



# Websters Insulation Limited

Specialists in Spray Foam Insulation

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## Frequently Asked Questions ROOF INSULATION

### Q: Why choose Polyurethane sprayed foam?

Because there are so many primary, and several secondary benefits, more so than with other types of insulation.

#### Primary Benefits

- Keeps you warmer in winter than other materials, i.e., it can dramatically reduce heat loss. Similarly it keeps you cooler in summer. Therefore it helps maintain constant temperatures.
- Reduces fuel costs (heating, cooling, air conditioning expenses).
- Effects felt immediately.
- Can be applied to any area within any building.
- Space efficient, lower thickness of material compared to other insulation to achieve same levels of insulation.
- Prevents condensation.
- Long lasting.
- Exceptional alternative to dry lining because it provides a continuous membrane.
- Polyurethane Sprayed Foam is the only insulation when applied in liquid form to create a continuous membrane therefore it leaves no gaps for cold air to travel through.
- Fast, efficient and economical solution to most insulation requirements.
- Suitable for new build and older constructions.
- Saves on fuel bills. In certain circumstances, domestic insulation is now only liable to 5% VAT following new ruling.

POLYURETHANE FOAM	25mm
POLYSTYRENE	40mm
MINERAL FIBRE	45mm
CORK	50mm
CELLULAR GLASS	60mm

Foam Thickness (mm)	K. Factor W/M°C	U Value W/M <sup>2</sup> K
25	0.027	0.34
50	0.027	0.54
75	0.027	0.40
85	0.026	0.36
100	0.026	0.31
130	0.025	0.25
150	0.025	0.22
190	0.025	0.18

#### Secondary benefits

- Can reduce noise and vibration and so assist sound reduction.
- Can help to prevent slates and tiles slipping: reducing capillary action, i.e. wind driven rain and snow.
- Stops the freezing of plumbing and the formation of condensation.
- Preserves appearances.
- Costs less than a new roof.

#### Other Types of insulation:

- **Rockwool/mineral fibre** type materials can collapse, become damp (causing bad smells when damp), disintegrates, and requires much greater thickness. It can also emit dust and irritants, which are unsuitable for allergy sufferers.
- **Polystyrene type insulation** is difficult to stick. As it is impossible to create a continuous membrane with this material the level of insulation becomes questionable as cold breaks through the gaps, and can be conducted through any metal that may be involved. Furthermore it is not possible to lay electrical cables next to the Polystyrene, as there is a bad reaction with the resin in the Polystyrene, whereas it is totally inert next to Polyurethane Foam.
- **Insulation panels** are also prone to gaps following the difficulties of sealing tight corners and gaps.

### Q: Why choose Websters Insulation?

- Websters Insulation Ltd are UK leading specialists, and have been around much longer than the others.
- The company was established in 1854, but the present owner has owned Websters for over 30 years. During this time Websters' engineers have insulated over 46,000 buildings of all descriptions therefore gathering enormous experience.
- Websters are the market leader in Polyurethane Sprayed Foam Insulation.
- None of the alternative companies have a background like WEBSTERS, and therefore cannot offer the same level of expertise and experience.
- Quality of workmanship: Websters' men are the best, and the most experienced in the business, which means:
- They have been trained to high standards. Their work is neat and tidy; is carried out efficiently, with minimal inconvenience to you. The work is usually completed in a day. They can offer other help and advice.

- Together this means that you receive both a highly competitive price and a high quality, which is unrivalled by anybody else.
- Materials used by Websters adhere to British Standard regarding being fire retardant. This is BS476 part 7 class one. We can also supply an additional class 'O' coating if required, although an extra cost is incurred.
- Websters belong to the BUFGA (British Urethane Foam Contractors Association).

**Q: What preparation do I need to do before your engineers come to spray my roof?**

- If it is not a new building, the roof must be checked over by an experienced roofing company to realign, replace and renew any missing tiles or slates. Check valley gutters for missing/porous lead etc.
- Masking out is not necessary, as Websters will normally cover over whatever is required.
- Remove all valuables, any loose 'torching' and dirt etc.
- The area must be clear, light, empty, & free from obstructions. Access must be good. Notify Websters if there is no power.

**Q: What about ventilation?**

- It is usually 'vented' at one of the following: the eaves; roof light; ridge vent or wall vents, depending on the roof shape and how well insulated your roof is (see back page).
- New build and loft conversions can be left un-vented if certain 'dew point' calculations are observed. A greater thickness of insulation is then used to create a 'warm roof' or 'warm deck'

**Q: Is it waterproof?**

- Although the materials used are a closed cell structure, it is not a 'stand-alone' substitute for an inadequate roof. However, it will reduce capillary action, i.e., wind driven rain and snow.

