

Bridge Deck Waterproofing - Membranes

Bituthene® 5000 & Bitushield™

Two layer, self adhesive waterproof sheet membrane and protection system for application under sand carpet and hot rolled asphalt

Description

Bituthene® 5000 and Bitushield™ is a combined, flexible bridge deck waterproofing and protection system. The system is designed for use under red tinted sand asphalt protection and hot rolled asphalt.

Bituthene® 5000 is a preformed, cold applied sheet membrane 1.6mm thick overall, comprising a self-adhesive rubber/bitumen compound, protected with a silicone release paper, with a polypropylene mesh carrier film and is supplied in 1.0m x 20.0m long rolls.

Bitushield™ is a preformed, cold applied, non-woven polyester reinforced protection membrane 3.0mm thick overall, comprising a self-adhesive rubber/bitumen compound protected with a release film, laminated to a robust green mineralised felt with a 75mm wide self-adhesive selvedge in 1.00m x 6.00m long rolls.

Installation

Preparation

The installation of Bituthene® 5000 and Bitushield™ should only be carried out when the ambient temperature is above +4°C or +4°C and rising.

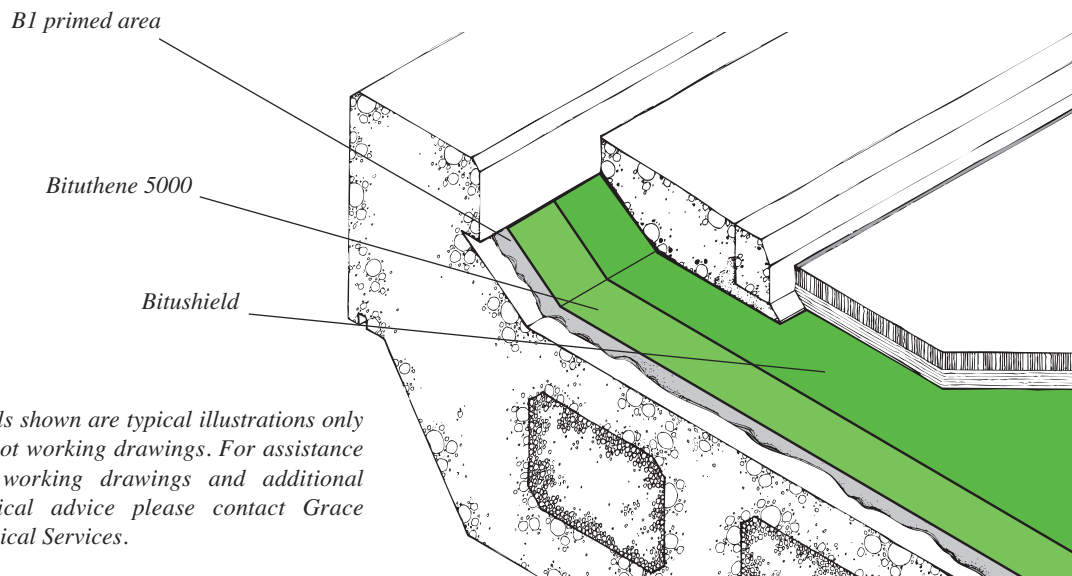
The concrete surface must be clean, dry, free from laitance, loose aggregate and other debris and contaminants. The concrete should present a true surface to Highways Agency Specification for Highway Works 1991, Clause 1708.4 (ii), Class U4. Abrupt irregularities greater than 3mm should be knocked back or filled with a high strength mortar.

Priming

Horizontal and vertical faces shall be primed with Primer B1 applied by brush or roller at a rate of 10-12 sq metre per litre depending on the porosity of the surface, and allowed to dry completely before the application of the Bituthene® 5000.

Laying Bituthene® 5000

Bituthene® 5000 shall be laid longitudinally to the deck, to suit the cross falls and to give weathered overlaps. Adjacent rolls are aligned and overlapped 100mm minimum and the overlaps should be well rolled with a firm pressure using a Lap Roller to ensure complete adhesion and continuity between the layers. Gentle heat between layers will assist in promoting overlap adhesion and is required if not directly surfaced with hot rolled



Details shown are typical illustrations only and not working drawings. For assistance with working drawings and additional technical advice please contact Grace Technical Services.

