

Super**FOIL**

Insulation

Installation Guide **Under Rafter**

SF 19+
SuperFOIL



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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** and **certifications** 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 some of the **highest performing products** on the market, 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, including for wall insulation solutions, meaning **you only have to buy one product** 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 **vapor control layer** and **radiant barrier**. What this means for you is that you **protect your project from condensation** and 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

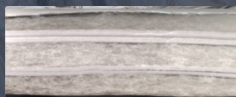
SuperFOIL - designed for adaptability and superior performance. When correctly installed within a standard timber frame structure, SuperFOIL consistently outperforms other traditional insulation materials. Its versatility shines through in different construction types, providing tailored insulation solutions.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

SuperFOIL SF19+

THERMAL PERFORMANCE

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

Thickness



45mm



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

SuperFOIL SF40

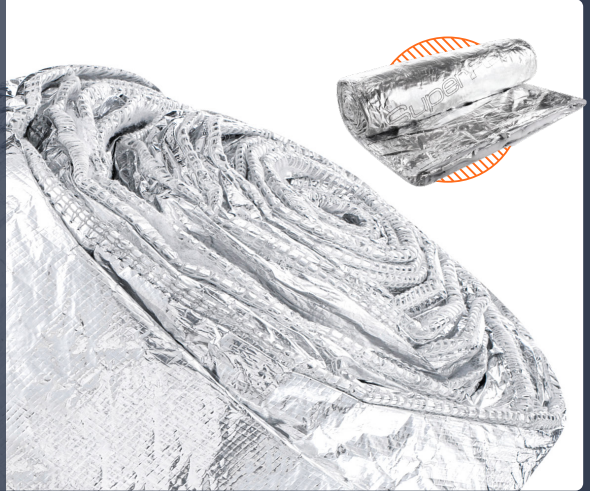
THERMAL PERFORMANCE

Core	2.57 m ² K/W
Roof	3.47 m ² K/W
Wall	3.91 m ² K/W
Floor	5.22 m ² 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 ² K/W
Roof	4.42 m ² K/W
Wall	4.88 m ² K/W
Floor	6.53 m ² 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 ² K/W
Roof	2.22 m ² K/W
Wall	2.53 m ² K/W
Floor	N/A

Thickness



40mm



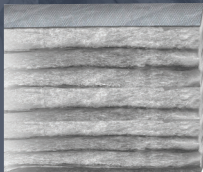
Similar to using 100mm PIR in a wall or 70 mm in a roof

SuperFOIL SF40BB

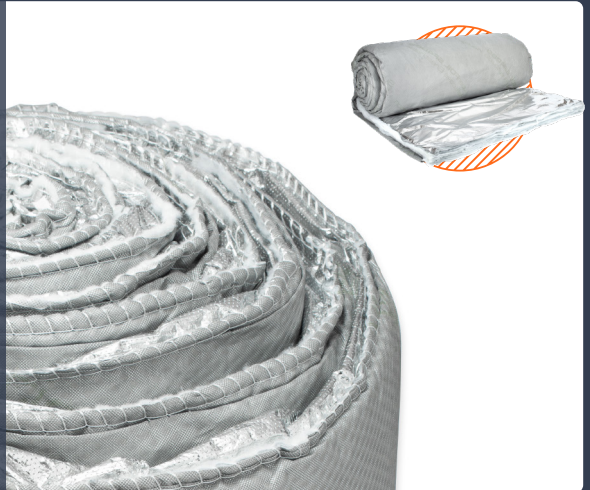
THERMAL PERFORMANCE

Core	2.92 m ² K/W
Roof	3.67 m ² K/W
Wall	3.98 m ² 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 ?

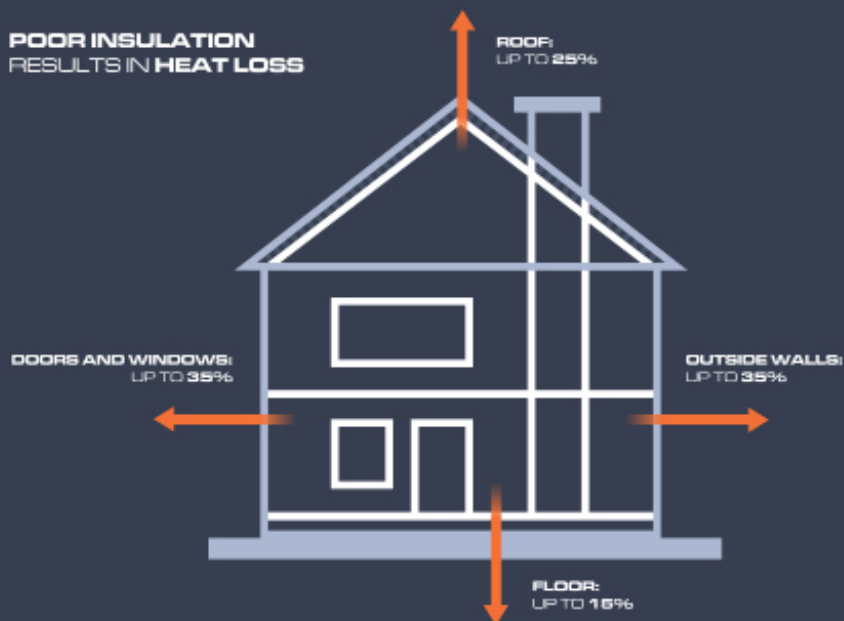
SuperFOIL is a **high tech multi-layer foil insulation** solution ideal for roofs, walls, floors and many custom designs. Our range of insulation products is unbeaten in both **performance** and **value**.

