

WATERPROOFING SYSTEMS FOR FLAT ROOFS

The roof is the main component of the building. The most important parts of it are both the structure and the covering. IBB BUILDER presents the comparison of three different roof covering systems available- the liquid rubber system, the roofing felt and the GRP roofing system.

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Liquid Rubber system

It is the seamless and waterproofing system based on the cold liquid application by brush or roller and mainly used for repair, as the curing two coat membrane settles within 20 minutes and can be walked on within an hour. This system provides a fully bonded and tough surface with 200% elasticity. It is available in various colours and both as standalone system or with an Anti-skid finish.

Application

This advanced liquid waterproofing technology is perfect for use on a variety of new and existing surfaces. It was developed to solve problems caused by conventional roofing systems and is

made of eco-friendly polymer. Easy and fast to apply on both horizontal, vertical or complex geometry surfaces. It is applied without joints and seams, and it is resistant to acids, moisture or salt. It is perfect to use on roofs of occupied buildings as the process of the application does not disturb occupants. There is no need to use flame and heat. It can easily penetrate on surfaces with obstacles such as antennas or solar panels etc.

Guaranteed Performance

The Liquid Rubber System is subject to a standard 10-year guarantee, which can be extended to 20 years when applied by an approved contractor.

The advantages:

- Fast application
- Flame free and flexible
- Minimum wastage
- Ready to use single component
- Root resistant
- Allow foot trafficking within an hour
- Suitable for flat roofs, balconies, walkways
- Can be applied on asphalt, timber, felt, concrete and metal
- Can be applied down to -30C
- Various colours available
- 10 years guarantee

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The felt system

The felt is the most common form of roof covering that can be used on timber, metal or concrete. It has been in use for more than 100 years.

High performance felts are supplied in rolls and are laid in multi-layers bonded together with hot bitumen. There are different kinds of roofing felt, and the choice of proper felt should be consider based on the purpose and application system. The felt roof is a durable and affordable solution.

The available felts on market are:

Pour and roll – the traditional installation requiring bitumen heated to over 200°C

Torch-on – it is treated with thermo-fusible bitumen, heated with a propane torch as it's rolled and applied hot

Self-adhesive – no need for heating

The felt installation process depends on materials used but usually felt is laid in few layers and bonded with hot bitumen or adhesives in the case of cold application.

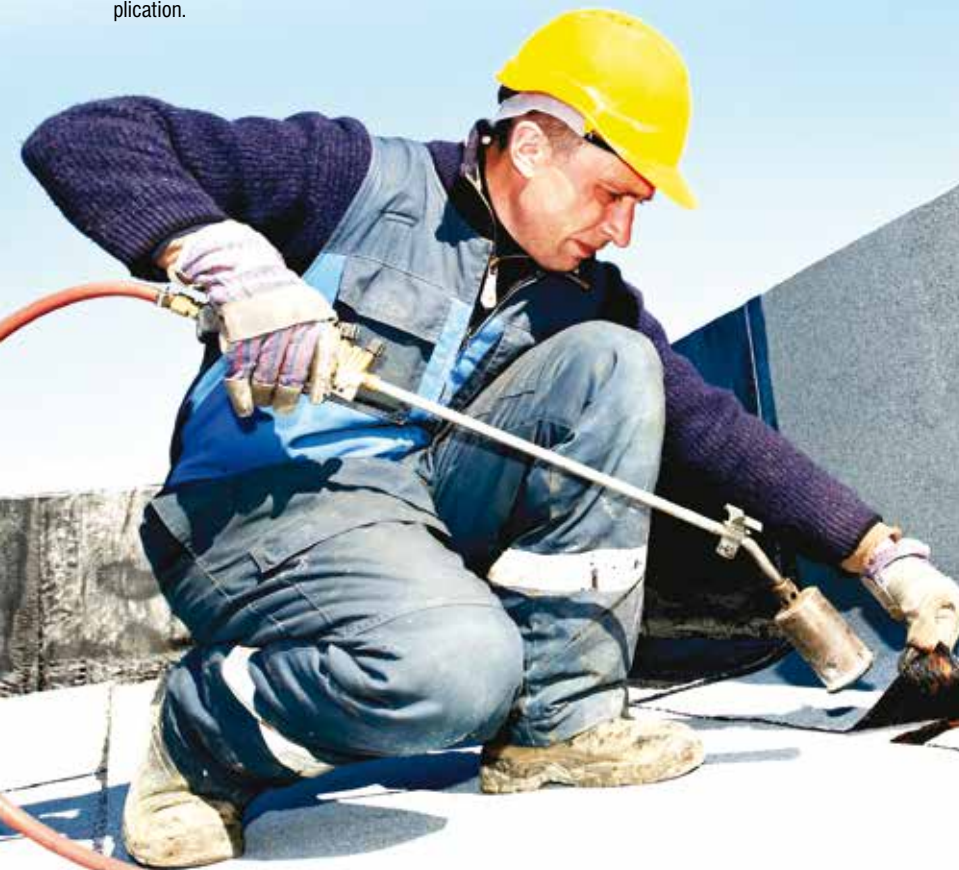
Felts are classified according to the British Standard 747:2000, by their base and function:

