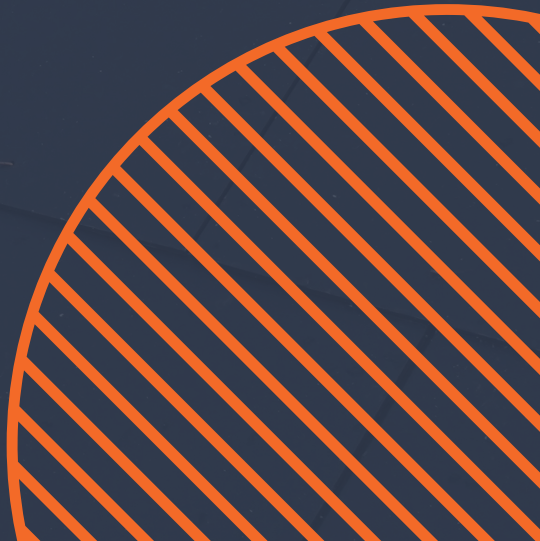


Super**FOIL**  
Insulation

# Installation Guide **Over Rafter**



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# Introduction

We know choosing the correct insulation is an integral part of the **long-term success** and **energy efficiency of your project**. For this reason, SuperFOIL has a team of highly trained experts who are there to help you.

From architects to first-time self-builders, **our experienced team will work with you** to ensure your project achieves the best possible results.

Send us your specifications and technical drawings and we will assess all available insulation choices and provide you with personalised **recommendations that achieve your goals**.

Once happy that the proposed solution meets the criteria for your project, we provide you with **full calculations** to support your building regulations application. If needed, we can even speak directly to building control on your behalf to ensure the project progresses smoothly.

The following guide is provided to support you through the **selection and installation process**.



# The SuperFOIL Multilayer Foil Product Range

SuperFOIL is a **leading name within the insulation industry**. We manufacture a comprehensive range of **high performing products**, including **the world's highest-performing multifoil, SF60**. Offering excellent value for money, our multifoil insulation is ideal for both new build and retrofit projects. It can be used anywhere in the home meaning **you can have a SuperFOIL solution** to cover your roof, walls and floor!

Our multifoil insulation is a **certified, 3 in 1 product**. Not only will it provide high-performing insulation, but you also benefit from a much-needed **vapour control layer** and **radiant barrier or breather membrane** and **radiant barrier**. What this means for you is that you can rest assured that your home will be at the right temperature, whatever the season.

All of our multifoils use the same modern technology meaning that you know you are buying a world-class, quality product. Our products have undergone **rigorous testing** to ensure that they meet the needs of all new building regulations. Our multifoils can be used as part of a **'DUET' system**, using SuperFOIL both internally and externally for the ultimate solution. They can also be used in a **'COMBI' installation**, meaning that our products are compatible with other insulation types such as mineral wool or foam board.



# Multifoil Thermal Insulation with Vapour Control Layer

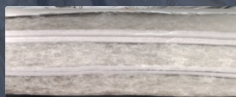
SuperFOIL - designed for adaptability and superior performance. When correctly installed within a standard timber frame structure, SuperFOIL consistently outperforms other traditional insulation materials. Its versatility shines through in different construction types, providing tailored insulation solutions. With SuperFOIL, superior thermal performance isn't just a promise, it's an everyday reality.

## SuperFOIL SF19+

### THERMAL PERFORMANCE

Core	1.63 m <sup>2</sup> K/W
Roof	2.58 m <sup>2</sup> K/W
Wall	3.06 m <sup>2</sup> K/W
Floor	4.37 m <sup>2</sup> K/W

