



PROTECTO DRAIN

PROTECTO-DRAIN IS A PREFORMED HDPE MEMBRANE DESIGNED TO PROTECT DRAINAGE LAYER, FOUNDATION WALLS AND SUBTERRANEAN DRAINAGE COURSES AND HELP CHANNEL WATER EFFECTIVELY.



Made from high density polyethylene (HDPE), this hard wearing, flexible membrane is designed to direct water away from the surface of the structure towards the appropriate drainage system. It is very tough but lightweight and easy to handle, making it very adaptable and suitable for a large number of applications. It is also completely safe and contaminant free, and can be used safely with water courses.

It is ideal for vertical surfaces and protects the waterproof membrane from abrasion and puncture damage caused by backfilling.

Its cupped structure creates a permanent air gap between the wall and the backfill which helps to reduce pressure points and helps in the ventilation of the building and problems of damp. Gravity will encourage the water to flow down the surface and into the sump or drain constructed beneath. It is also an effective damp-proof layer on horizontal surfaces. It is fungus and rot-proof and completely safe with drinking water.



PROTECTO-DRAIN 8

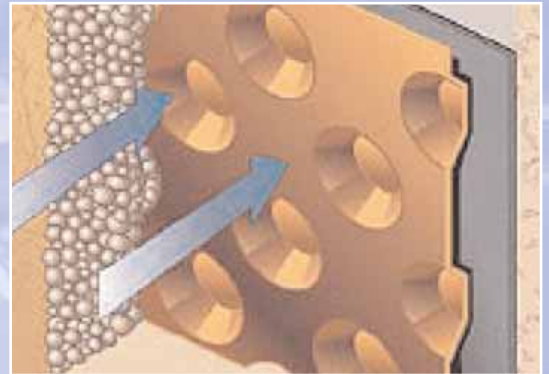


Protecto-drain 8 is a single membrane fixed to the wall with its cups facing towards the backfill. It spreads the weight of the soil and prevents point loading onto the structure. The 8mm high cups create an air gap between the structure and the earth backfill, helping to ventilate it effectively. Providing that the membrane is properly sealed at the edges, Protecto-drain 8 can create a viable waterproofing membrane in itself. It is best suited, however, as an extra protection and ventilation layer, covering an existing waterproofing seal.

Protecto-drain 8 is very flexible, and can be folded and shaped around awkward areas and details without compromising the seal. Because it is so lightweight, it is ideal for fixing to the vertical plane. It is easy to cut around details and edges and multiple sheets can be fitted together.

It should be fitted so that it emerges above the surface ground level to ensure the air gap does not become blocked or flooded. Each sheet should be overlapped by 20cm, with the egg box shaped cups slotting neatly into one another, producing a good fit.

The sheets are fixed to the structure either by passing nails through special sealing plugs onto battens or by using a double sided bitumen tape at the edges of the sheets and across the joints. Using tape across the joints is advised to ensure a proper seal throughout the whole area. Protecto-drain 8 is available as a standard 550gsm membrane. Special lightweight or heavy duty versions are also available.



PROTECTO-DRAIN G8



Protecto-drain G8 is suitable for areas with a much greater amount of water passage and pressure through the ground.

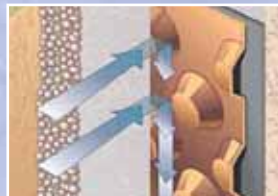
It has a 100gsm geotextile fabric bonded to one side. This gives additional protection to the membrane and also helps to filter out particles but allow the water to pass through the fabric and into the air gap drainage chamber. With moisture passing through the geotextile but no soil moving, the area around the structure is effectively drained but the ground remains stable and firm, greatly reducing the risks of subsidence or hydrostatic pressure building up.

This membrane is designed for a water management, rather than water prevention system. Any subterranean structure will come into contact with significant moisture, so a way to channel this moisture away from the concrete is required. A suitable exit for the water should always be designed into the waterproofing system.



