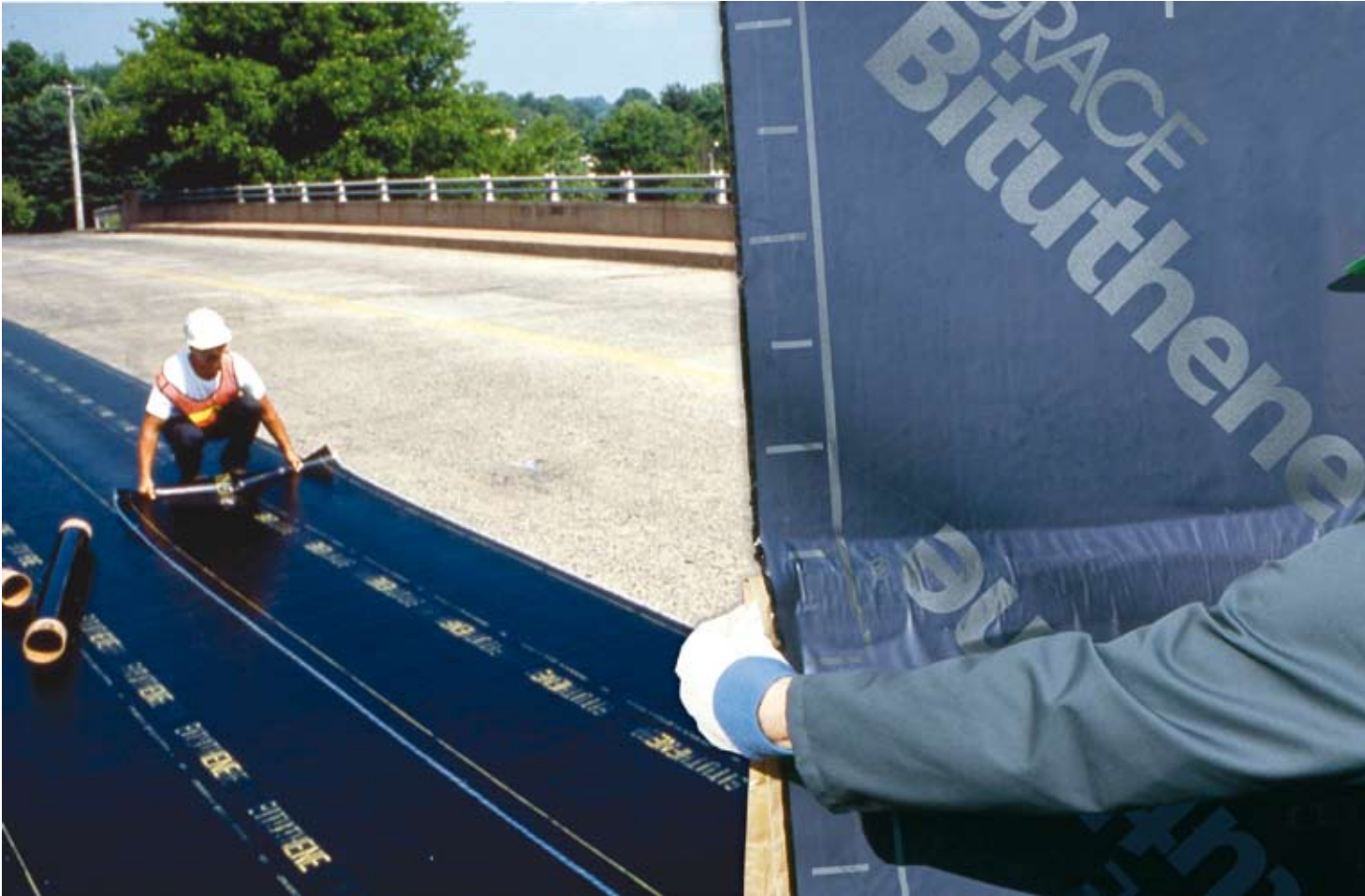


Bituthene® Waterproofing Systems

Use With Confidence





Self-adhesive, cold applied, flexible, fully bonded to the substrate, tough and high performance waterproofing membrane. These features and more describe the Bituthene® waterproofing membrane system.



Bituthene®

The best protection from the elements money can buy

Since its introduction more than 30 years ago by Grace Construction Products, a worldwide leader in the construction products industry, the Bituthene waterproofing membrane has been continuously improved becoming virtually the industry standard. It is the original self-adhesive membrane by which all other waterproofing membranes are measured against. More than 300 million square metres of Bituthene have been installed in projects all over the world.

Bituthene membranes are formulated to be applied and perform under a variety of temperature conditions. It is available in grades engineered for application in temperatures ranging from -4°C in North America and Europe, to 50°C in the Middle East, from hot dry desert conditions to humid conditions in Asia Pacific. Special grades for application to damp surfaces or green concrete, with special primers, are also available.

