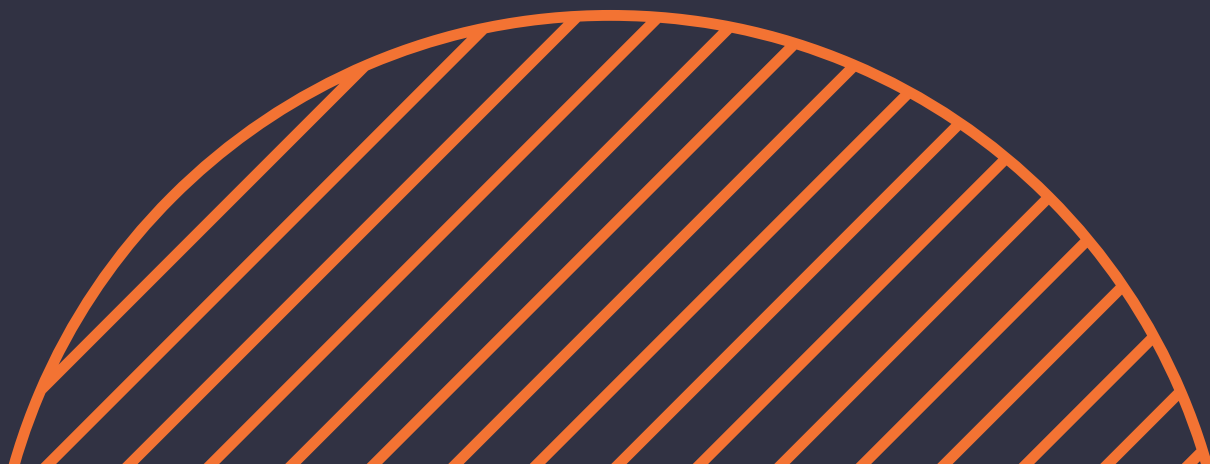


INSULATION GUIDE

Super**FOIL** Insulation

A complete insulation guide
for self builders, developers,
architects, merchants and
loft converters

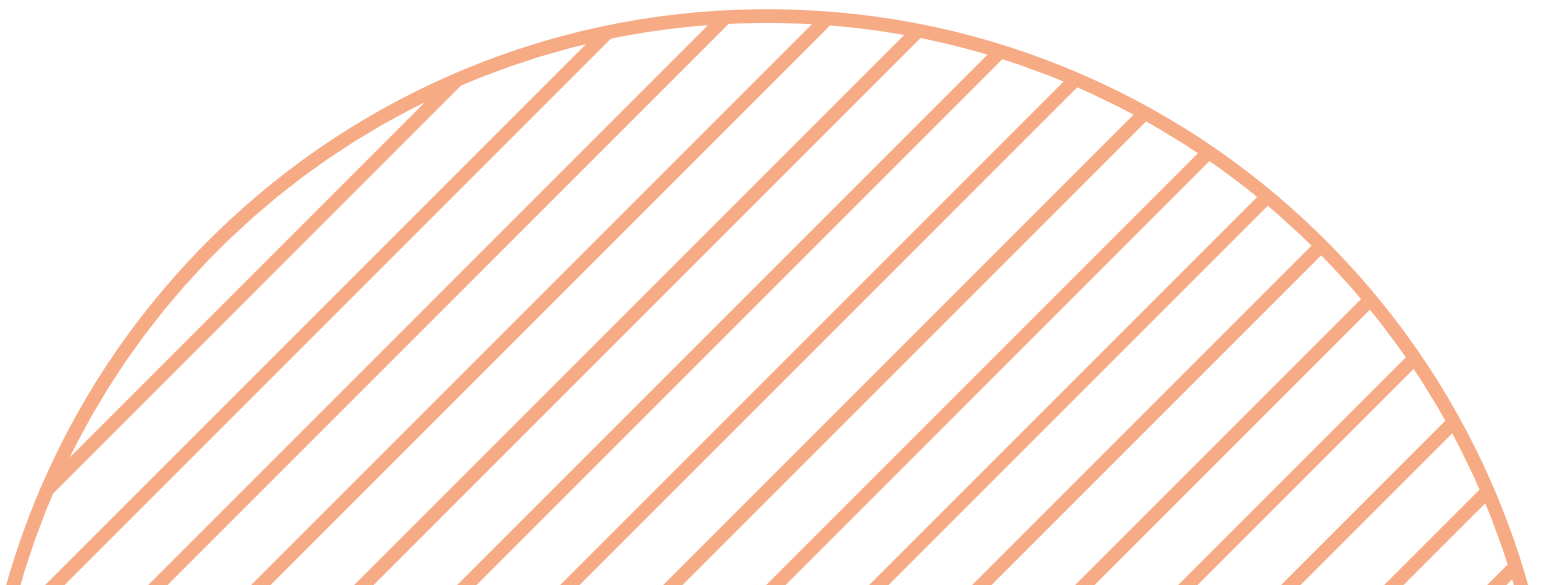


Thank You

Firstly, let me thank you for downloading our eBook. You have taken the first step towards ensuring your home is warm, cosy and energy efficient! All this whilst saving your hard-earned money in the process.

We have written this guide to give you the basic understanding of the hows, whys and wheres of insulation.

If you are looking for something more specific or technical, please contact us and we can provide you with a range of guides.



What is **Insulation**?

Insulation is a product that is used to reduce the rate of heat transfer within your home. By reducing the rate at which thermal energy is transferred it helps to ensure that your house is kept at the temperature which you want it to be. Whatever the season, insulation will help to keep your home warm in the winter and cooler in the summer.

It is important to remember that insulation is a legal requirement when building new homes and renovation projects and must meet certain standards to pass building regulations.

The Benefit of **Insulation**



Saves you money on your energy bills.



Helps to maintain a steady temperature that YOU decide.



Can help reduce external noise.

Did You **Know?**

In 1965 the required U-value for a wall was a staggering 1.7, whereas today's building regulations for a new build require a U-value of a mere 0.18!W

How Does **Insulation** Work?

The easiest way to think about how insulation works is to think that you are wrapping your house in a lovely, fluffy jumper for when it gets cold.

Who wouldn't like that?

To understand how insulation works, you have to look at how heat moves. There are three different forms of heat transfer, each which work in a completely different way, but all cause your house to lose (or gain) heat.

Conduction

In the winter when you get out of your nice warm bed, and your feet touch the cold tiles of the bathroom floor, always making you get a chill. Well that's conduction.