Thickness



45mm



Similar to using 100mm PIR in a wall or 80 mm in a roof

# SuperFOIL SF40

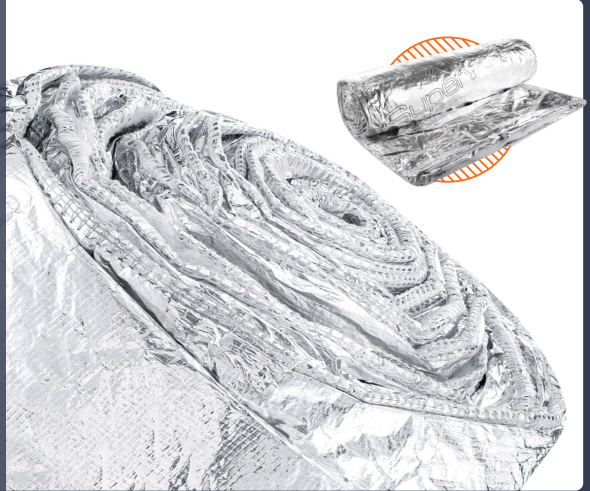
## THERMAL PERFORMANCE

Core	2.57 m <sup>2</sup> K/W
Roof	3.47 m <sup>2</sup> K/W
Wall	3.91 m <sup>2</sup> K/W
Floor	5.22 m <sup>2</sup> K/W

Thickness



65mm



Similar to using 150mm PIR in a wall or 115 mm in a roof

# SuperFOIL SF60

## THERMAL PERFORMANCE

Core	3.46 m <sup>2</sup> K/W
Roof	4.42 m <sup>2</sup> K/W
Wall	4.88 m <sup>2</sup> K/W
Floor	6.53 m <sup>2</sup> K/W

Thickness



100mm



Similar to using 170mm PIR in a wall or 140 mm in a roof



## Multifoil Thermal Insulation With Breather Membrane

Introducing SuperFOIL – Breathable Insulation products. When used in place of a standard breather membrane, SuperFOIL truly outshines traditional insulation, offering tailored insulation solutions for every project.

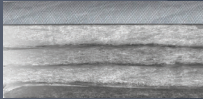
Read on to see just how well SuperFOIL performs and contact our technical team today for results that speak for themselves.

# SuperFOIL SF19BB

## THERMAL PERFORMANCE

Core	1.45 m <sup>2</sup> K/W
Roof	2.22 m <sup>2</sup> K/W
Wall	2.53 m <sup>2</sup> K/W
Floor	N/A

Thickness



40mm



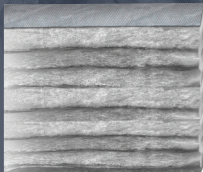
Similar to using 100mm PIR in a wall or 70 mm in a roof

# SuperFOIL SF40BB

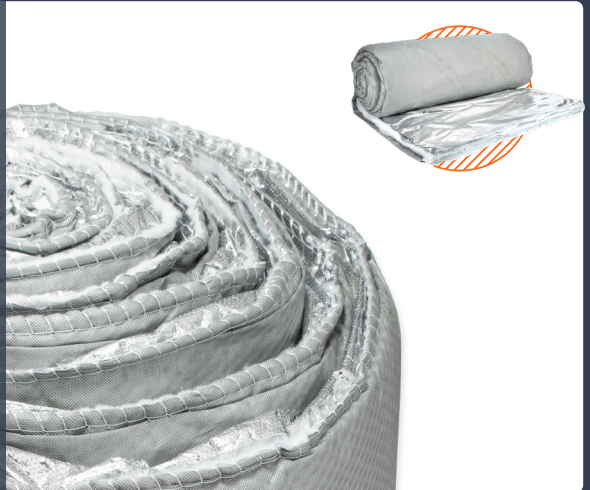
## THERMAL PERFORMANCE

Core	2.92 m <sup>2</sup> K/W
Roof	3.67 m <sup>2</sup> K/W
Wall	3.98 m <sup>2</sup> K/W
Floor	N/A

Thickness



75mm



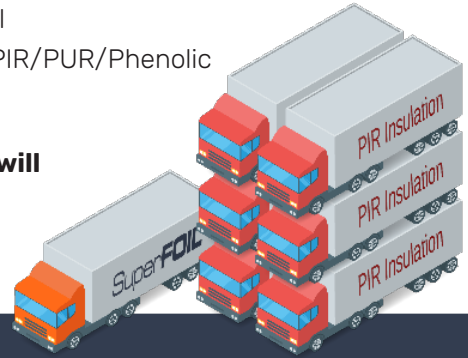
Similar to using 150mm PIR in a wall or 115 mm in a roof



