BITUTHENE® 5000

Composite membrane incorporating high performance moisture and water-resistant rubberised asphalt with tough, puncture and heat-resistant polypropylene reinforcing mesh. Specially developed for use under a hot applied asphalt concrete wearing course.

Product Description

BITUTHENE® 5000, also known as Heavy Duty Bituthene, is a waterproofing material incorporating high strength, heat-resistant mesh embedded in a layer of self-adhesive rubberised asphalt. It is supplied in rolls interwound with special release paper which protects the adhesive surface until ready for use and allows easy handling during installation.

Features

- Cold applied — no heating or hot bitumen bedding adhesive required, self-adhesive overlaps provide continuity.
- Flexible — easily applied, conforms to changes in profile, accommodates shrinkage cracks up to 0.6mm.
- Robust — accepts road-laying machinery.
- Preformed — guaranteed thickness, not subject to site variation.
- Mesh reinforced — provides dimensional stability and resistance to damage.
- Rubber/bitumen — self-adhesive, elastic compound provides bonding and transmission of braking forces to substrate, allows healing of small punctures.

Application

Bituthene 5000 is supplied in rolls 1.00m wide, 20.0m long and in min. membrane thickness of 1.6mm and 2.0mm. The rubberised asphalt is covered with release paper that is removed during installation. The membrane is self-adhesive and cold applied. No special adhesive or equipment is necessary to form laps. Bituthene 5000 is an excellent waterproofing membrane for plazas, bridges, vehicular traffic structures, or parking decks to be overlaid with an asphalt concrete wearing course. It is adaptable for either new construction or repair applications.

Bituthene S5000 strips are recommended for the restoration of concrete pavements with asphalt concrete overlays to prevent premature deterioration of asphalt paving over the transverse and longitudinal joints caused by reflection cracking and sub-base erosion. Bituthene 5000 membrane will remain flexible to perform over the extreme range of service temperatures expected on plazas,bridges, and parking decks. Its toughness and flexibility allow it to cycle over small cracks, even during critical winter months.

The membrane is highly resistant to water and deicing salt solutions. Electrical resistance measurements on structures have been exceptionally high to indicate the effectiveness of Bituthene 5000 in preventing water migration into decks.

Installation

Surface Preparation

Smooth, monolithic concrete surfaces are required for proper membrane adhesion. Surfaces must be free of voids, spalled areas, loose aggregates, and sharp protrusions, with no coarse aggregate visible. Broom finishes must not be used. Concrete must be cured and dry before applications of Bituthene 5000.

Clean surface (broom, vacuum cleaner or compressed air) to remove dust, loose stones, and debris.

Priming

Apply Primer, Bituthene Primer, to all concrete or masonry surfaces with a lambswool roller (6 ~ 8m^2 per litre). Allow primer to dry one hour or until tack free. Prime only the area which will be covered with membrane in a working day. Areas not covered with membrane in 24 hours must be reprimed.

Temperature

Apply Bituthene 5000 waterproofing membrane only in fair weather when air and surface temperature are above +5°C.

Slab Drainage and Joints

Provide proper pitch to drains and gutters. Bituthene 5000 should be laid from the low point to the high point with the membrane overlapped min. 50mm in shingle fashion. Weep holes or drainage openings should be provided at the structural deck level to drain water which penetrates the asphalt concrete. A 320 mm reinforcing strip of Bituthene 5000 must be applied over nonworking joints or cracks not exceeding 3mm in width before applying the full coverage of membrane. Terminate Bituthene 5000 at expansion joints and seal terminations with Bituthene Mastic at the termination to ensure a tight seal. Steel finger joints or other expansion joints assemblies should be placed to the level of the asphalt concrete overlay.

