



Protan Protected Membrane Roof

Your design - Our solution

Protected Membrane Roof

A protected membrane roof can be defined as a recreational style roof or a ballasted/inverted roof. In recent years emphasis has been placed on green roofs, which fall in the same category.

From a waterproofing perspective, there are certain advantages to these forms of roofing:

- Protection from the effects of the sun and wind
- Protection from mechanical damage
- Improved fire protection
- Protects the building against the effects of rapid temperature changes
- Requires no mechanical fixing in the main roof area
- No penetration of the vapour control layer
- Improved acoustic performance
- Provides more natural landscape
- Freedom of aesthetic design
- Provides additional usable space on the roof

Roof design

Roof designs may include the following considerations:

- Recreational usage such as garden, patio, seating area, plaza area, sports area etc.
- Membrane protection for areas of high usage
- Planning restrictions, particularly for aesthetic reasons
- Technical restrictions such as effective vapour control
- Extreme wind load conditions

Protan materials offer the most comprehensive solutions for the discerning designer. To optimise the design possibilities Protan protected membrane roofing system can be combined with Protan exposed membrane roofing systems on the same building.



Protan solutions

The selection of a suitable and durable roof covering is crucial to the design of the overall roof construction. More than 60 million square metres of Protan roofing membranes have been installed in Europe since 1971.

Key Protan benefits are

- Superior waterproofing integrity
- Design versatility
- Tough and durable
- Fire resistant
- Environmentally sustainable
- Speed of installation
- High slip resistance
- Membrane easily repaired
- Tested and certified to resist all root types, even at overlaps
- Cost effective



The Protan Company has been built on real values, with a reputation for quality and friendly service, and provides technical support from concept, through installation and beyond.

Roof construction

In all protected membrane roof applications the additional dead load of the roof build up must be accommodated by the substrate. In most cases this requires a concrete deck.

Typical Protan roofing Systems can be constructed as follows:

1. Warm roof

- Surface finish (gravel, soil, paving, stone chippings, timber decking, etc.)
- Protection layer
- Protan polymeric roofing membrane
- Insulation layer (of sufficient compressive strength to resist loads)
- Vapour control layer
- Suitable deck

2. Inverted roof

- Surface finish (gravel, soil, paving, stone chippings, timber decking, etc.)
- Protection layer
- Insulation layer (of sufficient compressive strength to resist loads)
- Migration barrier
- Protan polymeric roofing membrane
- Protection layer
- Suitable deck



Several factors influence the choice of roofing systems. Consult the *Protan Specification Guide* for more information.

Ballasted roofing systems

Roof construction based on ballasted membrane is a well-proven solution. For ballasted roof system Protan has developed the Protan G and GG membrane, which are loose laid on the substrate.

Principal features

- Speedy installation provides watertight structure quickly
- Fast and easy to install, and therefore cost efficient
- Can be installed in a wide variety of temperature and weather conditions
- Allows superior water vapour permeability
- No mechanical fixing to concrete deck
- No penetration of vapour control layer
- No need for adhesive or solvents
- No use of open flame
- Isolates membrane from differential movement of the substrate
- Allows easy separation for additions, renewal, repairs and re-cycling
- Not limited to flat roofs, but are equally suited to curved design and low pitched roofs
- Provides restraint without relying upon the laminar strength of intermediate layers