Advantages

- Cold applied - no heating plant or hot bitumen bedding adhesive required.
- Flexible - easily applied, conforms to changes in profile, accommodates shrinkage cracks up to 0.6mm.
- Robust - accepts road laying machinery.
- Pre-formed - guaranteed thickness, not subject to site variation.
- Mesh reinforced - provides dimensional stability and resistance to damage.
- Rubber/bitumen - self-adhesive, to substrate, lap integrity achieved by application of hot finishes.



materials. Overlaps should be staggered to avoid more than three layers of membrane at any point.

Bitushield

The Bituthene® 5000 should be inspected and any damaged areas patched with a further layer of Bituthene® 5000 to give 100mm overlap around the area before applying the Bitushield™ protection layer. In adverse conditions of low temperature or humidity the use of warmth will assist adhesion.

The Bitushield™ is laid in a similar manner to the Bituthene® 5000 by unrolling the self-adhesive face downwards. All longitudinal lap joints should be staggered with the lap joints in the Bituthene® 5000 and each length of Bitushield should be lapped on to the 50mm selvedge of the previous length.

End laps should be made by wire brushing or scraping away a 75mm band of the mineral finish and lapping the next roll on this prepared surface. The Bitushield™ should be well rolled paying special attention to lap joints, to ensure complete and continuous adhesion to the Bituthene® 5000.

Terminations and Day Joints

Permanent edges of the Bituthene® 5000 and Bitushield™ should be terminated into a chase below finishes and pointed with Bituthene® Mastic. Day joints or temporary stop ends should be left with staggered layers between the membrane and protection layer, and carefully rolled and sealed with a bead of Bituthene® Mastic to prevent the entry of moisture under the membrane.

Application of Base and Wearing Course

Base and wearing courses should be applied as soon as possible after a minimum of four hours. Highways Agency Specification for Highway Works 1991, Clause 901.9 states that bituminous material with a temperature greater than 145°C, shall not be laid or deposited on bridge deck waterproofing systems, unless precautions against heat damage have been approved by the engineer.

The interface temperature of the sand asphalt should not be permitted to fall below 100°C to ensure good key and adhesion to the Bitushield™.

It is important that the waterproofing is not allowed to reach temperatures in excess of 145°C. In practice asphalt laid at higher temperatures (175 - 180°C) cools immediately to an acceptable 140°C or less interface temperature. In the event of ambient temperatures exceeding 35°C, it may be necessary to lay the sand carpet by hand or to restrict machine operations to specific times of day.

Health and Safety

There is no legal requirement for a Material Safety Data Sheet for Bituthene® 5000, Bitushield™, Aerofil, Serviseal Type B or Bitustik.

For health and safety questions on these products please contact Grace Construction Products Limited.

For Primer B1 and Bituthene Mastic read the product label and Material Safety Data Sheets (MSDS's) before use. Users must comply with all risk and safety phrases. MSDS's can be obtained from Grace Construction Products or from our web site at www.graceconstruction.com.

Specification Clause

Bituthene® 5000 preformed self adhesive membrane shall be laid onto smooth concrete primed with Primer B1, and applied sticky side downwards to give 100mm well rolled overlaps, protected with Bitushield™ with staggered laps between layers, minimum 50mm side and 75mm end laps, and laid strictly in accordance with the manufacturer's instructions and supplied by Grace Construction Products Limited,

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Supply

Bituthene® 5000 STD

1.0 m x 20.0 m roll (20.0 sq m)

Weight of roll 40 kg gross

Palletisation 15 rolls per pallet

Bitushield™ STD

1.0 m x 6.0 m roll (6 sq m)

Weight of roll 32 kg gross

Storage Store upright in dry conditions below +35°C

Ancillary Products

Primer B1 5 and 25 litre drums. Coverage depending on method of application, surface texture, porosity and ambient temperature 10-12 sq m per litre

Bituthene® Mastic 4.5 litre can

Complementary Materials

Aerofil™ 1 Expansion joint filler board. See separate data sheet

Serviseal™ Type B 230mm wide PVC extrusion for ± 5mm buried expansion joints

Bitustik, double sided tape 150mm x 10m rolls wt 2.3 kg

Mechanical Joints

Equipment by Others

Brush or airline for cleaning surface, Stanley knife for cutting Bituthene 5000 and Bitushield, soft broom, paint brush or roller for priming. Hot air gun or gas torch for sealing overlaps.

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