

POLYMAT

POLYMAT are APP (atactic polypropylene) modified bitumen sub-structure waterproofing membranes reinforced with strong spun bond non-woven polyester, and surfaced with PE film on both sides (PBS). POLYMAT membranes are supplied in rolls 1 meter wide and 10 meters in length.

QUALITY ASSURANCE & MATERIAL WARRANTY

Imperbit Membrane Industries' Management system is registered to ISO 9001 standards & all **POLYMAT** membranes carry a 10 year material warranty. In addition to stringent regular test by IMI laboratory, our products are also tested periodically by independent laboratories.

USES

POLYMAT membranes are designed for the protection of concrete substructures, such as manholes, chambers, lift stations, etc, where waterproofing of concrete surfaces in the presence of hydrostatic pressure and from corrosive ground-water is necessary.

TOOLS FOR FIXING THE MEMBRANE

Gas torch for welding, related cylinder, knife for trimming the membrane, a trowel with a rounded tip, marking aids, hand gloves, and safety goggles.

APPLICATION OF WATERPROOFING SYSTEM

Surface Preparation

The concrete surface to be waterproofed shall be dry and completely cleaned to remove any contamination from dust, sand, dirt, oil or grease, loose aggregate and debris etc. The surface meant to receive the waterproofing membrane shall be smooth and free of protruding nibs, nails or sharp protrusions. All voids, cracked concrete surfaces, chipped and spalled areas shall be made good. Pre-formed/cast indentations in manhole used for handling/lifting concrete sections shall be smoothed by filling in mortar.

Preparation of internal and external corners:

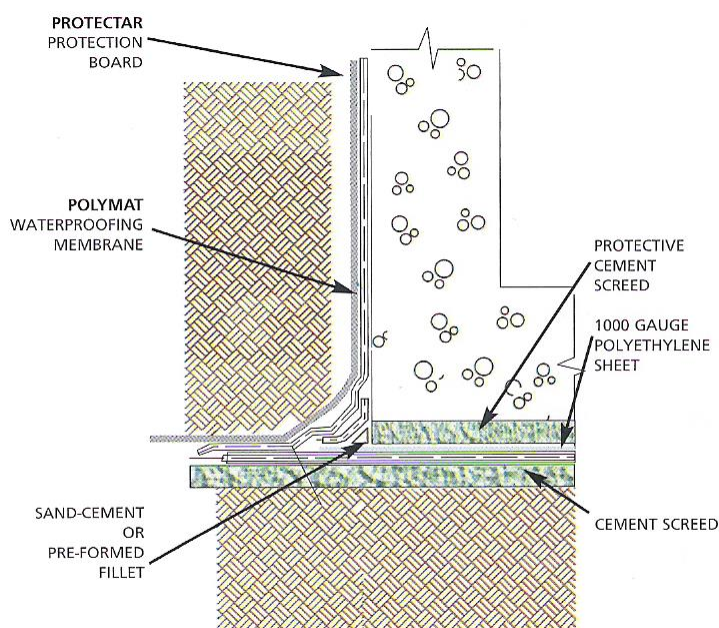
- * All external corners to be chamfered to remove sharp edges.
- * At all internal corners at 30 x 30 mm fillet of sand-cement shall be prepared, alternately pre-fabricated fillets or bituminous mastic fillets may be used.

METHOD OF APPLICATION

HORIZONTAL AREAS

a) IMI-Concrete-Primer (ASTM D 41) well stirred at site shall be applied to the blinding concrete at a rate of 200-300 gr/m² and depending on the porosity of the concrete surface. The primer is to be applied evenly using a brush or roller. Areas that appear lighter should be re-coated. The primer shall be allowed to dry until 'tack-free'. A primed area that is over a week old should be re-coated.

b) A 300mm strip of **POLYMAT** Waterproofing Membrane shall be used as reinforcement strip at every internal or external corner. This will later be followed by the full width of the membrane.



- c) One layer of POLYMAT waterproofing membrane reinforced with a non-woven spun bond polyester core is applied to the printed concrete surface.
- d) The membrane is fully bonded to the concrete substrate by torching. Side laps of 100mm and end laps of 150mm are formed. All side and end laps will be fully torched so that a bead of molten bitumen appears at the seam. This bead shall be smoothed using a rounded tip trowel.
- e) The membrane is extended about 300mm horizontally beyond the structure limit for further lapping with vertically installed membrane.

