



## *PROTAN PROTECTED SYSTEMS*

**GREEN ROOFS • BALLASTED ROOFS**



## PROTAN SOLUTIONS

Protan is Scandinavia's largest producer of thermoplastic roofing and is at the forefront of membrane technology. Protan (UK) Ltd offers a range of durable membranes which offers flexibility of design required for modern roofing systems. More than 70 million square metres of Protan roofing membranes have been installed throughout Europe since 1971 and our oldest roofs continue to be fully functional today.

A protected membrane is used as either a green or ballasted system on a warm, inverted or cold roof. The advantages of a protected roof include:

- Increases the usable space of the building
- Protects the building against the effects of rapid temperature changes
- Improved fire protection
- Improves the building's thermal and acoustic performance

### GREEN ROOFS - PROGREEN

Protan's **PROGREEN** range has benefited from over 30 years of green roofing experience by our parent company Protan AS in Norway. The partnerships we have developed in the UK allow Protan (UK) Ltd to offer some of the simplest, most versatile and technically robust roofing systems available in the marketplace.

Suitable for new build or refurbishment projects, **PROGREEN** can cater for roofs of any size from large commercial projects to domestic buildings.

### BALLASTED ROOFS

The use of concrete paving or gravel has always been a popular choice for roofs and can increase the usability of buildings, providing extra living space for the building's occupants.

## PROTAN'S MEMBRANES

Both Protan G and **PROGREEN** membranes offer the perfect solution for protected roofs because they benefit from the following:

- Contain fungicides
- Reinforced with glass fibre
- Can be loose laid for quick installation
- Resistant to foot traffic whilst being installed
- FLL Accreditation
- Can be combined with exposed membranes on the same building

## WHEN DESIGNING THE ROOF

The roof design should take into consideration the following:

- Recreational usage – what is it going to be used for?
- Membrane protection for areas of high usage
- Expected levels of trafficking
- Planning Restrictions
- Technical Restrictions, i.e. structural deck
- Extreme wind load conditions
- Pitch of the roof



## PROTAN TECHNICAL SUPPORT

Protan (UK) Ltd provides a complete service from conception to completion. The earlier we are involved in the project, the more assistance we can provide. This service is delivered by our highly experienced in-house technical services department, and our partner horticulturist who installs and advises on the green element on Protan's behalf.

This includes on-going site inspections to ensure our membrane is installed to Protan's stringent guidelines by one of our Partner Contractors. All of our Partner Contractors are trained to the highest standards in our newly refurbished training facility to ensure your roof remains watertight for the length of the warranty and beyond.

Not only will we provide the membrane with a full 10 year warranty, but the 'green element' of all extensive, intensive and bio-diverse roof systems also receive a 'guarantee of function' for the same length of time, except Turf Roof systems.

## ONLINE TECHNICAL DOCUMENTS

You can download any of Protan's technical documents, including datasheets and CAD drawings by registering online at [www.protan.co.uk](http://www.protan.co.uk).

Protan Filtration Layer

**Wind Loads:** Wind load calculations, based upon information provided, are carried out by Protan (UK) Ltd who undertake sole responsibility for the Protan roofing system.

**Weight Loadings:** Due to excessive weight loadings of protected roofs, advice must be sought at the design stage of building.





### Benefits of a Green Roof

- SUDS benefits in the improved management of rainfall
- Visually attractive with a range of flower and foliage
- Improves the building's thermal and acoustic performance
- Improvement in the air quality
- Reduction of heat island effect particularly in built-up urban areas
- Local biodiversity benefits
- Additional habitat for wildlife

## A BRIEF INTRODUCTION TO GREEN ROOFS

Green roofs are increasing in popularity in the UK for recreational, aesthetic and environmental reasons. Protan's **PROGREEN** roofing systems offer significant benefits to the environment and the building's performance.

Protan can offer a range of green roof systems, all meeting the strict FLL guidelines:

- Extensive Roof System
- Intensive Roof System
- Turf Roof System
- Bio-diverse Roof System

For further information on the Intensive and Bio-diverse roof systems, please refer to our technical datasheets.

### FLL Guidelines

The FLL has been working on standards for green roof technology for over 25 years. For many years, these guidelines have been the only source of reliable information for green roof designers. Their 'Guidance for Planning, Execution and Upkeep of Green-Roof Sites' reflects the acknowledged state-of-the-art technology. Although the guidelines do not give solutions for all green roof problems, it has become the recognised industry standard for the construction of reliable and high quality of green roofs.

### Sustainable Urban Drainage System (SUDS)

SUDS is becoming increasingly important in terms of planning. It's aim is to ensure rainfall is managed across all areas of the construction, particularly on roofs.

The sedum or wildflower mat and the growing medium soaks up the rain, significantly reducing run-off, and consequently reducing the risk of flooding. The rain is filtered naturally through the system build-up and is released slowly back into the watercourse at ground level.

All of Protan's **PROGREEN** systems conform to the SUDS requirements, particularly the Turf Roof system which has a minimum of 170mm depth of growing medium.