**Q: Can 'it' breathe?**

- Do you mean is the roof area ventilated? (See ventilation question and notes)
- Do you mean are the timbers completely encapsulated in the spray foam? The rafters can only ever be encapsulated at the most on three sides, as the tile or slate is on the top. This allows the rafters to breathe.
- Wood and rafters have to breathe. Polyurethane foam is not a 'vapour barrier', if it were, it would not be allowed for use in this situation. The foam allows water vapours to pass in and out.

**Q: Do I need an air gap?**

- No, an air gap is normally used to remove any condensation once it has developed. The sprayed on insulation would stop any condensation from forming in the first place by keeping the temperature above the 'Dew Point'.

**Q: Does it hold slates and tiles on?**

- Sprayed Foam Insulation is not a guaranteed substitute for an inadequate roof, but it can have the secondary benefit of helping to keep slates and tiles in place, therefore stabilising the roof.

**Q: Will sulphur 'eat' through my insulation?**

- No, even acid should not wear away at your insulation.

**Q: How long does it take & how long will it last?**

- Normally completed in a day, but it will last indefinitely.

**Q: Are there any fumes? How long does it take to cure?**

- Fumes are generated during application, but these will disperse within 4 hours. It becomes totally inert once applied.

**Q: Do the windows have to be sealed up?**

- Yes, they need to be masked out but Websters can normally attend to this to prevent any insulation going outside of the intended spray area.

**Q: Is electrical work done before, or after you come?**

- It can be done before or after, although 'after' is preferable, as wires would then remain visible. Contrary to popular myth there is no bad reaction between electrical cables and our product, as it is totally inert. Problems do exist with electrical cables and **Polystyrene**, rather than Polyurethane insulation.

**Q: Is it fireproof?**

- It carries all of the fire retardant properties demanded by British Standards i.e. CLASS 1. (BS 476, part 7, class 1). We can also offer an optional class 'O' coating, which provides an even higher degree of fire protection. Building regulations require Class one as a minimum and anything less than this, for example a European Class B2, will not be insurable.

**Q: Can you put it in listed buildings?**

- Yes, but any specific conditions of each given areas listed buildings authority must be satisfied.

**Q: How do you know what thickness to have?**

- Websters, work in line with the current building regulations, and can advise on this (see building regulations section).

**Q: Which part of the roof do we spray?**

- Tiled or slate areas only, leaving timberwork to breathe. We can spray over felt.

**Q: Can you spray areas other than the roof area?**

- Yes, the solid gable and lower walls if required and interior or exterior walls. Walls can then be covered with a special resin based plaster.

**Q: Can it be used for sound reduction?**

- Only when it is used in conjunction with 'Rockwool Slab R.W.2'.

**Q: Can you spray between floorboards?**

- Yes, it is possible in the right conditions.

**Q: Can you spray cellars; does it have any damp-proofing effects if it is waterproof?**

- Yes, although the material will not allow water to penetrate easily, it must not be relied upon as a damp-course membrane. The surface would benefit from two coats of High Build Chlorinated Rubber, prior to the application of Sprayed Foam Insulation, or adequate waterproofing membranes.

**BUILDING REGULATIONS**

The New Maximum 'U' Values allowable from October 2010 for dwellings are detailed below using the Elemental method of Compliance to Approved Document L1.

<b>Recommended U-values (W/m<sup>2</sup> K)</b>	<b>Part LA</b>	
Element:	<b>2006</b>	<b>2010</b>
Roof (New Build)	0.20	0.13
Room in Roof (Loft Conversion)	0.30	0.16
Existing Lofts	n/a	n/a
Walls (New Build) (inc cavity)	0.30	0.20
Walls (Existing) (inc cavity)	0.35	0.28
Floors	0.25	0.20

**ROOF WALL AND FLOOR INSULATION**

Table 1 applies to where Spray Applied Polyurethane Foam is used for insulation only and includes substrates such as; Roofing felt, Sarking Timber Boards, Breathable Membranes, Timber, Concrete, Steel, etc. The u-values given below do not allow for thermal bridging through timbers etc...

<b>Roof and Walls (sprayed / cavity full fill)</b>				<b>Floor</b>	
'U' Value to be achieved (W/m <sup>2</sup> K)	0.25*	0.20*	0.13**	0.25	0.22
Approximate Foam depth	85mm	110mm	185mm	85mm	100mm

\* Calculation based on 15mm coat over rafter face to reduce cold bridging effect or 20mm batten over rafters

\*\* Calculation based on a ventilated loft space with 170mm fibreglass insulation at ceiling level

**ROOF STABILISATION AND INSULATION**

Table 2 applies to where Spray Applied Polyurethane Foam is applied directly to tiles or slates, i.e. with no roofing felt. The average batten spacing is taken as 150mm centres with 25 x 25mm battens