Supplied in easy-to-apply rolls, the Bituthene self-adhesive membrane installs quickly and cleanly without the hazards associated with hot

applied systems or the need for specialist equipment. It is manufactured to international standards in Grace plants around the world, including Singapore for the Asia Pacific market. The Singapore plant is certified to meet ISO 9000 quality standards, and undergoes annual audits by the Singapore Productivity and Standard Board to confirm continued compliance.

The Bituthene membrane, like all other quality building materials from Grace Construction Product, is supported by highly skilled and locally based field and technical service. This commitment to expert service and support, along with the product's superior performance, means that customers can specify and use the Bituthene membrane with confidence.

Product Features	Benefits
Self-adhesive	Full continuity at overlaps.
Cold applied	No flame hazard with no heating equipment required
Flexible	Accommodates minor settlement and shrinkage movement.
Cross laminated film	Provides dimensional stability, high tear strength, puncture and impact resistance.
Single layer	Simple, reliable, low labour cost with benefit of site programmed installation.
Controlled thickness	Factory-made sheet ensures constant, non-variable site application.
Chemically resistant	Provides effective external protection against aggressive soils and ground water.



Grace Waterproofing Systems - a package of innovative product systems

Grace's dedication to ongoing research programs has resulted in many innovative product solutions, which provide industry with a complete systems-based approach to waterproofing. In addition to the Bituthene membrane, Grace has introduced Preprufe® membrane for "blind side" waterproofing applications, Procor® liquid waterproofing and Grace Ice & Water Shield® self-adhered roofing underlayment.

Preprufe® is the ideal product for waterproofing below concrete slabs and behind in situ concrete basement walls on confined sites to give a positive tanking system. It is a simple to apply, loose laid sheet that forms a continuous mechanical bond to

concrete that is cast against it. The Preprufe membrane is permanently sealed to the structure - not the substrate. This prevents water migration and ensures the membrane is unaffected by ground settlement.

Procor® is a two component, synthetic rubber, cold vulcanized, liquid waterproofing membrane. It cures to form a resilient fully bonded elastomeric sheet. Procor contains no hazardous solvents and can be applied to damp or green concrete substrates. The easy and fast spray application of Procor helps to maximise project efficiency by cutting time and costs.

Grace Ice & Water Shield® is a self-adhered roofing underlayment that provides superior protection for

sloped roofs from the effects of ice dams. It also acts as a seal around fasteners and performs as a vapour barrier. For these reasons, Grace Ice & Water Shield is widely specified for use as an underlayment for low sloped metal roofs. It is an adjunct to the Bituthene technology but has special features to meet roof waterproofing demands.

Complementing Grace's waterproofing membranes is an extensive array of drainage, protection and other accessory products. They are all fully compatible with the Bituthene waterproofing membrane and form an integral part of Grace's waterproofing system.

The Bituthene[®] family

- membrane systems for the right application



Designed to keep water out, Bituthene waterproofing membranes have proven their versatility in a variety of applications. The comprehensive family of Bituthene membranes includes:

Product	Description	Usage
Bituthene 2000	Self-adhesive, cold applied membrane produced from rubber bitumen and cross laminated high density polyethylene.	Moisture/vapour proof membrane for damp proofing flat decks, slab on grade, wet rooms and non-critical applications.
Bituthene 3000	High performance, cold applied and self-adhesive membrane with 100 micron cross laminated HDPE film and rubber bitumen compound.	Waterproofing membrane for basements, substructures and flat deck applications.
Bituthene 5000	Heavy duty waterproofing membrane incorporating high strength, heat resistant mesh embedded in a layer of self-adhesive rubber bitumen.	Waterproofing membrane for plazas, bridges, vehicular traffic structures, or parking decks overlaid with an asphalt concrete wearing course.
Bituthene 6000	Heavy duty, cold applied and self-adhesive membrane with 20 micron cross laminated HDPE film and rubber bitumen compound.	Tough, high performance waterproof membrane for critical substructures and civil engineering works.

Specification: “Bituthene XXXX preformed membrane shall be applied to primed concrete surfaces, with 50 mm minimum overlaps to sheets, all being well rolled to provide full adhesion to the concrete surface. The Bituthene membrane will be applied strictly in accordance with the manufacturer’s instructions, and supplied by Grace Construction Products. For further information, contact the local Grace representative.”

Bituthene®

proves itself worldwide

The Bituthene waterproofing systems have been used in some of the finest structures around the world. Designers and specifiers all over the world choose Bituthene for their projects, because they know they can rely on Bituthene to do the job.