# SuperFOIL products offer a practical and better value alternative to Traditional Insulation Solutions such as:

- Glass Wool / Mineral Wool / Sheep's Wool
- Insulation Boards – /Polystyrene/EPS/PIR/PUR/Phenolic
- Blown/Spray Insulation

**Did you know that 1 lorry of SuperFOIL will insulate 6 times more homes than 1 lorry of PIR?**



## Sustainability with SuperFOIL

With a steadfast commitment to reducing our environmental impact and promoting responsible practices, we have successfully established a sustainable business model as our core value. Our ideals are reflected in our commitment to sustainable and ethical business practices and everyone at SuperFOIL is accountable for the change!

- Our range of foil insulation products are made from up to **40% recycled materials**. In fact, the wadding that is a core component of SuperFOIL insulation products are made from up to **75% recycled** material on average.
- Our 3 in 1 product is designed to **minimise product wastage** during installation and offers flexibility in transportation and delivery, saving approximately **3,765 kg of carbon emission** for a 500 miles round trip.
- Just one roll of SuperFOIL SF40 contains recycled content equivalent to **over 500** plastic bottles and in the last 12 months SuperFOIL have used the equivalent of approx. **80 million** recycled bottles in our products.
- SuperFOIL sends **Zero Waste** to landfill!

# Why Choose SuperFOIL over traditional insulation ?

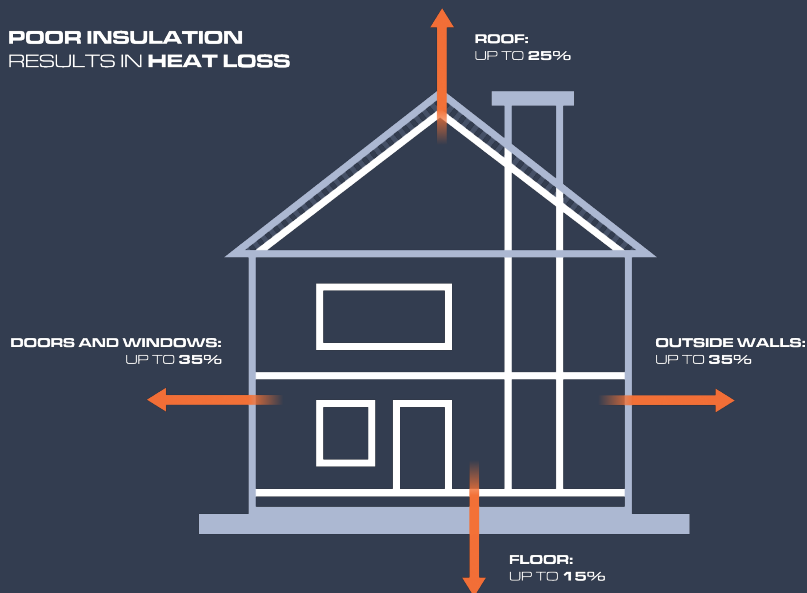
SuperFOIL is a **high tech multi-layer foil insulation** solution ideal for roofs, walls, floors and many custom designs. Our range of insulation products is unbeaten in both **performance** and **value**.

Our third party approvals streamlines the Building Regulations application process, saving you **time** and **money** as well as providing a solution that:

- Meets the increasing **thermal requirements** set by Building Regulations
- Recognises that customers demand **'innovative'** solutions
- Removes the need to increase the **overall size** of the structure that comes with the need to use thicker traditional insulation
- Is **easy to install**
- Creates substantially **lower levels of waste** improves the speed of completion

# How is heat lost?

**POOR INSULATION  
RESULTS IN HEAT LOSS**



## In practice heat loss is via a combination of paths:

**Conduction** - Heat moving through solids like brick, metal or wood

**Convection** - The movement of air or liquids from hotter to colder areas

**Radiation** - All objects give out and take in thermal radiation, which is also called infrared radiation. Some surfaces are better than others at reflecting it e.g. warm air convects to the ceiling, the warmth is conducted through the ceiling, radiated and convected through the loft space, conducted through the roof tiles and then radiated and convected into the atmosphere.

