

Bituthene[®] 6000

Heavy duty, preformed composite membrane combining a self-adhesive rubber/bitumen compound and a tough, puncture resistant 4 ply polyethylene waterproof laminate for waterproofing critical sub-structures and civil works.

Features

- Waterproof - capable of resisting a hydrostatic head when fully supported.
- Cross laminated - provides dimensional stability, high tear strength, puncture and impact resistance.
- Single layer - simple, reliable, low labour cost with benefit of site programmed installation.
- Cold applied - no heating, self-adhesive overlaps ensure continuity.
- Chemically resistant - provides effective external protection against aggressive soils and ground water.
- Flexible - accommodates minor settlement and shrinkage movement.
- Controlled thickness - factory-made sheet ensures constant, non-variable site application.
- Tanking security - combined flexible membrane and waterstop system for security.

Applications

Bituthene 6000 is ideal for waterproofing structural concrete and civil works such as airports, rapid transit systems, power plants, environmental projects and earth sheltered structures and may be used in lieu of Bituthene 3000 on basements and substructures that require extra tough waterproofing protection. Bituthene 6000 is a heavy duty, advanced, cold applied, flexible preformed waterproof membrane combining a special high performance 4 ply cross laminated, HDPE carrier film with a self-adhesive rubber bitumen compound. The heavy duty advanced carrier film is manufactured by cross laminating and chemically bonding the layers together, to produce a film with greatly improved

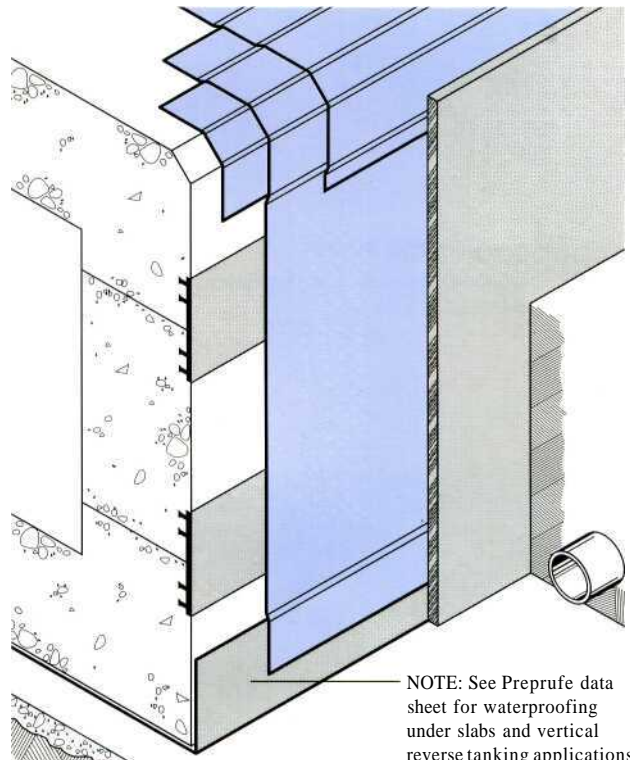
physical characteristics compared with traditional low density polyethylene films. Tear strength, puncture resistance and impact resistance are all increased to give a better factor of safety against accidental damage. When used in conjunction with Bituthene Preprufe membranes in reverse tanking applications and Serviced waterstops, cast into the concrete shell, it will provide a continuous waterproofing/tanking system for sub-structures and civil works.

It is supplied to sites in rolls 1.6mm thick, 1m wide and 20m long (20sq metres) and is unrolled sticky side down on to primed concrete slabs or vertical concrete faces. Continuity is achieved by overlapping 65mm and firmly rolling the joint. A guideline is printed on the membrane.

Applied to walls and to underground roof slabs, Bituthene 6000 will provide a continuous heavy duty moisture/waterproof barrier.

Being factory made, thickness of membrane is constant throughout and is not subjected to variations by site labour such as occur with brush applied materials. Bituthene 6000 is extremely flexible and well capable of bridging shrinkage cracks in the concrete and will accommodate minor differential movement throughout the service life of the structure.

Bituthene membranes should never be taken through load bearing brick/blockwork walls and must be linked with the damp-proof course to prevent extrusion under load.