Bank of China,
Beijing, China



Dalian Olympic Plaza, Dalian,
China



Changsha New Century Sports Centre, Changsha, China



Siam Commercial Bank,
Bangkok, Thailand



Cathay Pacific City,
Hong Kong



Bank of China & Cheung Kong Centre,
Hong Kong



Rowes Wharf,
Boston, U.S.A



Victorian Arts Centre,
Melbourne, Australia



Parliament House,
Canberra ACT,
Australia



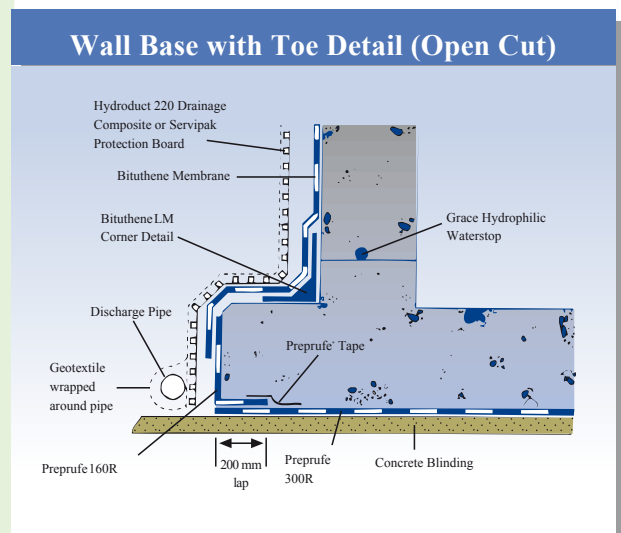
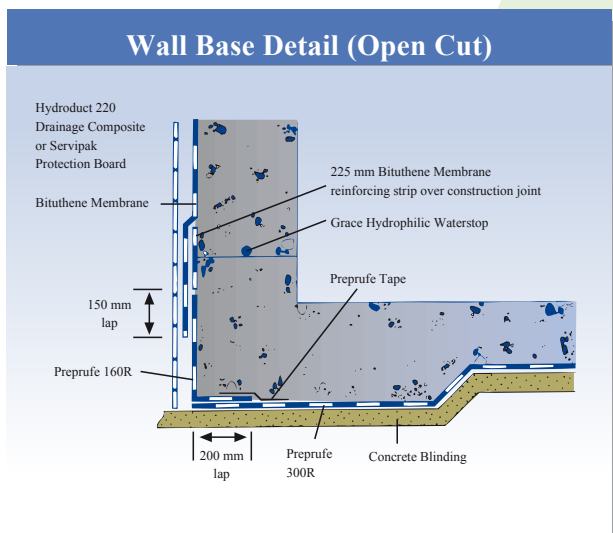
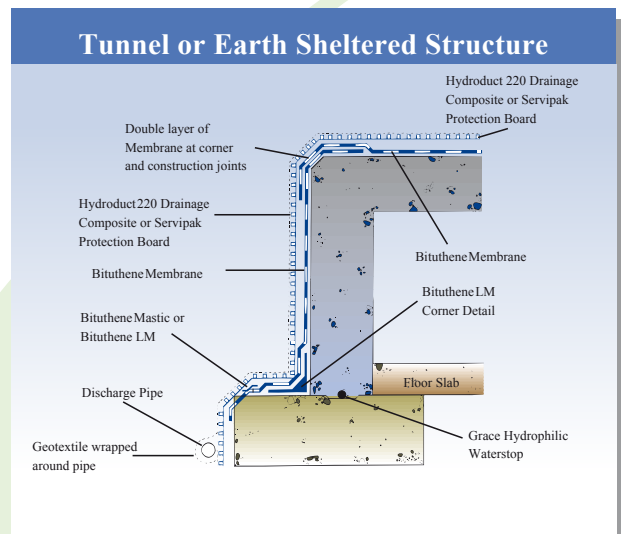
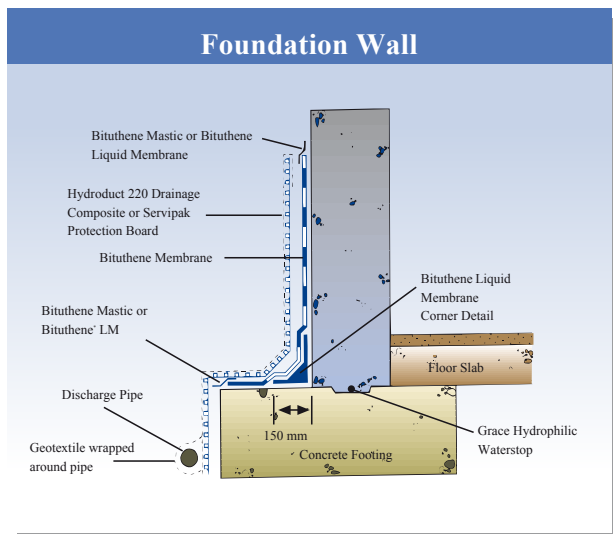
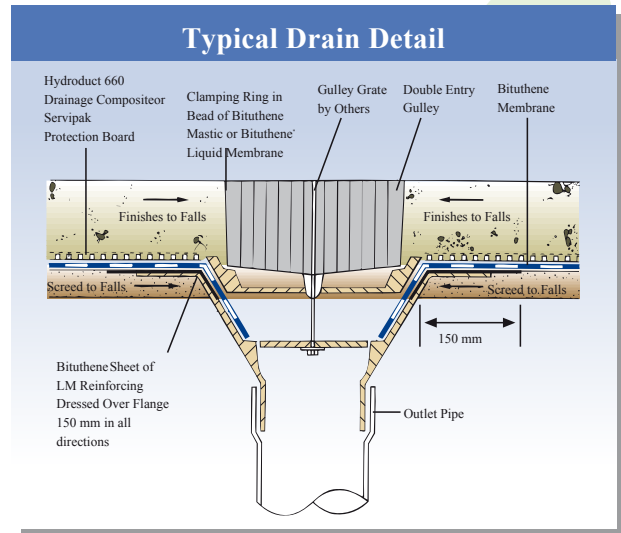
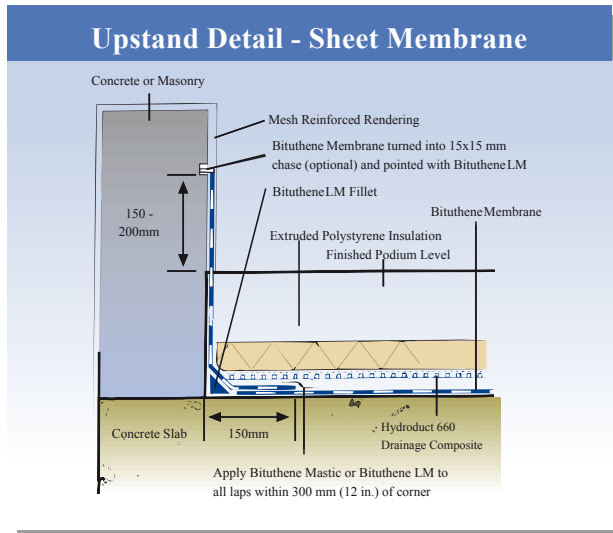
MRT Rail System,
Singapore



