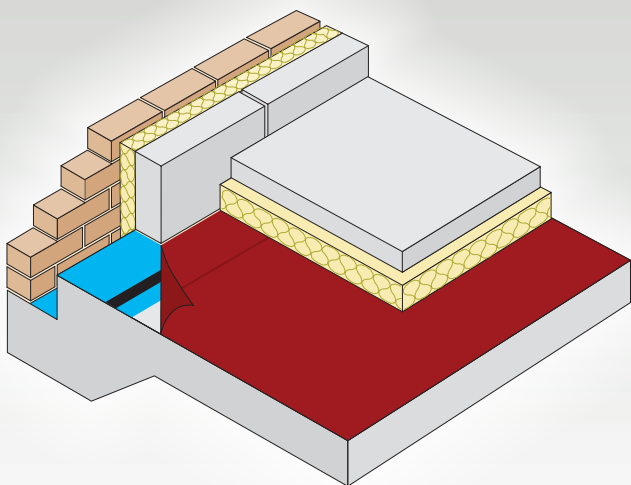


MonarfleX

Damp Proof Membranes

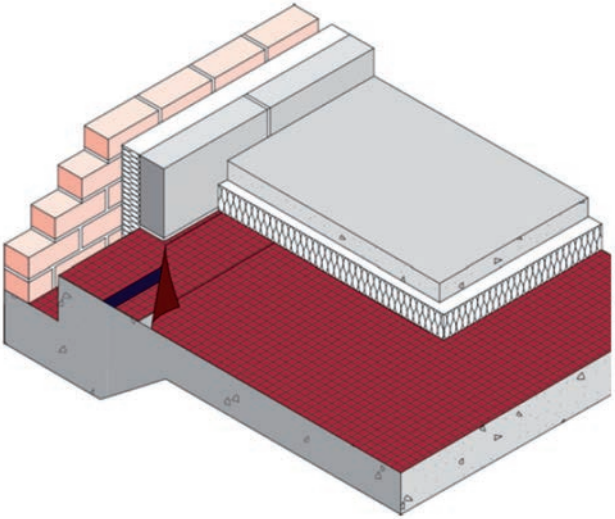
Product and Systems Overview



World Reference
in Waterproofing



Monarflex® Damp Proof and Gas resistant membranes



Icopal, one of the world's largest manufacturers of waterproofing products, has long been a pioneer in the development of damp proof and radon resistant membranes.

Modern construction trends have placed greater emphasis on the need for higher quality, better performance and greater durability, accommodating the demands of building design. Our range of DPM's gives you a greater choice whatever your building design, location and exposure.

In order to assist designers, builders and bricklayers Icopal provide the very best in performance from traditional DPM's for basic damp proofing for housing to the very latest in technology providing both excellent waterproofing, ease of installation and resistance to radon ground gases.

Overview of the Icopal DPM Range

Monarflex® Polyethylene DPM's

Monarflex® Polyethylenes DPM's are manufactured from blended polyethylenes, which remain flexible at low temperatures and stable at elevated temperatures. They are resistant to ageing and satisfactory for use as a DPM and when properly sealed and detailed to restrict the ingress of moisture

Monarflex® 1000 Gauge DPM - A loose laid, polyethylene damp proof membrane for horizontal ground supported or suspended slab applications without hydrostatic water pressure. 0.25mm thick and available in 2 x 25 m & 4 x 25 m roll size.

Monarflex® 1200 Gauge DPM - A loose laid, polyethylene damp proof membrane for horizontal ground supported or suspended slab applications without hydrostatic water pressure. 0.3mm thick and available in 2 x 25 m & 4 x 25 m roll size.

Monarflex® 2000 Gauge DPM - A loose laid, polyethylene damp proof membrane for horizontal ground supported or suspended slab applications without hydrostatic water pressure. 0.5mm thick and available in 4 x 12,5 m roll size.

Features & Benefits

- High elongation at break
- High resistance to tearing
- Safe and clean to handle
- Chemically stable – no volatiles to leach out
- Joints and seals easily
- High water vapour resistance



Monarflex® Ultra DPM's

Monarflex® Ultra DPM's are manufactured from two virgin polyethylene layers with a strong reinforcement grid sandwiched in between. The reinforcement means the membrane is designed to withstand the rigours of a busy building site and to overcome the problems that can arise from using ordinary non reinforced DPM's. The Monarflex® Ultra DPM's are resistant against alkali as normally found in foundation works and further meets the requirements given in approved Document C of the Building Regulations.

