Flat Roof Insulation Solutions

YBS Insulation is the UK's leading manufacturer of reflective insulation products

YBS Insulation

Yorkshire Building Services (Whitwell) Ltd,
Crags Industrial Park, Morven Street,
Creswell, Derbyshire, S80 4AJ

t: (sales) 01909 721 662 | (technical) 01909 726 025
e: sales@ybsinsulation.com | technical@ybsinsulation.com
www.ybsinsulation.com | @ybsinsulation

Introduction

YBS Insulation has over 25 years' experience in reflective insulation manufacturing and leading product brands such as SuperQuilt & BreatherQuilt, we produce the highest quality and performing multi-foil products in the market along with cavity closers and foil membranes.

We have pushed the boundaries of reflective insulation over the years, offering specifically designed products for various solutions across a wide range of industries including: Construction, Military, Cool Chain Logistics, Pharmaceutical, Agricultural and many more.

We are dedicated to offering the highest quality materials and products to our customers and to ensure we achieve this YBS has its own on-site laboratory and testing facility, enabling us to carry out rigorous quality control testing which allows us to research and develop new innovative solutions and improve the efficiency of insulation products.

With a continued focus on the environment and sustainability, the use of YBS reflective insulation is expected to continue to increase dramatically, through its high performance and recycled material content.

To help you find the right solution, YBS Insulation has put together 4 easy to understand application solution guides.

For more information about how YBS Insulation can help you to find the right solution Call our expert technical team on 01909 726025

Our services include: U-value calculations, Condensation risk analysis calculations, Regulations and policy advice, Product solutions and application guidance, Technical and specification literature,and Modular product application Training.

About this guide

This guide has been specifically designed to assist you to select the right reflective insulation products for your project.

How can YBS reflective insulation products help you and your solution?

By reading our informative and easy to understand flat roof insulation solution guide, we feel confident that you will make the right decision.

Contents

What is a roof?

A roof is a structure forming the upper covering of a building or shelter. Its primary purpose is generally to provide protection from the elements (wind, rain, snow, sun, etc.), but it can also benefit to the safety, security, privacy, and insulation of the building.

Roofs can be designed and constructed in a wide range of different roof types; however these are generally split in to two types; pitched and flat.

Flat roofs – Flat roofing is becoming more and more desirable, particularly for commercial properties. Flat roofs are typically at their best on smaller buildings, due to their compact nature. This makes them ideal for extensions and garages, but doesn't render them unsuitable for large properties.

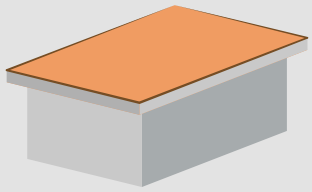
A flat roof is a roof that is completely, or almost level. However, whilst they are described as 'flat' almost all flat roofs are actually laid to a fall to ensure that rainwater can run off to the lower side.

While very common in countries with warm climates, flat roofs were only widely adopted in the UK after the Second World War. They were seen as a cheaper alternative to traditional pitched roofs. However, the longevity of some flat roofs is much shorter than that of a pitched roof, ranging from 6 years to 35 years depending on the quality of the covering and the structure.

Pitched roofs – Pitched roofs are the traditional domestic roofing solution, and they are still popular today for a variety of reasons. Versatility is one of them. While flat roofs can be built to accommodate foot traffic, pitched roofs can be converted to house substantial extra living space inside. Due to their design pitched roofs are also more reliable when it comes to drainage.

Roof definitions

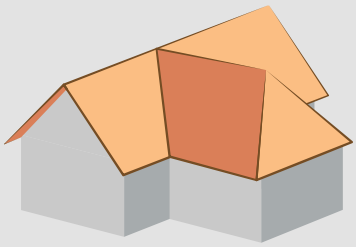
Flat roof



FLAT ROOF 0° TO 15°

15° APPROX 3 IN 12 (14°) GRADIENT

Pitched roof



PITCHED ROOF 15° TO 70°

70° APPROX 14 IN 12 (49.4°) GRADIENT

Cold and warm flat roofs explained

What is the difference between a cold and a warm flat roof?

Cold deck roof – The insulation in a cold deck roof is installed under the joists at ceiling level, between the joists or both, therefore the void between the joists is at a colder temperature than the room below during colder weather. This can pose a risk of condensation forming within the void or on the underside of the roof deck. This can lead to rotting timbers, damp ceiling and ineffective insulation. To remove this risk, it is important that the void is well ventilated. Cold decks were the traditional way of insulating a flat roof construction, however as the level of insulation has increased over the years, the warm deck roof is now the most commonly used method of construction.

Warm deck roof – The insulation in a warm deck roof is installed directly over the joists or above the roof deck, below the roofing membrane, usually with a vapour control layer internally. This construction has a much lower risk of condensation as the void will be of a comparable temperature to the roof. Ventilation is not required with this type of flat roof as the design works by conserving heat.

Cold roof

Warm roof

Condensation… is it an issue?

When installing insulation in an existing building, one of the main considerations is condensation. Older buildings are generally leaky and rely on air movement through the building fabric to remove moisture vapour from the building and avoid a condensation problem. Condensation in new buildings is dealt with at the specification stage.

The main concern is trapping condensation inside the structure (e.g. joists), otherwise known as interstitial condensation. In order to avoid interstitial condensation, it is important to select the correct method of insulating your flat roof.

There are two approaches to insulating your flat roof:

Insulating below + between the joists (cold deck roof) requires ventilation between the joists / under the external roof deck.

Insulating over joists (warm deck roof), does not require ventilation between the joists / under the external roof deck.

Do I need to ventilate my flat roof?

Condensation within a flat roof mainly occurs during cold weather when moisture vapour in the air which has been generated within the heated building, rises from the room below into the cold roof void above the ceiling.