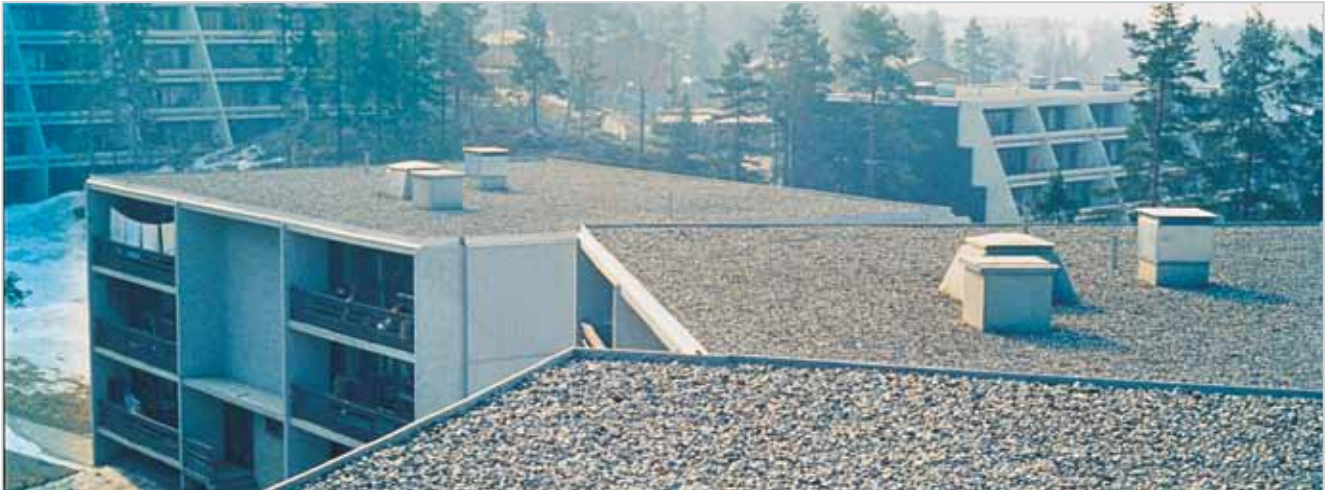
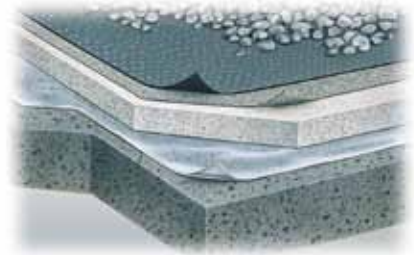
Wind load

In some cases heavier ballasting and/or additional edge and corner protection may be required. Protan Technical Service Department can assist in the calculation of wind loads in areas with high wind-loading.



Gravel ballasted roof

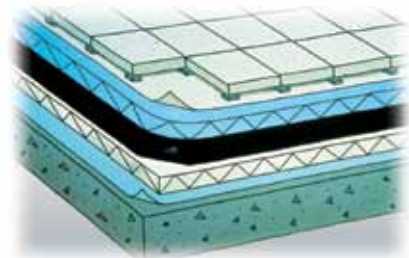
Traditionally, gravel covering has been selected for reasons of wind-loading, aesthetics, and improved fire resistance, whilst affording extra protection to the water proofing membrane.



Recreational paved roofing

The use of hard landscaping to increase the usable area of buildings and provide exterior facilities for people is an ever more popular choice in recent years.

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



Ecological roof systems



Example of succulents.

Progressive architecture in recent years has turned its attention to the use of ecologically sound buildings. An increasing part of this movement is the use of “green” roof construction. This type of system gives many advantages such as:

- Natural aesthetic design
- Compliance with most stringent planning requirements
- Enlarged usable space in the building
- Soft landscaping which blends in with the environment
- Improved local environment (CO² in - O² out)
- Improved acoustics within the building
- Improved rainwater control
- Good heat sink effect

The use of a living roof creates naturalisation of urban landscape, while increasing comfort levels for the occupants of the building.

Protan has developed membrane systems for both “extensive” (40-300 mm soil depth) and “intensive” (exceeding 300 mm soil depth) planting.

Extensive green roofs are constructed using low maintenance planting, such as sedums (succulents) and indigenous herbs and grasses, which provide excellent cover.