Conduction is simply where heat travels between two solid objects that are touching. Heat will always travel towards the colder temperature.

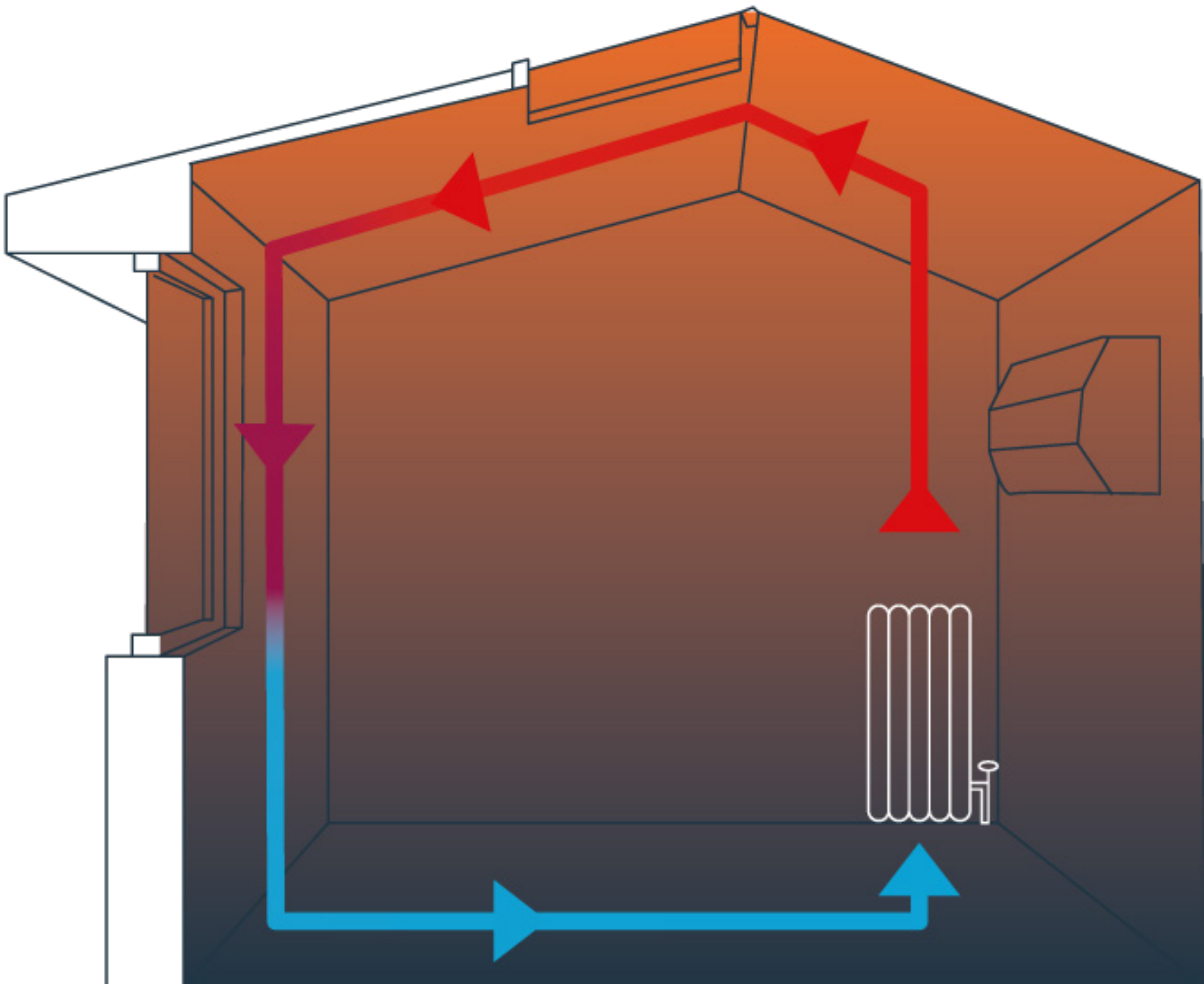
So how does this affect your home? All that lovely heat that you put into your home travels through your flooring and out of the house into the ground below. Lost to you forever.



Convection

We then have convection. This is how heat transfers between liquids or gasses (such as air). Heard of the phrase “hot air rises”? Well this is how convection works. The air will heat up and then rise, pushing the cooler air down for the process to repeat again.

Without insulation, all this heat escapes through your roof and walls. Who wants to pay to heat OUTSIDE their home?!