When the temperature of the vapour falls to or below its dew point the water vapour condenses on cold surfaces. The warmer the air, the more water vapour it can contain and the higher the moisture content in the air (relative humidity; RH) the lower the dew point temperature will be.

Condensation is a particular problem in flat roofs above rooms which generate a lot of moisture such as kitchens and bathrooms.

A flat roof should be designed to minimise condensation and a condensation risk analysis should be undertaken, taking into account positioning of insulating materials, vapour control layers, ventilation, thermal insulation and the choice of materials. This is a free service offered by YBS Insulation.

Surface Condensation

Surface condensation which is visible on surfaces within the building and occurs when the temperature of the surface is at or below the dew point of the moist air.

This type of condensation is often identifiable by black mould on the walls, windows, ceilings etc.

Interstitial Condensation

Condensation which occurs within the roof structure is called interstitial condensation. It is particularly dangerous because it can cause unseen decay in roof timbers and fixings.

Condensation in a cold deck roof

Interstitial condensation is a particular problem in cold deck roofs where the insulation is placed under or in-between the joists above the ceiling.

The position of the insulation means that the roof deck and most of its structure has no protection from low temperatures during the winter.

These elements then become much colder than the interior of the building, and moisture vapour which has made its way up from the room below is then liable to condense on the timber structure possibly leading to decay.

Cold deck roofs are generally not recommended for new builds, and actually banned in Scotland.

Cross-Ventilation

To help disperse the moisture vapour, building regulations require cross ventilation to be provided in the form of a 50mm air gap between the deck and the insulation and continuous gap of about 25mm at the eaves.

Condensation… is it an issue?

Vapour control layer for a cold deck roof

Cross ventilation does not completely remove the moisture vapour in the ceiling void and a vapour control layer sealed at joints and penetrations is required under the insulation and over the plasterboard to provide a barrier against moisture vapour rising up from the room below.

Vapour control layer for a warm deck roof

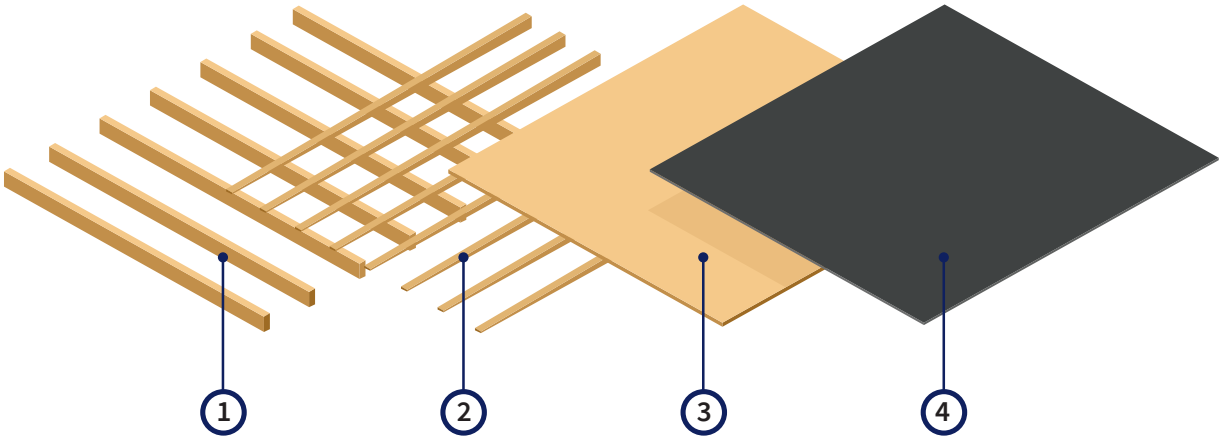
A vapour layer should be positioned under the insulation or, in some situations, immediately below the roof covering to minimise water vapour condensing beneath the membrane.

Vapour control layer may be formed using any of the following:

HIGH PERFORMING MULTI-FOIL INSULATION SUCH AS SUPERQUILT, WHICH IS A 2 IN 1 INSULATING VAPOUR CONTROL LAYER

A POLYTHENE SHEET MEMBRANE LAID OVER/UNDER THE JOISTS AND HELD USING MECHANICAL FASTENERS OR NAILED TO THE DECK (TIMBER DECKS) ALL LAPS SHOULD BE SEALED WITH AN APPROPRIATE ADHESIVE

Traditional flat roof construction explained



1. **Joists -** are structural and support the weight of the roof (these can be made from wood, steel of other types of material, depending on the roof specification). Joists are available in different grades and sizes depending on the specification and overall size of the roof.

2. **Fairings -** generally made from timber and create the desired fall, allowing water to run free from the roof, preventing it from pooling/building up.

3. **Roof Deck -** A 'deck' is the structural substrate of a flat roof and should be of adequate strength and stiffness to ensure structural integrity and provide suitable support to the roof covering system. The material used for the roof deck must be moisture resistant and will usually be plywood, OSB or timber boards although concrete and wood wool slab or profiled metal can also be used.

4. **External Finish -** this protects the roof from the elements and prolongs the life of the roof depending on the material used.

EPDM Roofing is an easy-to-install option as you can usually apply the rubber in one complete layer. While it is extremely lightweight, EPDM is also tough enough to withstand heavy foot traffic due to its elasticity. This means that it can last anywhere up to 30 years, sometimes more for well-maintained roofs.

Torch-on Felt Roofing is a modern version of traditional felt roofing, this is possibly the most commonly used on flat roofs. As it's laid down across the surface, a hot torch creates a flame to mould the material with the adhesive underneath. It is then brushed over to secure its position. This can last anywhere between 20-30 years and sometimes even longer on roofs that enjoy regular checks and maintenance procedures.

