



Protan Roof Renovation

System Specification



Protecting values

Protan Roof Renovation

Many varied roof renovation projects are carried out with Protan single ply membranes.

There may be many reasons to refurbish a roof, some of which are described as follows :

One main objective is to protect the existing building from deterioration and damage as the existing roof material is about to reach the end of it's serviceable life.

To upgrade the roof construction with regard to the amount and quality of insulation may be another reason. Many old buildings do not achieve today's minimum standard of insulation value. It is energy saving to increase the insulation value by installing additional insulation during renovation, while also being self-financing in the long-term, due to energy cost savings.

It is also more and more common today to use the roof surfaces as terraces and roof gardens. Upgrading of old, existing horizontal roof surfaces in this regard is an increasing trend.

Sometimes, it may be necessary to replace the roof waterproofing material due to different types of damage caused by either bad design, bad installation, mechanical damages, poor maintenance or a combination of these.

Change of use of the building, e.g. from industrial/commercial to domestic, or perhaps from warehousing to a cold store, etc. Extension or alteration of the building can sometimes also lead to re-roofing.



Inspection of the existing roof:

In roof renovation applications, the performance of the new roofing system depends significantly upon the quality of the existing roof.

Inspection is required for every roof renovation project, to evaluate the moisture content of the existing roof, to identify any errors of design and to determine the limiting factors that will influence the design of a new system, including the laminar strength of the existing build-

up. The inspection must take into account the condition of the structural roof deck, insulation and old roof covering. Careful inspection and consideration of woodwool, old ferrous metal, aluminium, and lightweight screeded decks is essential.

Structural decks must be inspected to determine their capacity for carrying additional loads during the roof renovation installation, including storage of materials on the roof. The contractor should also carefully investigate the

existing waterproofing details, such as flashings, penetrations, quantity and positions of rainwater outlets, check for signs of ponding water, etc.

Metal decks are limited by their deflection and need to be assessed for their pullout resistance. Wooden decks and other degradable supports should always be fully examined for their quality and pullout resistance. Any wet or unsound portions must be replaced with new materials, prior to the installation of the new membrane system. Insulation boards need to be replaced if they are wet or degraded. Compatibility of insulation boards with the roofing membrane must be considered.

In cases of insufficient existing vapour control layer, U-value and condensation risk analysis should be considered, both in relation to the existing roof construction, the effects of an insulated overlay and the risk of condensation.

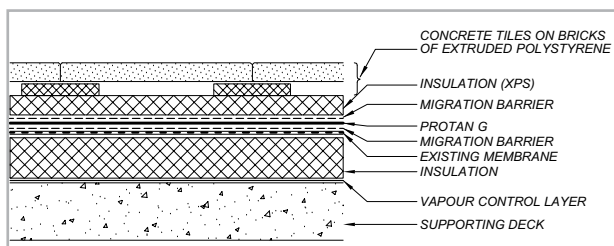
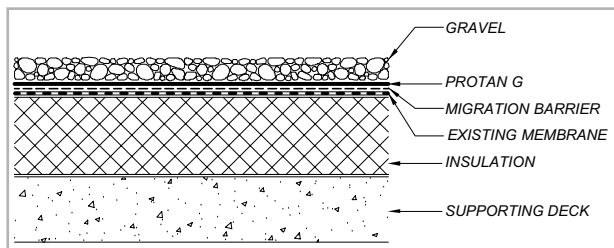
Even though the old metal flashings appear to be in good condition, it is recommended to replace them to achieve the same life expectancy as the new roofing layer.

System selection:

The inspection of a renovation project clarifies the existing constructions' possibilities and limitations. The alternative choices of design are evaluated from these facts, together with the owners/architects' requirements.

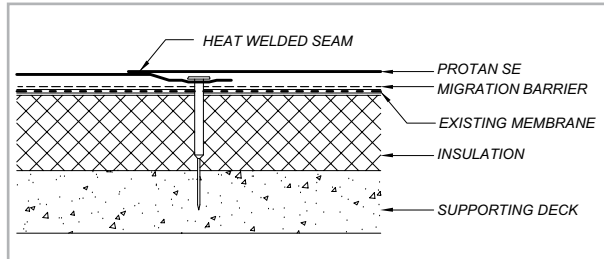
Old gravel ballasted roof constructions:

An existing gravel ballasted roof can be reinstated using the same system as is the case with other protected roof constructions. In the case of reusing old gravel, removing (washing) soil and humus is recommended to secure efficient drainage. Alternatively, it can be changed to an exposed mechanically attached roof. Provided the supporting deck has the required strength, the roof can be converted to a roof terrace or a green roof.



Old mechanically attached roof constructions:

An existing mechanically installed roof will normally be reinstalled the same way, but mechanically attached according to updated wind load standards. Protected solutions are possible, subject to the strength of the supporting deck. Some projects can be vacuum installed depending upon efficiency of airtightness and vertical load bearing of the existing covering. The old covering may require additional fixing in accordance with the latest wind load standards.



Old adhered roof constructions:

An existing adhered roof construction must be thoroughly inspected with regard to its load bearing ability and attachment, if it is to be overlaid with an adhered system. To ensure the old covering's load bearing ability and attachment, it may be necessary to partially secure it with additional mechanical fasteners before installing the new roof membrane. Alternatively if possible, it is recommended to install additional insulation mechanically, onto which the new roofing membrane is adhered. Additional insulation also acts as a levelling layer in these types of construction. Adhered roofs can also be suitable for reinstatement with the vacuum system providing that the existing deck fulfils the necessary requirements for air tightness.

Alternatively, the old adhered roof construction can be installed with an exposed mechanically attached system, provided the substrate allows it. Protected solutions are also possible subject to sufficient strength of the supporting deck.

When installing a new layer of insulation, be aware that parapet heights may be limited. Note also that existing building details (i.e. doors, windows) may not allow for sufficient clearance to provide proper termination above the potential water level. Detailed consideration of this requirement are critical to the integrity of the roofing system.

Separation layers:

The type and condition of the existing roof covering, when it is to be left in position, will determine the necessity for a separation layer.

Migration barriers

are installed between two layers to avoid chemical interaction between them.

Sliding layers are

installed between two layers to prevent friction between them.

Levelling layers

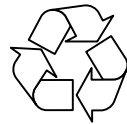
are installed between two layers for aesthetic purposes to smooth some of the unevenness of the inferior layer.

Different materials need different types of migration barriers and shall be used in accordance with Protan recommendations. Detailed in Protan technical drawings.

Environmental aspects:

Due to the optimal use of resources Protan recommend recycling of old roof covering before installing new one.

Protan has agreed on ESWA's (European Single Ply Waterproofing Association) voluntary commitment, and has implemented a system for recycling of polymeric membranes.



Removing old roof covering will also reduce the total amount of combustible energy in case of eventual fire in the roof construction. In a fire situation, several layers of bitumen felt represent a considerable hazard!

Protan Roof Renovation
System Specification



Protan AS
P. O. Box 420 Brakerøya - N-3002 Drammen - Norway
Telephone +47 32 22 16 00 - Fax +47 32 22 17 00
www.protan.com

All above mentioned systems are thoroughly described in the system specifications for Protan Exposed Membrane Roof and Protan Protected Membrane Roof.

The information in this System Specification is believed to be accurate. Protan AS does not accept responsibility or liability for any errors or omissions, or for any consequences resulting therefrom.