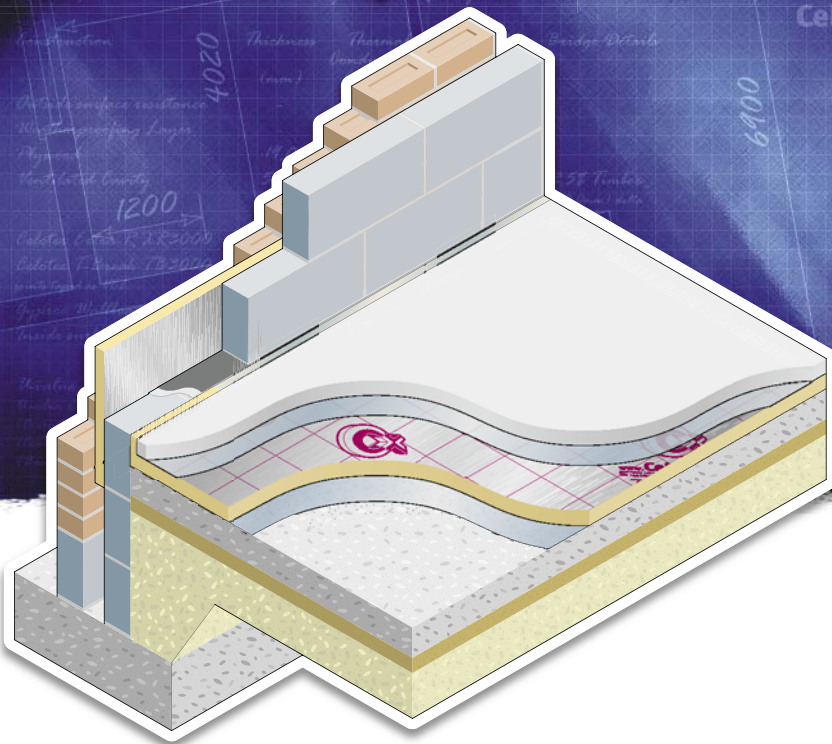
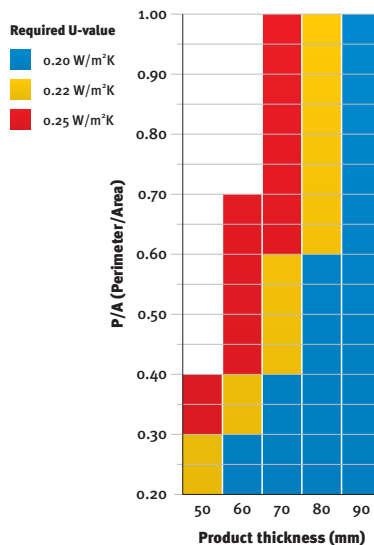


Concrete slab floors



Use **Celotex tuff-R™ GA3000** and **Celotex T-Break™ TB3000** high performance thermal insulation in concrete slab floor applications to minimise insulation thickness and give the following benefits:

- Conveniently sized boards for handling indoors
- Easy to cut boards to fit in most spaces
- Provides reliable long term energy savings for buildings
- Excellent dimensional stability
- No thermal bridging at floor edges
- Tightly butted joints for insulation continuity



Solid floors with 65 mm screed and 20 mm edge insulation

Over slab installation guidelines

- Install a damp proof membrane over the top of, or below, the slab. The damp proof membrane must provide continuity with the damp proof course in the surrounding walls.
- Level the surface of the slab; it should be smooth and free of projections.
- Use a thin layer of sand blinding on a rough, tamped slab to ensure that the insulation boards are continuously supported.
- Use **Celotex T-Break™ TB3000** boards as upstands to fit around floor perimeters to eliminate thermal bridging at screed edges. The upstand depth should be equal to the sum of the slab insulation and the screed thickness. The upstand thickness should not exceed the combined thickness of the wall plaster and the skirting.
- Lay the insulation boards directly onto the prepared slab with all joints tightly butted.
- Lay a polythene vapour control layer over the insulation to minimise the risk of condensation forming at the insulation/slab interface and to prevent liquid screed migration.
- Apply a sand/cement or self levelling screed over the **Celotex** insulation boards to a minimum thickness of 65 mm.
Use scaffold boards or other protection to prevent wheelbarrows and other traffic damaging the insulation.
- Allow the screed to dry thoroughly before an impermeable surface, such as a vinyl floor finish, is applied. (Consult a specialist flooring contractor).

These recommendations are suitable for normal domestic floor loadings. If higher loadings are required, it may be necessary to increase the screed thickness and provide reinforcement within the screed.

Under slab installation guidelines

- Level the hardcore and blind with sand.
- Install a damp proof membrane (dpm) under insulation.
- Fit insulated upstand as above to the floor perimeter.
- Ensure that the dpm is continuous with damp proof course.
- Lay a vapour control layer (e.g. 1000 g polythene) directly over insulation.

Chipboard floor finish

A vapour control layer should be laid over the **Celotex** insulation boards and turned up 100 mm at room perimeters, behind the skirting. It is recommended good practice that all joints should be lapped 150 mm and sealed.