GRP Fibreglass Roofing offers a wide range of colours, this is one of the reasons why many people go for this option. One or two layers at most are enough to produce a smooth, jointless finish on the roof once set. Although it can work out more expensive, it is extremely damage resistant and very easy to repair. A fibreglass roof is likely to last at least 25 years, although it can survive much longer if correctly maintained.

How does insulation work?

Heat is transferred in three different ways:

Conduction – is the transfer of thermal energy by particles of matter bumping into each other. So heat travels through a solid object, or between two objects that are in direct contact.

Metals are what we would call good conductors. They transfer heat faster and more efficiently, whereas most non-metal objects and gas are poor conductors, which means they make for good insulators.

Convection – is the transfer of energy by particles of a liquid or gas moving from one place to another.

So heat is transferred through atoms in liquids and gases, which move more freely than in solids. Convection happens when the atoms that have more heat energy replace their counterparts which have less heat.

Radiation– is the transfer of thermal heat by electromagnetic wave, thermal radiation or infrared radiation is emitted by a hot object. The hotter the object, the higher the radiation.

As a general rule, black and dull surfaces are best at absorbing thermal radiation, while shiny surfaces will reflect it. When radiant heat meets a surface, it is either reflected away, or it is absorbed.

The low emissivity outer layers of our products reflect up to 95% of infra-red radiation back into the house and prevent the house from emitting infrared radiation to the outside. Keeping the house warmer In the winter and colder in the summer. At the same time, the fibrous insulation core of our products reduces heat loss through conduction and convection.

Do we need insulation?

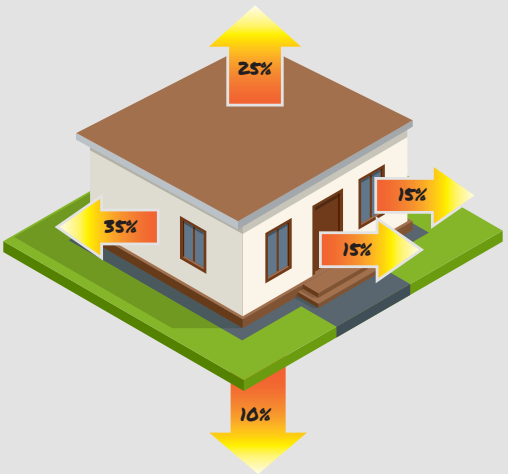
In a word, YES.

Every day, the heat that we lose from our homes has a significant impact on the planet (and our pockets!)

A brick house with poor insulation will lose over a 3rd of its heat through the walls, one-quarter through the roof and the rest through the doors, windows and floors.

HEAT LOSS:

ROOFS: 25%
WALLS: 35%
FLOORS: 10%
WINDOWS: 15%
LEAKS + OPENINGS: 15%



Understanding basic thermal units

Thermal conductivity (W/mk)
(watts per kelvin meter)

- Often referred to as the 'K' and 'λ' (lambda) value, is a constant for any given material.
- The lower the λ value, the better the thermal conductivity.
- Good insulators will have as low a value as possible.

Thermal resistance (m^2K/W)
(square metre kelvins per watt)

- Referred to as the 'R' value of a material, it is a product of thermal conductivity and thickness.
- The R-value is calculated from the thickness of the material divided by its thermal conductivity.
- The greater the material thickness, the greater the thermal resistance.
- Good insulators will have as high a value as possible.
- Thermal resistance can be gained through the use of reflective surfaces facing into a cavity, by creating low emissivity (low-e) cavities.

U-Value (W/m^2K)
(watts per square metre kelvin)

- A U-Value may be calculated and attributed to a single thickness of any material.
- However it is more commonly used to calculate the overall heat loss from the assembly of different materials in any given form of construction.
- It is a measure of the tranmission of heat through a pre-determined area of the building fabric.
- Good insulated applications will have as low a value as possible.

Using R-Values, K-Values and U-Values,

If you are confronted with R-Values, K-Values and U-Values going forward, here are 5 simple things to remember, to make sure you get the best insulating product.

HIGHER NUMBERS ARE GOOD WHEN COMPARING THERMAL RESISTANCE AND R-VALUES OF PRODUCTS.

LOW NUMBERS ARE GOOD WHEN COMPARING THERMAL CONDUCTIVITY, K-VALUES AND LAMBDA VALUES OF PRODUCTS

LOW NUMBERS ARE GOOD WHEN COMPARING U-VALUES.

THE LOWER THE U-VALUE OF A BUILDING, THE LESS ENERGY IS REQUIRED TO MAINTAIN COMFORTABLE CONDITIONS INSIDE THE BUILDING.

LOW NUMBERS ARE GOOD WHEN COMPARING EMISSIVITY VALUES.

Building regulations explained

Whether you are involved in a new build or a refurbishment project, there are a certain set of standards for thermal insulation which need to be adhered to according to Building Regulations. These standards are set out by the government and approved by parliament. In order that we can design energy-efficient homes, and that we meet compliance, it is vital we understand these building regulations.

In England, Approved Document L: Conservation of Fuel and Power sets out the standards for the energy performance of new and existing buildings. When it comes to insulation, Wales has its own separate set of standards which are described in Document L1A & B (Wales) and Scotland has specific standards set out in Section 6 (Energy) of the Scottish standards.

There are four parts to Approved Document L:

- **Approved Document L1A: New dwellings (Domestic)**
- **Approved Document L1B: Existing dwellings (Domestic)**
- **Approved Document L2A: New buildings other than dwellings (Non Domestic)**
- **Approved Document L2B: Existing buildings other than dwellings (Non Domestic)**

There are two parts to Section 6:

- **Building Standards Technical Handbook (Domestic)**
- **Building Standards Technical Handbook (Non Domestic)**

For more information visit our website:
https://ybsinsulation.com/understanding-building-regulations-relating-to-insulation/

Each standard sets the levels of thermal insulation required for your build.

