Firestone RubberCover Roofing Made Easy

Permaroof UK Limited

The Permanent Roof People

The 101 On Flat Roofing Systems

www.permaroof.co.uk

Whats in this guide?

What is a Flat Roof?

Flat roofs are a common sight in modern architecture and building design - and they are rising in popularity.

They are increasingly sought after due to their aesthetic value and they can even be environmentally friendly, with efficient energy ratings compared to the other roofing types.

Flat roofs can be installed on anything from a small porch on a residential home, to the large expanse of a commercial building, and will usually have an incline of not more than 10°.

The flat roof can be easily converted into a living area or a green roof, depending on the needs of the user. Care needs to be taken before and during installation, to ensure the installation is properly prepared, sealed and treated.

Beautiful outdoor designs can convert a flat roof deck into a unique outdoor space.

Considerations for Your Flat Roof

Installing a flat roof might be unnecessarily expensive if not correctly planned and installed. Careful research on the available options needs to be completed.

Flat roofing can be inexpensive and economical when the best products are selected, and the right specialists are consulted.

The greatest challenge with flat roofs is their quality and durability. Due to the slight angle of inclination, flat roofs can be a challenge in areas with extreme weather conditions and high humidity. They slow down drainage, creating pools and ice dams, which can cause damage to the roof decks.

These conditions might force the home owners to make new replacements every ten years or less if the correct, high quality materials are not selected from the outset, and it is poor choice of materials that gives rise to a reputation of a shorter lifespan compared to pitched roofed options.

What are the Right Flat Roof Materials?

The use of rubber for roofing is becoming popular due to the huge benefits that come with it. The EPDM rubber roofing sheet and the Liquid EPDM rubber roofing are among the best options in the market today for flat roofing.

The roofing industry is moving away from the use of traditional flat roofing materials, such as bituminous felt, and towards a sustainable solution.

Currently, liquid waterproofing is increasing in popularity, due to the flexibility of application, and is becoming the go-to solution for flat roofing with modern, irregular design.

EPDM rubber is one of the highest quality roofing systems. It is economical in the long run and environmentally friendly. It has a wide range of applications, including flat roofing for both industrial and residential buildings, green roofing, garage roofing, flat roof repairs and shed roofing.

EPDM (Ethylene Propylene Diene Monomer)

EPDM is the most popular material used for rubber roofing, common in housing and industrial applications.

Genuine EPDM is manufactured in the US by Firestone, and has been used in both residential and commercial projects around the world.

Manufactured from synthetic rubber and carbon black, EPDM remains UV stable and is resistant to water and extreme temperatures.

Applications of EPDM

Both liquid EPDM rubber and EPDM rubber sheets are compatible with most substrates.

The liquid EPDM rubber is ideal for recoating other roof types, improving their aesthetic value and significantly increasing their durability and strength.

It is fast-becoming the most preferred option due to its cost saving capability and its long-lasting value. During installation, most substrates do not need a primer.

The liquid EPDM rubber is self-adhesive and requires only a single layer. Some of these substrates are as follows:

- Most weathered roofing systems like aluminium, copper and galvanized metals
- Weathered vinyl
- Acrylic based products
- Any EPDM rubber roofing sheet
- Fiberglass

However, there are some substrates that may require one coat of primer before using the liquid EPDM rubber for recoating:

- Wooden roofs
- Some concrete roofs
- Stainless steel roofs
- Asphalt roofs
- Hypalon membrane
- Torch down roofs
- PVCs

The EPDM rubber sheets are mainly used for waterproofing flat roofs, but have other uses, such as beneath external wall cladding, portable buildings and fascias.

EPDM is available in different shapes, sizes and thickness. Its high resistance to water makes it the most suitable for under water applications and portable water applications.

Its major downside is its incompatibility with oil-based substrates.

Genuine Firestone EPDM membrane is durable and has a life expectancy of up to 50 years.

Other uses for EPDM membrane includes green roofing, garage roofing and shed-style roofing projects. Let us take a look at these systems in more detail.

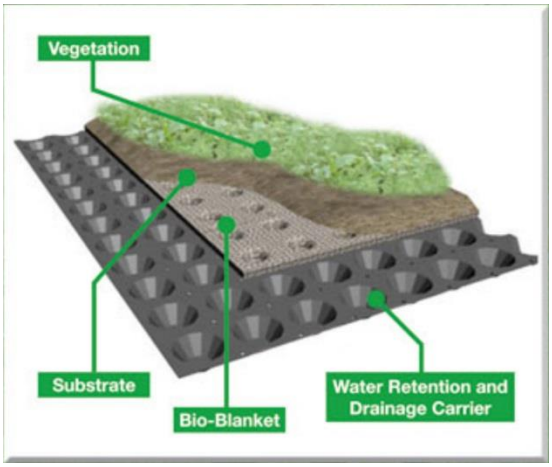
Green roofing

Rubber roofing membranes can be used in green roofing for the waterproofing layer.