The chipboard must be minimum 18 mm tongued and grooved flooring grade type C4 to BS 5669. Lay the chipboard with staggered joints, glued with a woodworking adhesive.

Provide a 10 – 12 mm gap at all perimeters and abutments to allow for expansion. This can be achieved by the use of temporary wedges.

Where chipboard is butted together without a tongued and grooved joint and at all external doorways (for the width of the threshold), a treated timber batten must be used in lieu of the insulation boards.

U-value calculations

To calculate the minimum thickness of insulation needed in a floor, you should divide the **exposed internal perimeter** by the **internal area** (see page 3) which will give you the **P/A ratio** (y axis on the graph). Decide which U-value you are working to (0.20, 0.22 or 0.25 W/m²K) and read across until you meet the relevant coloured bar. Read down to the x axis to determine the insulation thickness.

Calculating the P/A ratio

U-value calculations

To calculate the minimum thickness of insulation needed in a floor, you should divide the **exposed internal perimeter** by the **internal area** which will give you the **P/A ratio** (y axis on the graph).

Example 1 – Detached Dwelling

The overall internal dimensions of the dwelling are **8.10 m x 6.90 m**;

these measurements ignore the internal walls.

The perimeter is **8.10 m + 6.90 m + 8.10 m + 6.90 m = 30.0 m**

The area is **8.10 m x 6.90 m = 55.89 m²**

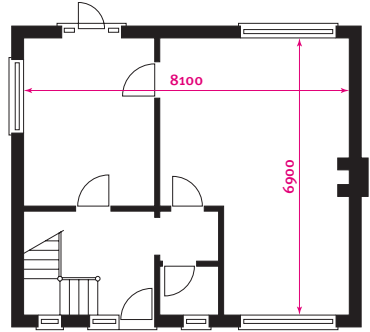
The P/A ratio is **30 / 55.89 = 0.54**

For this example, with a concrete slab floor, you will require:

60 mm of insulation to achieve 0.25 W/m²K

70 mm of insulation to achieve 0.22 W/m²K

80 mm of insulation to achieve 0.20 W/m²K



Example 1 – Detached Dwelling

Example 2 – New Extension

The overall internal dimensions of the extension are **3.10 m x 2.40 m**;

these measurements ignore the internal walls.

The perimeter is **2.40 m + 3.10 m + 1.22 m = 6.72 m**

The area is **3.10 m x 2.40 m = 7.44 m²**

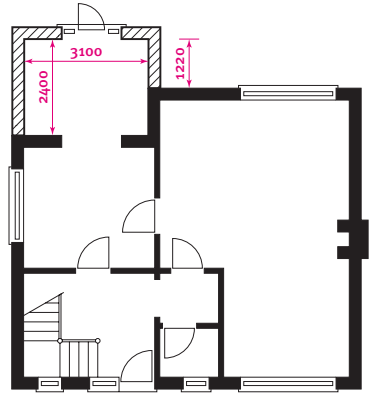
The P/A ratio is **6.72 / 7.44 = 0.90**

For this example, with a concrete slab floor, you will require:

70 mm of insulation to achieve 0.25 W/m²K

80 mm of insulation to achieve 0.22 W/m²K

90 mm of insulation to achieve 0.20 W/m²K



Example 2 – New Extension

Example 3 – Dwelling with Integral Garage

The overall internal dimensions of the dwelling are **8.50 m x 6.90 m**;

these measurements ignore the internal walls.

The perimeter is **8.50 m + 6.90 m + 7.30 m + 2.88 m + 1.20 m + 4.02 m = 30.8 m**

The area is **(8.50 m x 6.90 m) - (1.20 m x 2.88 m) = 55.19 m²**

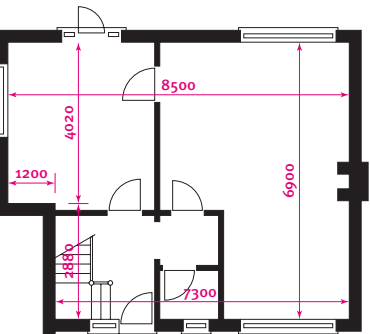
The P/A ratio is **30.8 / 55.19 = 0.55**

For this example, with a concrete slab floor, you will require:

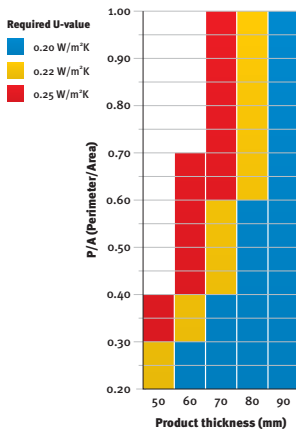
60 mm of insulation to achieve 0.25 W/m²K

70 mm of insulation to achieve 0.22 W/m²K

80 mm of insulation to achieve 0.20 W/m²K



Example 3 – Dwelling with Integral Garage



Solid floors with 65 mm screed and 20 mm edge insulation

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.

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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