As the water drains vertically down the membrane, it should be channelled into a perforated pipe. The geotextile fabric can be pulled away from the HDPE membrane at the bottom of the structure to wrap around the pipe with the HDPE membrane passing beneath it. This way all the moisture will collect in the pipe but still be kept away from the structure.

The drainage pipe should be fitted to either a natural drain or a pump to ensure the water moves away from the structure effectively.



Protecto-drain G8 is ideal for planters and tanking. It is essential to avoid vegetation becoming waterlogged in planters but at the same time ensuring an even flow of moisture through the soil so that flood channels are not created in the planter, which can also damage the roots of the plants. It can be manipulated into tight spaces to provide a complete lining for planters, waterproofing and protecting the structure. The sheets can be overlapped to provide a continuous seal and the geotextile fleece ensures particles do not clog up the drainage holes and the water run-off is filtered.



Because the membrane is rot-proof, Protecto-drain G8 is an effective lining for planters in the long-term. The water running out of the planter will also not become contaminated by Protecto-drain G8 as the material is completely safe with drinking water. Protecto-drain G8 has also been used successfully on a horizontal plane as a drainage membrane beneath blockwork and paving slabs. The rainwater runs through the slabs and insulation, then through the geotextile fabric and runs along the HDPE membrane into the roof outlet. This prevents standing water puddling on top of the slabs and gives effective drainage.



PROTECTO-DRAIN 20

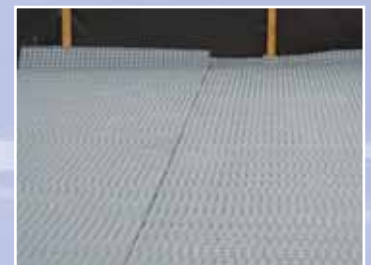


Protecto-drain 20 is a 1mm thick HDPE membrane which is useful for larger scale areas of tanking and sealing. It has a larger cup size of 20mm which allows a greater amount of ground water to pass along the membrane.

It is ideal as a lining membrane on bridges and tunnels, and a whole manner of civil engineering works. The flexible and easy-to-bond nature of the material makes it easy to install, and it can cope with larger quantities of ground water and drainage quite easily. The HDPE material will not pollute the water running off in any way, which means that water can be directed, managed and recycled for a whole manner of uses.

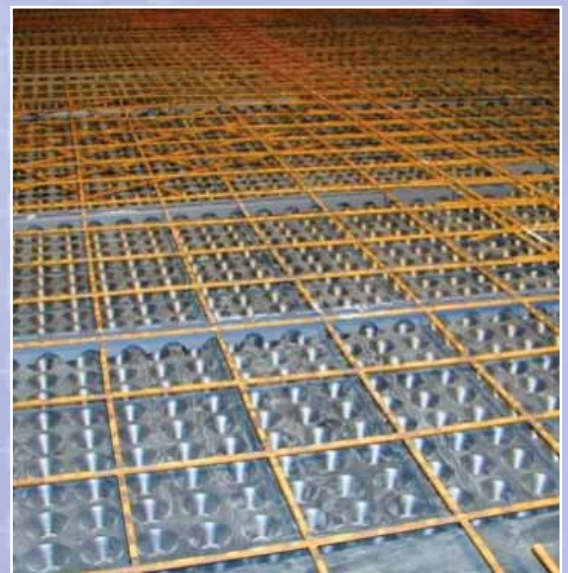
Protecto-drain 20 offers a much simpler, but often more effective way to manage and control subterranean water than many expensive systems and concepts. By sticking to simple principles of not stopping water but redirecting it, hydrostatic pressure points are prevented. By designing an “egg-box” profile, blockages are prevented and a greater amount of water can pass along the membrane. This profile also allows very easy sealing of the membrane, as multiple sheets can be “clipped into place” by overlapping the cups and sealing the joints with adhesive tape.

