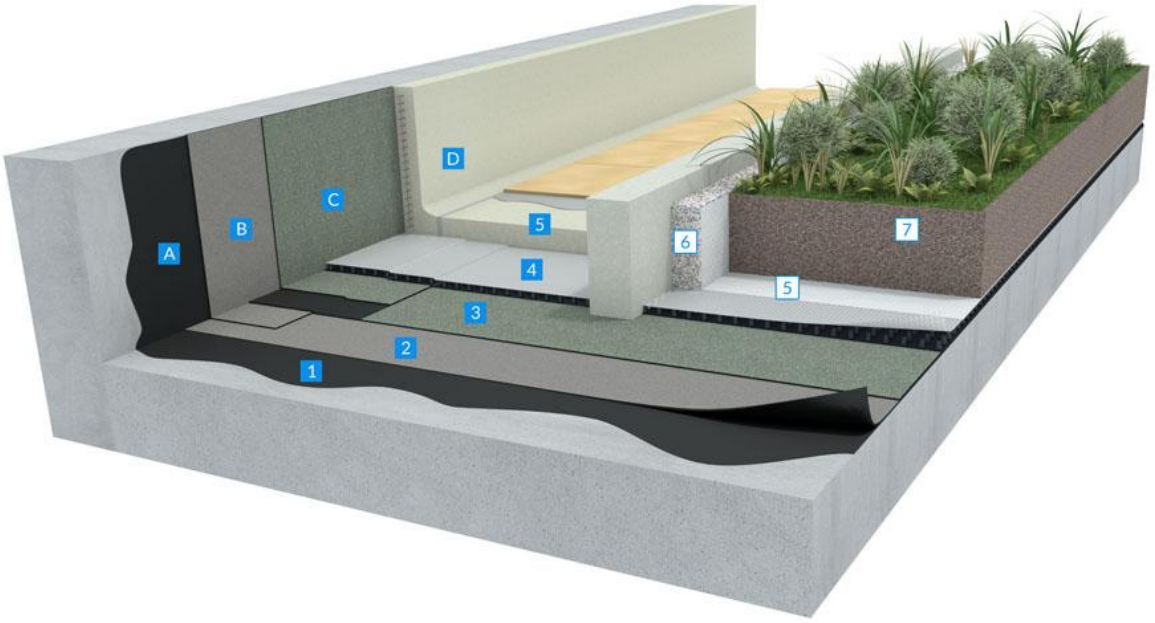
Accessible multi-use terraces & podium roofs with planted areas
Double layer SBS bitumen waterproofing system:
PREFLEX + GRAVIFLEX

Substrate & Use of roof	Finishing	Standard warm roof / inverted roof
Concrete Use: Heavy pedestrian traffic for multi-usage areas such as; roof gardens, multi-use rooftops and podiums with planted areas	Paving tiles & Planted areas	Without thermal insulation



- **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:**
  2 - 5 % on concrete decks (depending on the type of terrace, please contact the BMI Technical Department).
  - Water pounding areas shall be identified clearly.
- **Levels**:
  Tolerances for planarity shall be:
  - 7 mm with a 2 meters straight edge
  - 2 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:
  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).
  Preflex: Polyester-reinforced, 3 mm thick modified SBS elastomeric bitumen underlayer membrane for upstands on roof gardens, green roofs and accessible flat roofs for pedestrians or light vehicles. Thermofusible film on both sides. Fully torched on primer.
  Graviflex: Polyester-reinforced, modified SBS elastomeric bitumen cap sheet membrane with anti-root additive for roof garden waterproofing. Upper surface is protected with slate flakes, thermofusible film on the underside. Nominal thickness on the longitudinal selvedge: 3.2 mm. Fully torched on top of the Preflex.

  Vegetation-free disconnection zone (steril zone) between parapets and soil is carried out with gravel (or with Draina G10 and/or Canopia Drain boards for surfaces <100 m² with Canopia Filtre).

- **Waterproofing**
  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).
  Preflex: Polyester-reinforced, 3 mm thick modified SBS elastomeric bitumen underlayer

membrane for upstands on roof gardens, green roofs and accessible flat roofs for pedestrians or light vehicles. Thermofusible film on both sides. Fully torched on primer.
Graviflex: Polyester-reinforced modified SBS elastomeric bitumen root resistant cap sheet for double layer waterproofing systems, used for waterproofing of green roofs/roof gardens or flat roofs with different uses: planted areas, access for pedestrians, access for light vehicles. Upper surface is protected with slate flakes, thermofusible film on the underside. Nominal thickness on the longitudinal selvedge: 3.2 mm. Fully torched on top of the Preflex.

The GRAVIFLEX System comprises two waterproofing membranes: Preflex and Graviflex bonded together by torching. It is a universal system for different uses on the same flat roof or podium/plaza decks that can be used on a combination of areas: roof gardens for pedestrians, blue roofs, access for light vehicles, inaccessible areas with gravel or self-protected.

- **Separation & Protection layers**
  Draina G10: Composite drainage and separation layer with embossed form made from polypropylene and covered with a permeable non woven polyester filter layer. It is used:
  - as a separating layer between the waterproofing and the heavy ballast made of concrete screed, prefabricated slabs of concrete or hard stone.
  - as a drainage and filtering layer in green roof systems with slope < 20% and including no puddling (depression) more than 10 mm deep.

  Canopia Filtre: 200 g/m2 non-woven polyester fleece used as a protection layer on green roofs between the drainage layer and substrate (soil) and/or separation layer between peddle strips and substrate. Loose-laid horizontally on top of drainage boards before the substrate and vertically along the upstands when necessary.

  Protection with **soil and landscaping** for planted areas. For pedestrian zones, **Cement screed or concrete slab**: complying with local technical standards and scope of application (1.5 to 5% slope).

  In this case, circulation zones should be disconnected from the planted areas by placing or constructing low walls on-the-site. For on the site application of low walls, please consult the detailed technical documentation or contact our technical department.

- **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 Paradial S torched or Supradial GS; or protective slabs).

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. For more information please consult the **"Roof Details and Connections".**

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** (⌀ 30 mm) in the lyre of Joint Neodyl strip
- ➔ Protection: **GRAVIFLEX**, root-resistant modified SBS elastomeric bitumen membrane as finishing layer, torched with a height at least 0.15 m on each side.

- **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).

All other planted area details, dilatation joints etc..please consult the detailed green roof catalogues, technical documents, installation manuals or contact directly the BMI Technical Department.