# How do we Measure Insulation Performance?



There are four ways to measure insulation performance :

- **Individual products** – R value, Lambda Value (K Value)
- **Individual pieces of a structure** (U-Value)
- **The structure as a whole** (SAP) and Thermal Imaging

## What is the difference between and R- Value and a U-Value?

### R-Value / K-Value

Thermal Resistance or 'R' Value – The ability of the material to resist the passage of heat. Used to state the performance of Multifoils which contain a range of different materials. The higher the number the better the performance.

Thermal conductivity or 'K' Value – The performance of a product per millimetre: used to state the performance of traditional insulations such as glass wool (0.040). The lower the number the higher the performance.

This can only be applied to homogeneous products that is they are the same material throughout; multilayer foils by the very name suggest that this is not the case. The different materials have different Lambda values so we cannot assess the conductivity of the complete product hence we publish and use thermal resistances rather conductivity.

## SAP Assessments

The Standard Assessment Procedure (SAP) is the methodology used to assess and compare the energy and environmental performance of dwellings. A SAP Assessment takes into consideration:

- U-value of elements
- Heating source
- Size & Location
- Air tightness

### Air Spaces & Emissivity

A low emissivity surface such as aluminium foil reduces the radiation transfer across an airspace, so that the airspace has a higher thermal resistance compared to one bounded by surfaces of normal (high) emissivity.

For a low emissivity surface adjacent to an air space to influence the U-value the air space must be unventilated.

The thermal resistance for unventilated cavities larger than 25mm will remain unchanged with respect to the thickness of the cavity if the same emissivity value is used, but for cavities smaller than 25mm the resistance will decrease as the thickness of the cavity decreases.

The recommended minimum air gaps which require no amendment for calculation purposes are as follows:



**Roof – vertical airflow – 13mm**



**Wall – horizontal airflow – 20mm**



**Floor – downward airflow – 50mm**

## What is Thermal Bridging?

Thermal bridges occur at points where materials that are poor insulators come in contact. At these points, heat is allowed to flow through the path created. There are three types of thermal bridge:

- Repeating
- Non-Repeating
- Random

It is important to minimize and preferably remove the occurrence of bridging by using materials that reduce the bridging or by breaking the bridge using a continuous layer of insulation.

### Repeating Thermal Bridges

Examples include where insulation is fixed between rafters or studs. This repeating situation is addressed by applying the appropriate corrections in the U-Value calculation.

### Non-Repeating Thermal Bridges

A simple example of a non-repeating bridge is where the insulation in the wall and roof do not join, namely at corners and internal wall junctions. It is important to account for this type of bridge as in an overall new build scenario they can account for up to 15% of the total heat loss.

An impact of cold bridging if not dealt with is condensation in the corners which can lead to mold growth. Can also create an issue in instances when wardrobes and other furniture reduce the circulation of warm air into the corners.

### Random Thermal Bridging

One off situation, for example, such as a steel beam in a wall construction. Random bridges must be dealt with individually in the preparation of the U-Value calculation. Best practice is to minimize/avoid situations where this can occur.

## Cold & Warm Pitched roofs – understanding how they differ.

For many removing the loft hatch presents a view of insulation inserted between the ceiling joists and characteristically the air temperature within the loft space is close to that of the external environment, this is a 'cold roof'.

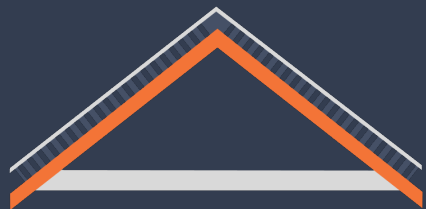
Many new build houses and for those people who are looking to extend the living area of the house through utilising the loft space, this is not practical solution. So, we now need to create what is known as a 'warm roof'.

For a 'warm roof' the insulation is fitted either under, between or over the rafter or more commonly in a combination of over and between or under and between the rafter. This brings the temperature of the loft up to that of the living space of the property with the insulated sloping roof preventing the escape of heat through the roof.