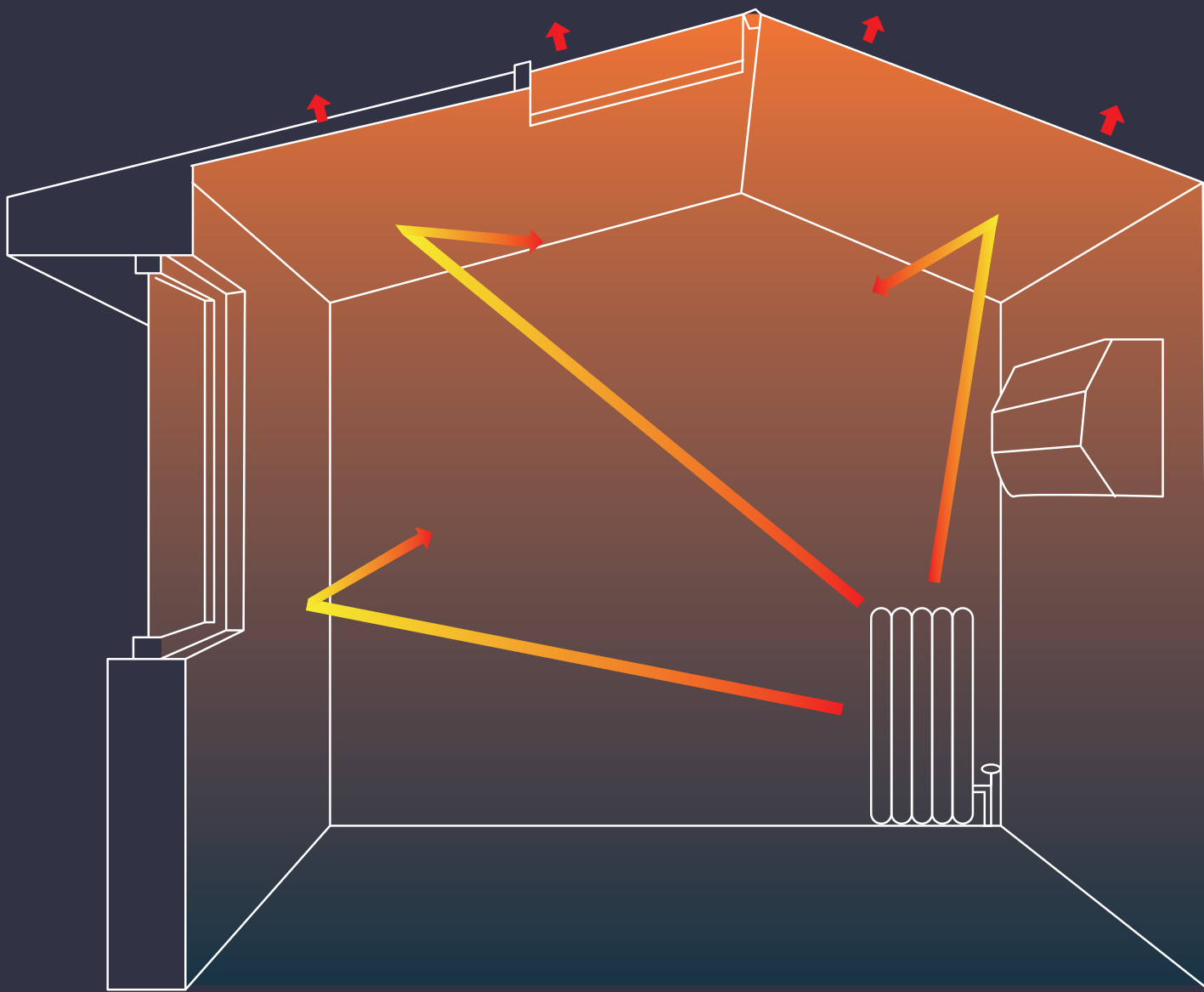
Radiation

The last form of heat transfer is radiation. Radiation is unique in the fact it does not transfer between objects or gasses/liquids. Heat travels via infra-red rays that are invisible to the human eye.

Warm and cosy from that log burner? All that lovely heat is being transferred to you via radiation.

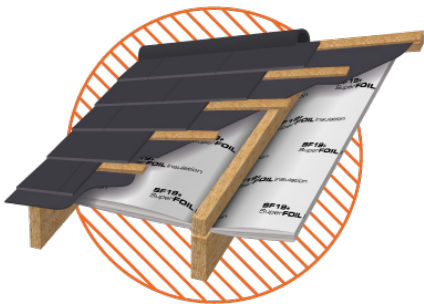
Many of the traditional types of insulation work by only reducing convection and conduction. However, other types of insulation (such as SuperFOIL) also work by reducing radiation heat transfer.

By reducing the radiation as well you are ensuring your home stays warm in the winter and cooler in the summer!



How Can **Insulation** Be Installed?

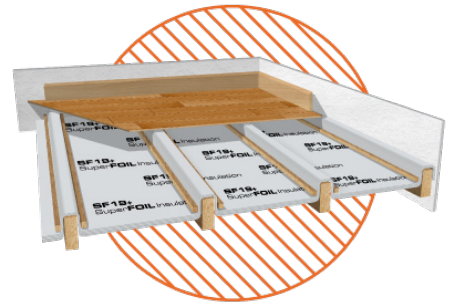
Insulation is typically installed within your **roof, walls and floor** depending on the product you chose. More people are now choosing to also insulate outside their homes, such as garden buildings, camper vans, and commercial buildings, just to name a few.



ROOF



WALL

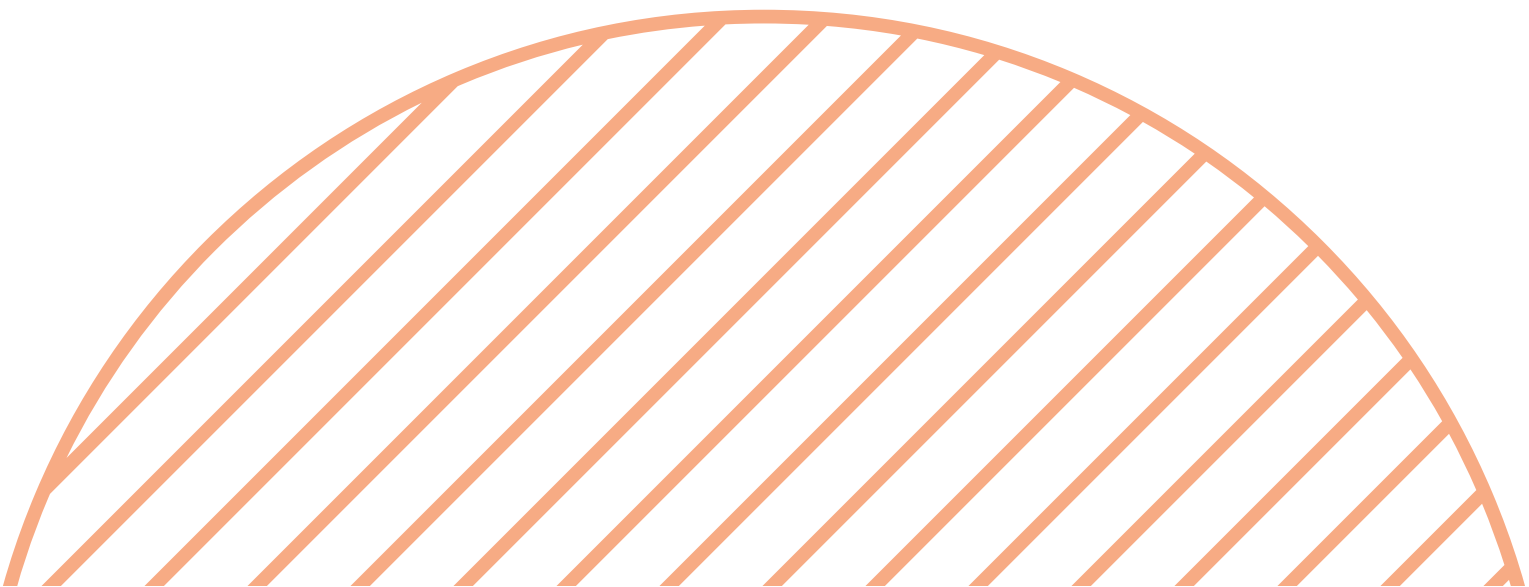


FLOOR

However, when it comes to insulation, your imagination is your only limitation.

