's recommendations.

### Installation guidelines: ventilated & unventilated

- Measure the space to be filled between the inside face of the rafters prior to cutting the board.
- Cut the **Celotex** insulation at a slight angle, making the board width slightly oversize on one surface to achieve a 'friction fit'.
- Push the boards into the void between the rafters until they are tight up to the battens or the membrane, ensuring that lateral joints are closely butted.
- Cut and fit the second layer as above and push tightly up to the underside of the first layer.
- Tightly fit to ridge plate and carry over or tightly butt wall plate at eaves.
- A vapour control layer should be installed to the underside of the rafters. Vapour check plasterboard or a separate polythene sheet is recommended for high humidity areas such as kitchens or bathrooms.
- Complete the internal finish with plasterboard or other suitable sheet material.

## Insulation between & under rafters

### Installation guidelines: ventilated

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### Installation guidelines: ventilated & unventilated

- Measure the space to be filled between the inside face of the rafters prior to cutting the board.
- Cut the **Celotex** insulation at a slight angle, making the board width slightly oversize on one surface to achieve a 'friction fit'.
- Push the boards into the void between the rafters until they are tight up to the battens or the membrane, ensuring that lateral joints are closely butted. Secure the second layer of **Celotex** insulation to the underside of the rafters with broad-headed clout nails. Joints between boards must be tightly butted.
- Seal the board joints with a self-adhesive aluminium foil tape. Vapour seal all perimeter abutments using sealant.
- Nail or screw plasterboard or other lining through the insulation to the rafter, ensuring that the length of the fasteners is adequate to secure the plasterboard lining.
- Alternatively, fit softwood battens to the underside of the rafters and fix the plasterboard directly to the batten. This also provides a void for lighting cables/conduit.

# 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 ( $\lambda_p$ ) 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 <sup>2</sup> K/W)
<b>TB3012</b>	12	0.50
<b>TB3020</b>	20	0.85
<b>TB3025</b>	25	1.05
<b>TB3030</b>	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 ( $\lambda_p$ ) 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 <sup>2</sup> K/W)
<b>GA3035</b>	35	1.50
<b>GA3040</b>	40	1.70
<b>GA3045</b>	45	1.95
<b>GA3050</b>	50	2.15
<b>GA3055</b>	55	2.35
<b>GA3060</b>	60	2.60
<b>GA3065</b>	65	2.80
<b>GA3070</b>	70	3.00
<b>GA3075</b>	75	3.25
<b>GA3080</b>	80	3.45
<b>GA3090</b>	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 ( $\lambda_p$ ) 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 <sup>2</sup> K/W)
<b>XR3100</b>	100	4.30
<b>XR3110</b>	110	4.75
<b>XR3120</b>	120	5.20
<b>XR3130</b>	130	5.65
<b>XR3140</b>	140	6.05
<b>XR3150</b>	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 ( $\lambda_p$ ) 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 <sup>2</sup> K/W)
<b>CW3035</b>	35	1.50
<b>CW3040</b>	40	1.70
<b>CW3045</b>	45	1.95
<b>CW3050</b>	50	2.15
<b>CW3055</b>	55	2.35
<b>CW3060</b>	60	2.60
<b>CW3065</b>	65	2.80
<b>CW3070</b>	70	3.00
<b>CW3080</b>	80	3.45
<b>CW3090</b>	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](http://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](http://www.celotex.co.uk) or by contacting our **Technical Advisory Service**.

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