In vertical applications it is very good as a waterproofing and protection layer between layers of concrete.



It is tough enough to tolerate a wet concrete pour without risk of damage. When installed between two layers of concrete the cupped profile ensures a constant air gap between the two concrete layers, meaning the fabric of the building is sealed at the sides, so there is no risk of damp creeping into the concrete even if the building is subterranean in part.

It is used extensively in horizontal installations beneath the initial concrete slab layers, where it is effective in preventing seepage water from below entering the foundations. Each individual sheet can be bonded together by overlapping the cups and sealing with tape, meaning the layer is completely waterproof. Since it is flexible, any undulations and imperfections in the ground below can be accommodated without risk to the seal. Rebar can be laid directly onto the membrane without damage and concrete can be poured.



Protecto-drain G20, a 20mm HDPE membrane with a 100gsm geotextile bonded one side, is also available.

PROTECTO-DRAIN 20P



Protecto-drain 20P was developed for use as a reservoir and drainage layer in green roof construction. It is placed on top of the waterproofed, protected concrete deck and sits beneath a filter layer, the soil substrate and vegetation layers on extensive green roof systems.

The HDPE membrane is manufactured with the same 20mm cups, but the area between the cups is perforated. On a horizontal plane, this allows water to fill up in the cups helping to sustain the roots with any excess water escaping through the holes and able to run away beneath the membrane into the drainage outlet.

This is a simple but effective way of holding a modest amount of water beneath the root systems but preventing the area becoming waterlogged, which will kill the plants. Because of the egg-box shape of the membrane, a constant air gap beneath the HDPE is maintained, allowing the excess water to pass easily without clogging.



The water held in the cups can then be drawn back up through the filter layer to nourish the vegetation above. This means that a constant level of water can be held in the reservoir cups, but rainwater is efficiently removed effectively and quickly from the roof, which will not become overloaded (never underestimate the weight of standing water). It is important to remember, however, that these materials alone do not provide a drought resistant system. Regular watering and maintenance is required for all roof gardens and green roofs.

Wallbarn Protecto-drain 20P is lightweight and easy to transport and install, making it ideal for rooftop applications. It is the perfect product for either large-scale roofs or small domestic projects. Large amounts of membrane can be installed in a day, as operatives can simply roll it out across the deck and overlap the

edges quickly and easily. By installing the soil substrate immediately, the membrane is properly ballasted. Protecto-drain 20P is suitable for EXTENSIVE green roofs. This includes sedum roofs, wildflower and biodiverse roofs, grasses and dwarf plants, where soil substrates are up to a depth of 200mm.



PROTECTO-DRAIN 60P



For INTENSIVE green roofs installers will need to use Wallbarn Protecto-drain 60P as the drainage membrane.

Protecto-drain 60P is a rigid board made from recycled polypropylene, not HDPE. The cups are 60mm deep. With larger cups and more perforations, this membrane holds a greater amount of water and has higher drainage capacity, meaning the membrane is suitable where higher soil substrates, and a much larger degree of drainage is required.

The membrane itself is 2mm thick. It has very good weight tolerance and compressive strength. The higher

air gap beneath the green roof system means that a larger amount of water can pass through the system, reducing the risk of or hydrostatic pressure on the surface below.

With higher substrate depths available, more variety of plants and vegetation can be planted on a green roof, including grasses, shrubs and trees.

The frame is rigid, tough and weight bearing, and is designed so that each tray, measuring 500 x 500 x 60mm, can clip onto its neighbour, making installation fast and easy. Protecto-drain 60P can be cut easily to fit around details on the roof.



The edges and base feet are rounded to prevent damage to the waterproofing membrane beneath. Applicators can walk across the membrane without problems due to its strength. It is so stable in fact, that structures can even be built onto it if required.