Green roofing involves partially or entirely covering a roof with vegetation on top of several layers of drainage and waterproofing.

The vegetation may retain a lot of water which may otherwise damage the roof deck or cause leakage, so EPDM can prove to be the ideal waterproofing layer to enhance reliability.

Green roofing is considerably heavier than other types of roofing materials and may require a professional survey of the roof deck to ensure it is capable of handling the additional weight. Planning permission from the local authority may also be required.



Green roofing is purely meant for its aesthetic value and environmental benefit. It is a beautiful way of promoting environmentalism.

Green roofs are mainly installed by organizations for good appeal and reduction of energy consumption, although domestic green roofing is growing in popularity and is being actively encouraged by local authorities in some regions of the UK.

Although the initial cost of installation can be higher initially than other types of roofing, green roofing is economical in the long run and worth the investment.

The benefits that come with green roofing overshadow its initial costs.

It can increase the lifespan of a conventional roof, is kind to the environment, requires little or no maintenance once correctly installed and established and adds considerable aesthetic value.

The installation of green roofing can be undertaken by a good DIYer, but it is recommended that professional planning advice is sought. It is worth bearing in mind that the engagement of a qualified, insured and experienced professional could prove significantly cheaper in the long-term, as green roofing mistakes can prove expensive and disastrous. It is a process that involves structural analysis and multilayering of roofing systems.

Green roofing cuts down energy costs through natural insulation. The vegetation absorbs heat, acting as an insulator for the buildings. This reduces the energy spent on heating and cooling systems in building. The vegetation has stable surface temperatures and maintain the air temperature, or give a cooler temperature, which is contrary to conventional roofing methods.

The absorption of heat also contributes towards the reduction of the urban heat island effect. The vegetation protects the roof membrane from the effect of the ultra-violet radiation and ozone.

Different types of vegetation can be used, such as:

- Moss
- Succulent plants
- Sedum
- Mixed coarse and soft grasses

During evapo-transpiration, heat energy is used up by the vegetation causing the evaporation of excess moisture into the atmosphere. This brings about a cooling effect which helps to control the surrounding temperatures.

Green roofing reduces the water runoff and sewer overflows. The vegetation and the soil help in the absorption of the filtering water which could otherwise contribute to surface flooding.

During installation of the green roof, the EPDM rubber roofing sheet can be applied as the waterproofing layer. The rubber sheet is installed at the base of the roof deck. Being lightweight, it contributes to the reduction of the weight of the roof. EPDM rubber sheets are highly resistant to water and to the absorption of moisture.

This quality makes it ideal in the installation of green roofs since the vegetation retains moisture that may otherwise seep into the building.

Garage roofing

Flat roof decks are the most common options for garage roofing. Using either the EPDM rubber sheets or the liquid EPDM rubber roofing minimizes cost and also enhances aesthetic value.

The flat roof decks will not require additional surfacing, as EPDM rubber is lightweight and highly durable, but it may be worth making sure the deck is in good condition before you apply the EPDM membrane. This is because EPDM rubber has an expected lifespan of 50 years or more, and it is wise for homeowners to make sure the deck will last as long.

For garage roofing, EPDM rubber is less costly compared to the other roofing options. Installation is simple and quick, and it doesn't require specialists or special tools. A homeowner can comfortably fix the roof using the guidelines provided, even if he is no more than an enthusiast. Repairs and maintenance are rare, making it cheap over the long-term and easy to maintain.

During high rainfall and heavy snow, EPDM rubber will help keep the contents of the garage safe and the roof deck will not be damaged by water. This is because the rubber is water-resistant and fitted in a single sheet, minimising weak or vulnerable points across the roof.

The use of both liquid EPDM rubber roof and EPDM rubber sheets for garage roofing has proven to be very effective, and there is little but personal preference in difference. Both deliver a cost-effective, reliable solution to waterproofing a garage roof.

Shed style roofing

This is a simple roofing design with a single sloping plane.

It is classed as a form of flat roofing and is applicable to various shed construction methods for both residential and commercial purposes, but is mainly used for elemental building structures.

Shed roofing only requires basic building materials for the deck, and it doesn't require any special tools or skills to install.

Shed roofing design is highly versatile and it can be used on various kinds of structures such as car ports, outdoor dog kennels, storage sheds and potting sheds. Most of these designs offer some protection from the elements and allow easy access, often via a single door.