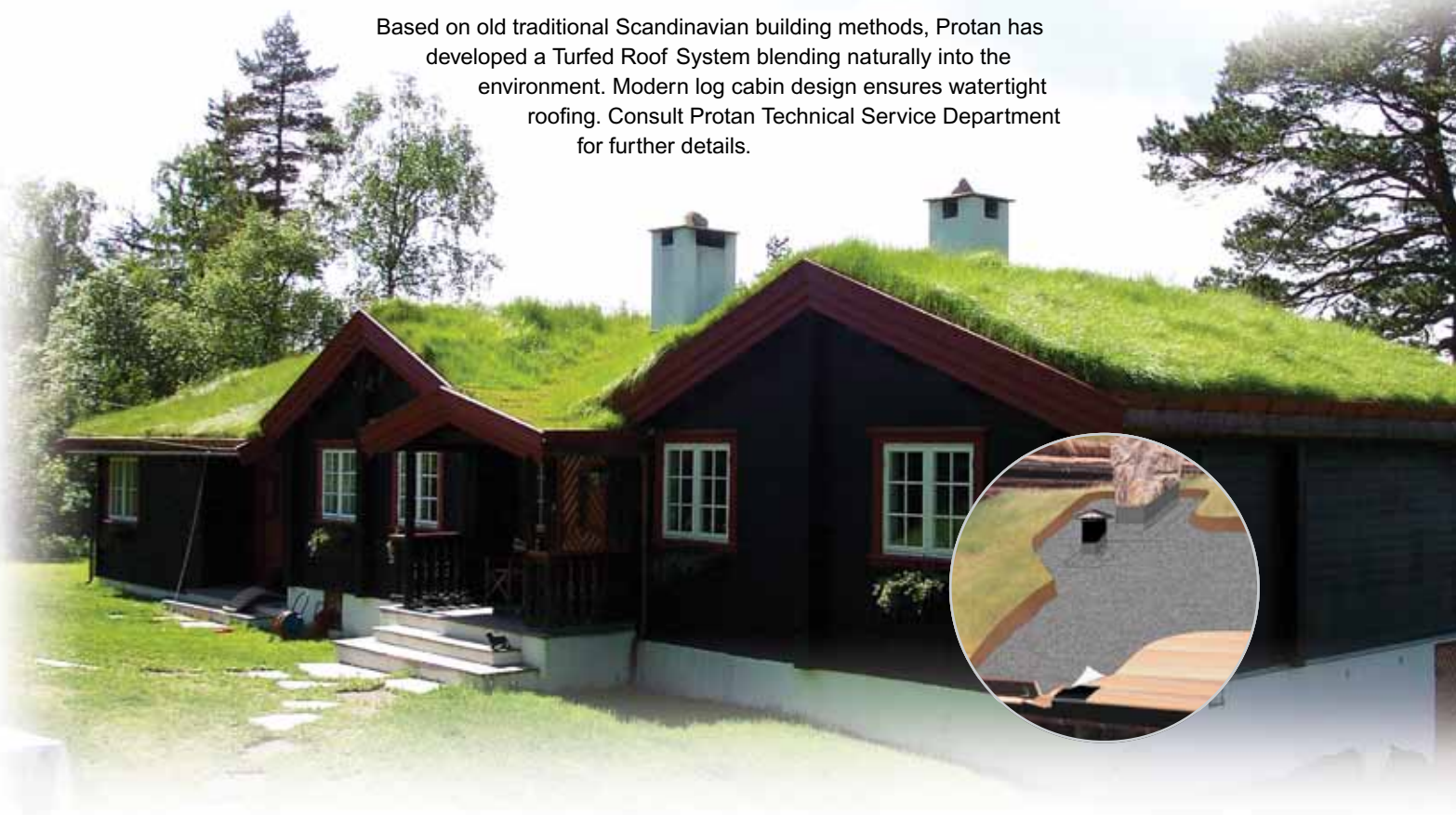


Example of ecological roof.



Turf roof

Based on old traditional Scandinavian building methods, Protan has developed a Turfed Roof System blending naturally into the environment. Modern log cabin design ensures watertight roofing. Consult Protan Technical Service Department for further details.



Details and accessories

A full range of accessories and prefabricated components are available to provide complete and reliable roofing systems. Each element has been carefully designed and manufactured to give durable, watertight performance and visual appeal.



Additional information and local contact details available on Protan's International web-site: www.protan.com/roofing

Other application areas

Protan Feature Roof

Protan Protected Membrane Roof

Protan Roof Renovation

Protan Terraces and Balconies

Protan Protected Membrane Roof

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Van Tech's moss-sedum roof vegetation