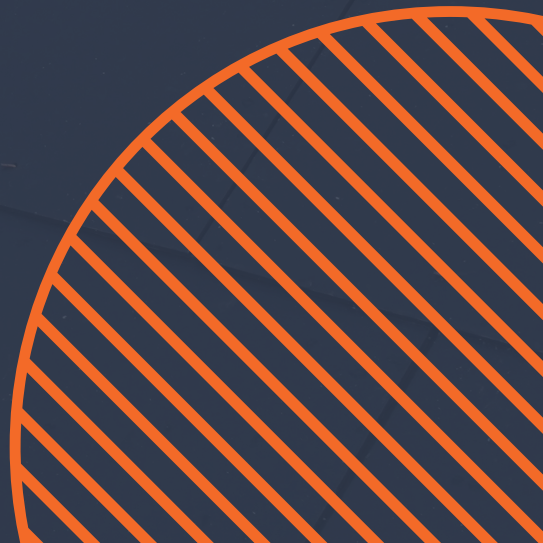


Super**FOIL**
Insulation

Installation Guide **External Wall**



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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

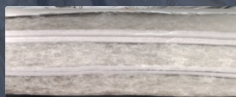
SuperFOIL - designed for adaptability and superior performance. When correctly installed within a standard timber frame structure, SuperFOIL consistently outperforms other traditional insulation materials. Its versatility shines through in different construction types, providing tailored insulation solutions.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

SuperFOIL SF19+

THERMAL PERFORMANCE

Core	1.63 m 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

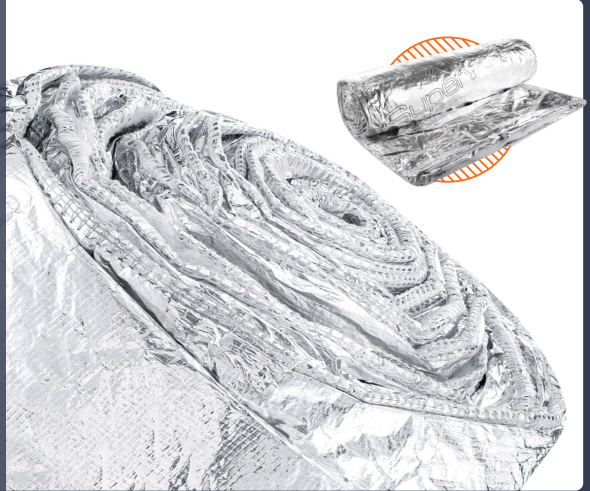
THERMAL PERFORMANCE

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



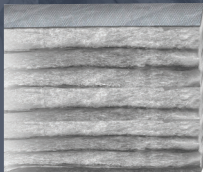
Similar to using 100mm PIR in a wall or 70 mm in a roof

SuperFOIL SF40BB

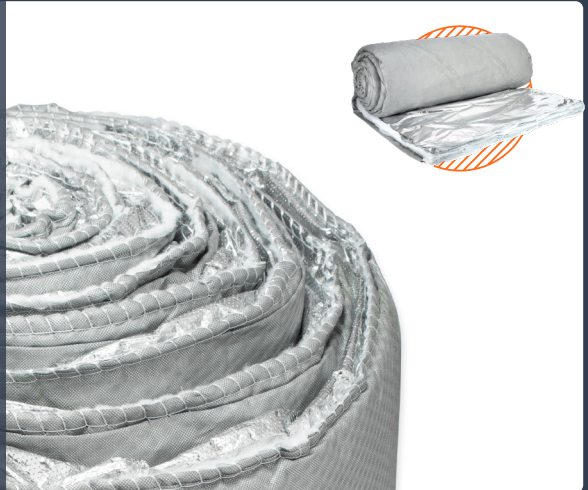
THERMAL PERFORMANCE

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

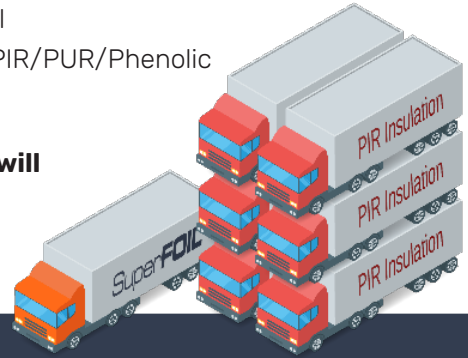


Similar to using 150mm PIR in a wall or 115 mm in a roof

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 ?

