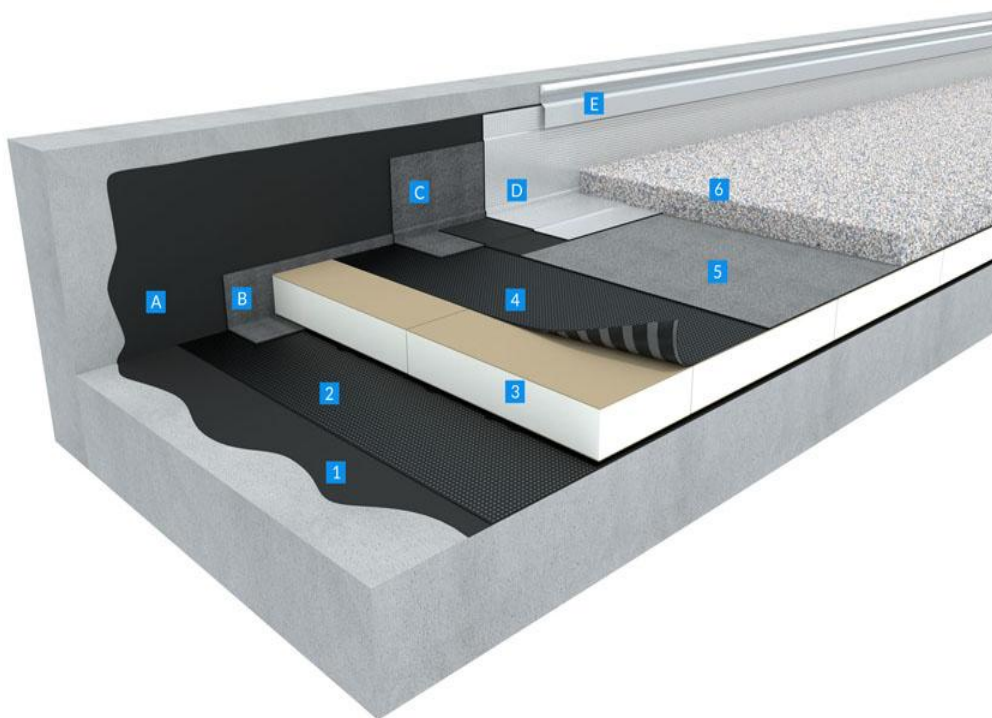


Non-accessible roofs with gravel ballast on concrete Double layer bitumen waterproofing system: PARADIENE JS R4 + PARADIENE BD S		
Substrate & Use of roof	Finishing	Standard warm roof /Inverted roof
Concrete Non-accessible roofs	Gravel ballast	Warm roof (Insulation under waterproofing)



- **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:

*"The present document has been established on the base of the information provided and is purely indicative and non exhaustive. It cannot be substituted to recommendation and/or specifications made by professionals such as project manager, designing/engineering consultant, architect, and advisors. BMI cannot be liable in this regard. You must strictly ensure that the technical solution fits your project and has been validated by professionals and comply with any applicable regulations. You will find some technical documentation on our website: [www.bmigroup.com/international](http://www.bmigroup.com/international)"*

- **Slope:**  
Exposed roofs: Minimum slope requirement, 2 % on concrete 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.

- **Upstands/Parapets:**

**Siplast Primer:** cold-applied, quick drying, universal elastomeric bitumen primer. Approx. coverage 0.15 litre/m<sup>2</sup> on steel and approx. coverage 0.30 litre/m<sup>2</sup> on concrete (depending on concrete porosity, please consult the supplier's technical documentation).

**Parquerre:** Nonwoven polyester-reinforced modified SBS elastomeric bitumen angle strip. Cut in 0.25-m or 0.33-m wide strips for use as 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/m<sup>2</sup> on concrete (depending on concrete porosity, please consult the supplier's technical documentation).

*"The present document has been established on the base of the information provided and is purely indicative and non exhaustive. It cannot be substituted to recommendation and/or specifications made by professionals such as project manager, designing/engineering consultant, architect, and advisors. BMI cannot be liable in this regard. You must strictly ensure that the technical solution fits your project and has been validated by professionals and comply with any applicable regulations. You will find some technical documentation on our website: [www.bmigroup.com/international](http://www.bmigroup.com/international)"*

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

- **Insulation**

Polyisocyanurate boards (PIR) and polyurethane boards (PUR) with composite reinforced facing, mineral wool, bitumen-faced fibrous perlite boards, bitumen-faced composite perlite-Resol boards, expanded polystyrene boards (EPS) are glued with **Colle PAR**. Bitumen-faced cellular glass boards laid in hot-bitumen (without vapor barrier)\*.

In case of use of EPS boards, apply **ADEALU** which is modified self-adhesive bitumen tape surfaced with a composite aluminium-polyester (Grey or coloured) foil, at the junction of first layer of waterproofing and the parapet before torching the reinforcement angle (Parequerre). ADEALU is used as a flame barrier for EPS insulation.