### ALTERNATIVE POSITIONS FOR THERMAL INSULATION IN PITCHED ROOFS



**COLD ROOF**  
CEILING LEVEL INSULATION



**WARM ROOF**  
BETWEEN RAFTER INSULATION

**Breathable Insulation – acts as both insulation and a breathable membrane/secondary rain barrier.**

# Installing SuperFOIL Breathable Insulation

## Introduction

Installing SuperFOIL is a simple process consisting of three major actions:



**Cut to size**



**Fix in place**



**Seal with tape**



Cut using the most appropriate tool for the thickness of the SuperFOIL product you are using, staple in place over the pitched roof timber rafters, from the eaves to the ridge, using the correct size galvanized or stainless-steel staples at 300mm intervals.

In most cases the SuperFOIL is installed at 90degrees to the rafter from left to right or right to left whichever is the most comfortable option to you. In a traditional roof to complete the installation from eaves to the pitch will require a number of horizontal runs. When using SuperFOIL SF19BB or SF40BB the overlap that is required is built in. The top layer, the breathable membrane is 1.6m x 10m (15sqm roll) or 1.3m x 10m (12sqm roll) and extends beyond the insulation layers below; on the back of the overlap is a strip of BUTYL tape which secures the overlap.





# Installing without counter battens

To install the product without counter battens, there must be an adequate clear gap between rafters to drape the SuperFOIL creating a minimum 10mm runoff under the tile battens.

SF19BB requires minimum 50mm gap

SF40BB requires minimum 85mm

The sealing of the joints around openings such as a velux and at ducts should be completed following the directions given in this guide with 100 mm SuperFOIL Breathable Tape to maximise the air and vapour tightness.

At the eaves, the SuperFOIL breather membrane should be separated from the insulation layers and continued to the gutter/eaves tray whilst the insulation layers are fixed to the wall plate and sealed with 100 mm Superior Foil tape.

Additional timber battens may be required to complete fixings around windows, doors and other structural points.

SuperFOIL Product	Batten Size
SF19BB (40mm)	38mm x 50mm
SF40BB (75mm)	50mm x 50mm

In several situations, it is likely that you will be required to install additional insulation to achieve the desired/required thermal performance. To benefit from the full thermal value of the SuperFOIL ensuring an air space is maintained both above and below the SuperFOIL, that is between any additional insulation installed and the SuperFOIL and the SuperFOIL and the plasterboard when installed below rafter. The minimum air space required either side of the SuperFOIL in a roof installation is 13mm.



**It is possible to achieve the required thermal performance using either:**

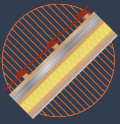
- A combination of SuperFOIL products
- Using SuperFOIL with additional insulation including PIR/PUR/Phenolic board or glass/ sheep's /mineral wool

## Fixing Details

### Cutting SuperFOIL

SuperFOIL can be cut using a utility knife, 12" shears or a rotary power cutter. Starting at the bottom of the roof at the eaves support tray, Roll out the SuperFOIL across the rafters horizontally. Staple the start of the roll into place on to your rafter and then continue to roll the product out across the rafters. If applying tile battens directly to the insulation layer, drape the product between the rafters to create a minimum 10mm run-off gap under the tile battens. If using counter battens before the tile battens, the insulation should be installed taut whilst being fixed into place to ensure no draping of the product. Staple the SuperFOIL to the rafters at approximately 300mm intervals using the correct size staples.





# Over Rafter Application

**Installation details:** SuperFOIL SF19BB, SuperFOIL SF40BB

Ensuring that the insulation layers extend past the wall plate, use the built in 100mm flap to overlap into the gutter.

At the end of the roof, turn back the top breathable membrane, exposing the insulation layers and cut them to the correct length so they finish at the outer edge of the roof. Take the top breather membrane layer and wrap it under the cut insulation layers to create a watertight edge. Staple into place on the rafter. To start a new layer, begin by positioning the built in 100mm overlap above the top of the previous layer and continue with the installation as with the previous layer. Continue to staple into place along the rafters at minimum 300mm intervals.