Did You **Know?**

An un-insulated house can lose up to 60% of its heat through the floor, roof and walls.



Before you decide on what type of **Insulation** you would like...

There are some important things to consider first.

Are you installing it yourself or paying someone to fit it for you?

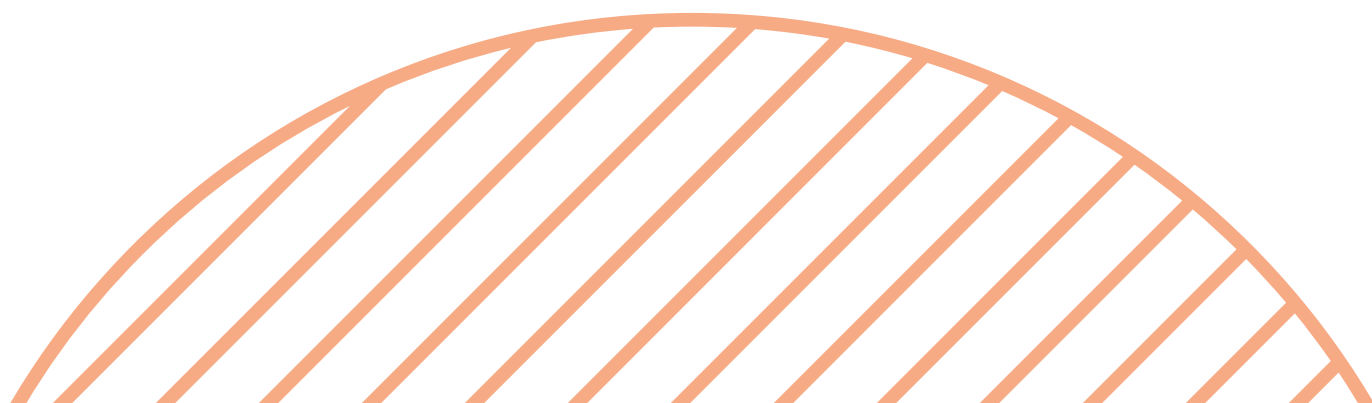
It is important to remember that not all insulations are made equal! Some insulations are simple to install, whereas some will need specialist knowledge and/or equipment. More traditional types of insulation also create a lot of mess during fitting. Have you got the space for cutting to size and then disposing of wasted product?

Age of your house

When looking at insulation, it is important to get something that can be installed without affecting the design of the house. Whether a period property or a high-tech, modern build, you have to consider how much space the insulation will need to achieve your goals.

How long does it last?

As previously stated, not all insulation is created equal. When looking at your chosen insulation type it is important that it is long lasting so you are not having to repeat unnecessary work. Some insulation types currently offer a 50 year + useful lifespan!



Where is the insulation going?

Not all insulation is suitable for every project. It is vital that you get the correct insulation needed for your project. More traditional insulations often require different products for floors, walls & roofs. It is also important to remember to ensure you have enough space for your chosen insulation.

What do you want to achieve?

Do you want insulation just to add an extra bit of warmth to your home? Do you need to meet building regulations on your new build (or do you want to exceed them)? Are you looking for bigger savings on your energy bills? Each of these questions will lead you to a different type of insulation, answer them before you choose an insulation type to find your perfect match!