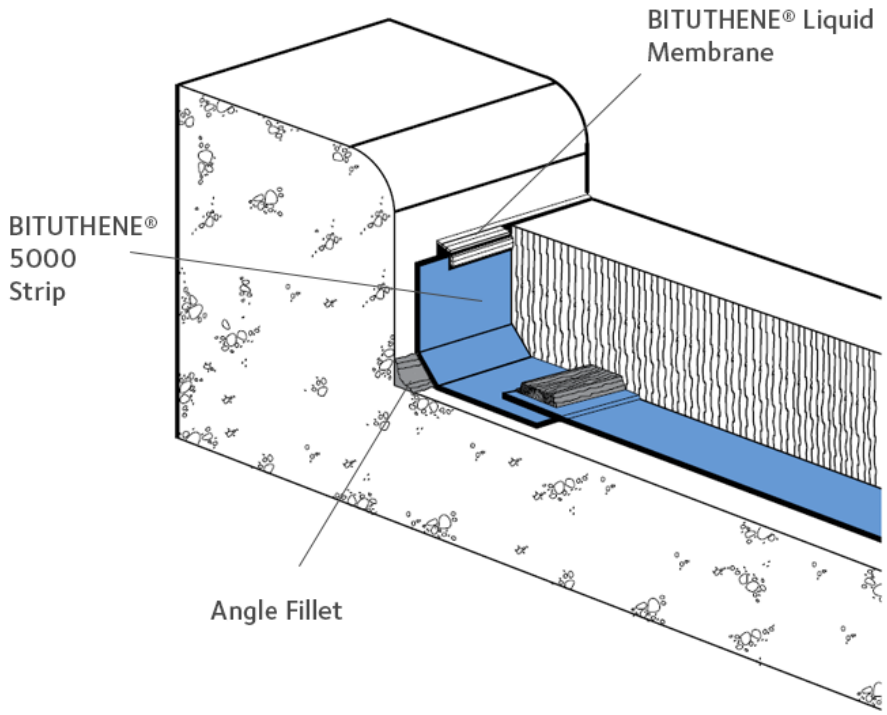
Kerb and Termination Edges

Kerb flashing strips should be applied to a joint just below the height of the asphalt concrete overlay and a minimum of 150 mm on the deck. Then apply the first full sheet as close as possible to the kerb. A fillet should be provided at the kerb and parapets to avoid a sharp break at these points. The fillet material (latex modified cement mortar) should be well adhered to the deck and kerb or parapet. Performed cant strips are not recommended.

Performance

PROPERTY	TYPICAL TEST VALUES	TEST METHOD
Thickness*	1.6 mm or 2 mm	-
Tensile Strength - Mesh	10N/mm^2	ASTM D882
Elongation - Ultimate Failure of Rubberised Asphalt	>100%	ASTM D412
Pliability at Low Temperature (-32°C)	No damage	ASTM D1970
Puncture Resistance - Mesh	>900N	ASTM E-154

Typical Test Values may represent average values from samples tested. Test Methods noted may be modified.



Supply

Bituthene 5000	.6mm thick - 1.0m wide x 20.0m long/roll 2.0mm thick - 1.0m wide x 16.0m long/roll
Weight	Gross weight 40kg
Bituthene Primer	18L / pail (6 ~ 8 sq m / L)
Bituthene Mastic	850cc cartridges / 3L cans

Compatibility

Bituthene 5000 is incompatible with certain fresh tars, pitches, liquid waterproofing, and sealants which contains tars or polysulfide polymer. Avoid direct contact of the adhesive layer of Bituthene 5000 or Bituthene Mastic with such systems.

Paving

The asphalt concrete overlay should be placed as soon as possible after application of Bituthene 5000, or Bituthene S5000. A minimum of 50 mm compacted overlay is recommended. The preferred asphalt concrete temperature in the paving machine hopper is 140°C to 160°C. Preformed protection courses such as roofing felts or asphaltic hardboard are not recommended. Paving must not be started following rain until the membrane surface is dry. Only asphalt concrete delivery equipment should be permitted on the membrane prior to placement of the asphalt concrete.

Flat tracked or pneumatic tire equipment may be used. In the event of skidding of the pneumatic tire machine during warm weather, broadcast a very small amount of fine sand or cement in the tire paths. Excess use of cement or sand could prevent adhesion of the asphalt concrete. Pavers should avoid stopping with a full hopper or build up of material in the auger. If a stop is necessary, use extreme care in restarting. Paver screeds should be preheated, but burners should not be on during paving.

Precautions

Care should be taken to minimise the possibility of pavement shoving on heavy traffic structures with more than a 4% grade. Bituthene S5000 strips over joints in T beam structures will not provide complete waterproofing. For such structures, 320mm strips, followed by membrane coverage over the entire surface are required to provide a complete waterproofing system.

Health and Safety

Refer to relevant Material Health and Safety data sheets.

Quality Assurance

GCP Applied Technologies is certified to ISO 9002 by TUV SUD PSB Pte Ltd..

Specification

All areas so designated shall be waterproofed with a minimum 1.6mm or 2.0mm thick self-adhering membrane of rubberised asphalt integrally bonded to polypropylene mesh (Bituthene 5000 manufactured by GCP Applied Technologies). Bituthene 5000 set pre-formed self-adhesive membrane shall be laid onto smooth concrete primed with Primer B1 and with minimum overlaps of 50 mm. Bituthene 5000 must be laid strictly in accordance with Manufacturers instructions and supplied by GCP Applied Technologies. For further information, contact your local GCP representative.

Technical Services

For assistance with working drawings for projects and additional technical advice, please contact GCP Applied Technologies.

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