This value is expressed as a U-value.

A U-value is a measure of heat loss in a building element such as a roof, wall or floor. It can also be referred to as an 'overall heat transfer co-efficient' and measures how well parts of a building transfer heat. This means that the higher the U-value the worse the thermal performance of the building envelope. A low U-value usually indicates high levels of insulation.

FLAT ROOF

NEW BUILD TARGET U-VALUE

ENGLAND	0.13
WALES	0.13
SCOTLAND	0.11

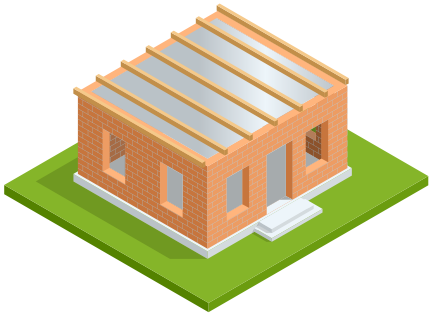
REFURBISHMENT EXTENSION TARGET U-VALUE

ENGLAND	0.18
WALES	0.18 OR 0.15
SCOTLAND	0.25, 0.18 OR 0.13

Flat roof insulation solutions

Around 25% of heat is lost through the roof, so keeping the heat in your home is essential for lowering energy bills and carbon footprint. Here at YBS Insulation we manufacture specialist flat roof insulation which keeps warmth in during winter and reflects heat away in the summer.

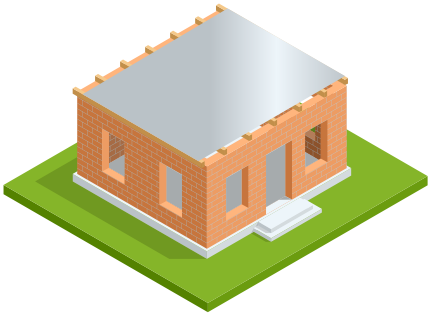
We offer a variety of different insulation products, which can be used in different solutions while offering high thermal performance. Each brand has its own specification and benefits, with all products being certified to industry standards.



Under joists

For projects where there is access to the internal side of the roof and the external roof finish is not being removed or replaced.

- **Garage conversions**
- **Extensions**
- **Commercial**



Over joists

For projects where there is access to the external side of the roof, this could include applications where there is restricted access internally.

- **Re-roofing**
- **Garage conversions**
- **Extensions**
- **New build**
- **Commercial**

Over & under joists

For projects where there is access to the external and internal side of the roof.

- **Extensions**
- **New build**
- **Commercial**

YBS product options

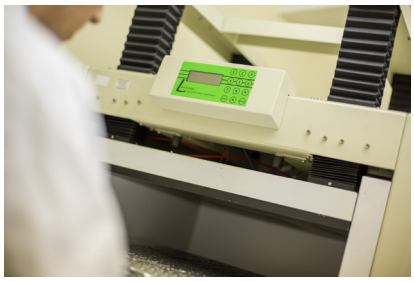
Insulating your pitched roof can be an expensive job, so selecting the right solution is important.

Certification

Our products are certified to various industry standards including BDA kiwa, LABC Assured & NHBC accepted.

Testing

These products are regularly tested in house at our factory and by third party testing laboratories, ensuring they continually meet their high specifications.



SuperQuilt is our top product for flat roof solutions, understanding how this product can be used will enable you to also understand how our other products can also be used.

Product	BDA Kiwa Agrément Certified	LABC Assured	NHBC Accepted	Vapour Control layer
SuperQuilt	✓	✓	✓	✓

What is a Vapour Control layer?

A Vapour Control Layer, or VCL for short, is a membrane that restricts the movement of warm, moist air from inside a property into the fabric of the building. This reduces the risk of harmful interstitial condensation by ensuring that any moisture within the cavity is at a manageable level.

What is a breathable membrane?

A Breathable Membrane, or Breather Membrane is weather and water-resistant, but air-permeable. The membrane is located on the cold side of the insulation. It prevents moisture that may have passed through the external cladding or tiles from reaching further into the structure. It also allows any trapped moisture within the structure to escape externally.

SuperQuilt

SuperQuilt is the UK's leading reflective multifoil insulations. This flexible, easy to install, 2 in 1 reflective aluminium multilayer insulation and vapour control layer offers tremendous thermal and vapour resistance benefits.

Specifically designed to replace the use of traditional insulation by effectively dealing with all three forms of energy transfer, offering a high level of thermal performance (total R-Value of 2.50 W/m^{2}K equivalent to approx 130mm of Mineral Wool), This versatile thermally efficient layered insulation is the ideal solution to all your insulation needs and will save valuable time and cost of your installation whilst providing energy saving and maximising living space.

This product is suitable for roofs, walls and floors and offers the following major benefits

- Dual purpose 2-in-1 reflecting insulation and vapour control layer (removing the need for a separate vapour control layer as it is already built in).
- Reduces Construction Depth.
- Reduces Risk of Condensation.
- Unique, patented kimble design holds layers in place to avoid separation when cutting.
- Zero fibres removes the need for PPE.
- Non degradable maintaining thermal performance and product integrity.
- Does not absorb moisture.
- Quick and easy to install (can be fixed with staples or nails).
- Minimal waste compared to traditional insulation products.
- Manufactured using 83% recycled materials.
- Fully Agrément Certified, Building Control compliant, LABC registered and NHBC accepted.