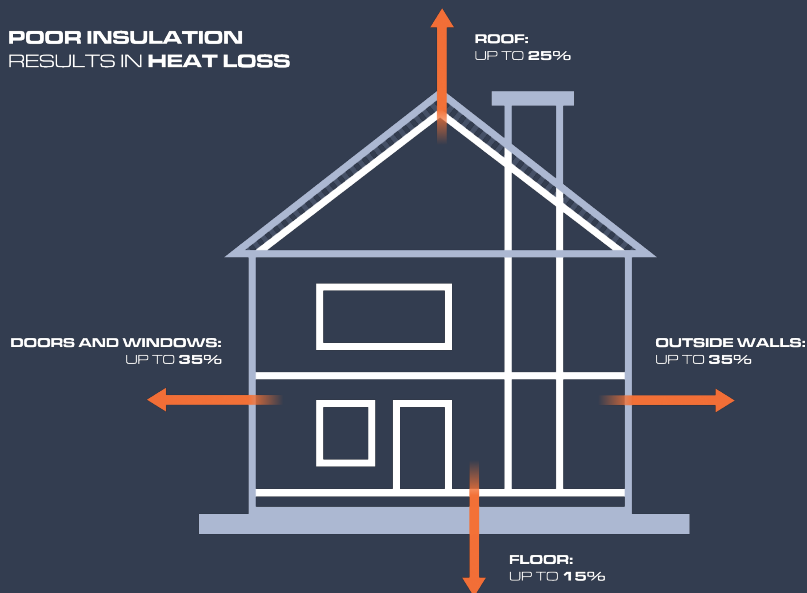
SuperFOIL is a **high tech multi-layer foil insulation** solution ideal for roofs, walls, floors and many custom designs. Our range of insulation products is unbeaten in both **performance** and **value**.

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
- 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.

Installing SuperFOIL Breathable Insulation

Introduction

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



Cut to size



Fix in place

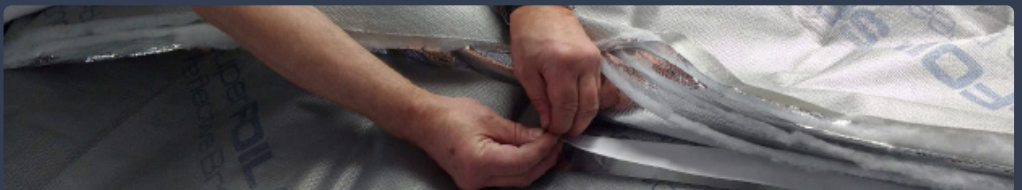


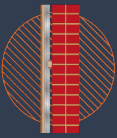
Seal with tape



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.





External Wall Application

Installation details: SuperFOIL SF19BB, SuperFOIL SF40BB

In existing buildings the ability to improve the thermal performance of external walls is dictated by the nature of the wall structure and in many cases the only options available is to insulate on the external face or internally on the inner face of the wall.

The nature of the build, traditional block or brick, steel or timber frame will be very important in the decision process. External wall insulation is a well used solution for solid wall properties and can be the only option for those solid wall properties where an internal wall insulation solution would result in a significant loss of floor space.



There are many retrofit situations when the only option is to insulate on the external wall however in new builds you can combine both external and internal wall insulation with great success to achieve or better the required thermal value.

If you are restricted to external wall insulation the benefits include:

- Improved thermal efficiency without the loss of internal floor space.
- Reduces the incidence of cold bridging.
- Makes use of the thermal mass of the walls as a 'heatsink'.
- Can enhance the external appearance of the property.
- Maintenance is easier and reduces costs.

When installed properly and in line with this guidance, you will benefit from being warmer and reduce your energy consumption. It also contributes to a far better Energy Performance Certificate rating which in turn can enhance the property value.

This guide covers the installation of external wall insulation: other guides are available for other applications.

Care must be taken when installing insulation which changes the way the building breathes or operates. It is therefore essential that you fully understand the information about property characteristics and location and moisture management

Solid Stone Wall

The details for solid stone walls are almost exactly the same with a few minor exceptions which are detailed below:

The joint between the soffit and SuperFOIL SF19BB or SF40BB on a vertical wall is a critical area of potential thermal bridging or cold spots which must be treated properly to ensure these are avoided.

As can be seen on the drawing shown here, the SuperFOIL SF19BB will be installed across the face of the 38mm battens, There must be no gaps between the battens and the soffit.

