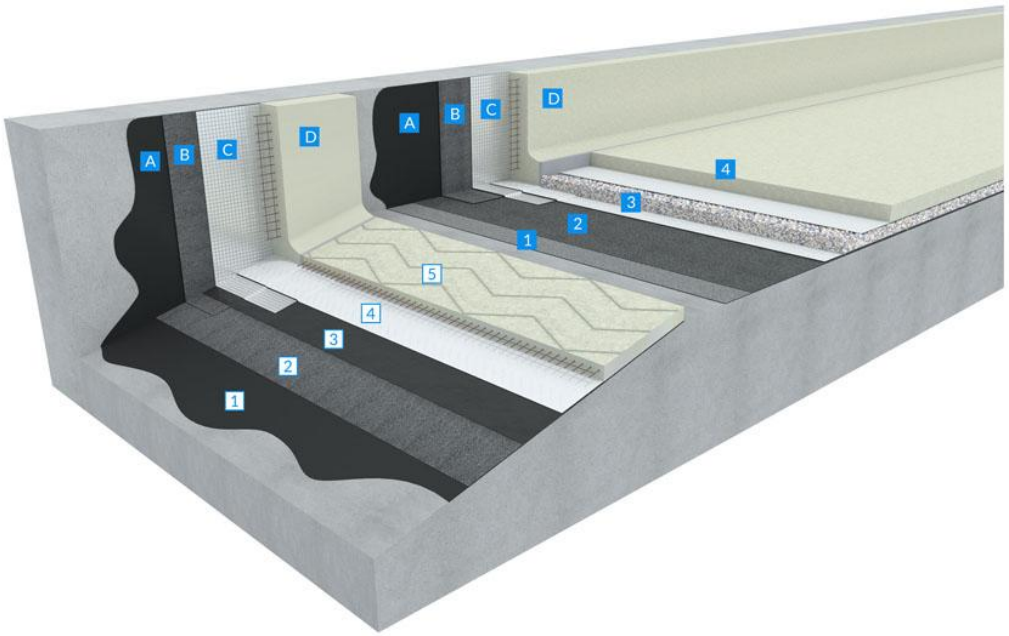
Car park decks with heavy protection
Double layer SBS bitumen waterproofing system:
PARADIENE JS R4 + PARADIENE BD S

Substrate & Use of roof	Finishing	Standard warm roof /Inverted roof
Concrete Vehicle accessible terraces, podium / plaza decks, car parks of the buildings such as: retail and commercial buildings, supermarkets, residences, leisure and hospitality, airports etc.	Reinforced concrete (heavy protection)	Without insulation **Please refer to the "Insulation" section in the document or contact us.*



- **Substrate**
  The load bearing structure (concrete) 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:**
  2-3 % for the main area, on a concrete deck (depending on the 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.
  - 5 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).
  Paradiene 35 S R4: Polyester-reinforced modified SBS elastomeric bitumen membrane with thermofusible film upper surface and sanded underside. Used as a first layer membrane for parapets, fully torched.
  Paradial S: 3.5 mm thick at the selvedge (thickness without aluminium foil self-protection), composite 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 two-layer system for non-accessible roofs. Thermo-fusible film on the underside, nominal width 70 mm at longitudinal selvedge. Fully torched on top of the Paradiene 35 S R4.
  OR alternatively, **Parafor Solo GS:** polyester-reinforced, 4 mm thick, modified SBS elastomeric bitumen cap sheet. Surface with coloured granules, grooved underside (patented system) with thermofusible film and the scarified fusible film on the selvedge. Fully torched.
  Protection of upstands/parapets: Wire meshed cement mortar.

- **Insulation***

  Thermal insulation boards allowed:

  - ➢ Expanded composite perlite with Technical Assessment covering this application. An appropriate design and execution study is necessary in the case of heavy vehicle parking.
  - ➢ Cellular glass insulation boards (in general without vapour barrier) with Technical Assessment covering this application.

  The insulation shall always be bonded with hot bitumen, full adhesion. The vapour barrier (under perlite insulation board) is Irex Profil, welded to Siplast Primer.

  Note: No thermal insulation board is allowed in case of protection by poured asphalt or macadam. Consult the supplier's technical documentation and local regulations.

- **Waterproofing, drainage & protection layers**

  Paradiene JS R4: 2.5 mm thick, modified SBS elastomeric bitumen membrane with polyester reinforcement, self-adhesive overlaps that protects the insulation from the torch flame, as an underlayer of a loose-laid two layer system under heavy protection. Thermo-fusible film on the underside, sanded on the upper surface. Loose-laid, self-adhesive overlaps.

  Paradiene BD S: 2.5 mm thick, glass-reinforced, torch-applied modified SBS elastomeric bitumen membrane for use as a base layer or cap sheet with additional protection. Thermo-fusible film on the underside, sanded on the upper surface. Fully torched on top of the Paradiene JS R4.