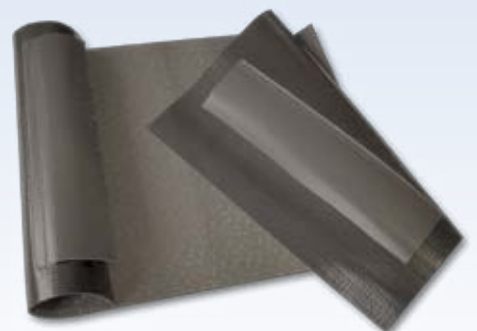
The deeper the system, the better it performs.

### PROGREEN Membrane

Developed specifically for green roof applications (excluding Intensive roofs which use Protan GG Membrane).

This membrane can be loose laid on all green roof systems unless the ballast weighs less than 80kg/m<sup>2</sup> or if the roof is to be left exposed for a period of time when it must be mechanically fixed or if the pitch is in excess of 15°.

Accredited to FLL testing on root resistance, the **PROGREEN** membrane offers a fast and safe way of covering large areas without the use of adhesives. This also ensures the system is fully recyclable when the roof is to be replaced.





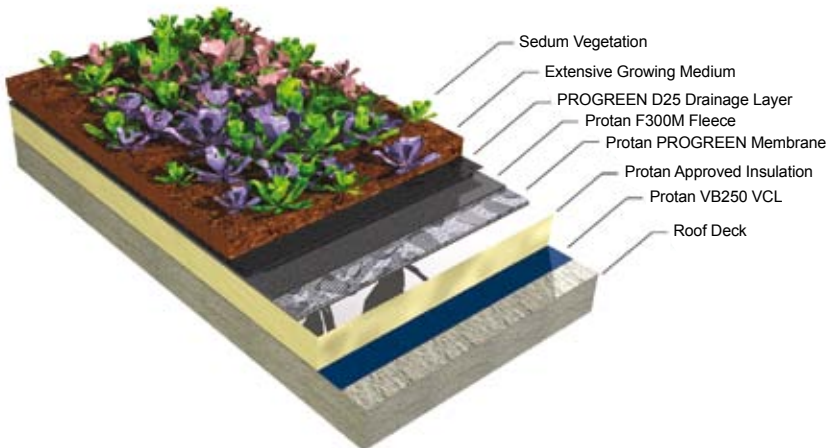
## PROGREEN - EXTENSIVE ROOF SYSTEM

Designed to be a low maintenance vegetation landscape which is wind, frost and drought resistant.

Sedum blankets provide instant greening giving an instantly colourful and attractive green roof, although an alternative is to scatter sedum sprouts and cuttings over the substrate onsite. This is a more economical solution that is equally as effective in the long term. The sedum blanket is placed on a minimum of 70mm of growing medium, which is the recommended depth for a healthy, self sustaining sedum roof.

**Ideal for:** Low maintenance solution required; new builds; help achieve SUDS requirements; can be beneficial when seeking planning permission.

### Extensive Roof System Build-Up

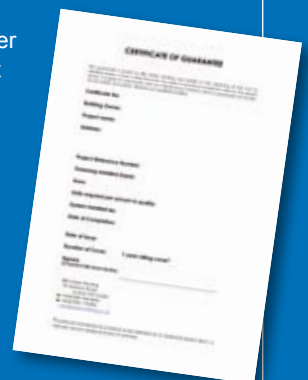


Please refer to datasheets for full technical details.

### Guarantee of Function

All extensive roofs installed will receive a 'guarantee of function' certificate which ensures that the roof will perform as it should from the outset. The cover will roll indefinitely as long as the 'maintenance and nurture' requirements are adhered to. i.e. twice yearly for Extensive Roofs.

On receipt of the certificate, our partner horticulturist will visit each site at least once in the first 12 months to undergo maintenance, re-seeding and cleaning of outlets.





Wildflowers in full bloom

## PROGREEN - TURF ROOF SYSTEM

Traditionally turf roofs have been used in Scandinavia for centuries as a means of insulation and roof support. Suitable for timber frame constructions with a pitched roof, they are ideal for commercial or residential applications where integration of local bio-diversity is desirable.

The **PROGREEN** Turf Roof utilises a bio-diverse planting scheme made up of species native to the UK allowing rural buildings to blend into their natural surroundings or soften the urban landscape.