A stone wall is more likely to have damage from mortar loss or mortar degradation and these areas must be made good using the same class of mortar as was applied when built .

A stone constructed wall is more likely to require a fungicidal wash prior to installation of the external wall insulation

The insulation layer will extend from the DPM to reach the soffit.

Installation Instructions

Mechanically fix a BATTEN to the external wall at a minimum of 600mm centres. The size of the batten will depend on which product being used:

SuperFOIL Product	Batten Size
SF19BB (14mm)	38mm x 50mm
SF40BB (30mm)	50mm x 50mm

The direction of this batten can be either horizontal or vertical; the choice will be dependent on the nature of the final finish to be applied. In the majority of situations the first batten will be fixed vertically to the external face of the wall.

It is important to use the correct size of batten; it is the depth of the batten that will create the required air space between the SuperFOIL and the wall and the SuperFOIL and the final finish. A minimum 20mm air space is required to achieve the optimum thermal performance for the air space.

Starting at the bottom of the wall (determined by the position of the damp proof membrane) roll out the SuperFOIL either horizontally or vertically and staple to the face of the batten at 300mm centres using the appropriate sized staples. As previously indicated in most situations the direction of install will be across the face of the battens (horizontally).

When installing the second row of SuperFOIL butt the insulation layers up to the roll below and then allow the built in pre-taped overlap of the breather membrane to fall over the previously installed bottom layer and compress to seal the joint.

Continue up the face of the wall until you meet the line of the soffit. Ensure that the joint with the soffit is continuous with no gaps before stapling and sealing with SuperFOIL Breathable tape.

Counter batten using the appropriate depth of batten for the product you are using. Compress the foil with the counterbatten and then screw or nail as appropriate in place. The SuperFOIL will compress between the counter batten and the batten fixed to the wall to 4mm (SF19BB) or 12mm (SF40BB).

Installing battens at greater than 600mm centres

It is possible to extend the width of the batten centres (700mm, 800mm -1200mm) as in most cases the use of external wall insulation solutions are non-structural (non- weight bearing). It is possible to use noggins between the vertical studs but this will take greater time and has to be considered in the U-Value calculation to assess the impact of the additional cold bridging the use of noggins will introduce.

Solid Wall - Window Reveals

The treatment for a window reveal will require consideration of the depth of the reveal and the thickness of the window frame that is exposed in the reveal. Where the exposed window frame thickness is 50mm or less it will not be possible to continue with an air space either side of the SuperFOIL as this will impinge on the window itself.

In these instances, you should batten the foil as shown in the diagram at the window reveal/wall junction and cut sufficient length to allow the SuperFOIL to be folded into the reveal and to meet the window frame. Fix the SuperFOIL at the window frame edge using a 25mm x 50mm batten fixed through the foil to the wall face of the reveal.

The SuperFOIL at this point will compress to 3.3mm; the total depth at the window frame will therefore be 25mm +3.3mm = 28mm. By adding a shim(s) sized appropriately to the batten fixing the SuperFOIL at the corner of the reveal you will create a surface onto which a 12.5mm plasterboard can be fixed. This will give a total depth of 41mm from the plaster/brick face of the reveal wall to the surface of the plasterboard. The SuperFOIL will fill the total depth created by the batten (28.3mm) which is approximately 60% of the full thickness (45mm).

Where the window frame depth exceeds 50mm it may be possible to use a deeper batten & shims to achieve a higher thermal value.

There will be several variations in terms of the position of a door within the solid wall, some will be aligned to the inner face of the brickwork with the reveal being external whilst others will be aligned with the outer face providing an internal reveal. The amount of framing again will vary and so it will be important to evaluate the best option to be applied. The details/dimensions of the door frame and **any additional architrave treatments will all need to be considered.**

The important aspect as with a window reveal is the production of a junction where there is no opportunity for warm moist air to pass into the air space between the external wall and the inner face of the foil.

Where the depth of the framing allows continuation of the foil into a door reveal you should apply the same methodology as for a window reveal.

Ventilation Requirements

All ventilation outlets within the external wall should be maintained as required to ensure the ventilation is maintained into the property. It is important to note that where the external walls are improved in terms of thermal insulation, consideration is given to **Part F of Building Regulations - ventilation.**



Conclusion

To achieve **full performance** SuperFOIL should be installed with **min. 20mm 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


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