In most cases, sheds are not attached to main houses, or other buildings, and provide additional roofed and protected garden storage. Some types of shed roofing may be suitable for open sided constructions, depending on the intended purpose. For instance, when shed roofing design is used to create a porch area, it will generally be open sided.

The long slope of shed style roofing is suitable for positioning of solar panels. An inclined position maximizes the time of contact the solar panel has with direct sun rays. The slope also protects the inside of the building from excess sunlight during specific times of the day.

As much as the simple design is easy to construct and maintain, the covering of the shed roof plays an important part in its waterproofing abilities. Traditional coverings, such as bituminous felt, can degrade quickly in hot climates, or even during European summers, which can lead to bubbles forming and eventually cracks appear that can let in water.

When the EPDM rubber is used as the alternative for shed roofing, most of the design shortcomings are taken care of. EPDM rubber will solve the issue of waterproofing over a length of time, and it can improve its appearance. The lifespan of the roof deck will also be increased above the other felt membranes which have a significantly shorter lifespan.

The EPDM rubber sheet used for shed roofing is lightweight and thin. It only requires a water-based adhesive and is laid in a single piece, eliminating joins.

The installation process is simple and is suitable for DIY application, when flat roof kits can be purchased.

EPDM Rubber Sheets (Membrane)

EPDM rubber sheets can be used to cover flat roofs, domes and other shaped structures since it is highly versatile.

It is also flexible and can be adhered, loosely laid or tightly fixed depending on the needs of the project. It has an appealing clean and neat appearance after installation.

Versatility and durability

EPDM is widely used worldwide given that it can withstand extreme cold and hot temperatures and is resistant to moisture absorption. When well taken care of it can last for up to 50 years. It is wind, water and is available with fire resistant qualities and retains its colour and texture extremely well. This efficacy combined with low maintenance costs makes it a favourable choice for most domestic flat roof installations.

EPDM is particularly suitable for flat roofs which may accumulate and retain water for prolonged periods of time, such as green roof projects. It's also suitable for roofing in highly humid areas due to its high resistance to water absorption.

When used in domestic flat roof extension projects, EPDM serves as an insulator, regulating temperatures in the house. This reduces the heating and cooling costs. It can be used on flat, low and steep slope roofing.

EPDM rubber roofing is light weight and can be supported by simple roof decks, lowering the risk of overloading structures, and is particularly suitable for both garage and shed roofing.

Installing EPDM rubber roofs

Proper installation of the EPDM roofing ensures its durability and efficacy. Any extrusions, such as chimneys and pipes should be handled with extra care to prevent leakages.

When installing the EPDM roof, the roof deck will not usually require reinforcement as the membrane is lightweight. The installation process is often fast and simple and can be completed either by a contractor or by a capable DIY enthusiast.

Installation should be approached with care and preparation carried out correctly. There should be minimised foot traffic before and during the cure process to prevent any damage.

EPDM flat roof repairs

Good and long-lasting flat roof repairs rely on the choice of materials and preparation of the damaged area. Improper selection of repair materials and poor preparation of the damaged area will likely result in further damage to the roof deck.

Failure to make the right decisions is simply a waste of time and money.

There are certain conditions that must be met before repair, especially when there will be the use of a primer:

- The outside temperatures must be above 40 degrees F. This enables the primer to dry and favours effective installation of the rubber sheet.
- The damaged surface must be dry before the application of the primer and the patch.
- The repair surface must also be clean and free from all debris. Cleaning agents should be used to ensure the surface is clean enough and free from gasoline, tar or any oil properties.

EPDM membranes do not generally fail, as they are UV stable, flexible and hard-wearing. However, debris damage, particularly following a storm or period of inclement weather or accidental tearing can occur. It is recommended that you inspect your flat roof installations after storms to ensure it is kept free of debris. EPDM usually only sustains damage in this way, or following poor initial installation.

Ease of repairs

EPDM membrane doesn't scratch easily, and leaks are rare. In the event of damage, EPDM roofing is easy to repair and doesn't require specialists to fix minor damages – repair kits can be bought and applied by most capable DIY enthusiasts.

For repairs, a basic knowledge on the use and types of adhesives is necessary as different types of adhesives react differently to harsh weather and seasons.

Steps for roof repair using EPDM rubber membrane

Step 1: Locate the leak on the roof

In most cases the leak is easy to spot. Mostly found on the common spots on a roof. These include the outside corners such as chimneys and pipe flashing, on seams and low spots on the roof.

Step 2: Clean the roof surface

Use a simple cleaning brush, water and detergents to clean the damaged spot. You can use the EPDM cleaner for the final thorough wipe of the affected area. Allow the area to dry completely.

