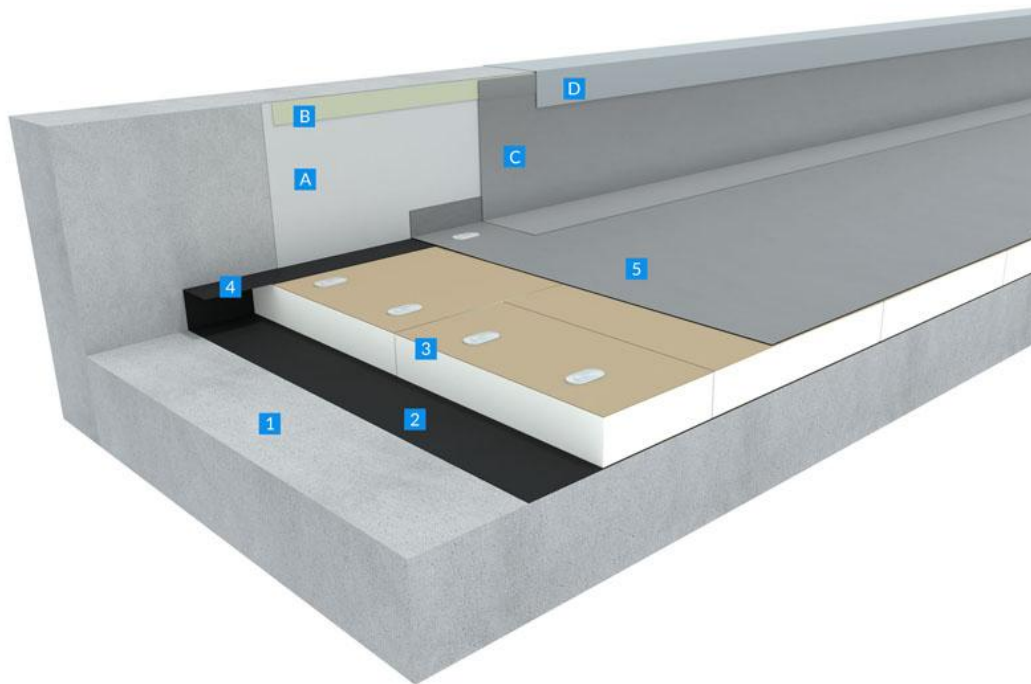


Non-accessible exposed roof with PVC membrane finish
Mechanically-fixing PVC Single-layer system:
MONARPLAN® FM

Substrate & Use of roof	Finishing	Standard warm roof / inverted roof
Concrete Use: Non-accessible exposed roofs of industrial buildings, logistic platforms and commercial buildings.	Smooth surface - PVC	Insulation under waterproofing



- **Substrate**

The load bearing structure (trapezoidal metal sheet, concrete or wooden) must comply with all associated national standards and regulations, ensuring that the load bearing capacity is sufficient for any additional loads imposed upon the construction. It is important to consider the possibility of future deflection of the construction when designing roof drainage.

- **Preparation:** The bearing elements and substrates must comply with local technical standards. After proper cleaning of the roof area, a complete control shall be carried out by the Contractor. Slope and planarity shall be carried out with the following tolerances:

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- **Slope:**

Exposed roofs: Minimum slope requirement is 2% on concrete, 3% on metal and 3% on wooden deck (depending on type of terrace, please contact BMI Technical Department).

- Water ponding areas shall be identified clearly.

- **Levels:**

Tolerances for planarity shall be:

- 10 mm with a 2 meters straight edge.

- 3 mm with a 200 mm straight edge.

- **Surface:**

Prepare substrate surfaces thoroughly prior to application of new roofing materials. This is particularly important for refurbishment applications. Providing a smooth, even, sound, free of dust, grease and oil, foreign chemicals, curing compound, clean and dry substrate minimises the likelihood that underlying deficiencies will cause premature deterioration or even failure of the new roofing system.

Concrete or masonry:

Masonry bearing elements and substrates in compliance with local technical standards

Are not accepted: slope screeds of lightweight concrete.

- **Vapour Control layer**

Parevapo PE : polyethylene vapour barrier, thickness $\geq 300 \mu\text{m}$ with a coefficient of vapor diffusion: $\mu \geq 530\,000$

Parevapo PE is loose-laid directly on a masonry support with a smooth, regular and neat appearance.

