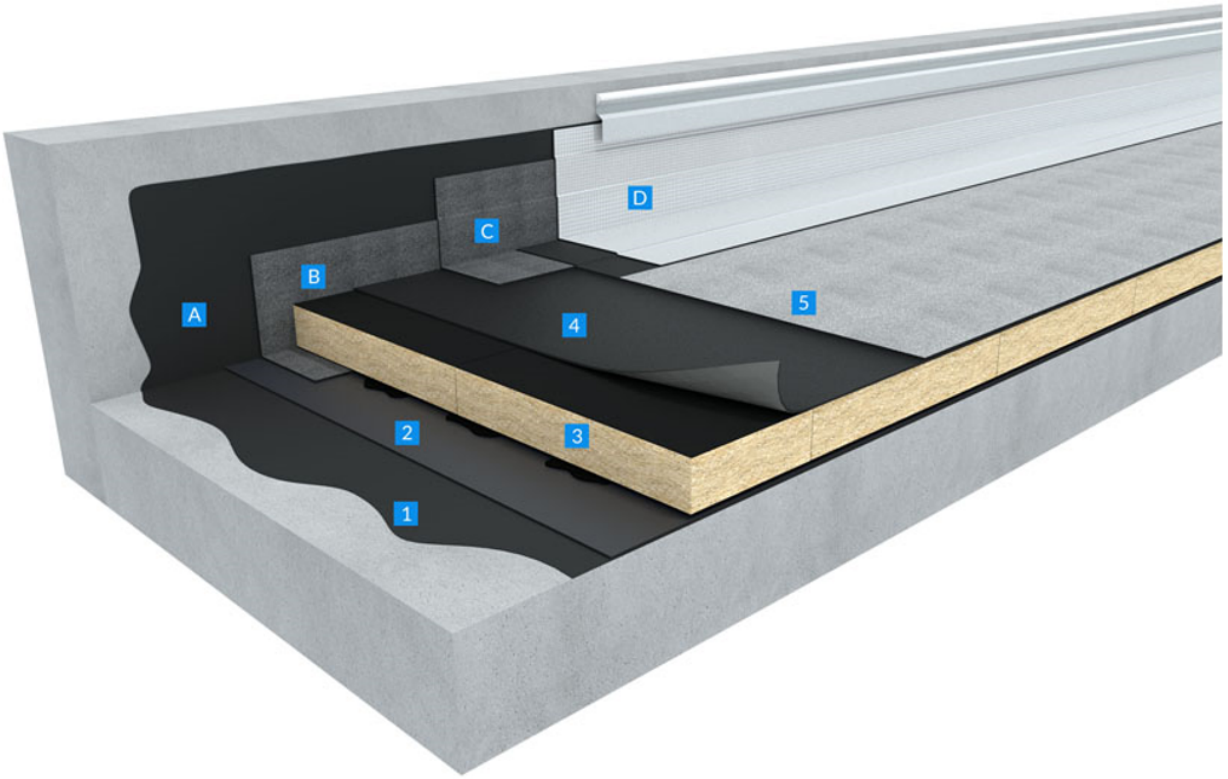
Non-accessible exposed roofs - maintenance access only
Double layer bitumen waterproofing system:
PARADIENE S R4 + PARADIENE 40.1 GS – NOx-Activ® air depolluting solution

Substrate & Use of roof	Finishing	Standard warm roof / inverted roof
Concrete Technical roofs with M & E equipment	Mineral granule	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:

- **Slope:**
  Exposed roofs: Minimum slope requirement, 2 % on concrete deck (depending on type of terrace, please contact BMI Technical Department).
  - Water pounding areas shall be identified clearly.
- **Levels**:
  Tolerances for planarity shall be:
  - 10 mm with a 2 m 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.

- **Upstands/Parapets:**
  Siplast Primer: cold-applied, quick drying, universal elastomeric bitumen primer. Approx. coverage 0.15 litre/m² on steel and approx. coverage 0.30 litre/m² on concrete (depending on concrete porosity, please consult the supplier's technical documentation).
  Parequerre: Nonwoven polyester-reinforced modified SBS elastomeric bitumen angle strip. Cut in 0.25m or 0.33 m wide strips for use as a reinforcement angle on upstands. Torched at the junction of the parapet with the main area.
  Paradial S: 3.7 mm thick glass fibre-reinforced modified SBS elastomeric bitumen cap sheet protected by embossed thermo-stable aluminium foil. It is used as a cap-sheet layer for vertical upstands waterproofing works and in a double-layer system for non-accessible roofs. Thermofusible film on the underside surface, nominal width 70 mm on the longitudinal selvedge. Fully torched.
  OR alternatively, **Supradial GS:** 3.5 mm thick on the longitudinal selvedge (without mineral finish), modified SBS elastomeric bitumen cap sheet with composite reinforcement, protected by embossed aluminium foil with coloured mineral finished upper surface, thermofusible film on the underside. Fully torched.