VERTICAL AREA

a) The vertical concrete surfaces shall be clean, dry and free from protruding nibs and nails. Any voids in the concrete surface shall be made good. Cracked surfaces, spalled areas and any pre-formed indentations for handling purposes shall be smoothed out using mortar where applicable. All external corners are to be chamfered and angle fillets formed with sand-cement mixture are provided at all internal corners. Alternately pre-formed angle fillets may be used.

b) IMI-Concrete –Primer (ASTM D 41) shall be applied on the concrete surface at the rate of 200-300 gr/m² depending on the porosity of the concrete. The primer is to be applied evenly on the substrate using a roller or brush. The primer shall be allowed to dry until 'tack-free'. Primed areas left exposed for periods exceeding a few days are to be re-coated.

c) Every internal or external corner shall be reinforced with a 300mm wide strip of **POLYMAT** Waterproofing Membrane prior to the installation of the waterproofing system.

d) All membrane corners and angles shall be fully torched. Any void or air gap must be corrected if found. (by cutting, opening, patching with 150mm overlaps each side of cut)

e) One layer of **POLYMAT** Waterproofing Membrane, reinforced with a robust spun bond non-woven polyester core is applied to the tack-free primed concrete surface.

f) The membrane is fully bonded to the substrate by torching evenly, forming 100mm side laps and 150mm end laps. All side and end laps will be fully bonded by torching so that a bead of molten bitumen appears at the seam. This bead shall be smoothed using a rounded tip trowel.

The vertically installed membrane is brought down, laid over the reinforced cant (fillet) and dressed (using a star detail) over the extended portion of the horizontal membrane. Here the membrane ends (vertical and horizontal) shall be fully bonded by torching. The bead of molten bitumen that appears at the seam is smoothed using a rounded tip trowel.

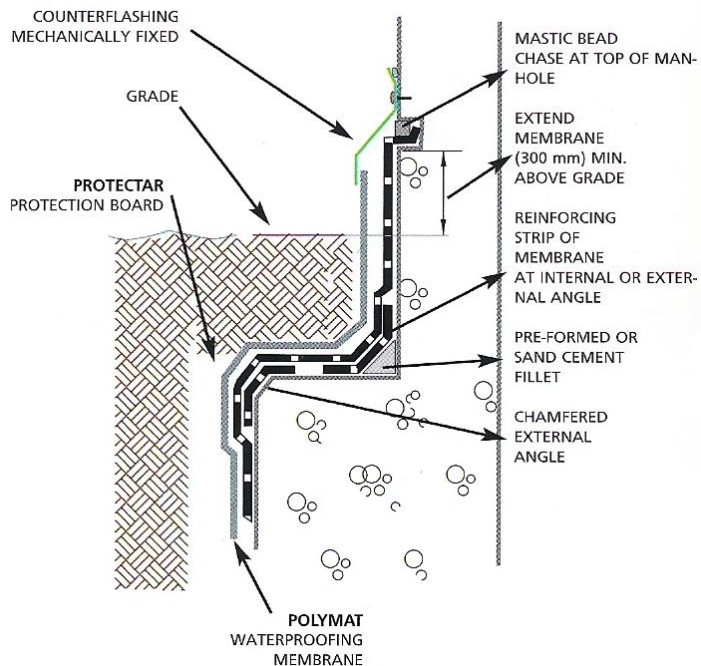
PROTECTION OF MEMBRANE – HORIZONTAL AREA

The horizontal area membrane is protected by a 50mm thick protective screed placed over 1000-gauge polyethylene sheet.

Care should be taken to prevent any damage to the membrane while installing the protection screed.

PROTECTION OF MEMBRANE – VERTICAL AREA

The vertical area membrane shall be protected by PROTECTAR, heavy-duty semi-rigid flexible protection board. PROTECTAR protection boards are wrapped around the waterproofing membrane and spot bonded to the membrane using bituminous mastic. Alternately these may be held in position by spot bonding using a gas torch. At the top, the protection layer is held against the substrate by aluminum counter flashing system. The installation of protection boards shall be carried out at the earliest to ensure that the membrane is not left exposed to site abuse and abrasive back-fill materials.