NOTE: See Preprufe data sheet for waterproofing under slabs and vertical reverse tanking applications

Installation

Concrete blinding hardcore under base slab shall be surface dry, free from standing water, and laid to a regular surface free from sharp protrusions and hollows. Horizontal surfaces under base slabs do not require priming before applying the membrane, Bituthene 6000 to extend 300mm beyond line of retaining walls to allow continuity with the vertical application. Sloping or vertical faces shall be smooth, regular, dry and free from nails and primed with one coat of Bituthene Primer applied by brush or roller, at a rate of 6-8 sq metre per litre depending on the porosity of the surface, and allowed to dry completely before the application of the Bituthene. Brickwork shall be flush pointed or rendered to provide a smooth surface before priming.

Where Bituthene is to be left temporarily exposed on vertical surfaces, batten fixing may be necessary to prevent slippage. Prior to backfilling remove battening and cover fully with a subsequent layer of Bituthene. Bituthene 6000 shall be laid by peeling back the protective release paper and applying the adhesive face onto the prepared surface. The material should be brushed onto the surface to ensure good initial bond and exclude air. Adjacent rolls are aligned and overlapped 65mm minimum at side and ends and well rolled with a firm pressure using a Bituthene Lap Roller to ensure complete adhesion and continuity between the layers. Damaged areas to be repaired by patching with an oversize patch applied to a clean dry surface and firmly rolled.

Following the application, care should be taken to prevent damage by following trades by using Servipak boards spot bonded with Pak Adhesive or a 25mm screed as horizontal protection. Vertical faces to be protected against damage from backfilling and reinforcement by using Servipak or Korkpak spot bonded with Pak adhesive.

Backfill material should be compacted in layers to prevent settlement and dragging forces being transferred to the waterproofing systems.

Serviseal waterstops turned into wall and terminated 150mm above finish ground level

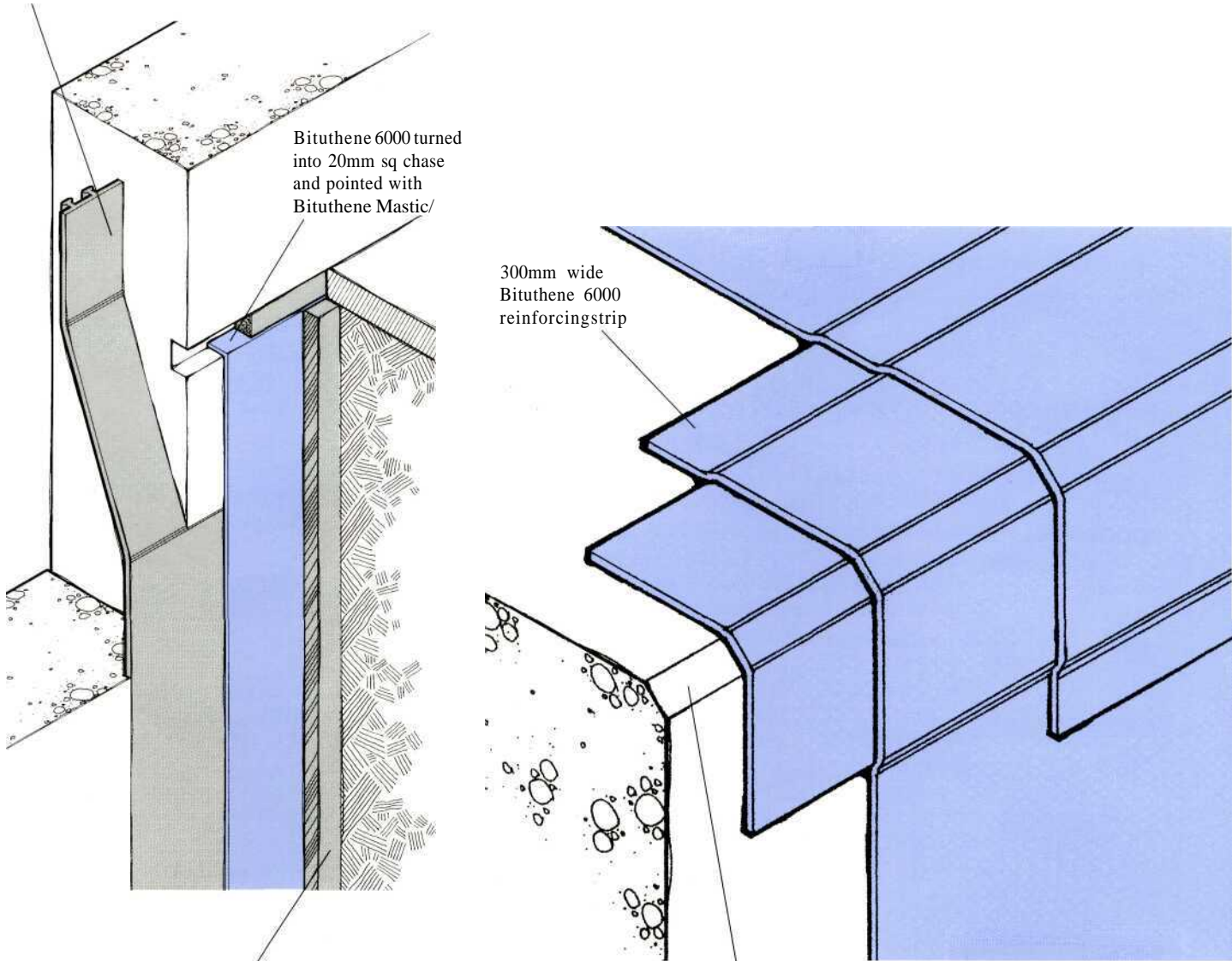
Bituthene 6000 turned into 20mm sq chase and pointed with Bituthene Mastic/

