Built GRP Fibreglass Roof Specification

Technical Specification
Built GRP Fibreglass Roofing System
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1 Introduction

1.1 Purpose

The purpose of this document is to outline the information an installer would need to complete the installation of a Built GRP Fibreglass Roof. The technical specifications detail the system information, description, expectations and requirements for an effective fibreglass roof installation.

1.2. Background

Fibreglass is a composite material, commonly referred to as GRP (glass reinforced polyester), FRP (fibre reinforced plastic) and even glass fibre - a term not to be confused with the glass fibre reinforcement phase.

It is fabricated by combining catalysed unsaturated polyester resin with glass fibre chopped strand mat reinforcement. Initially a wet and malleable cloth, the fibreglass laminate undergoes a curing process. This leads to the hardening of the material. A subsequent layer of polyester-based resin topcoat is also applied to give an additional layer of protection to the laminate whilst also providing aesthetics.

A flat roof is one which has a slope between 1 - 10 degrees extendable to 12.5 degrees. A pitched roof ranges from 12.5 to 85 degrees. Fibreglass is typically specified for standard flat roofs, but its versatility and adaptability means it can be applied to pitched roof designs as well.

Flat roofs have limited lifetimes (10 - 30+ years) relative to other structures, such slate tiles, concrete walls and floors (100+ years). Yet they are notability cheaper and more lightweight. As such, they are favoured by many architects and property owners given their xxxxxxx.. However, flat roofs are a frequent failure point when installed incorrectly, or if poorly sourced and poorly specified materials are used.

A benefit of fibreglass roofing systems centres on their ability to be shaped and moulded in line with the contours of almost any roofing architecture.

1.3. Fibreglass Linings & Coatings

Fibreglass (GRP) composites have consistently demonstrated exceptional, multi-decade performance on a range of projects. Their mechanical properties coupled with excellent waterproofing and largely chemical resistance has enabled their application as an effective barrier for many applications.

Combined with a high strength-to-weight ratio and low cost, fibreglass linings and coatings have found application across numerous industries, from construction to chemical processing acting as flat roofing membranes to bund linings.

This has given rise to the Built GRP Fibreglass Roofing System. Designed to provide surface and substrate protection, the laminate behind both S600 and D600 Built GRP Fibreglass Systems have undergone significant third-party testing.

1.4. Built GRP Fibreglass Roofing Specification

A Built GRP fibreglass roof is a single or dual fibreglass (GRP) laminate applied in-situ over 18mm OSB3 timber decking.

- The roof is complemented by industry standard GRP trims and a pigmented topcoat.
- Laminate specification involves either single- or dual-600 gram per square meter layers. These are recommended for standard flat roofing applications or more demanding ones (e.g., balconies, walkways and terraces).

1.5. Built GRP Fibreglass Roofing Systems

There are two types of Built GRP fibreglass roofing systems available for specification.

Type	Description	Design	Application
S600	Standard fibreglass roofing membrane	Single layer (1 x 600-gram CSM) fibreglass laminate with topcoat	Industry standard design intended for most flat roofing applications, ranging from domestic (garages, property extensions, orangeries, etc.) to commercial and industrial roofs.
D600	Heavy duty fibreglass roofing membrane	Dual layer (2 x 600-gram CSM) fibreglass laminate with topcoat	Increased reinforcement makes it suitable for balconies, terraces, walkways and flat roofs expecting frequent foot traffic, equipment placement or maintenance work.

1.5.1. Materials

Built GRP strives to source materials from UK-based ISO9001 and ISO14001 certified manufacturers.

1.5.2. Installers

Installation is a critical part in obtaining a reliable fibreglass roofing membrane. Built GRP operates a network of trained and experienced professionals who are documented in an approved installers list. These installers have must have the following qualifications and accreditations:

- CSCS cards
- Environmental, Health & Safety Policy
- Safe Contractor, CHAS or an equivalent

Approved installers of Built GRP systems are part of a network of trained and experienced fibreglass roofing professionals.

1.5.3. Guarantees

The quality of materials and standard of workmanship provide a high degree of confidence in the longevity of a Built GRP fibreglass roof.
This provides the foundation for the Built GRP Fibreglass Roofing System guarantees. Run simultaneously, these can be summarised as:

- 20-year materials guarantee
- 20-year workmanship guarantee*
- 10-year insurance backed guarantee**

* approved installer issued guarantee
** third-party guarantee covered by an FCA-regulated association such as the IWA.

Built GRP Fibreglass Roofing Systems installed by approved installers receive these exclusive guarantees.

1.5.4. Design & Additional Features

There are several design features amenable to a Built GRP fibreglass roof. These can be categorised into:

Colour

The Built GRP fibreglass system is available in a variety of colour schemes as well as finishes (smooth or non-slip) for aesthetic and safety features.

Flame Retardancy

Flame retardant building components have gathered increased interest over the past decade.
Whilst fibreglass is a fairly small part of a roof relative to the insulation and wooden structure, there is a renewed level of interest. Built GRP fibreglass roof can be made compliant to current standards for flame retardancy.

Non-slip finishes

Non-slip surfaces may be beneficial for property owners expecting foot traffic, such as

According to the HSE, slips, trips and falls account for a high number of workplace accidents. The inclusion of a non-slip finish on to a surface intended for walking can reduce such accidents. More detail in the HSE policy towards slips, trips and falls is available.

The application of fibreglass to any structure requires a clean, dry surface amenable to adhesion. Built GRP requires roofing surfaces to be OSB3 timber decking.

1.5.5. Built GRP Critical Installation Criteria

- Laminate must be applied to all corners, trim joints and detail work.
- Laminate decking; ensure all trim fixings are covered in laminate. All board joints are to be filled with polyester laminating resin.

- Glass fibre mat joints are to be over-lapped by 50 mm or more.
- If a single layer of 600-gram CSM is used, then 1.5 kg of MEKP-catalysed polyester laminating resin is to be added.
- If a dual layer of 600-gram CSM is used, then apply 1.5 kg of polyester resin for the subsequent layer.

MEKP catalyst is to be added in quantities able to achieve concentrations equivalent to 1 - 4 v/w % (so volume (v) of MEKP catalyst (mL) added per weight (w) of polyester laminating resin (kg). Deviations outside of this range will compromise the integrity of the laminate. Specific concentrations within the 1 - 4 v/w range are dependent on temperature, mixing time and laminating rate.

Catalysed resin to be used within 15 minutes to ensure quality via avoiding prematurely cured resin.

More detail is provided in the Built GRP Fibreglass Roof Installation Guide, but methods can be summarised as follows:

- The fibreglass laminate is to be created via the application of catalysed polyester resin to glass fibre chopped strand matting using a polyester roller.
- Consolidation of the laminate is to be achieved using a paddle roller to drive resin into the glass fibre and remove air from it, forming a consistent, high-quality laminate.
- Topcoat resin is to be prepared in the same manner as the laminating resin, with a 1 - 4 v/w % concentration of MEKP catalyst being added, mixed and used within a 15 minute window.
- Topcoat to be applied to cured laminate at a quantity of 0.5 kg per square meter.
- Trims to be coated in topcoat first, prior to the laminate.
- If a non-slip grit finish is planned, grit is to be incorporated into the topcoat (check???)
- Standard colours centre on grey, but other BS or RAL colour schemes can be achieved, with either a smooth or non-slip textured finish.

1.5.7. Contact Us

To arrange a quote or find out more about the Built GRP Fibreglass Roofing System, please contact our technical sales team via email.