Technical Data

PRODUCT DETAILS		
Layers	19	
Thickness (mm)	40	
Weight (g/m^2)	800	
MECHANICAL PROPERTIES		
Thermal Performance	**Value**	**Standard**
Core	1.52m^{2}K/W	BS EN 16012
Roof (Core + 2 Airspaces)	2.50m^{2}K/W	BS EN 6946
Wall (Core + 2 Airspaces)	3.00m^{2}K/W	BS EN 6946
Floor (Core + 2 Airspaces)	4.45m^{2}K/W	BS EN 6946
Flammability	Class E	BS EN 13501-1
Water Vapour Resistance	1596MNs/g	BS EN 12572
Emission Coefficients of surfaces	0.02	BS EN 16012
Tensile Strength	142KPA	BS EN 1608
PACKAGING		
Area	**15m^2**	**12m^2**
Width (m)	1.5	1.2
Length (m)	10	10
Weight (Kg)	12.5	10

REDUCED CONDENSATION
Effective 2 in 1 insulation and vapour control membrane

QUICK & EASY
Project completion time improved

COST SAVINGS
Reduced amount of building materials

REDUCED WASTE
Reduced amount of building materials

REDUCED DEPTH
Increasing available living space

Under joist (internal) insulation solutions

Insulating a flat roof below & between joists

Insulating a flat roof between and below the joists is a very common roof insulation choice, particularly for retrofit, refurbishment or conversion projects.

This method of installing roof insulation allows you to maximise the headroom by using a thinner layer of insulation beneath the joists, whilst achieving U-Values which will ensure you comply with Building Regulations and have a roof space which is comfortable for its occupants.

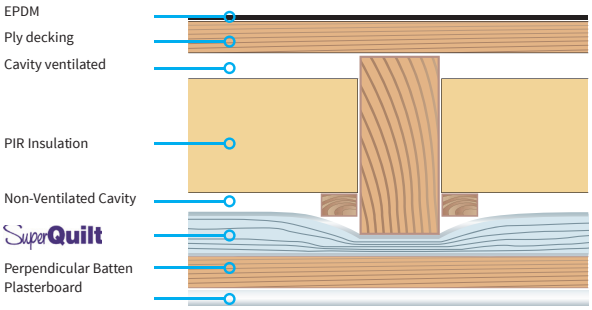
SuperQuilt under joists & traditional insulation between joists

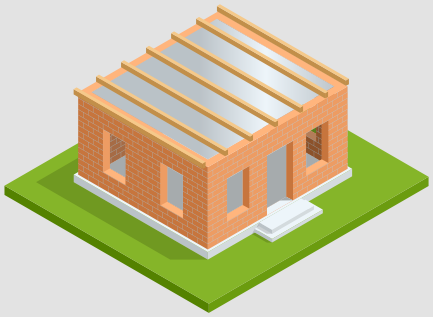
Our internal flat roof insulation solution is a quick and efficient method of insulating your flat roof project.

Installing a layer of SuperQuilt internally removes the need for a vapour control layer, increases the overall thermal efficiency of the flat roof and increases the internal space available due to its ultra-thin profile. SuperQuilt can be used on its own or with traditional insulation such as PIR or mineral wool between the joists.

Using SuperQuilt can significantly reduce the overall impact to head height, when compared to traditional insulation solution, saving you valuable money, time and space.

Example Construction





Key points to remember!

- CAN BE USED IN CONJUNCTION WITH MOST OTHER TRADITIONAL INSULATION PRODUCTS (SUCH AS PIR, MINERAL WOOL, EPS, ETC...)
- SQ CAN BE RECESSED BETWEEN JOISTS OR PULLED TAUT UNDER JOISTS
- SQ TAUT UNDER JOISTS EXPANDS UPWARDS, MAINTAINING A CAVITY BETWEEN THE SUPERQUILT AND PIR INCREASES THE OVERALL THERMAL PERFORMANCE
- 25MM INTERNAL BATTEN – ALLOWS SQ TO EXPAND DOWNWARDS, MAINTAINING A CAVITY BETWEEN SQ + PLASTERBOARD INCREASES THE OVERALL THERMAL PERFORMANCE
- TAPING AND SEALING SQ USING FOIL TAPE, CREATES A VCL (VAPOUR CONTROL LAYER) REMOVING THE NEED TO BUY A SEPARATE VCL MEMBRANE
- INTERNAL 25MM BATTEN CREATES AN AMENITIES CAVITY FOR PIPES AND CABLES.
- REDUCES THE AMOUNT OF HEAD HEIGHT LOST COMPARED TO TRADITIONAL INSULATION
- COLD DECK SOLUTION – REQUIRES VENTILATION BELOW ROOF DECK

Alternatively, multiple layers of SuperQuilt can be used to achieve your desired U-Value.

2 layers of SuperQuilt under joists & insulated plasterboard

Our 2 layer internal flat roof insulation solution is a quick and efficient method of insulating your flat roof.

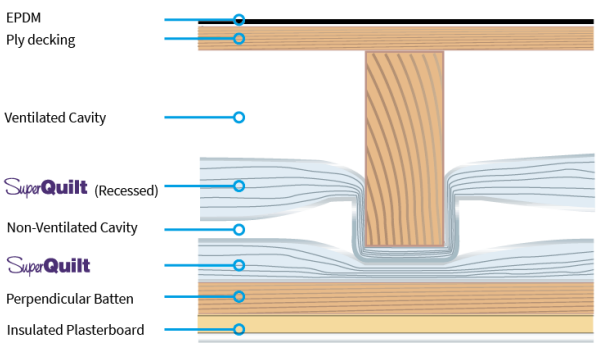
Properties with smaller joist depth can be an issue when specifying traditional insulation like PIR & Mineral wool due to the high thickness of insulation required.

Recessing a layer of SuperQuilt between the joists and a layer of SuperQuilt internally removes the need for a vapour control layer, increases the overall thermal efficiency of the flat roof and increases the internal space available due to its ultra-thin profile.

SuperQuilt can be used on its own or in conjunction with an insulated plasterboard, giving you a hassle free installation, saving you valuable money, time and space.