Monarflex® Ultra 250 DPM - A loose laid reinforced polyethylene membrane which must be installed horizontal and ground supported or on suspended slab applications without hydrostatic water pressure. 0.25 mm thick and available in 2 x 25 and 4 x 25 m.

Monarflex® Ultra 300 DPM - A loose laid reinforced polyethylene membrane which must be installed horizontal and ground supported or on suspended slab applications without hydrostatic water pressure. 0.3 mm thick and available in 2 x 25 and 4 x 25 m.



Features & Benefits

- High tensile strength
- High resistant to tearing
- Designed to withstand foot traffic
- Use for housing or commercial build
- Compatible with all forms of DPC's
- Joints and seals easily
- High water vapour resistance



Monarflex® NecoSeal

Monarflex® NecoSeal is a virgin blend Co-Polymer polyethylene membrane, which remains flexible at low temperatures and stable at high temperatures. When used as part of the full Monarflex® radon protection system it provides an effective radon, air-tightness and moisture seal in the foundations of a new building. NecoSeal should be used in conjunction with Xtra-Load DPC's in all masonry walls.

Monarflex® NecoSeal - A loose laid un-reinforced polyethylene membrane for horizontal ground supported or suspended slab applications in domestic housing without hydrostatic water pressure, 0.3mm and available in 4 x 20 m roll size.

Features & Benefits:

- High elongation at break
- High resistance to tearing
- Joints and seals easily
- High water vapour resistance
- High radon gas resistance
- Enhances overall air tightness of building



Monarflex® RMB 400

Monarflex® RMB 400 is a radon resisting damp proof membrane made from virgin co-polymer polyethylene with a strong polyester reinforcing grid to resist foot traffic during the construction phase. Monarflex® RMB 400 is resistant against alkali as normally found in foundation works and further meets the requirements given in approved Document C of the Building Regulations.

Monarflex® RMB 400 – A high performing polymeric DPM that also acts as a radon resisting membrane in areas with radon levels above 200 beq. Product is 0.4mm thick and available in 2 x 25 m and 4 x 25 m roll size.

Features & Benefits

- High tensile strength
- High resistant to tearing
- Designed to withstand foot traffic
- Use for housing or commercial build
- Compatible with all forms of DPC's
- Joints and seals easily
- High water vapour resistance
- Radon gas resistant



Icopal Liquaprufe

Icopal Liquaprufe is a solvent free water based rubber modified bitumen coating used as a damp proofing layer in a sandwich construction and as a waterproofing coating for floors and walls in above ground structures where there is no a risk of the ground becoming waterlogged.

Icopal Liquaprufe – A water based bitumen with latex polymer damp proof coating supplied in a bucket of 20 kg.

Features & Benefits:

- Solvent free
- No flowing when used vertically
- Pasty compound to work perfectly on rough surface
- Use as primer when diluted with water
- Fast drying
- Can be used for indoor areas less than 20 m²



Monarflex® DPM Product Selector

			Areas of application		
Product	Description	Thickness	Radon Gas Protection	Housing	Commercial Buildings
Monarflex® 1000 gauge DPM	Polyethylene	0.25mm		■	
Monarflex® 1200 gauge DPM	Polyethylene	0.3mm		■	
Monarflex® 2000 gauge DPM	Polyethylene	0.5mm		■	■
Monarflex® Ultra 250	Reinforced Polyethylene	0.25mm		■	■
Monarflex® Ultra 300	Reinforced Polyethylene	0.3mm		■	■
Monarflex® NecoSeal	Unreinforced Co-Polymer PE	0.3mm	■	■	
RMB 400	Co-Polymer PE	0.4mm	■	■	■

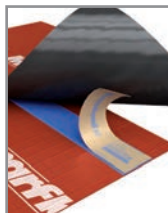
			Areas of application		
Product	Description	Damp proofing of concrete floor	Damp proofing of vertical surface	Use as primer	Low application temperature
Icopal Liquaprufe	Solvent free bitumen/latex	■	■	■	

Monarflex® DPM Accessory Range

A range of specially designed accessories complements our DPM range, ensuring waterproofing performance and in case of radon gas keeps it tight and even ventilates the dangerous gas away from the habitat area. The accessories also make for speedier and secure installation and complying with the requirements of the current Codes of Practice.