- **Type 5 Blue:** polyester base, recommended, strong and durable
- **Type 5U** - under layer
- **Type 5B** - top layer/cap sheet requiring solar protection (paint or chippings)
- **Type 5E** - mineral-finished top layer
- **Type 3 Red:** glass fibre base - certain grades have specific uses:-
- **Type 3G** - perforated sheets, used as a specialised under layer to provide a regular partial bond (see Model Specifications). Type 3B - Not recommended as a working layer in residential buildings.
- **Type 3E** - mineral-finished cap sheet - could be used over a type 5B felt for solar protection and additional security.

source: cardiffroofer

The advantages:

- Price
- Well-known installation process
- Range of application methods available
- Reliability
- Properly installed can last to 50 years
- Improve fire rating of the home



The GRP flat roofing system

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It is the fully integrated seamless system that can be used on all types of flat roofs and roof coverings. It consists of specially developed glass reinforced polyester resin in liquid form, reinforcement fibreglass mat and a range of trims and edge, what after installation create hard wearing seamless roof.

GRP (Glass Reinforced Polyester) was discovered in the late 1940's. It was quickly adopted during the 1950's and 60's for a wide range of applications where its corrosive-proof properties, allied with its high strength and excellent appearance, soon proved to be invaluable. Its first main application was for boat building, where it gained acceptance in the 50's and is still widely used today. The uses for GRP have since broadened to the extent that it has now become the standard material for the construc-

tion of small craft, water tanks, building cladding panels, roof lights and of course high performance waterproof coatings. In the last ten years a rapid growth has occurred in the GRP roofing industry as more and more people realise the benefits of GRP.

A GRP roof is a single-ply GRP laminate applied in situ over a good quality OSB3 deck. The roof is finished with pre-formed GRP edge trims and a coat of pre-pigmented top-coat.

GRP has been used as a waterproofing material for over fifty years for applications as diverse as boats, water tanks, lorry and car bodies, roof lights, ponds and pools. When used to construct a boat, GRP will provide complete waterproofing protection for the boat's entire lifespan of twenty plus years without the need for maintenance or replacement. This same level of performance is easily replicated on a domestic roof.

The advantages:

- Wet laid, will form to any shape
- Quick installation
- No joints
- Variety of colours
- 25 years guarantee
- Maintenance free
- More environmentally friendly
- UV resistant and Fire retardant
- Strong, lightweight and long-lasting



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THE ROOFING SYSTEMS COMPARISON TABLE

Feature	Liquid Rubber roofing system	Felt roofing	GRP flat roofing system
MATERIALS COST	High cost	Medium to low cost	Medium cost
ACCESSORIES COST	Medium cost	Medium to low cost	High cost
INSTALLATION SPEED	Fast	Long	Medium
HEAT / COLD INSTALLATION	Cold	Heat / Cold (adhesives)	Cold
SIZE OF APPLICATION	Small & Large	Large	Small & Large
PROVEN TECHNOLOGY	V	V	V
GARANTEE	10 years	25 years	25 years
ADVERSE WEATHER CONDITIONS	Yes	Yes	No
EASE OF DEATILING	Easy	Difficult	Easy
BBA CERTIFICATION	V	V	V
DURABILITY	Long	Long	Long
WATERPROOF LEVEL	High	Medium	High
UV RESISTANCE	High	Low	Medium
ODOURLESS	Yes		
WEIGHT		Heavy	
VARIETY OF COLOURS	Yes		Yes
STORE & REUSE	Yes	Yes	
INSURANCE REQUIRED		Yes	
NEW BUILD / REPAIRS	Both (repairs recommended)	Both (new build recommended)	Both (new build recommended)
APPROVED INSTALLER SCHEME	Available for 10 years guarantee		Available for 25 years guarantee
SKILL LEVEL	Low skilled	Skilled	Low skilled
TIME REQUIRED FOR FOOT TRAFFIC	Quickly	Medium	Medium
MAINTENANCE	Low	Medium	Low

MAKING A CHOICE

All solutions have the preference based on customer needs. **Taking into account cost**, the GRP and cold liquid rubber systems are generally more expensive than felt roofing. However, they tend to be more efficient in waterproofing.

Considering the installation process, felt roofing is more time consuming and complicated as requires joints and heat, but it is reliable. On the other side, it is quite slippery and presents an element of risk. Other solutions are safer and quicker to install and might be fitted in various weather conditions. That means the cost of installation will be higher in the case of the felt

system. The fibreglass GRP system requires more stable weather conditions for applications while liquid rubber might be installed in minus 30 C degrees.

With regards to usage, felt is the most cost efficient. On the other hand, liquid rubber and GRP are seamless and more watertight.

If we look at the environment factor, the felt is less vapour permeable. Both liquid rubber and GRP are more environmentally friendly.

The durability of products is quite similar. The liquid roofing systems tend to last a bit more and are less responsive to catalysts, so the degradation process is

slower. In the case of the felt UV light often causes crazing but also it can be easily mechanically damaged and requires full removal and re-application at the end of its life. It is less resistant to frost too.

The final finish is smoother with the liquid rubber or the GRP system. Both are also available in a variety of colours and can be easily cleaned. The felt has a more traditional look, with mineral or chippings finish available. However, the felt roofing can crack and blister quicker.

To sum up, taking into consideration factors like safety, ease of installation, price, waterproofing efficiency, durability, management or other features, the liquid roofing systems or GRP systems are better, but on the other hand, there are elements like cost constraints or engineer specification that might require other solution.