300mm wide Bituthene 6000 reinforcing strip

Servipak protection as required, spot bonded in position using Pak Adhesive.

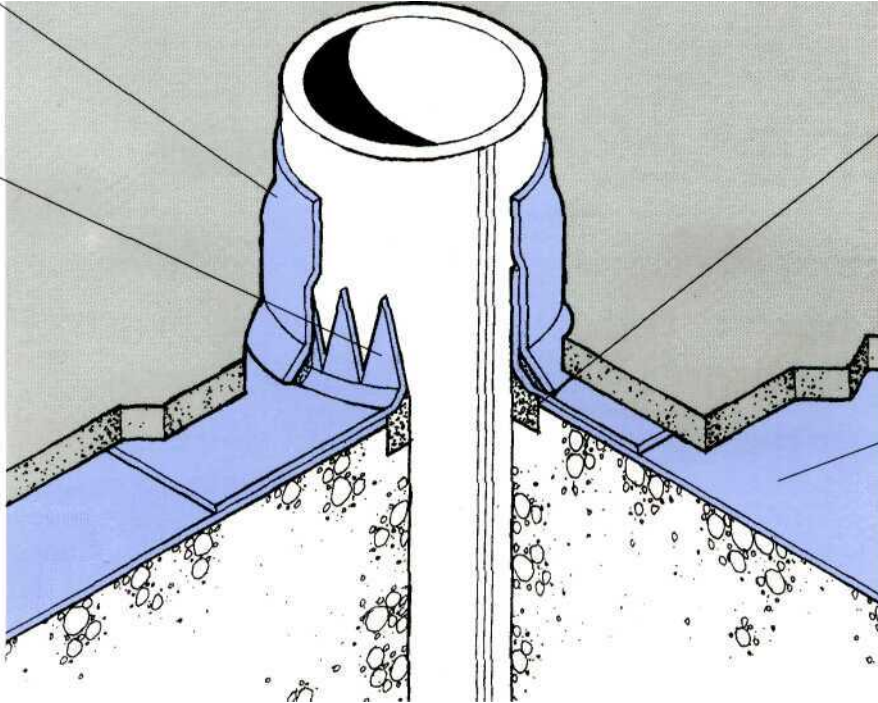
Termination of membrane at top of wall

External corners to have 25mm chamfer formed concrete to assist in dressing of Bituthene 6000