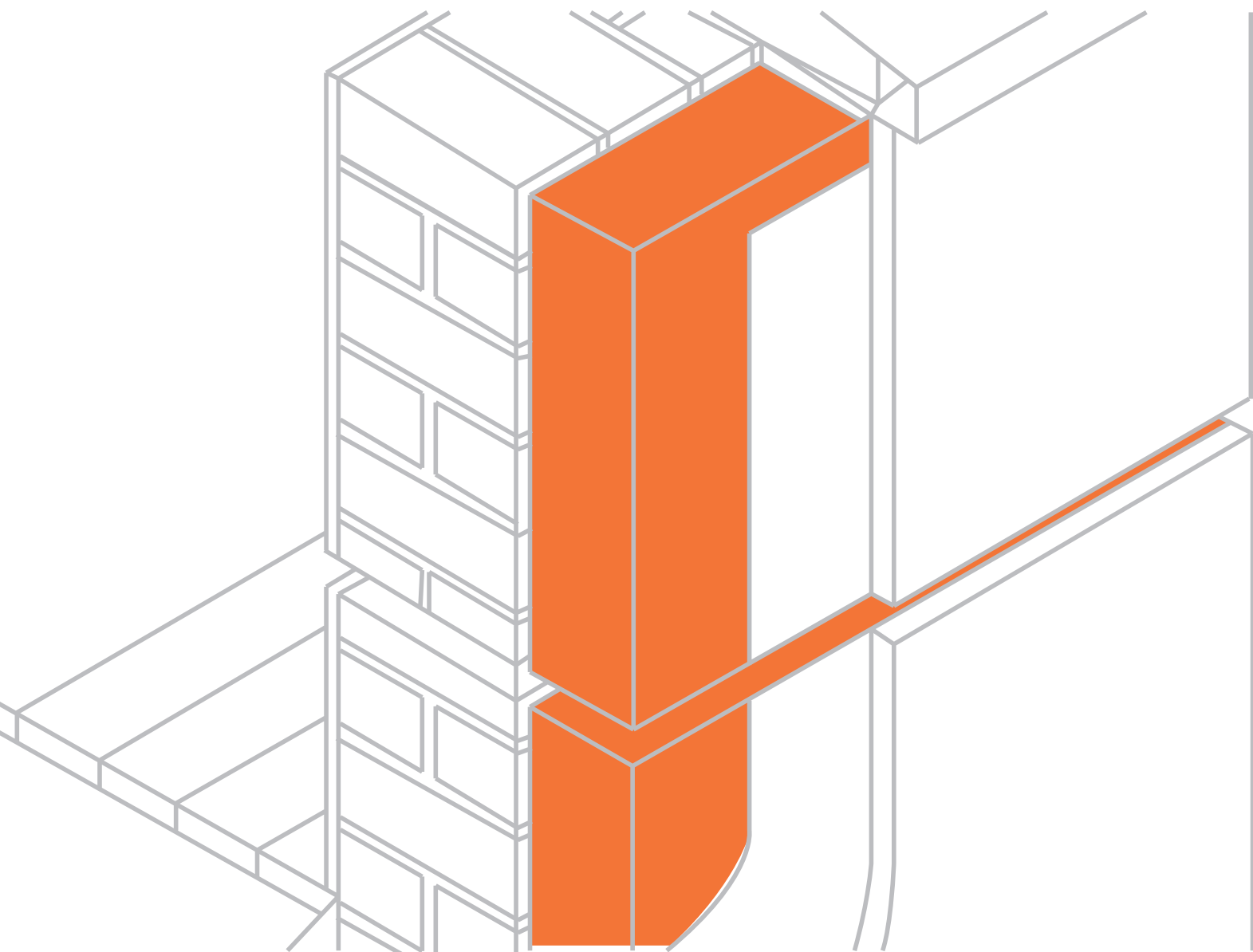


Polyisocyanurate (PIR) / Phenolic Boards

PIR boards are currently one of the most commonly used types of insulation, this is due to their *high R-values* and ability to be *used within different application types*.

They are *readily available* in the majority of larger DIY stores and online.

Because of their rigid board design, this gives them a *good structural strength*. Phenolic boards are made in the same way as PIR boards, but due to their manufacturing process they are slightly thinner and provide better R-values.



Even though they are commonly used, PIR board and phenolic boards do have their downsides. Due to the design, the boards only come in *large, pre-formed sheets which are thick and bulky*.

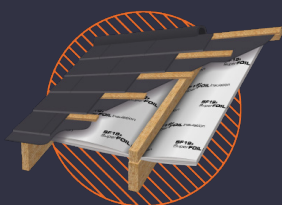
Because of their size they can be *awkward for you to transport and store*, when handling foam boards, you also have to be careful as they can *damage easily upon impact*. Additionally due to the “cut & fit” install method, foam boards cause *extensive mess and wasted product* during installation.

Although they have high R-values, performance can *decrease over time* as the blowing agents used to make the boards can escape, meaning you may need to replace or add additional insulation to maintain the same level of performance in the long run.

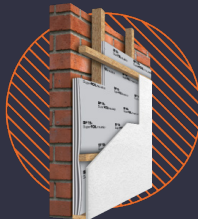
Cost wise, foam boards are priced at the higher end of the cost scale, with *Phenolic boards being most expensive*.

Ideal for *flat roofs, cavity walls* and *solid floor* applications.

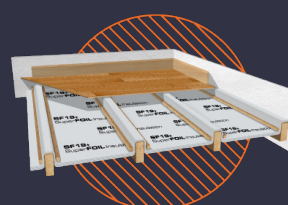
Can be used in



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FLOOR

Cost	** PIR * Phenolic
Efficiency	****
Ease of Installation	**
Space Saving	PIR *** /***** Phenolic

RATING OF 3.00

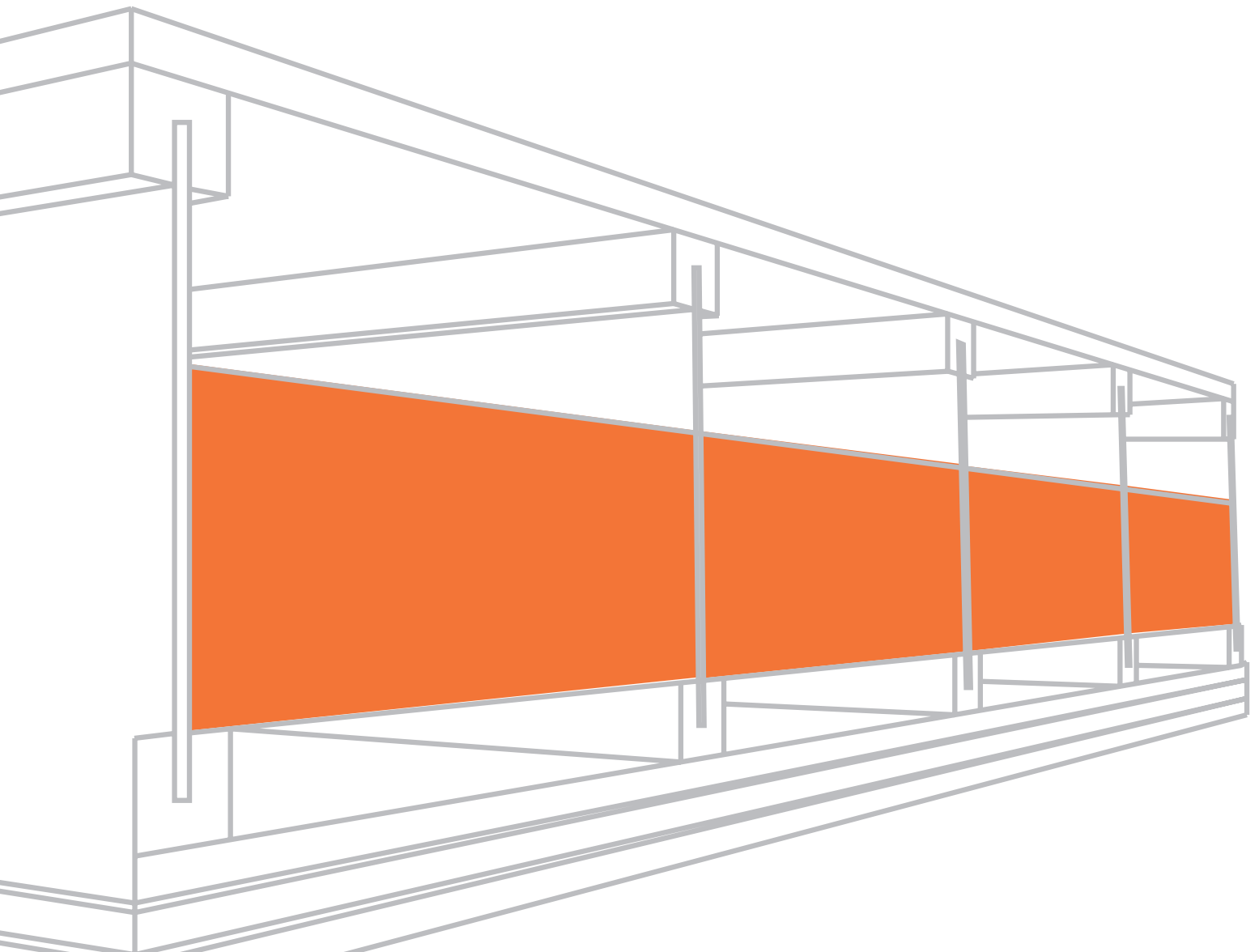
Glass Wool / Fibre Glass

When you think about insulation, your first thought probably goes to the itchy, pink, candyfloss that is glass wool/ fibreglass.