Parliament House,
Singapore

Detailing Guide

These are typical details covering a number of installation procedures for Bituthene waterproofing membrane. A full set of details is available upon request from your local Grace representative. Our waterproofing specialist can also assist in the development of details for specific application situations.



Product Characteristics Chart

Product / Property	Unit	Bituthene 2000	Bituthene 3000	Bituthene 5000	Bituthene 6000	Test Method
TYPICAL PERFORMANCE PROPERTIES						
Colour		Dark grey / Black	Dark grey / Black	Black	Dark grey / Black	N/A
Nominal Thickness	mm	1.00	1.50	1.60	1.60	N/A
Roll Length, 1 metre wide	m	30	20	20	20	N/A
Film Type & Thickness		0.1 mm cross-laminated polyethylene	0.1 mm cross-laminated polyethylene	Heat resistant Polypropylene mesh	0.2 mm cross-laminated polyethylene	N/A
Tensile Strength (Film Only)	kN/m ²	40,000	40,000	50,000	40,000	ASTM D882
Tape Strength	N/mm	5.10	5.10	15.00	10.00	ASTM D412
Elongation of membrane to ultimate failure of rubberised asphalt	%	150	300	100	300	ASTM D412
Lap Adhesion @23 deg.c.	N/m	648	683	N/A	683	ASTM D1876
Cycling over crack @-32 deg.c.		No Effect 100 cycles	No Effect 100 cycles	N/A	No Effect 100 cycles	ASTM C836-89a
Puncture Resistance	N	250	250	900	490	ASTM E154-88
Resistance to hydrostatic head	m	5	60	N/A	60	ASTM D5385
Permeance	ng/m ² .s.Pa	Less than 2.0	Less than 2.0	N/A	Less than 1.5	ASTM E96 [12]

- Other specialised Bituthene membranes are available, which have been designed to meet specific criteria, such as resistance to passage of methane gas, e.g. Bituthene 8000.
- Light grey film Bituthene for enhanced solar reflection, and methane resistance, **Bituthene 3000 (W)**.
- The able grades are also available, using a modified compound for application in low temperature conditions, down to -4 deg.c., e.g. **Bituthene 3000(LT)**.
- **Bituthene 374**, complies with the requirements of Singapore Standard SS 374:1994, “Specification for Preformed Waterproofing membrane for Concealed Roofs”.
- **Bituthene 3000** and **6000** membranes provide very high electrical resistance, to alternating and direct current, and have found wide usage in Mass Transit Rail and Light Rail applications.

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