## Instructions

Seal the 100mm overlap to the previously installed roll by removing the backing of the integrated tape and applying pressure to the layers to ensure an even, secure joint.

When finishing a roll in the middle of the roof, turn back the top breathable membrane, exposing the under layers of the insulation and cut them back to the centre of the last covered rafter. (Taking care not to cut or damage to the outer breather membrane layer)

Place the new roll of insulation butt jointed to the cut insulation, secure into place and then place the breathable membrane back over the insulation covering the joint and seal with SuperFOIL breathable tape.

If using counter battens, apply the correct size timber counter battens parallel to the rafters to ensure an adequate air gap is left to allow water runoff under the tile battens. **Finish the installation by applying your tile battens as per manufacturer guidelines.**

## Hip Detail

Unroll SuperFOIL SF19BB/SF40BB across the rafters up to the hip. Cut the SuperFOIL to match the line of the hip and staple in place on the rafters. Repeat the same process across the opposite rafters, to match the line of the opposing hip. Staple into place on the rafters.

Fit the other layers in the same way and tape the butt joint using SuperFOIL breathable tape. For added water tightness use a 150mm wide (minimum) strip of breather membrane along the join and tape in position. Fix battens as required to complete the installation.

## Valley Detail

Unroll SuperFOIL SF19BB/SF40BB horizontally across the rafters and lap into the valley tray/gutter. Staple into place along the rafters. Cut the SuperFOIL to match the line of the valley, leaving it draped into the valley tray/gutter.

Turn back the top breathable membrane, exposing the under layers of the insulation and cut them back to the edge of the valley tray/gutter. (Taking care not to cut or damage the outer breather membrane layer). This will allow you to leave the membrane layer only in the valley gutter.

Repeat the same process across the opposite rafters, to match the line of the opposing valley. Staple into place on the rafters. Again, cutting away the insulation layers as above. Fix battens as required to complete the installation.

## Windows & Roof Lights/Lanterns

Roll the SuperFOIL out over the window area. Cut the top layer breathable membrane down the sides and at the corners of the windows. Fold the flaps back from the rest of the insulation layers. Cut out the remaining layers of insulation around the edge of the window, leaving just the breathable membrane flaps.

Staple the breathable membrane flaps to the side of the window and then continue to install the next layer. Detail the window dressing as per manufacturer's recommendation.



## Conclusion

To achieve **full performance** SuperFOIL should be installed with **min. 13mm clear air space between the SuperFOIL and the next material**. This can be achieved by using battens and the available rafter space.

**Contact with lead, copper and its alloys should be avoided.** SuperFOIL should not come into direct contact with **bare electrical wiring**. Electrical cables that are surrounded by insulation may need to be **de-rated**, advice should be sought from a **qualified electrician** as to the exact requirements. Any cut, tears or holes in the material should be sealed or repaired as appropriate.

For any further information please contact our technical team:

**[technical@superfoil.co.uk](mailto:technical@superfoil.co.uk)**  
**01636 639900**

# SuperFOIL

Insulation

## Change the way you insulate.

SuperFOIL offers high-performing multifoil insulation solutions for trade contractors, professionals and DIY projects through stockists, retail and online outlets. We are committed to providing you with the best solution – through honest, expert, technical advice.



### Technical support

- U-Value Calculations
- Condensation Risk Analysis
- Specification Advice
- Free Discovery Sessions



### Sustainable

- 40% Recycled Material
- Minimal Wastage
- Zero Waste to Landfill
- Reduced CO2 Emission



### 3 In 1 Multifoil

- Reflective Foil Insulation
- Vapour Control Layer
- Radiant Barrier
- Certified High Performance



### Application

- Roof, Wall & Floor
- New Build & Retrofit
- DIY Solutions
- Free Discovery Sessions

# SuperFOIL

## Insulation


### Address UK


Boulder Developments, Boulder Business  
Park, Pioneer Way, Lincoln LN6 0QR


### Address EU

Boulder Developments, B.V Ground.  
1st, 2nd and 3rd Floor.  
Joop Geesinkweg 901 999,  
Amsterdam, 1114 AB, Netherlands

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