For projects with larger joists, traditional insulation like PIR and Mineral Wool can be used between joists, removing the need for an insulated plasterboard.

Example Construction



Key points to remember!

- SQ RECESSED 38MM BETWEEN THE JOISTS UTILISES JOIST SPACE, MAXIMISING INTERNAL HEAD HEIGHT
- SQ TAUT UNDER JOISTS EXPANDS UPWARDS, MAINTAINING A CAVITY BETWEEN THE 2 LAYERS INCREASES THE OVERALL THERMAL PERFORMANCE
- 25MM BATTEN – ALLOWS SQ TO EXPAND DOWNWARDS, MAINTAINING A CAVITY BETWEEN SQ + PLASTERBOARD INCREASES THE OVERALL THERMAL PERFORMANCE
- TAPING AND SEALING SQ USING FOIL TAPE, CREATES A VCL (VAPOUR CONTROL LAYER) REMOVING THE NEED TO BUY A SEPARATE VCL MEMBRANE
- INTERNAL 25MM BATTEN CREATES AN AMENITIES CAVITY FOR PIPES AND CABLES
- CAN BE USED IN CONJUNCTION WITH ALL INSULATED PLASTERBOARD PRODUCTS (THICKNESS REQUIRED WILL VARY DEPENDING ON BRAND).
- COLD DECK SOLUTION – REQUIRES VENTILATION BELOW ROOF DECK

Over joists (external) insulation solutions

Insulating a flat roof over joists

Insulating a flat roof over the joists is the most common method chosen for extensions, new builds and re-roofing existing buildings as it provides superior thermal performance for the building without affecting the internal finish of the property. Insulating the roof above the joists is known as warm roof insulation, as the joists are brought into the insulated envelope of the building.

This over-joist insulation method also reduces thermal bridging, giving an airtight continuous layer of high-performance insulation and results in a well-insulated space. The need for ventilation is also removed*

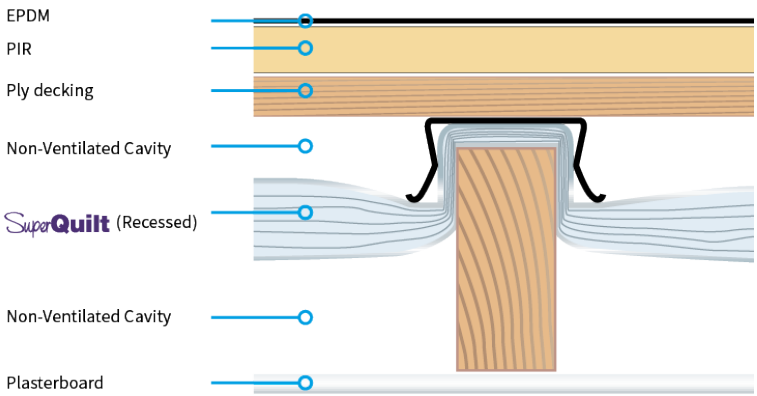
SuperQuilt & traditional insulation over joists

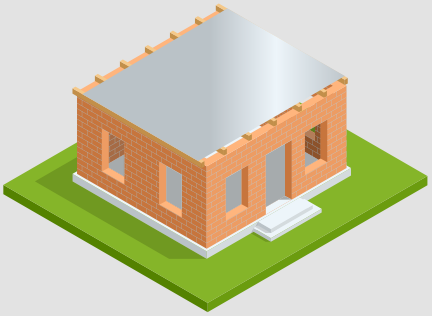
Our over joist solution is perfect for any type of application where there is access to the external side of the roof.

SuperQuilt can be pulled taut over the joists, followed by a minimum 25mm timber batten, this option is good for projects where there is limited space between the joists, or the profile height of the roof has no restrictions.

For applications where there are large joists with no restrictions, SuperQuilt can be recessed down between the joists. This detail also keeps the overall roof profile height down to a minimum, by allowing the SuperQuilt to expand between the joists.

Example Construction





Key points to remember!

- CAN BE USED IN CONJUNCTION WITH MOST OTHER TRADITIONAL INSULATION PRODUCTS (SUCH AS PIR, PHENOLIC, XPS, EPS, ETC...)
- SQ CAN BE RECESSED BETWEEN JOISTS OR PULLED TAUT OVER JOISTS
- SQ RECESSED BETWEEN THE JOISTS UTILISES JOIST SPACE, MINIMISING THE OVERALL PROFILE HEIGHT OF THE ROOF
- MAINTAINING A CAVITY EITHER SIDE OF THE SUPERQUILT INCREASES THE OVERALL THERMAL PERFORMANCE
- TAPING AND SEALING SQ USING FOIL TAPE, CREATES A VCL (VAPOUR CONTROL LAYER) REMOVING THE NEED TO BUY A SEPARATE VCL MEMBRANE
- WARM DECK SOLUTION – REMOVES THE NEED TO VENTILATE ROOF

*It is always recommended that you speak with one of our technical support team on 01909 726 025, if you are unsure about the ventilation requirements of your application

2 layers of SuperQuilt & traditional insulation over joists

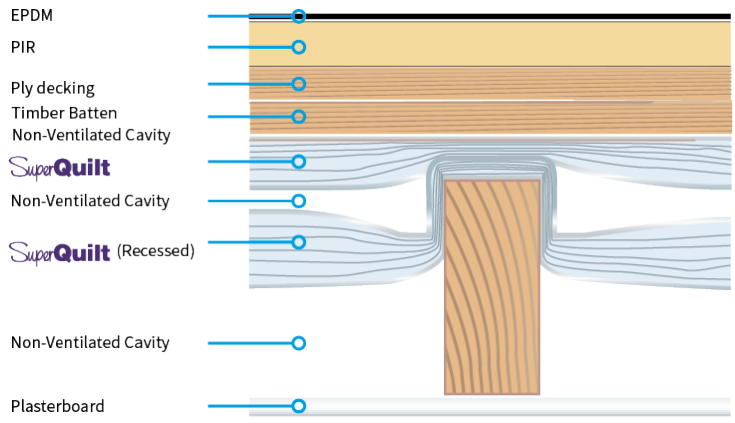
Our 2 layer over joist solution is perfect for any type of application where there is access to the external side of the roof or there is limited space between the joists.

