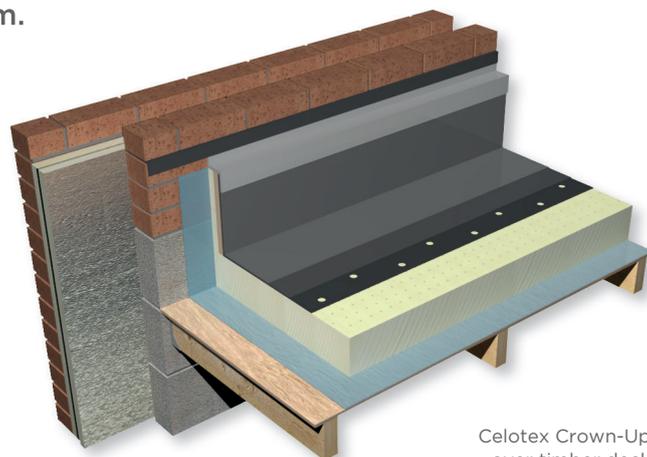


Use Celotex Crown-Up high performance insulation in built-up flat roofing applications. Representing the next phase of Celotex innovation, Crown-Up is a high performance rigid polyisocyanurate (PIR) insulation which delivers excellent dimensional stability and added robustness in a built-up flat roofing system.

When designing a flat roof using Celotex Crown-Up boards, three basic principles apply:

1. Design to a fall of 1:80, 1:60 or 1:40 as appropriate to the weathering system, type of deck and construction tolerances.
2. Have due regard for the use and design of the building and the need to ensure that the design will not allow for a build up of moisture below the waterproofing membrane.
3. Provide adequate protection for both insulation and waterproofing if significant foot traffic is expected either during or after the completion of the roof.



Celotex Crown-Up over timber deck

## Technical data

Thickness (mm)	R-value (m <sup>2</sup> K/W)	Weight (kg/m <sup>2</sup> )
100	3.80	4.29
120	4.80	5.06
150	6.00	6.22

## Example U-value calculation

Construction	Concrete deck	Metal deck	Timber deck	
Outside surface resistance	-	-	-	
Built-up roofing felt	12	12	12	
Variable layer	See below	See below	See below	
Vapour Control Layer (VCL)	-	-	-	
Concrete deck	250	n/a	n/a	
Metal deck	n/a	1.5	n/a	
Timber deck plywood	n/a	n/a	19	
Cavity between joist @ 11.7% bridging	n/a	n/a	150	
Plasterboard	n/a	12.5	12.5	
Inside surface resistance	-	-	-	
Variable layer product	Thickness (mm)	U-value (W/m <sup>2</sup> K)	U-value (W/m <sup>2</sup> K)	U-value (W/m <sup>2</sup> K)
Celotex Crown-Up	100	0.24	0.23	0.22
Celotex Crown-Up	120	0.19	0.19	0.18
Celotex Crown-Up	150	0.16	0.15	0.15

## Installation guidelines

Celotex insulation boards should not be installed when the temperature is at or below 4°C and falling.

### Hot-applied systems

The felt vapour control layer (VCL) in accordance with BS 6229 should be fully sealed at all laps prior to applying the insulation. At perimeters and abutments the VCL should be turned up around the insulation board edges and a lap of approximately 300mm should be bonded to top surface of the insulation. The VCL should be fully bonded to concrete decks using hot bitumen adhesive, strip-bonded to the ribs of metal decks and partially bonded to timber decks. On timber decks, the VCL may be nailed to the deck but laps should be sealed with the appropriate adhesive.

When used on metal decks Celotex Crown-Up boards should be laid with the perforated facer uppermost and the long sides at right angles to corrugations and bonded in a full mop of hot bitumen to the VCL. The torch-on technique is not suitable with Crown-Up.

### Mechanical fastening

The boards should be laid with all joints tightly butted over the VCL and then mechanically secured through to the deck. When used on metal decks, these roof boards should be laid with the long edges at right angles to the corrugations. When mechanical fasteners are utilised, they should be selected to suit the type of deck used. Celotex recommends the use of thermally broken fixings. Fixings must have a minimum 50mm head or plate washer diameter. Fixings should be installed between 50mm - 150mm from the edges and corners of the board.

The exact number of fixings required for each zone on a flat roof must be calculated by the use of either BS 6399: Part 2: 1997 Code of Practice for Wind Loads or EN 1991-1-4 used with the UK National Annex. A minimum of six fixings per board must be used. Where more than six fixings per board are required by the wind uplift calculation, the higher figure must be adopted.

Further guidance on fixings and patterns can be obtained from fixing manufacturers and in the BRUFMA information document on mechanical fixings for rigid PIR roof boards.

### Installation of weathering systems

Different types of weathering systems require different installation instructions and guidelines. Advice on the installation of these weathering systems should be sought directly from the manufacturer or provider of the weathering system type.

### Laying pattern

It is recommended that the boards are laid with joints break-bonded.

### Supporting deck

The supporting deck must provide adequate support for the VCL and insulation board with joints being supported by the ridges of the deck. It must be capable of supporting the static and dynamic design loads and the loads associated with the construction activity without deflection in excess of the limits defined in BS 6399: Part 1. The deck must be structurally sound, dry, clean and where necessary primed before application of the weathering and insulating system.

### Trafficking

Boards are capable of withstanding the associated foot traffic with normal roof laying work. However, roofs are generally designed for occasional lightweight foot traffic or maintenance access. Where more frequent or heavier access is required, protective walkways should be provided. Under no circumstances should the roof be used as a working platform, either during or after the construction programme.

### Use of adhesives

When using adhesives, the installer should take care not to use products that contain chemicals likely to attack the insulating foam such as ketonic solvents. Celotex Crown-Up contains no chemicals or solvents likely to damage the PVC membrane. When using adhesives, the installer should check the compatibility of the adhesive with the adhesive manufacturer.

## A bit about us

Celotex products protect countless buildings the length and breadth of the UK. Providing PIR insulation for over 90 years, our solutions and product development continue to make a difference not just by creating warmth and comfort but by saving energy too. Every day, thousands of professionals choose Celotex. For them, Celotex is insulation. Plus, all Celotex products come with a suite of practical online tools, as well as exceptional personal support and aftercare.

### 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 advice, 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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