Once the deck is waterproofed and protected, Protecto-drain is laid down. The soil/substrate is then installed onto the membrane up to the level required. Care must be taken to ensure that the particles do not clog up the cups so either a geotextile filtration layer should be loose laid onto Protecto-drain 60P or coarse aggregate with no fine particles should be installed as an intermediate layer before laying soil-type material.



PROTECTO-DRAIN ACCESSORIES AND SPECIAL PRODUCTS

ACCESSORIES

Protecto-drain flexible HDPE membranes can be fitted to the structure using special fixing buttons, which fit into the dimples of the membrane. A nail is passed through the centre, and the buttons seal the hole made by the nail, helping to keep the membrane watertight.

For longer fixings a specialised pin can be used to pass through the membrane. Again, it is self-sealing and the shaft is ribbed to maintain a strong bond into the structure.

Double sided bitumen tape is also available for securing sheets together or bonding the membrane to a dry structure. Being bitumen based, the tape has very strong adhesion and is waterproof, not becoming affected by damp.



PROTECTO-DRAIN – SPECIAL PRODUCTS

Wallbarn can offer variations on the standard Protecto-drain membranes, dependant on the technical requirements of the project.

PROTECTO-DRAIN 8 LIGHTWEIGHT & PROTECTO-DRAIN 8 HEAVY DUTY

Protecto-drain 8 is available in a lightweight 450gsm variety where strength is not so much of an issue and clients may require a more cost effective material.

Wallbarn can also supply Protecto-drain 8 Heavy Duty for higher technical performance. We have supplied Protecto-drain 8 Heavy Duty in 700gsm and 900gsm. These superior membranes are 1mm thick rather than the standard 0.6mm thick and have superior crushing strength and puncture resistance. They have been used successfully as protection membranes for waterproofing and concrete pour on many high-specification projects. They are used where high loadings are expected, such as railways and airports.

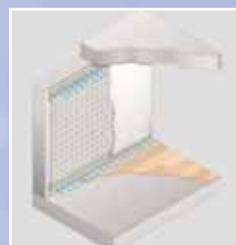
PROTECTO-DRAIN PL8 – PLASTER GRADE MEMBRANE

Protecto-drain can be manufactured with a polyester mesh bonded to one side. Plaster and rendering can be laid onto the membrane and adheres to the surface, allowing internal walls to be constructed. Tile adhesive can also be installed onto the mesh.

This material is very useful for internal tanking and basement rooms where the HDPE membrane acts as a waterproofing and damp-proofing layer, and the internal plaster can then be installed on top. Protecto-drain plaster grade material is ideal for retro-fitting of rooms in basements and underground installations.

As well as the regular HDPE / mesh version, a membrane incorporating the HDPE membrane, the polyester mesh bonded one side and a geotextile fabric bonded the other side. This geotextile gives a protection and cushioning layer to prevent any risk of the waterproofing or delicate membrane immediately behind the Protecto-drain becoming damaged.

A range of white fixing studs and edging strips specifically for the plaster grade membrane is available.