This is because it was one of the first insulations used within homes.

When looking at glass wool it does have its positives. It is *extremely cheap and easy to buy* from almost any DIY store and online.

It provides *great acoustic insulation* and comes with the added benefit that it *won't catch fire*.



Unfortunately, the negatives with glass wool are multiple and will often **cost the home owner more** in the long run.

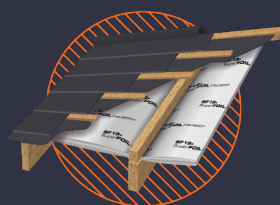
Compared to other insulations on the market, glass wool doesn't come close to providing the same thermal efficiency. On top of this, it flattens down over time meaning that **it loses its original R-value** and will need to be replaced **regularly**.

Glass Wool is also **vulnerable to moisture** from condensation which could cause **mould problems** within your home. Due to its make up, it is **irritating to skin and lungs** which makes installation uncomfortable if the correct equipment is not used.

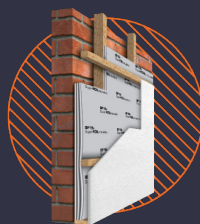
Price wise, Glass Wool/ Fibre glass is one of the cheapest forms of insulation on the market in terms of material costs but due to the thickness required can end up costing a lot in other materials such as timber.

Best used in **cavity walls & ceiling level loft insulation**

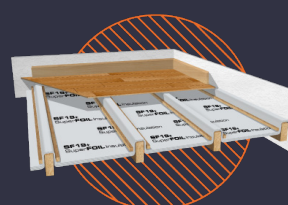
Can be used in



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WALL



FLOOR

Cost	*****
Efficiency	**
Ease of Installation	****
Space Saving	*

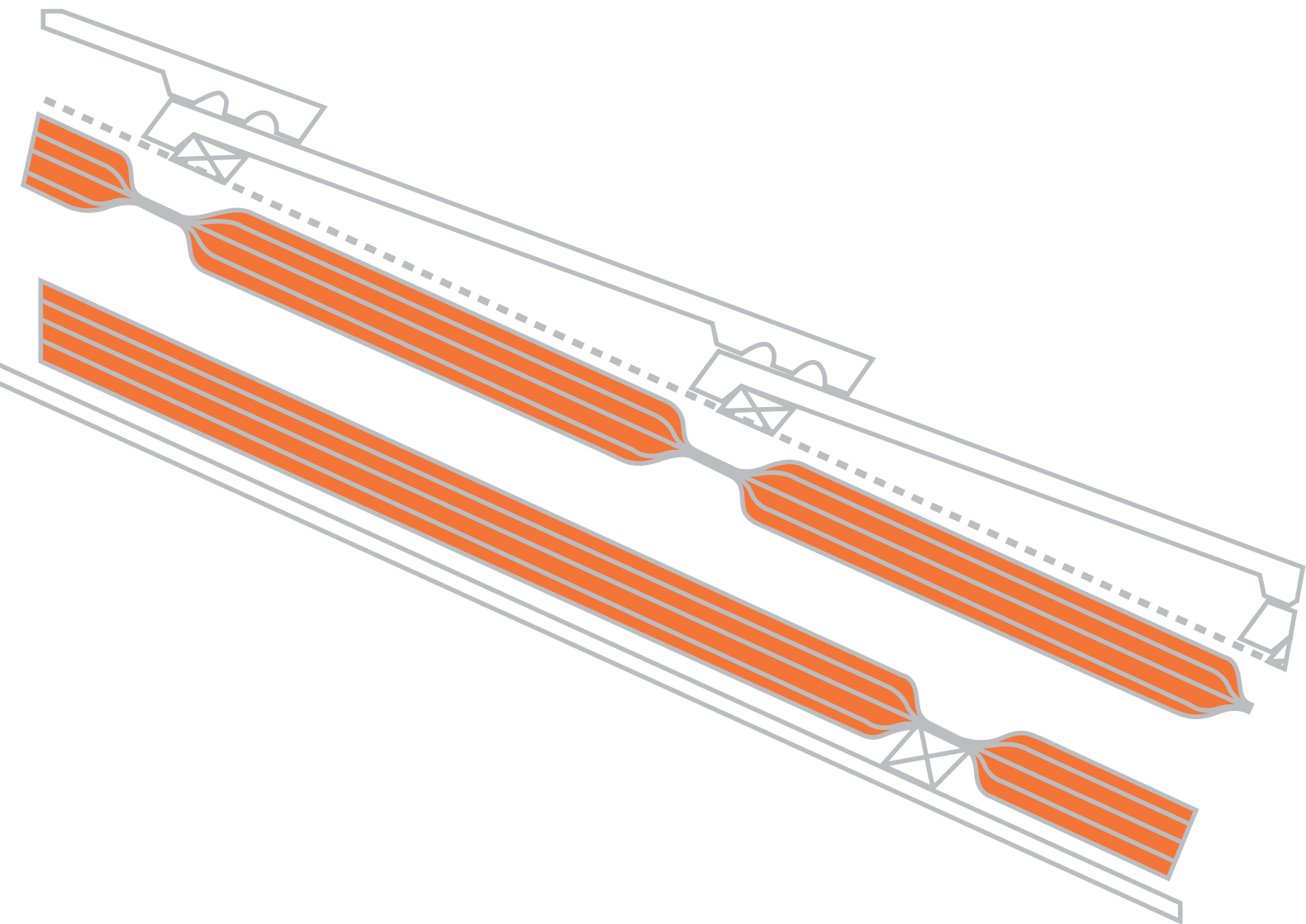
RATING OF 3.5

Multifoil

Multifoil insulations are fairly new to the market compared to other insulation types and are now starting to take over the insulation market due to its *unbeatable r-values* combined with its *sleek profiles*.

Unlike other insulations, multifoil protects against all 3 forms of heat transfer. It is a *fully flexible* product, that offers *space saving* solutions, *easy installation* and a 50 year+ life span without loss of efficiency.

Multifoil can be used by itself or in combination with other insulation types to meet or exceed thermal requirements.