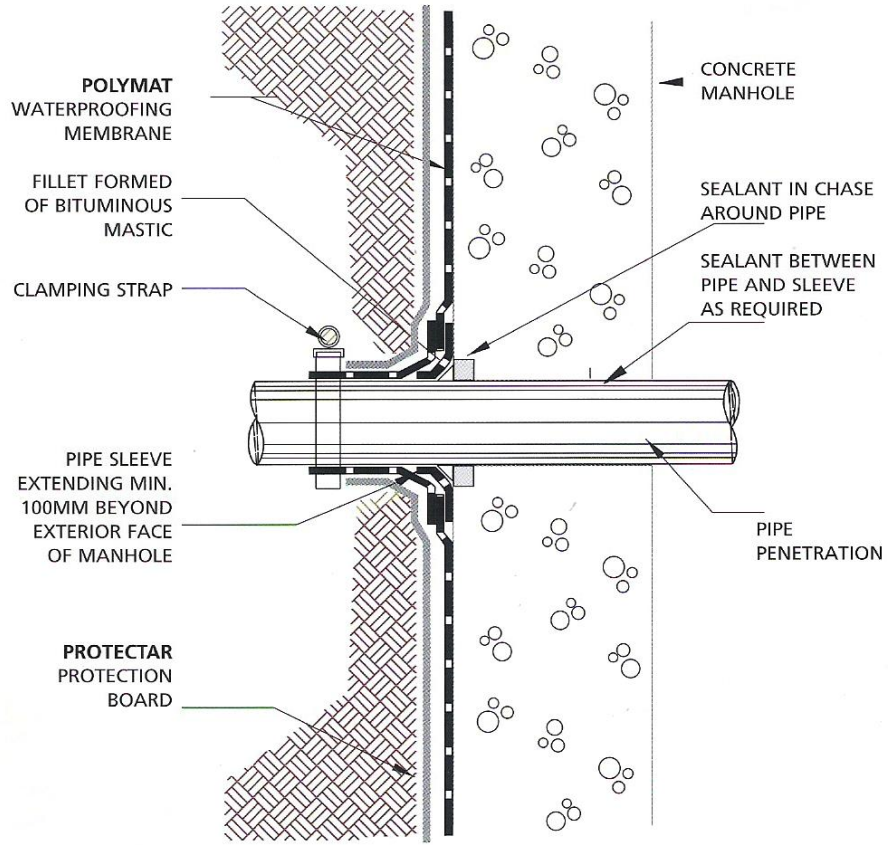
PIPE PROTRUSION

a) A suitable bituminous mastic shall be used to fill the gap between pipes and manhole (optional), and the chase at pipe entry point.

b) A 40 x 40mm bituminous mastic fillet or preformed fillet is to be use at angles between manhole and pipe.

c) At all pipe protrusions, the membrane shall be dressed over fillet and around pipe using typical star-cut detail which shall be extended around pipe about 200mm from manhole for lapping with min. 300mm wide (membrane) collar.

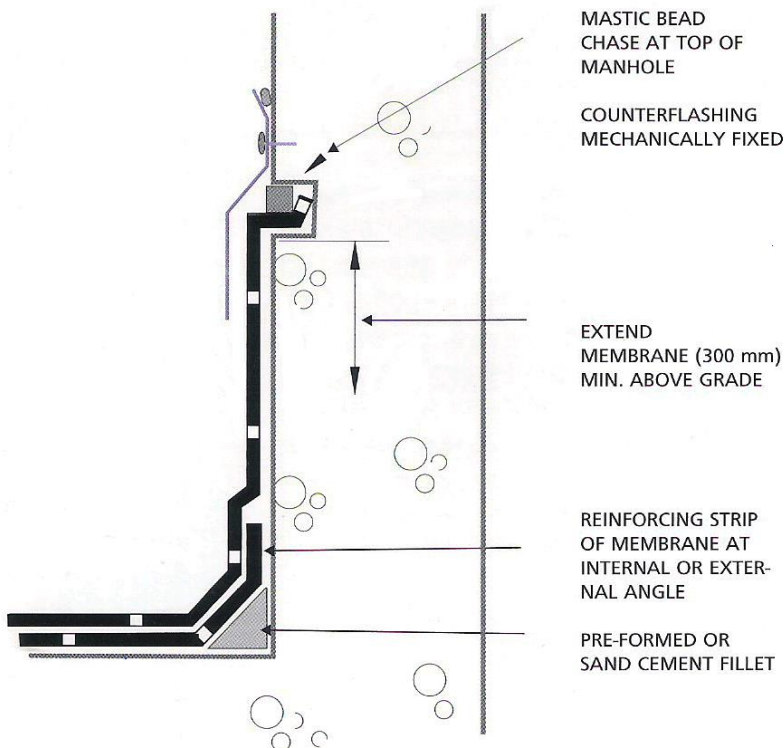
d) A plastic strap shall be used to clamp membrane to the pipe, using a ratchet or other device to ensure tightness.