SuperQuilt can be recessed down between the joists. This detail also keeps the overall roof profile height down to a minimum, by allowing the SuperQuilt to expand between the joists.

SuperQuilt is then pulled taut over the first layer of SuperQuilt, followed by a minimum 25mm timber batten, this option is good for projects where there is limited space between the joists, or the profile height of the roof has no restrictions.

Multiple layers of SuperQuilt can be used to achieve your desired U-Value.

Example Construction



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- TAPING AND SEALING SQ USING FOIL TAPE, CREATES A VCL (VAPOUR CONTROL LAYER) REMOVING THE NEED TO BUY A SEPARATE VCL MEMBRANE
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Over & under joists (internal & external) insulation solutions

Insulating a flat roof over, between and under joists

Insulating a flat roof over, between and below the joists is the common method chosen for re-roofing existing buildings, extensions and new builds as it provides superior thermal performance for the building. Insulating the roof above and below the joists is known as warm deck insulation as the joists are brought into the insulated envelope of the building.

This over and under joist insulation method also reduces thermal bridging, giving an airtight continuous layer of high-performance insulation and results in a well-insulated attic space. The need for ventilation is also removed*

3 layer insulation solution

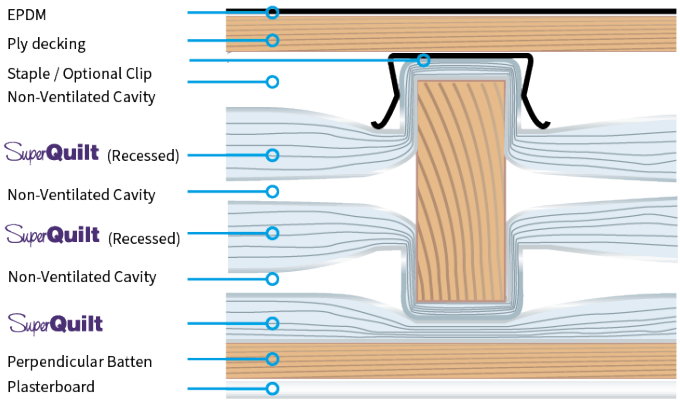
Our 3-layer SuperQuilt solution is all you need to insulate your flat roof extension project.

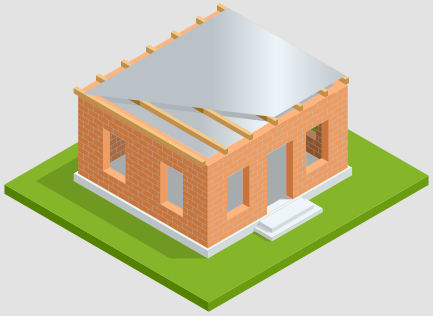
This quick and easy to install solution offers a high level of thermal performance exceeding building regulations target u-value of 0.18.

Recessing a layer of SuperQuilt over, between and under joists removes the need for a vapour control layer, increases the overall thermal efficiency of the flat roof and increases the internal space available due to its ultra-thin profile.

Using SuperQuilt can significantly reduce the overall impact to head height, when compared to traditional insulation solutions, saving you valuable money, time and space.

Example Construction





Key points to remember!

- SQ RECESSED BETWEEN THE JOISTS UTILISES JOIST SPACE, MINIMISING THE OVERALL PROFILE HEIGHT OF THE ROOF
- SQ CAN BE RECESSED BETWEEN JOISTS OR PULLED TAUT OVER/ UNDER JOISTS
- MAINTAINING A CAVITY EITHER SIDE OF THE SUPERQUILT LAYERS INCREASES THE OVERALL THERMAL PERFORMANCE
- TAPING AND SEALING SQ USING FOIL TAPE, CREATES A VCL (VAPOUR CONTROL LAYER) REMOVING THE NEED TO BUY A SEPARATE VCL MEMBRANE
- WARM DECK SOLUTION – REMOVES THE NEED TO VENTILATE THE ROOF
- INTERNAL 25MM BATTEN CREATES AN AMENITIES CAVITY FOR PIPES AND CABLES
- REDUCES THE AMOUNT OF HEAD HEIGHT LOST COMPARED TO TRADITIONAL INSULATION
- COMPLETE MULTIFOIL INSULATION SOLUTION

*It is always recommended that you speak with one of our technical support team on 01909 726 025, if you are unsure about the ventilation requirements of your application

4 layer insulation solution

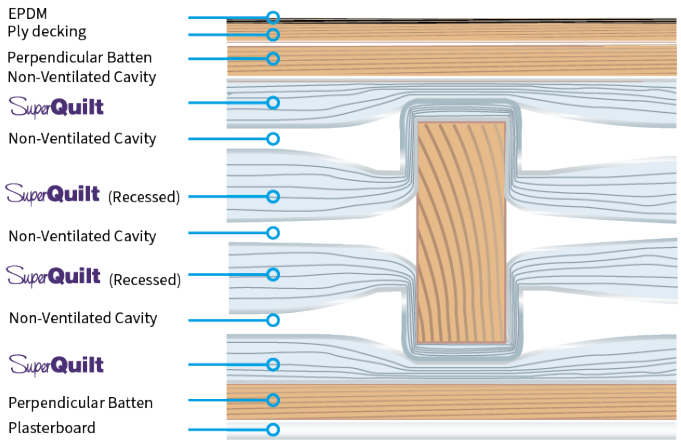
Our 4-layer SuperQuilt solution is all you need to insulate your flat roof new build project.