  Drainage layer: Drainage layer is provided with 30 mm thick gravels (3/15) between 2 layers of **Canopia Filtre** (nonwoven geotextile).

  1st layer of Canopia Filtre loosely laid + 30 mm thick gravel layer + 2nd layer of Canopia Filtre.
  OR alternatively, **Draina G10:** drainage and separating layer to apply under heavy ballast made of concrete screed, prefabricated slabs of concrete or hard stone.

  Protection: Reinforced concrete complying with local technical standards and scope of application.

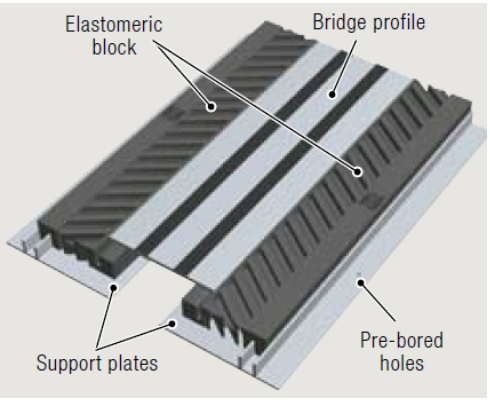
  Waterproofing for Access Ramp: slope from 3% to 18%

  - **Siplast Primer** applied horizontally (the main area) and vertically (upstands)
  - Underlayer membrane **Paradiene 35 S R4** fully torched on the main area (for upstands: also torched **Paradiene 35 S R4** as underlayer)
  - Cap sheet **Paradiene S R4** fully torched onto the Paradiene 35 S R4 on the main area (for upstands: **Paradial S** as cap sheet onto Paradiene 35 S R4 on the parapets)
  - Separation layer on the main area: **Canopia Filtre** (200 g/m² non-woven polyester fleece) + **Topfoil** (PE sheet) loosely-laid
  - wire meshed cement mortar for ramp upstands protection

- **Expansion Joints for car parks**

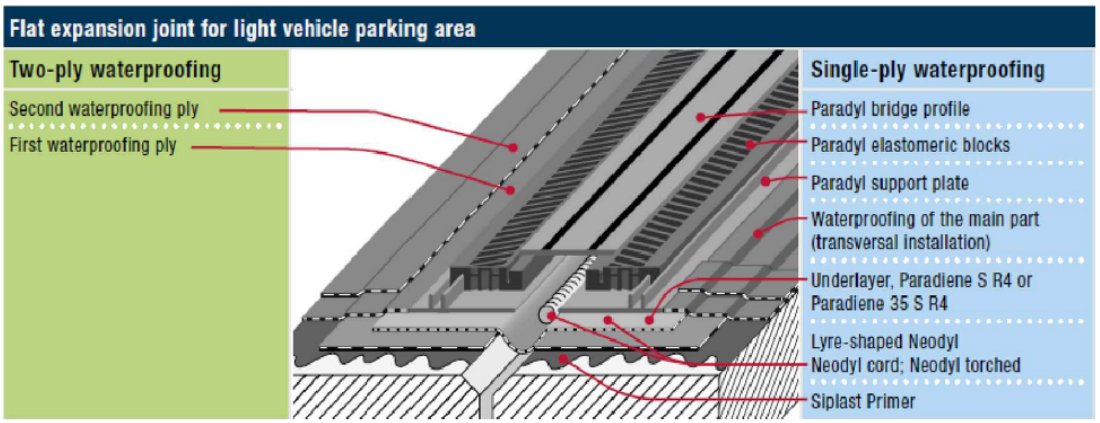
PARADYL System: Protection system on the waterproofing of flat expansion joints for *light vehicles* traffic (loads ≤ 2t per axle) and suitable for parking areas with occasional access for fire fighting vehicles and trucks. Paradyl flat expansion joint, built in compliance with the Paradyl ATEx in association with the Neodyl system.

The flat joint seal is protected by PARADYL system: supporting plates of pultruded resin, supplemented by vulcanised elastomeric blocks with differentiated deformability, fitted onto the support plates plus installation of the pultruded resin covering bridge, fitted onto the elastomeric blocks.



Installation: Installing the Paradyl joint requires a careful preparation of the substrate that is to be flat (flattening down when necessary with resin mortar, planing, etc.). For the installation, refer to the installation manual that comes with each kit of 1m:

- **SIPLAST PRIMER** applied on concrete on both sides of the expansion joint opening.
- **PARADIENE 35 S R4** (polyester reinforced modified SBS elastomeric membrane), fully torched on SIPLAST PRIMER on both sides of the expansion joint opening
- **NEODYL**, non-reinforced SBS joint with 1000% of elongation is fully torched above PARADIENE 35 S R4 bridging the expansion joint opening
- **NEODYL Cord** (Butyl cord) is placed in the V-shaped joint.



- **Details**

  All details shall be finalised 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).