- **Separation layer**

Monarplan NTS 300: 300 g/m² non-woven geotextile

Monarplan NTS 300 should be applied between the substrate and vapour control layer (Parevapo PE) if the masonry support is not smooth, regular and neat.

Glass fleece: Minimum 120 g/m² glass fleece is recommended as a separation layer on top of EPS insulation boards.

- **Insulation**

Mineral wool (plain or tissue), PIR/PUR (glass fleece and/or foil faced), composite perlite boards and expanded polystyrene boards (EPS). Minimum 120 g/m² glass fleece should be laid between PVC and EPS boards as a separation layer.

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The accepted thermal insulation boards for mechanically fixed waterproofing systems must be laid in compliance with the manufacturer's technical documents. Consult the supplier's technical documentation and local regulations for compliance with all building and security requirements.

- **Waterproofing**

Monarplan® FM: UV resistant, polyester reinforced monomeric PVC membrane, designed specifically for use within mechanically fastened single-layer applications, is suitable for flat, curved and pitched roofs. The polyester fabric gives the membrane inherent tensile strength which is required to facilitate the use of fasteners to restrain the system against wind uplift.

Thickness: 1.5mm / 1.8mm / 2.0mm
White and grey colours are available.

Monarplan® FM White 1.5 mm has a high Solar Reflectance Index (SRI) value of 95 (±2) and this can be used in 'cool roof' calculations to demonstrate compliance with LEED (Leadership in Energy and Environmental Design).

Monarplan third party accreditation from BBA, SGS, SKZ and Sintef.

Monarplan FM membrane has been subjected to the tests required by ASTM D4434 "Standard Specification for Poly (Vinyl Chloride) Sheet Roofing". It meets the ASTM requirement for Type III.

Monarplan® FM membranes are mechanically fixed to the bearing element through the insulation and the vapour control layer using mechanical fixings. The mechanical fixings are positioned along the selvedge under the welded laps. If necessary mechanical fixings can be applied in the middle of the membrane and covered by a welded strip.

Monarplan waterproofing membranes are hot air welded to each other and to PVC accessories in a homogeneous way.

- **Upstands**

For upstands, use strips of Monarplan membranes separated from the main area membrane. On the upstands, membranes are always mechanically fixed at the head or welded at the head to a mechanically fixed coated steel sheet.

Monarplan PVC coated metal sheet: galvanised steel sheet (0,60mm thick) coated with a PVC layer (0,80mm thick).

Metal Fixation Bar: The Fixation Bar is designed for securing and sealing membrane terminations at upstands in accordance with current BMI specifications. The 3 metre long bar incorporates pre-drilled holes at 150 mm centres.

Monarplan PVC Liquide: PVC liquid paste mixed with THF for finishing of weldings.

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Monarplan COLLE CONTACT Teroson AD 914: Strong solvent based contact adhesive that allows the bonding of Monarplan non-fleece back membrane to various porous and non-porous substrates. The adhesive provides instant contact adhesion and is particularly useful at details such as upstands and abutments.

Monarplan membranes are welded by hot air or bonded chemically on the sheets.
Consult local technical standards for compliance.

- **Details**

All details shall be finalized before roofing works start:

Rainwater drains shall be well located, in sufficient number and ready to receive waterproofing membranes.

Expansion joints have especially to be planned by the architects and are project specific. Contact the BMI Technical Department for guidance and advice.

All pipes, cables and other penetrations shall be in place. Provision for proper waterproofing of Chillers and Machinery shall be made.

All parapets shall be in place, with provision for groove or counter flashing at an acceptable height (150 mm above finished roof level)

Prior to application of the Monarplan PVC membranes, a wind uplift calculation must be carried out by BMI Technical Department in accordance with EN 1991: Parts 1 – 4 to determine the correct fixing centres specific to the project.

All tubular washers or plates and screw fasteners shall be approved by the BMI Technical Support according to Wind-up lift calculation.

Monarplan Prefabricated Corners: Prefabricated corners aid speed of installation on site, and are used to reinforce internal and external corners with no stretching or cutting required.

Monarplan D: non reinforced homogenous flashing membrane used in the formation of details (internal/external corners, pipe flashings etc.) when the prefabricated accessories are not available or feasible.

- **Walkways**

Monarplan W Walkway Membrane: a weather resistant anthracite PVC membrane which incorporates an embossed, non-slip, interlocking herringbone tread pattern. Thickness: 2.0mm, Colour: Dark grey

For all other details and particular conditions for your projects, please contact BMI Technical Department.

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