<b>Hybrid Warm Pitched Roof</b>			
<b>'U' Value to be achieved (W/m<sup>2</sup>K)</b>	<b>0.13</b>	<b>0.16</b>	<b>0.20</b>
Foam Infill between tile battens (bridged layer)	25mm	25mm	25mm
Foam Infill between rafters (bridged layer)	185mm	150mm	130mm
Rigid foil backed-foam board across rafters	40mm	40mm	40mm
Underlined with plasterboard	12.5mm	12.5mm	12.5mm

- **Air tightness testing** may be required as part of the SAP calculation for Building Regulations Approval.
- The use of Webstherm spray foam insulation will have a considerable beneficial impact on air tightness.
- Improved air tightness means flexibility in other aspects of the SAP calculation.
- The current target under the new **CODE 3** for air tightness is 10; spray foam insulation achieves a rating of 3.3. (thickness used in test TBC).

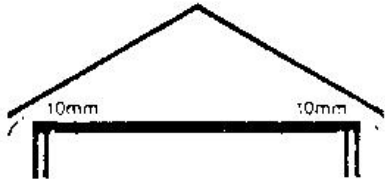
This is due to the foam being able to create a **continuous hermetic seal**, *unlike* insulated boarding or multifoil, as gaps will invariably still be present where the boards or material meets the rafters or anything else, thus still allowing air to escape.

# VENTILATION

## THE REGULATIONS

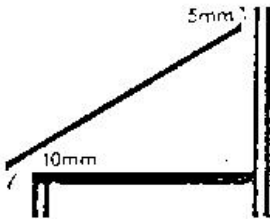
### ROOF SPACE VENTILATION 1985 BUILDING REGULATIONS F2 CONDENSATION

Pitched roof spaces should have ventilation openings at eaves level to promote cross ventilation. These openings should have an area at least equal to continuous ventilation running the full length of the eaves and 10mm wide.



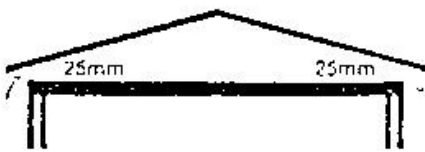
PITCHED ROOF ABOVE 15°

A Pitched roof space, which has a single slope and abuts a wall, should have ventilation openings at eaves level and at high level. The ventilation at high level may be arranged at the junction of the roof and the wall or through the roof covering. If it is through the roof covering it should be placed as high as practical.



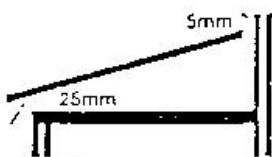
MONO PITCH ROOF ABOVE 15°

Roof spaces should have ventilation openings in two opposite sides to promote cross ventilation. These openings should have an area at least equal to continuous ventilation running the full length of the eaves and 25mm wide.



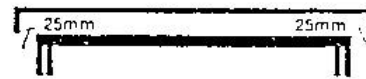
PITCHED ROOF BELOW 15°

A pitched roof space, which has a single slope and abuts a wall, should have ventilation openings at eaves level and at high level. The ventilation at high level may be arranged at the junction of the roof and the wall or through the roof covering. If it is through the roof covering it should be placed as high as practicable.

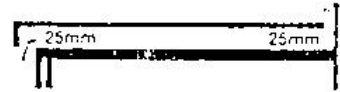


MONO PITCH ROOF BELOW 15°

Roof spacers should have ventilation openings in two opposite sides to promote cross ventilation. These openings should have an area at least equal to continuous ventilation running the full length to the eaves and 25mm wide. The void should have a free air space of at least 50mm between the roof beam and the insulation. Where joists run at right angles to the flow of air, a suitable air space may be formed by using counter-battens.

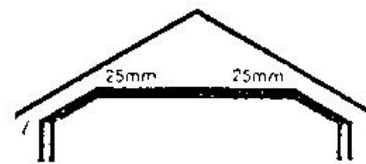


COLD DECK FLAT ROOF



FLAT ROOF ABUTMENT

Roof spaces should have ventilation openings in two opposite side to promote cross ventilation. These openings should have an area at least equal to continuous ventilation running the full length of the eaves and 25mm wide.



CEILING FOLLOWS LINE OF ROOF (ANY PITCH)

### UNDER FLOOR VENTILATION 1985 BUILDING REGULATIONS C1

Each external wall should have ventilation openings placed so that the ventilating air will have a free path between opposite sides and to all parts. The openings should be large enough to give an actual opening of at least equivalent to 3000mm<sup>2</sup> for each meter run of wall. Any pipes needed to carry ventilating air should have a diameter of at least 100mm.



SUSPENDED TIMBER OR CONCRETE GROUND FLOORS

In accordance with current practice the recommendations of both the NHBC and British Board of Agreement suggest ventilation of under floor voids by providing the equivalent of a continuous gap along the perimeter of exterior walls.