Monobond LT

Monobond LT is a high performance double sided butyl tape, which has extremely high tack while remaining flexible to absorb any settlements in the foundation. The tape provides a water tight as well as radon tight seal. The tape is used as a joining tape for laps and between the Xtra-Load DPC's as well as corner details.



Monarflex® Blackline Tophat

Monarflex® Blackline Tophat is a one-piece, vacuum-formed LDPE collar designed to seal 110mm diameter pipes. In some circumstances it may not be possible to fit the collar over a pipe, if for example there is a socket or bend at the critical point where the pipe penetrates the DPM membrane. In these situations, Icopal Easi-Pour Radon Sealant should be used.



Icopal Easi-Pour

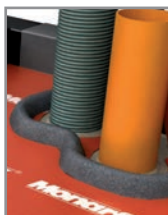
The Icopal Easi-Pour Radon Sealant is a two-component liquid sealant. It is pourable, self-levelling and provides effective radon, air and moisture sealing around service penetrations, structural columns and irregular profiles of any shape or diameter.

Icopal Easi-Pour is supplied in a special 10 litre double-lid bucket and contains 5.4 kg of sealant and 0.6kg of hardener. Once cured, a custom-made seal is formed, which will remain flexible and has a life cycle of at least 50 years



Monarflex® Flexi-Mould

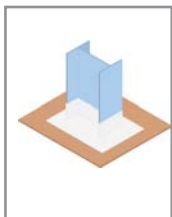
Monarflex® Flexi-Mould is a flexible foam bund designed to contain Icopal Easi-Pour Radon Sealant during the curing process. The underside has a pre-applied, high-tack self-adhesive tape which is protected by a release paper. Once removed, the Flexi-Mould can be firmly bonded to the top surface of any Monarflex® polyethylene DPM.



Monarflex® MRX

Monarflex® MRX is a methane, carbon dioxide, radon resistant and waterproofing self adhesive membrane specifically designed for sealing loose-laid Monarflex® DPM to structural elements such as steel and concrete columns. It can also be used for sealing to existing buildings and for detailed sealing work at up-stands and corners.

Monarflex® MRX is made from an aluminium / polyethylene laminate on one surface with a layer of self adhesive polymer modified bitumen on the other.



Monarflex® Easi-Sump

Monarflex® Easi-Sump has been developed to provide a simple and effective way to ventilate subsoil under building e.g. to remove radon from the foundations of a building. It is intended for use where a post-construction radon test indicates high levels. Easi-Sump can be activated, if necessary, by adding an in-line extractor fan.



Monarflex® Easi-Cap Link 90°

Monarflex® Cap-Link provides an easily identifiable connection point for the Easi-Sump. In the event that the system needs to be activated the Cap-Link can be easily modified to accept a 110mm diameter pipe. This pipe can extend to a new termination point above the building and should contain the in-line extractor fan. The 90° bend is for when there is insufficient space to add a separate bend to connect with the outgoing pipe.



Monarflex® Easi-Cap Link Straight

Monarflex® Cap-Link provides an easily identifiable connection point for the Easi-Sump. In the event that the system needs to be activated the Cap-Link can be easily modified to accept a 110mm diameter pipe. This pipe can extend to a new termination point above the building and should contain the in-line extractor fan.



Monarflex® DPM Accessory Product Selector

Product	Areas of application					
	Joining	Single pipe penetration	Multiple pipe penetration	Upstands, patching	Corner details	Sub-Ventilation
Monobond LT	■	■			■	
Monarflex® Blackline Tophat		■				
Icopal Easi-Pour		■	■	■		
Monarflex® Flexi-Mould			■			
Monarflex® MRX				■	■	
Monarflex® Easi-Sump						■
Monarflex® Easi-Cap Link						■

Installation and Site Work

Handling and Storage

Icopal storage and handling instructions for each of the products must be followed at all times, damage as a result of incorrect storage will not be accepted by Icopal.