Multifoil insulation is installed as a continuous layer and as such avoids typical insulation pitfalls such as cold bridging and material wastage from cutting and fitting between rafters.

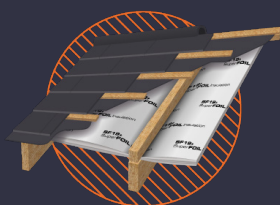
Due to its unique design, it is also able to act as a vapour control layer when installed internally (such as SF19+) or as a breathable membrane when installed externally (such as SF19BB).

To achieve maximum performance, multifoils should be installed with an air gap on both sides (this can **add up to 1.42R-value for no additional cost!**) which is easily achieved with the use of timber battens.

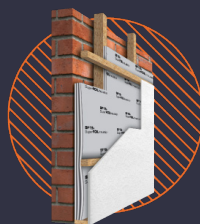
Multifoil insulation is competitively priced and thanks to the above benefits can help save you costs on materials aswell as labour by reducing the total amount of products needing to be installed.

Best used in **any project** - different types available for different applications

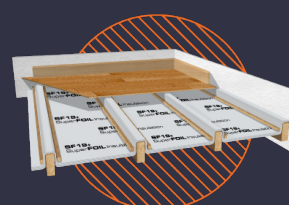
Can be used in



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FLOOR

Cost	****
Efficiency	*****
Ease of Installation	*****
Space Saving	****

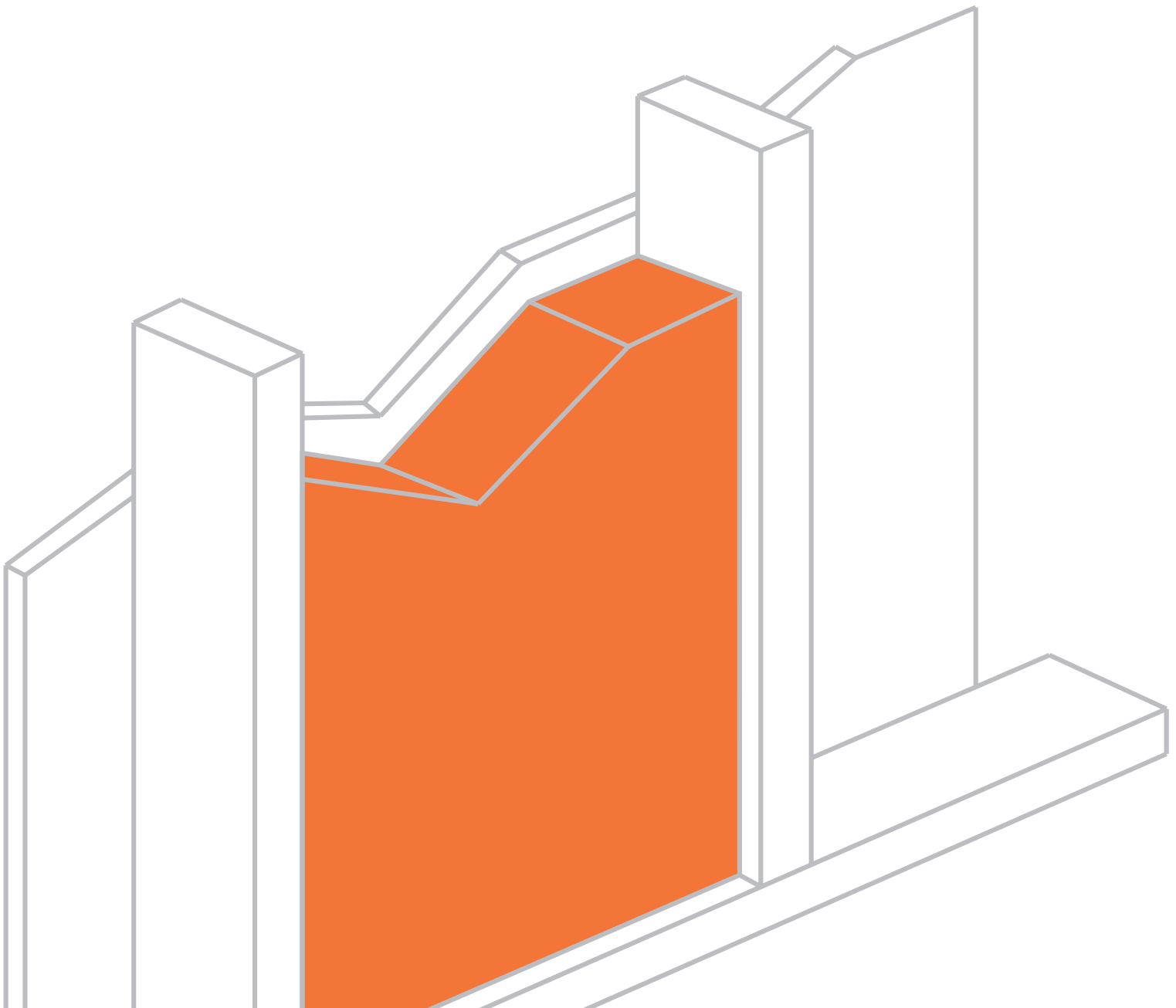
RATING OF 4.5

Spray Foam

Spray foam is an efficient insulation that is often used within *difficult to reach spaces* such as roof and wall cavities.

Because of its installation method you can avoid the small gaps and fitting issues associated with normal foam insulation in turn helpign to achieve higher performance.

There is two types of foam spray, open and closed cell. The open cell type *is waterproof* but still offers breathability whereas the closed cell foam spray can be used to *help reinforce walls and roofs*.



The two main negatives with foam spray insulation are the *cost of installation* and the fact it *needs to be installed by a professional*. It *cannot be used as a DIY product* like other insulations.

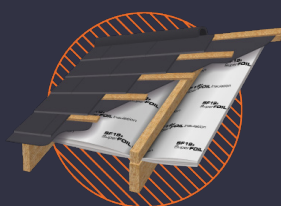
Once in place, it is *difficult to remove* and can cause *damage to the fabric of the building* if installed incorrectly. It is also *extremely messy* during installation.

It is also important to remember that the closed cell type *needs adequate ventilation* to prevent any condensation.

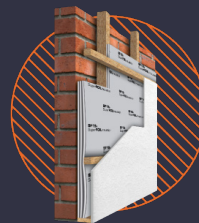
Foam insulation is one of the most expensive insulations in use due to installation needing to be carried out by trained professionals.