Step 3: Apply the EPDM primer

Use a paint brush to apply the EPDM primer on the surface. It doesn't have to be a thick coat. Apply the primer at least 3 inches beyond the edge of the hole. Allow the Primer to dry before applying the patch.

Step 4: Apply the patch to a flat area

Cut the rubber patch, big enough to cover up to 3 inches beyond the damaged area. Shape the corners of the patch using a pair of scissors. Carefully remove the film at the back of the rubber patch and slowly apply onto the affected area, try to avoid trapping air. Using a silicone roller and applying moderate pressure, roll the patch. Make sure you roll the edges for it to adhere properly.

Liquid EPDM Rubber

This is the world's number one elastomeric roofing system. It is the liquid form of EPDM rubber sheets and has a unique chemical structure and catalyst base system.

The high product quality, flexibility, durability and effectivity mean that it stands out among other options. This is demonstrated by the positive feedback from those that use it, its proven track record and the increasing popularity of liquid EPDM rubber.

Applications and compatibility of liquid rubber

Liquid EPDM rubber is often used to recoat other roofs and improve their sturdiness and appearance in addition to waterproofing.

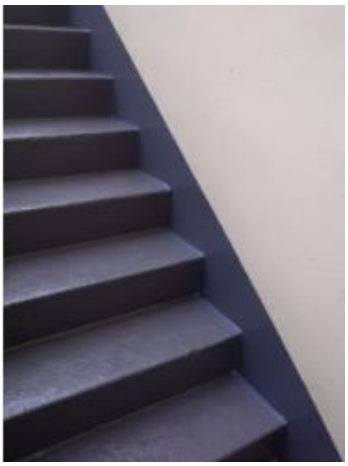
It is compatible with most roofing materials and it can be applied on to a wide range of substrates, such as:

- Concrete
- Asphalt
- Metal
- Bituminous felt
- Flat roof membrane

Liquid rubber is outperforming most elastomeric systems as they are often limited to certain substrates.

This makes it reliable and a go for option for most customers. Liquid waterproofing membrane is also suitable for non-roofing projects, such as:

- Car park surfacing
- Balconies
- Anti-slip coating for steps and pedestrian areas



Why choose liquid rubber?

Liquid rubber is very economical due to its durability and hard-wearing properties, fast and easy installation, and one coat requirements.

Its liquid form allows it to conform to any shape either horizontally or vertically. This is a plus, since modern buildings often have a variety of roof designs of irregular shapes. The liquid EPDM rubber can be applied on to any roof design easily and is a flexible enough system to cope with traditionally-tricky extrusions.

Liquid waterproofing system properties

Liquid rubber waterproofing has high resistance to water and does well in extreme weather conditions, lasting up to five times longer than the other elastomeric systems, and up to 25% longer than EPDM rubber sheets. It is one of the most convenient roofing options.

Liquid EPDM rubber is ideal for flat roof and roofs with slight slopes. It protects rooftops from ponding and water damage and is the best roofing option in regions with high humidity levels throughout the year.

The liquid EPDM rubber also resists extreme weather conditions. It can withstand temperatures as low as -400 to high temperatures up to 300F. It can handle different temperature change rates without damaging or deteriorating in quality.

Application of liquid EPDM rubber systems

In most cases Liquid EPDM rubber doesn't require a primer and is applied directly to the surface area in only one coat.

With liquid EPDM rubber, one gets a seamless surface, which eliminates issues caused by failing joins – one of the most vulnerable points on any flat roof. Once completely cured, it covers seamlessly, producing a smooth surface.

The liquid EPDM rubber provides effective waterproofing immediately after application and cannot be damaged by light rain before curing.

Roof repair using liquid EPDM rubber

Liquid rubber is fast and straightforward to apply. In most cases you will not need a primer, however, on concrete and brick surfaces, it's advisable to use a primer before applying the liquid EPDM rubber.

For the liquid rubber to cure, the outside temperatures need to be above 50 degrees F, the higher the temperatures, the faster the cure process. A heavy downpour before complete curing may affect the process or cause damage. This process should ideally be carried out during warmer seasons for effectiveness.

Steps for roof repairs using liquid EPDM

The following steps are followed when making repairs using the liquid EPDM rubber.

Step 1: prepare the damaged surface by proper cleaning removing any debris on the surface. Allow it to dry

Step 2: Use butyl tape to completely cover the holes, cracks and all the other defects. This prevents the liquid rubber from breaking before curing.

Step 3: Cover the surface with butyl tape and use a silicone roller to flatten it.

Step 4: Cover the butyl tape with a polyester fabric and flatten it using the roller.

Step 5: Use the liquid EPDM rubber to drench and saturate the fabric. Allow it to cure

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