- **Vapor Control layer**
  Siplast Primer: cold-applied, quick drying, universal elastomeric bitumen primer. Approx. coverage 0.30 litre/m² on concrete (depending on concrete porosity, please consult the supplier's technical documentation).

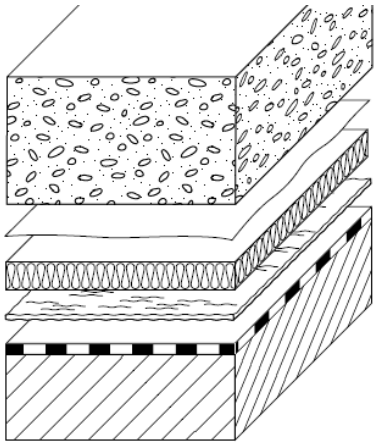
Irex Profil: Glass fibre-reinforced, modified SBS elastomeric bitumen vapour control layer, fully torched.

- **Insulation :**
  Thermal insulation panels **Class C** minimum: Bitumen-surfaced mineral wool board (glued with **PUR Glue**), bitumen-surfaced perlite fibre boards, composite perlite+resol boards with bitumen coating (mechanical fixing). Bitumen-surfaced cellular glass insulation boards (without a vapour control layer).
  Heavy pedestrian traffic and technical zones circulation for industrial roofs: the compressibility class of thermal insulation panels should be taken into consideration according to the use/destination of the roof and building. It must support high compressive loads without deflection or movement. Consult the supplier's technical documentation and local regulations.

- **Waterproofing**
  Paradiene S R4: 2.6 mm thick polyester fibre-reinforced, modified SBS elastomeric bitumen underlay membrane. Underside: Thermofusible film. Upper surface: Thermofusible film or sanded. Torched on top of bitumen-faced insulation boards.
  Paradiene 40.1 GS: glass fibre-reinforced, modified SBS elastomeric bitumen cap sheet with self-protected coloured mineral granules or slate flakes, thermofusible film on the underside. Bitumen of the underside surface is grooved (patented Profil System). Thickness on the longitudinal selvedge: 3.0 mm. Fully torched on top of the first underlayer membrane.
  Air depolluting the **NOx-Activ®** version with White Noxite is also available.

- **Walkways* / technical zone circulation:**
  For walkways and technical circulation areas;
  PARATECH: surfaced with coloured ceramic granules or slate flakes (Anthracite or Brown colors), polyester reinforced, modified SBS bitumen walkway membrane is fully torched on top of the cap sheet or glued with **COLLE PAR**,
  OR alternative walkway membrane;
  Parafor 30 GS: polyester reinforced, modified SBS elastomeric membrane with mineral granule or slate-finished upper surface and a thermofusible film underside. Fully torched on top of the cap sheet.
  **Recommendation: Choose a different and contrast color for the visible walkway membrane than the roofing cap sheet.*

Protection of roof perimeter walkways for facade access & maintenance devices:



Reinforced concrete paving:
Mixed with a water-reducing plasticizer
Separation layer:

- Synthetic film 100 µ.
- 0.02 m thick, Class F expanded polystyrene panels (EPS)
- Non-woven separation layer: **Canopia Filtre**.

Splitting the paving: Minimum 20 mm joints at every 5-m maximum in line with reliefs and emergencies.
Joint filler is root-proof and suitable against deformation.
Note: These protection works are out of the waterproofing company's scope.

- **Expansion joints:** Expansion joints have especially to be planned by the architects and are project specific.
  Recommendation: The expansion joints will be prepared in compliance with the **Neodyl System** technical assessment. The Neodyl System comprises lyre-shaped **Cordon Neodyl**, non-reinforced **Joint Neodyl** waterproofing strip and a protection system (metallic surfaced Paradial S torched or Supradial GS; or protective slabs). It will have a kerb, raised flat, flat, with upstands-in certain cases.
  The Neodyl System is used for structural expansion joints on accessible roofs (pedestrians), roof gardens and non-accessible exposed roofs. Suitable for all roof substrates.

- **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 shall be located at the highest roof points, on reinforced concrete curbs chamfered as shown on drawings.

  All pipes, cables and other penetrations shall be in place. Provision for proper waterproofing of roof equipment 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).