Best used in *hard to reach areas, such as roof and wall cavities*.

Can be used in



ROOF

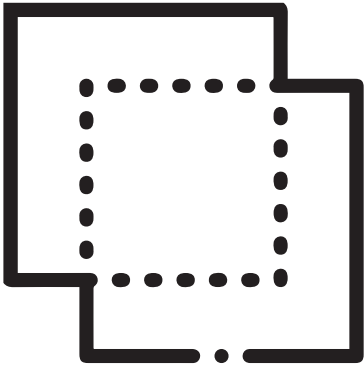


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Cost	*
Efficiency	****
Ease of Installation	*
Space Saving	****

RATING OF 2.5

Tips & Tricks

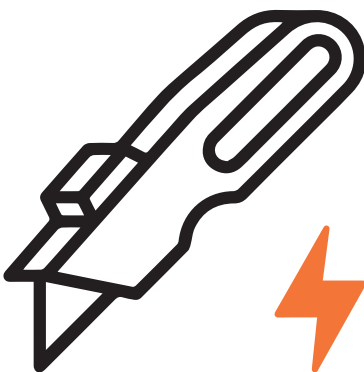
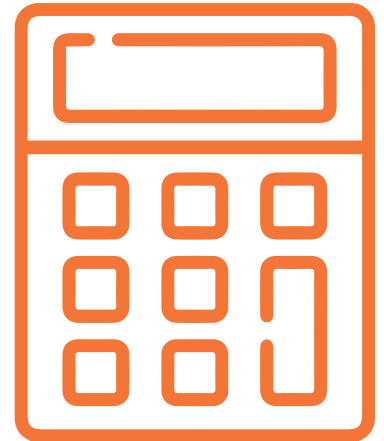


Looking to reduce outside noise as well as insulating your home? Use a combination of insulations such as fibreglass and SuperFOIL. By combining these two products you get the best of both worlds by gaining density and air tightness.

You can work out a rough U-value at home by using a simple calculation. Find out the R-value of your chosen insulation, and then divide 1 by this number.

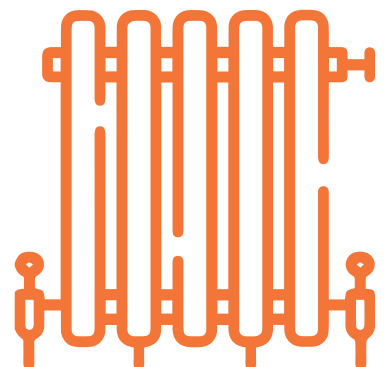
For example

$1/3.7$ (R-value) = approx. u-value of 0.27

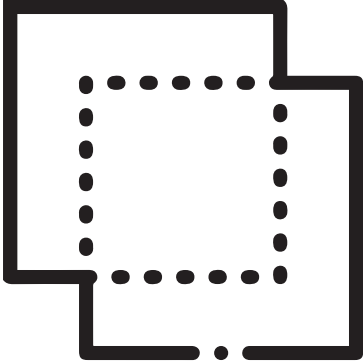


Make a simple job even easier. Use an electric cutter during insulation to save your cutting hand from fatigue!

Get the best performance from your radiators. Buy a SuperFOIL radiator kit to put behind your radiators. Any heat that is being pushed into the wall will be reflected back into your room.

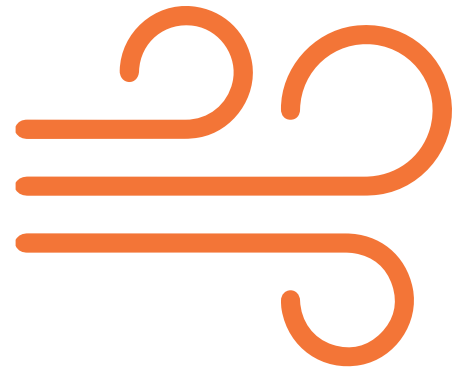


Tips & Tricks

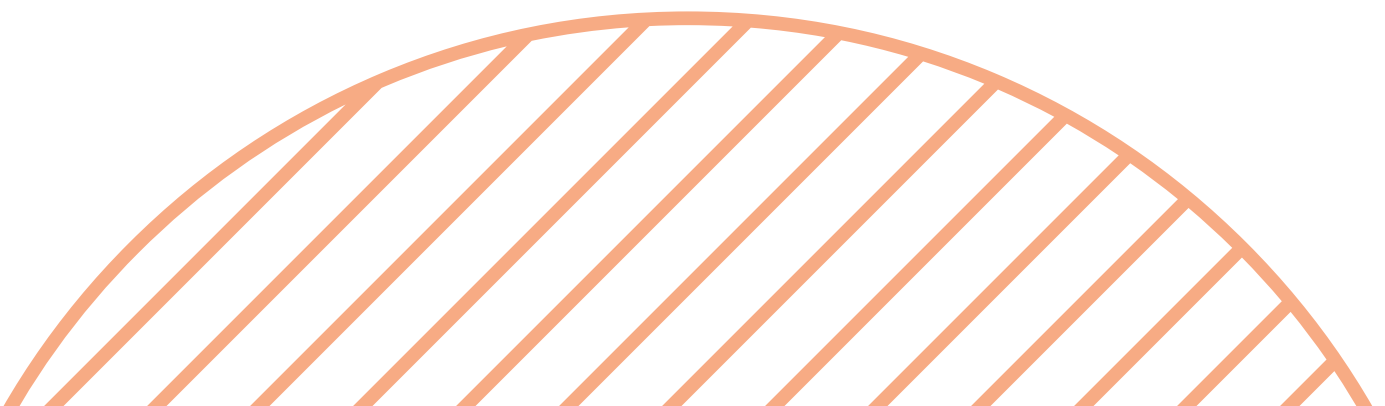


Already have insulation but want to improve? You don't always need to remove existing insulation. Use multifoil products in combination with your old insulation to improve that U-value!

Make your space airtight by sealing all gaps and holes with foil tape. This will give you greater benefits from your insulation.



When it comes to R-values, the higher the number the better performance. With U-values, you are looking for the lowest value for the best performance!



Contact Super**FOIL**

For more information or advice about our SuperFOIL range please contact us on **01636 636 900** or email us at ***Sales@superfoil.co.uk***

We can also provide more in-depth information on our insulations or installation guides. Please ask us about our wide range of guides.

Our friendly and knowledgeable team are always happy to help with any questions you may have.