Icopal DPM's are delivered to site in rolls wrapped in a polyethylene wrapping bearing the name of the product, roll size and company details and where appropriate British Board of Agrément and other accreditation details are also identified on the packaging. The liquid damp proof coating Icopal Liquaprufe is delivered to site in a bucket of 20 kg with label bearing the name of the product and clear user instructions and terms of health and safety.

All DPM's and associated products must be stored on a flat level surface away from the ground, under cover and away from sources of heat. Any particular handling and storage instructions on the packaging must also be followed. Icopal Liquaprufe must be stored on a flat level surface from the ground, under cover away from sources of heat and frost. Specific handling and storage instructions will be on the packaging.

In excessively cold conditions DPM's should be stored in a warm environment for at least 24 hours ahead of installation, this will make handling easier in cold conditions. In conditions colder than +5°C the Icopal Liquaprufe can not be applied.

Site preparation

Ground Bearing Slabs: Monarflex® DPM's may be laid over or under the slab. When laid below slab the DPM should be placed on top of a soft sand blinding with minimum 50 mm thickness, or a special suitable geotextile should be used to prevent punctures of the membrane during and after installation. When placed above slab, the concrete should be dense, smooth and free from any projections which may damage the membrane. The Monarflex® DPM should then be immediately covered with a screed or other suitable protective layer.

Suspended Floors: Monarflex® DPM's should be laid over the floor slab, which should be free of debris and any projections which may damage the membrane. It should be immediately covered with a screed or other suitable protective layer. The Monarflex® DPM's must always be installed and fixed in accordance with the Icopal DPM installation instructions.

Site preparation Icopal Liquaprufe

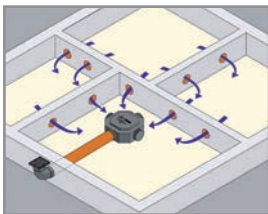
The Icopal Liquaprufe must be applied on a dust free clean and dry substrate free from hydrocarbon such as oil. The weather conditions must be dry and a minimum ambient temperature of +5°C before the products can be applied. In case of rain during drying or application the work area must be covered and kept dry.

General Installation

The Monarflex® DPM's may be installed in all conditions normal to ground floor slab construction. Where there is a risk of ground becoming waterlogged, sub-soil drainage must be provided. Monarflex® DPM's must be installed in accordance with current local instructions and the current codes of practice for the installation of waterproofing such as Approved Document C of the Building Regulations and workmanship for work on site.

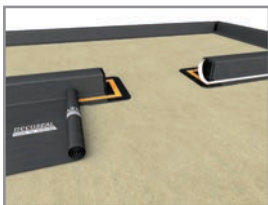
Seal walls, designed cavities and subfloor ventilation:

- Care must be taken to follow the specification and details to ensure the continuity of the DPM at ground level to link up with the Damp Proof Course (DPC).
- In case subfloor ventilation is installed it must be done before installing the DPM. Monarflex® Easi-Sump is placed with the hardcore layer with the open base facing down. A 110mm PVC-U pipe is connected and taken through the foundation wall and linked with the Monarflex® Cap Link.



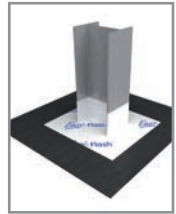
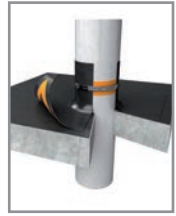
Seal floor areas:

- A strip of the 30 mm wide Monobond LT tape is applied to the Xtra-Load DPC.
- Unroll the Monarflex® DPM making sure it will overlap 150 mm with DPC.
- Where the Monarflex® DPM's are overlapping they must be sealed with a 150 mm lap using the Monobond LT tape.
- Once DPM is fitted in place the release paper on the Monobond LT tape is removed and the DPC and DPM are sealed together. Its recommended to use a small hand held rubber roller to apply pressure.