*\*Consult the supplier's technical documentation and local regulations.*

- **Waterproofing**

**Paradiene JS R4\***: 2.6 mm thick, modified SBS elastomeric bitumen underlayer membrane of the double layer system under heavy protection with polyester reinforcement and self-adhesive overlaps that protects the insulation from the torch flame. Thermofusible film on the underside, sanded on the upper surface. Loosely laid on top of insulation boards, self-adhesive overlaps.

*\*For cellular glass insulation boards, Paradiene JS R4 underlayer membrane is replaced by **Paradiene S R4** to be torched on top of bitumen-surfaced.*

**Paradiene BD S**: 2.6 mm thick, glass fibre-reinforced, torch-applied modified SBS elastomeric bitumen membrane for use as a base layer or cap sheet with additional protection. Thermofusible film on the underside, sanded on the upper surface. Fully torched on top of the base layer.

- **Protection layer/finishing layer:** Minimum 5 cm river washed gravel layer\*.

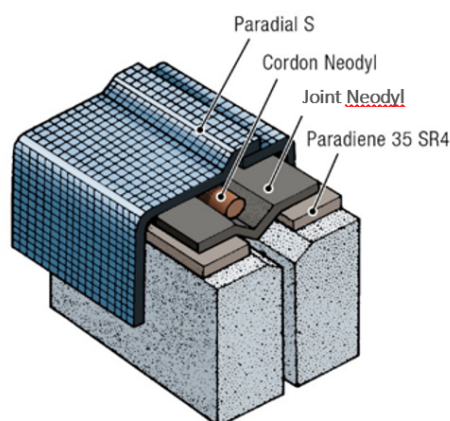
*\*In case of strong wind loads (height greater than 28 m, or greater than 20 m in zone 2 exposed site, or zone 3 normal site, or whatever its height, in zones 3 exposed site or 4 all sites): stabilized gravel layer with 2 m wide of NidarooF plates (same for the protection of technical circulation areas) around the building and to the right of emergences.*

Please consult BMI Technical Department for wind-up load calculation when necessary.

- **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 **Cordon Neodyl**, **Joint Neodyl (Bande Neodyl)** lyred-shaped waterproofing strips and a protection system (metallic surfaced Paradiel S torched or Supradial GS; or protective slabs). It will have a kerb, raised flat, flat, with upstands-in certain cases.

*"The present document has been established on the base of the information provided and is purely indicative and non exhaustive. It cannot be substituted to recommendation and/or specifications made by professionals such as project manager, designing/engineering consultant, architect, and advisors. BMI cannot be liable in this regard. You must strictly ensure that the technical solution fits your project and has been validated by professionals and comply with any applicable regulations. You will find some technical documentation on our website: [www.bmigroup.com/international](http://www.bmigroup.com/international)"*

The Neodyl System is used for structural expansion joints on pedestrian accessible roofs, roof gardens and non-accessible exposed roofs. Suitable for all roof substrates.



Application:

- Apply **Siplast Primer** on each joint side
- 3.5 mm thick, polyester reinforced **PARADIENE 35 S R4** modified SBS elastomeric bitumen membrane, torched on top of the Siplast Primer
- Unreinforced lyre-shaped strip **Joint NEODYL** fully torched on Paradiene 35 S R4 membranes to the edge of the chamfer
- Place **Cordon NEODYL** ( $\varnothing$  30 mm) in the lyre of Joint Neodyl strip
- Protection: with a top layer of **PARADIAL S**, 3.7 mm thick modified SBS elastomeric bitumen membrane with glass fibre reinforcement, self-protected by a thermo-compensated aluminum foil, fully torched. Alternatively, the Supradial GS granule-surfaced membrane can be torched. Protection can also be done by paving tiles, depending on expansion joints and project requirements.

- **Walkways / technical circulation areas:**

The protection is carried out with **Nidarroof** plates filled with fin gravels/chippings: a 4 or 6 cm thick layer of fin gravels/chippings to stabilise the circulation areas with Nidarroof plates.

**Nidarroof:** Alveolar structured rigid plastic plate covered by a nonwoven polyester on the underside, used for gravel stabilization.

**Nidarroof 40-1F** (for chippings thickness of 4 cm) or **60-1F** (for thickness 6 cm) with polyester underside loosely laid on the waterproofing and filled with gravels.

OR with prefabricated concrete slabs: Drainage and separation layer, **DRAINA G10**, loosely laid, precast concrete slabs laid dry, joints dry. Dimensions 0.40 to 0.60 m for walkways.

*"The present document has been established on the base of the information provided and is purely indicative and non exhaustive. It cannot be substituted to recommendation and/or specifications made by professionals such as project manager, designing/engineering consultant, architect, and advisors. BMI cannot be liable in this regard. You must strictly ensure that the technical solution fits your project and has been validated by professionals and comply with any applicable regulations. You will find some technical documentation on our website: [www.bmigroup.com/international](http://www.bmigroup.com/international)"*

- **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).

*"The present document has been established on the base of the information provided and is purely indicative and non exhaustive. It cannot be substituted to recommendation and/or specifications made by professionals such as project manager, designing/engineering consultant, architect, and advisors. BMI cannot be liable in this regard. You must strictly ensure that the technical solution fits your project and has been validated by professionals and comply with any applicable regulations. You will find some technical documentation on our website: [www.bmigroup.com/international](http://www.bmigroup.com/international)"*