Turf Roofs can be installed on almost all roof pitches, a unique feature of this system. It can also offer:

- Excellent SUDS benefits with nearly 200mm of living material
- Local biodiversity benefits
- The Wildflower Turf used can survive in extreme conditions
- Simple to install making it a very cost-effective option due to labour savings
- Increased thermal and acoustic benefits
- A range of finishing options available

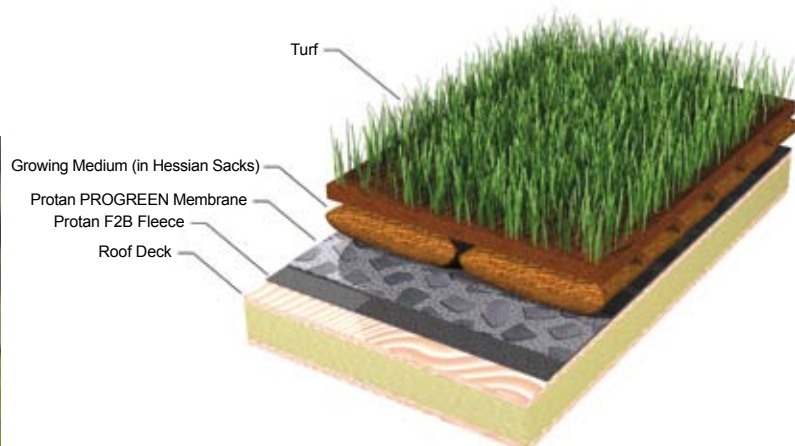
### Simple to Install

This system is one of the simplest and quickest to install in the marketplace. The 150mm of growing medium is supplied in 'hessian' bags and installed like brickwork up the slope. A 20mm screed of soil is then applied to level out the system with the wildflower turf mats being placed on top.

Protan's Turf Roofs are very simple and require very few layers compared to conventional green systems. As a result Protan Turf Roofs are one of the most cost-effective bio-diverse systems in the marketplace.

**Ideal for:** Timber frame buildings; log cabins; domestic applications; commercial applications; almost all roof pitches.

### Turf Roof System Build-Up



Please refer to datasheets for full technical details.





## BALLASTED ROOFS

Ballasted roofs are becoming increasingly popular as people strive to increase the usability of their building. For a ballasted roof system, Protan (UK) Ltd has developed Protan G Membrane which can be loose-laid onto the substrate or insulation. This allows:

- Ideal for retrofitting existing buildings
- Speedy installation providing a watertight structure quickly
- Can be installed in a wide variety of temperature and weather conditions
- No use of adhesives ensures the membrane is fully recyclable at the end of its lifecycle
- No mechanical fixing to the deck required

### Gravel Ballasted Roofs

Gravel covering has been selected for reason of wind-loading, aesthetics and improved fire resistance whilst affording extra protection for the membrane.

### Recreational Paved Roofing

Paving stones are used for recreational purposes and allow the roof to be easily used by its occupants.

Protan roofing systems have been developed to meet these requirements, with proven durability of over 30 years.

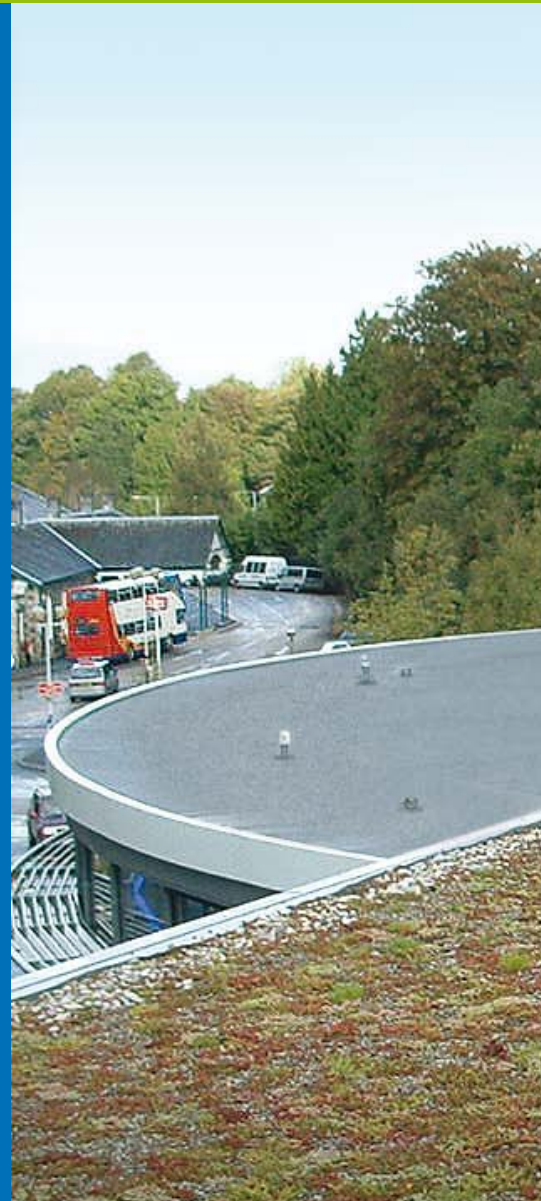
### Brown Roofs

Brown roofs are used to help local biodiversity supporting rare species of plants and animals. Achieved by covering roofs with a layer of locally sourced material, or a mixture of brick and concrete rubble is used and left to self-colonise.



*The Protan membrane provides long term durability with proven weathering in excess of thirty years*





**PROTAN (UK) Ltd**  
2 Alexandra Terrace, Alexandra Road  
Aldershot, Hampshire GU11 3HU

tel: +44 (0)1252 338378 fax: +44 (0)1252 345300  
email: sales@protan.co.uk

[www.protan.co.uk](http://www.protan.co.uk)



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