Bituthene 6000 collar worked around pipe

300mm sq 'Star-cut' Bituthene 6000 worked around pipe



Bituthene Mastic applied into 20mm sq chase formed around pipe

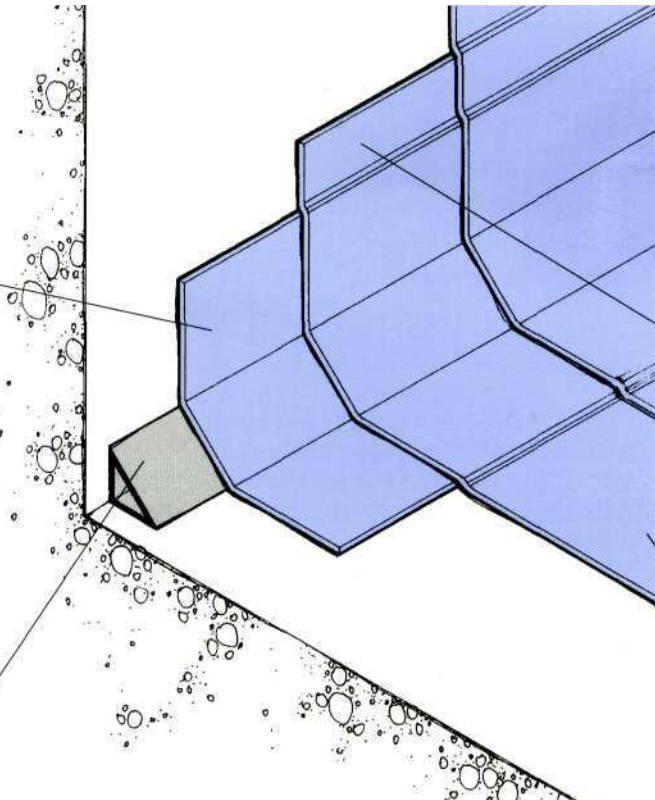
Bituthene 6000 applied overall onto primed concrete surface and accurately cut around pipe

Pipe through Slabs

A similar detail to this can also be used for pipes through walls

300mm wide Bituthene 6000 reinforcing strip

40mm Bituthene Fillet of mortar fillet to be formed into corner before applying 300mm wide Bituthene 6000 reinforcing strip.



Bituthene 6000 applied to primed vertical face with 65mm min above overlaps

Bituthene 6000 applied to primed surface with 65mm min. overlaps. Temporary batten supports may be necessary to secure membrane on high walls or where split phases of the application occur.

Internal Corner

Reverse tanking detail adopted when access from the outside is not possible or permanent block or concrete formwork used. Concrete or blockwork wall to be smooth and flat before priming with Bituthene Primer.

Supply

Bituthene 6000	1m x 20m roll (20 sq m) weight 38 kg gross
Storage	Store upright in dry conditions below 30°C
Coverage	6-8 sq metre per litre depending on method of application, surface texture, porosity and ambient temperature
Bituthene LM	15.1 litre pails
Liquid Membrane	5.7 litre pails
Bituthene B2 Primer (DampSurface)	25 litre pails 8-10 m ² /litre coverage
Bituthene Mastic	850cc cartridges, 3 litre pails
Bituthene Lap Roller	Unit

Complementary Materials

Servipak,	See separate data sheet
Servipak SA protection boards	for details
Pak Adhesive	5 litre can
Serviseal, PVC Edgetie, and Servitite waterstops	See separate data sheets for details
40mm Bituthene Fillet	Carton 25 x 1m lengths
Bituthene Preprufe 160 and 300	See separate data sheet for details

Equipment by Others

Soft broom, Stanley knife, brush or roller for priming.

Performance

Bituthene Membranes - typical performance properties

Property	Typical Values	Test Method
Colour	Dark Grey/Black	N/A
Tensile Strength (film only)	40,000 kN/m ²	ASTM D882
Tape Strength	10 N/mm	ASTM D412 (B5300 - D882)
Elongation of membrane (to ultimate failure of rubberised asphalt)	300%	ASTM D412
Lap adhesion @ 23°C	683 N/mm	ASTM D1876
Cycling over crack @ -32°C	no effect 100 cycles	ASTM C836-89a
Puncture resistance	490 N	ASTM E154-88
Resistance to Hydrostatic head	60 m	ASTM D5385
Impact resistance	18 kg - cm	ASTM G14
Tear resistance	44 N/mm	ASTM D624
Permeance	2 ng/m ² .s.Pa	ASTM E96 [12]

Typical values may represent average values from samples tested. Test methods may be modified.

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Health and Safety

Refer to relevant Material Health and Safety data sheets.

Quality Assurance

W. R. Grace (Singapore) Pte Ltd is certified to ISO 9002 Quality Systems by SISIR (Singapore Institute of Standard & Industrial Research) for the manufacture of Bituthene Waterproofing Membranes under the registered certification number ISO 93-2-0269.

Specification

Bituthene 6000 preformed membrane shall be laid onto smooth concrete blinding and primed vertical concrete walls by applying the preformed membrane, sticky side downwards to give well rolled 65mm overlaps, laid strictly in accordance with manufacturer's instructions and supplied by Grace Construction Products. For further information, contact your local Grace representative.

Guarantee

Bituthene products are warranted to be free of defects in manufacture for a period of ten years.

Flat Deck Waterproofing

Bituthene 6000 is suitable for use as a primary waterproofing membrane on a protected roof structure. Refer to Flat Deck Protection section.



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