Seal service and structural penetrations:

- Standard single 110 mm pipe penetrations should be sealed using the Monarflex® Blackline Tophat. The pipe should be sealed with Monobond LT tape and a retention clips and at the base it should be sealed to the DPM with Monobond LT tape.
- Complex junctions, simple corners or penetrations such as, steel stanchions and concrete columns may be detailed and sealed by using a fully bonded membrane such as Monarflex® MRX self adhesive gas resisting membrane with an overlap of 150mm on each surface.
- Multiple pipe penetrations or irregular service penetrations or columns must be sealed with the Icopal Easi-Pour and Monarflex® Flexi-Mould system.
- The substrate around penetrations must be compacted before dressing the Monarflex® DPM around the penetrations.
- There must be a 30 mm free space around the penetrations to ensure optimal seal with the Icopal Easi-Pour.
- Clean the DPM's surface and stick the Monarflex Flexi-Mould to DPM ensuring at least 30 mm of the DPM will be covered by the Icopal Easi-Pour.
- Mix the Icopal Easi-Pour as per directions on the container and fill formwork to a depth of at least 30mm. No trowling is required, the liquid sealant will find its own level.
- Curing time is 24 hours at 20°C ambient temperature and must be protected from rain during this period. The Monarflex® Easi-Mould is permanent.



General installation Icopal Liquaprufe

Icopal Liquaprufe may only be applied in dry conditions with the ambient temperature above +5°C. Before applying the Icopal Liquaprufe the product must be stirred (don't mix) at a low speed of two turns per second, until the Liquaprufe is homogenised without lumps. In case the emulsion starts to separate then close the bucket with the lid and let it rest for several hours before stirring or applying again.

Icopal Liquaprufe used as primer

Dilute Icopal Liquaprufe with water in the scale 1 part water 2 part pure Liquaprufe. Stir the product at low speed of two turns per second while slowly adding the water.

- Application on concrete, porous concrete, masonry and wooden boarding.
- Apply on clean dry surface free from hydrocarbon.
- Apply using long bristle paint roller or brush.
- Application temperature must be min. 5°C.
- Drying time about 6 hours, but will depend upon the ambient humidity and temperature.
- Icopal Liquaprufe must be completely dry before applying anything on top.
- Consumption is about 0.25 to 0.35 litre per m² depending on nature of the substrate.

Icopal Liquaprufe used for damp proofing

- Apply on a clean dry substrate free from hydrocarbon.
- Apply with a paint roller with long bristles and a brush to deal with cavities.
- Apply in thin layers with an expected drying time of 12 hours depended upon humidity and temperature.
- Consumption is about 1.3 kg per m², but depends upon state of substrate.

Product Availability – DPM

Monarflex® 1000 Gauge

Nominal Roll width/length	Product Code
2m x 25m	3100402
4m x 25m	3100403

Monarflex® 1200 Gauge

Nominal Roll width/length	Product Code
2m x 25m	3100404
4m x 25m	3100405

Monarflex® 2000 Gauge

Nominal Roll width/length	Product Code
4m x 12,5m	3100406

Monarflex® Ultra 250

Nominal Roll width/length	Product Code
2m x 25m	3002789
4m x 25m	3002788

Monarflex® Ultra 300

Nominal Roll width/length	Product Code
2m x 25m	3002776
4m x 25m	3002777

Monarflex® NecoSeal

Nominal Roll width/length	Product Code
4m x 20m	3006659

Monarflex® RMB 400

Nominal Roll width/length	Product Code
2m x 25m	3002978
4m x 25m	3002979

Icopal Liquaprufe

Bucket weight	Product Code
20 kg	3003448

Product Availability – Accessories

Description	Size	Product Code
	Monobond LT 30mm x 2mm x 24m	3002889
	Monarflex® Blackline Tophat Ø113mm	3002862
	Icopal Easi-Pour Radon Sealant 10L drum (6kg)	3006685
	Monarflex® Flexi-Mould 700mm x 50mm x 30mm	3006686
	Monarflex® MRX 300mm x 20m	3003947
	Monarflex® Easi-sump 380mm x 124mm	3003013
	Monarflex® Easi-Cap Link 90° 166mm x 182mm x 164mm	3006676
	Monarflex® Easi-Cap Link Straight 166mm x 146mm x 151mm	3006673

Icopal Ltd

Barton Dock Road

Stretford

Manchester

United Kingdom

M32 0YL

Tel: +44 (0) 161 865 4444

Fax: +44 (0) 161 864 2616

info.uk@icopal.com

www.icopal.co.uk