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
- It's **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)
- **The structure as a whole** – 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.

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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.

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

Installing SuperFOIL Vapour Check Products

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 ridge to the eaves, 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 minimum of two horizontal runs. The junction between the two runs should be overlapped (50-75mm) and the overlap sealed with SuperFOIL Superior tape (100mm). This taping is not required to secure the foil layers but to ensure that the joint is airtight preventing both the movement of air and moisture. The same process should be completed for both where a horizontal or vertical joints is required.

It is important to use the correct size counter batten and staples for the thickness of the product being used: The table below provides a list of appropriate staple sizes.

SuperFOIL Product	Batten Size	Staple Size
SF19+	38mm	20mm
SF40	50mm	30mm
SF60	63mm	40mm

The sealing of the joints around openings such as windows, pipes and ventilation ducts should be completed following the directions given in this guide with 100 mm Superior Foil Tape to maximise the air and vapour tightness. You should ensure that any penetrations through the products are covered by tape to ensure air tightness and to remove the opportunity for any moisture to permeate the structure.

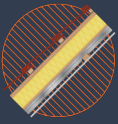
At the eaves, the SuperFOIL should be trimmed, stapled and then then sealed with 100 mm Superior Foil Tape to the timber wall plate as directed in the appropriate section of this guide. The initial stapling secures the product in place prior to the fixing of the appropriate size timber counter battens which will be installed horizontally in most situations at a maximum of 600 mm centres. Additional timber battens may be required to complete fixings around windows, doors and other structural points.

Where necessary, 100 mm Superior Foil Tape should be applied to any tears, cuts or joints. Plasterboard is then fixed to the timber battens in accordance with the manufacture's guidance.

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



Under Rafter Application

Installation details: SuperFOIL SF19+, SuperFOIL SF40, SuperFOIL SF60

Roof to Wall Detail

When connecting SuperFOIL to plaster finished, brick or block walls, dress SuperFOIL approx. 50mm onto the wall. Fold back the SuperFOIL and apply sealant as a continuous 8mm bead under the edge of the folded back SuperFOIL. Apply the SuperFOIL to the sealant, staple if possible and complete the joint by taping with 100mm Superior Foil Tape.

Ridge Detail

At the ridge install the SuperFOIL along or down the rafters starting at the ridge ensuring the SuperFOIL overlaps the ridge beam. Fix SuperFOIL to the ridge beam with staples. Complete the first section of roof.

When installing the opposing side of roof, start at the ridge ensuring the SuperFoil overlaps the ridge beam and previously installed SuperFOIL by a minimum of 50mm, secure in place with staples and seal the joint with 100mm Superior Foil Tape.

Eaves Detail

At the eaves, the SuperFOIL should be trimmed with sufficient material to overlap the timber wall plate. Staple the SuperFoil to the wall plate and then then seal with 100mm Superior Foil Tape. This is to form an airtight seal to the wall plate.

If sealing to plaster finish, brick or block fold back the SuperFOIL and apply sealant as a continuous 8mm bead under the edge of the folded back SuperFOIL. Apply the SuperFOIL to the sealant and tape over the joint with 100mm Superior Foil

Dwarf Wall Detail

At the dwarf wall continue the SuperFOIL down the studs to the floor joists sealing to base of dwarf wall to ensure air tightness. The products are then further held in place by the correct size timber battens installed horizontally at no greater than 600 mm centres.

Between Purlins Detail

If access behind the purlins is not available fix SuperFOIL to the rafters ensuring the SuperFOIL is dressed up the purlins and stapled in place, To create an airtight seal use 100mm Superior Foil Tape. The products are then further held in place by the correct size timber batten installed horizontally creating a tight seal between the SuperFOIL and purlins.

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
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


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