TERMINATING THE MEMBRANE

The vertically applied membrane will be terminated into a preformed chase (30 mm deep and about 20mm wide)

set in the uppermost concrete surface about 300mm from zero ground level. The membrane end is heated and fitted into the chase, using the trowel to ensure proper bonding. A thixotropic bituminous sealant is used to fill the chase. An aluminum counter flashing is then fixed so as to cover the chase. A bead of thixotropic bituminous sealant is used to seal the top of the counter flashing.



Properties		POLYMAT-200	POLYMAT-270	Method of Testing
Reinforcement core		200 gr/m ² non woven spun bond polyester	270 gr/m ² non woven spun bond polyester	UEAtc, MOAT 31: Para F
Nominal thickness of membrane (mm)		4 & 5 mm		UEAtc , ASTM D 5147
Tensile Strength N/5cm	Longitudinal	900	1300	UEAtc
	Transversal	700	1000	
Tensile Strength kN/m	Longitudinal	18	22	ASTM D 5147
	Transversal	14	17	
Elongation, %	Longitudinal	40	45	UEAtc , ASTM D 5147
	Transversal	50	50	
Tear Strength, N (Notch method)	Longitudinal	550	625	ASTM D 5147
	Transversal	440	550	
Puncture resistance, N		1000	1200	ASTM E 154
Puncture Resistance	Static @ 25 kg	L ₄		UEAtc
	Dynamic @ 9 joules	I ₄		
Resistance to Hydrostatic pressure		>7 bar(>70M)		DIN 1048, ASTM D 5385
Flexibility at low temperature		- 8 ⁰ C to - 10 ⁰ C		UEAtc
Resistance to thermal ageing & UV		No deterioration		UEAtc, ASTM D 5147, ASTM G 53
Dimensional Stability, L/T (%)		± 0.5		UEAtc, ASTM D 5147
Adhesion strength		1.15 Kg/cm ²		UNI 8202
Lap joint strength		>900 N / 750 N	>1300 N / 1000 N	UEAtc
Softening Point *		155° C		UEAtc, ASTM D 36
Penetration @25° C *		15-20 dmm		UEAtc, ASTM D 5
Heat resistance @ 100°C, 2hr		No flow		UEAtc
Water absorption @ 24 hrs.		< 0.20 %		ASTM D570

* Compound Properties (Tested during manufacturing process)

The technical data given herein are the average values obtained on tests carried out in our laboratory on the **POLYMAT** membrane. IMI reserves the right to change or modify the data without prior notice. All reasonable care has been taken in compiling the data that to the best of our knowledge is accurate and true. All recommendations are made in good faith. No responsibility can be accepted by us and no warranty is implied with regard to any of the recommendations made in this data sheet, since the conditions of actual use and the labour involved are beyond our control. **POLYMAT** membranes are warranted to be free from manufacturing defects for a period of 10 years. **POLYMAT** membranes are not affected by chlorides, sulphates & phosphates as well as dilute acids found in ground water.

HANDLING PRECAUTIONS: POLYMAT membranes have no health hazard when used with our standard application recommendations. IMI CONCRETE primer contains a flammable solvent with flash point of 42°C. Use primer in well ventilated areas away from sources of direct heat or ignition. Inhalation must be avoided and the use of protective clothing, rubber gloves, goggles and barrier cream is recommended. Do not use solvent to clean skin. After work clean hands with soap and warm water or suitable mild detergent. Obtain immediate medical advice if redness or skin irritation appears. In case of mouth or eye contact, flush immediately with fresh water and seek medical advice.

Packing Configuration:

4P-PBS/SAND 23 rolls per pallet
 4P-MINERAL 20 rolls per pallet
 5P-PBS/SAND 16 rolls per pallet
 NOMINAL ROLL LENGTH = 10 mtrs

Indicative Loading Capacity for 4mm thickness:

552 Rolls per 40 ft Trailer
 468 Rolls per 20 ft Container

Product generic name

APP-A-4P-PBS/SAND
 APP-A -4P-MINERAL
 APP-A -5P-PBS/SAND

Storage:

Rolls must be kept up right at all times, in a covered well-ventilated storage area, away from sources of direct heat. If ambient temperatures at storage site fall below 15°C, the rolls should be exposed to warmer temperatures of 15°C to 40°C for periods of upto 2 hours prior to use to facilitate unrolling of the membranes. If stacking is necessary, ensure that rigid sheet of plywood is placed between the pallets. Do not stack more than 2 high. **POLYMAT** membrane has a shelf life of 12 months from the date of production, if stored in a cool, dry store in original unopened packing.

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