This quick and easy to install solution offers a high level of thermal performance exceeding new build regulations target u-value of 0.13.

Recessing a layer of SuperQuilt over, between and under joists removes the need for a vapour control layer, increases the overall thermal efficiency of the flat roof and increases the internal space available due to its ultra-thin profile.

Using SuperQuilt can significantly reduce the overall impact to head height, when compared to traditional insulation solutions, saving you valuable money, time and space.

Example Construction



View our installation video
Scan the QR Code or visit our YouTube channel:
https://www.youtube.com/watch?v=Hna1V9wCcVM&t=15s

Key points to remember!

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- COMPLETE MULTIFOIL INSULATION SOLUTION

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2 layer insulation solution & traditional insulation between joists

Our 2-layer solution offers a great option for flat roof refurbishments, loft conversion, extensions, or new build projects where there is access to the external and internal of the roof.

This quick and easy to install solution offers a high level of thermal performance meeting building regulations target u-value of 0.18.

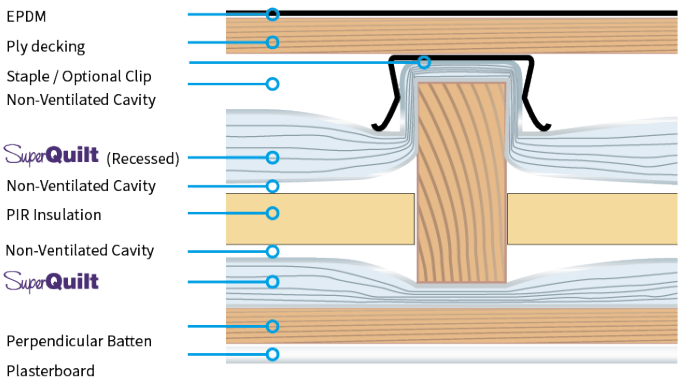
Need to meet new build regulations of 0.13?

Simply increase the thickness or performance of the traditional insulation used between the joists.

SuperQuilt can be pulled taut over or under the joists, followed by a minimum 25mm timber batten, this option is good for projects where there is limited space between the joists, or the profile height or internal head height of the roof has no restrictions.

For applications where there are large joists with no restrictions, SuperQuilt can be recessed down between the joists. This detail keeps the overall roof profile height or impact to the internal head height down to a minimum, by allowing the SuperQuilt to expand between the joists.

Example Construction



View our installation video
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Recessed detail insulation solutions

Recessing SuperQuilt is a great way to utilise the space between your joists, it is quick and easy to do with minimal wastage, unlike rigid board insulation where the board is cut and slotted between the joists.

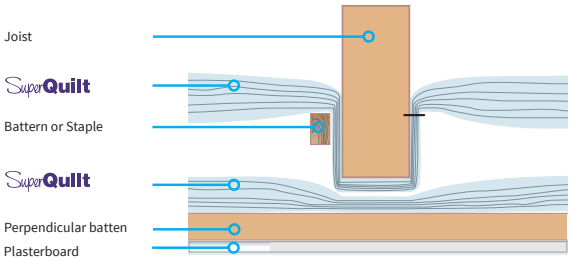
When recessing SuperQuilt between the joists it is important to maintain cavities either side of the aluminium foil reflective surfaces, doing this will increase the overall thermal performance of the roof.

If one of the cavities can not be maintained, this is not an issue, however you will not gain the additional thermal benefits from the highly reflective aluminium foil surface.

Recessed spacing

- 1st layer of SuperQuilt* (recessed 38mm into joists).
- 2nd layer of SuperQuilt* (taut under or over joists).
- 25mm batten (2nd layer of SuperQuilt expands into cavity above and below, however a clear cavity is still maintained to allow the reflective surfaces to work).
- Plasterboard.

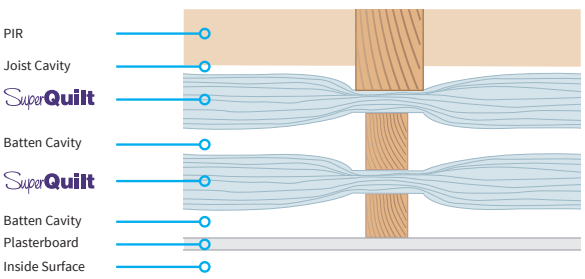
Example Construction



Non-recessed spacing

- 1st layer of SuperQuilt* (taut under or over joists).
- 38mm batten (1st layer of SuperQuilt expands into joist cavity above and below, however a clear cavity is still maintained to allow the reflective surface to work).
- 2nd layer of SuperQuilt* (taut under or over joists).
- 25mm batten (2nd layer of SuperQuilt expands into 38mm batten cavity (however a clear cavity is still maintained to allow the reflective surface to work) and 25mm batten cavity (however a clear cavity is still maintained to allow reflective surface to work).
- Plasterboard.

Example Construction



*Once SuperQuilt has been taped and sealed on all overlaps and perimeter, it also works as a high performing VCL (vapour control layer).

Notes page:

1 Square = 10 cm

For product support, solutions and free u-value/
condensation calculations call the experts on
01909 726 025

YBS Insulation

Yorkshire Building Services (Whitwell) Ltd
Crags Industrial Park, Morven Street, Creswell, Derbyshire, S80 4AJ
t: (sales) **01909 721 662** t: (technical) **01909 726 025**
e: **sales@ybsinsulation.com | technical@ybsinsulation.com**
w: **www.ybsinsulation.com**

All solutions shown in this guide have been run in line with BDA Kiwa Agrement Certification
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