PROTECTO-DRAIN TECHNICAL DATA

	PROTECTO-DRAIN S	PROTECTO-DRAIN S LIGHTWEIGHT	PROTECTO-DRAIN S HEAVY DUTY	PROTECTO-DRAIN SS	TEST METHOD
MATERIAL	HIGH DENSITY POLYETHYLENE (HDPE)				
COLOUR	BLACK				
MEMBRANE THICKNESS (APPROX)	0.60MM	0.50MM	1MM	0.60MM	CALIBRATED MEASURING TAPE
DENSITY	550GSM	420GSM	900GSM	650GSM	CALIBRATED MEASURING TAPE
COMPRESSION	250KN/M2	170KN/M2	300KN/M2	250KN/M2	MDV
LENGTH	20M	20M	20M	15M	CALIBRATED MEASURING TAPE
WIDTH	2M	2M	2M	2M	CALIBRATED MEASURING TAPE
CUP HEIGHT	8MM	8MM	8MM	8MM	MDV
NUMBER OF CUPS	1500 PER M2	1500 PER M2	1710 PER M2	1500 PER M2	MDV
AIR VOLUME BETWEEN CUPS (APPROX.)	5.5 LM2	5.5 LM2	5.5 LM2	14 LM2	MDV
HORIZONTAL DRAINAGE CAPACITY	4.6 LM2/S	4.6 LM2/S		4.6 LM2/S	MDV
RESISTANCE TO WATER PENETRATION			W1		EN 1928
TENSILE STRENGTH - MD			≥340 N/50MM	≥330 N/50MM	EN 12311-2
TENSILE STRENGTH - CMD			≥350 N/50MM	≥335 N/50MM	EN 12311-2
ELONGATION - MD			≥44.9 N	≥28.7 N	EN 12311-2
ELONGATION - CMD			≥35 N	≥26.2 N	EN 12311-2
RESISTANCE TO STATIC LOADING	NO PERFORATION AT 200 N/24HRS			EN 12730	
DURABILITY	PASSED				EN 1296 & EN 13984
EXPOSURE TO LIQUID CHEMICALS	PASSED / WATERPROOF				EN 1847
RESISTANCE TO IMPACT			≥410MM	≥410MM	EN 12691
RESISTANCE TO TEARING - MD			≥343 N	≥332 N	EN 12310
RESISTANCE TO TEARING - CMD			≥352 N	≥349 N	EN 12310
WATER PERMEABILITY				FILTER WEBBING 100 LM2	
TEMPERATURE TOLERANCE	-30°C TO +80°C				MDV
RESISTANCE TO CHEMICALS	ROT-PROOF, RESISTANT TO FUNGUS AND BACTERIA. WILL NOT LEACH CHEMICALS. NOT HARMFUL TO DRINKING WATER. NO HEALTH HAZARDS UNDER NORMAL USE.				
BIOLOGICAL CHARACTERISTICS					
PHYSIOLOGICAL CHARACTERISTICS					
WARRANTY					
FIRE CLASSIFICATION	B2 (B1 AVAILABLE BY SPECIAL REQUEST)			DIN4102	

	PROTECTO-DRAIN 20	PROTECTO-DRAIN 20P	PROTECTO-DRAIN 40P	TEST METHOD
MATERIAL	HIGH DENSITY POLYETHYLENE (HDPE)RECYCLED		POLYPROPYLENE	
COLOUR	BLACK			
MEMBRANE THICKNESS (APPROX)	1MM	1MM	2MM	CALIBRATED MEASURING TAPE
DENSITY	550GSM	550GSM	4 KG PER M2	CALIBRATED MEASURING TAPE
COMPRESSION	180 KN PER M2	180 KN PER M2	60 KN PER M2	MDV
LENGTH	20M	20M	500MM	CALIBRATED MEASURING TAPE
WIDTH	1.9M OR 2M	1.9M OR 2M	500MM	CALIBRATED MEASURING TAPE
CUP HEIGHT	20MM	20MM	60MM	MDV
NUMBER OF CUPS / HOLES	500 HOLES PER M2			MDV
AIR VOLUME BETWEEN CUPS (APPROX)	14 LITRES PER M2	14 LITRES PER M2	35 LITRES PER M2	MDV
HORIZONTAL DRAINAGE CAPACITY	10 LITRES PER M2	10 LITRES PER M2	20 LITRES PER M2	MDV
HORIZONTAL DRAINAGE SURFACE	1MM		1,144CM3 PER M2	EN 1928
RESISTANCE TO STATIC LOADING	NO PERFORATION AT 200 N/24HRS			EN 12730
DURABILITY	PASSED		EN 1296 & EN 13984	
EXPOSURE TO LIQUID CHEMICALS	PASSED / WATERPROOF		EN 1847	
GREEN ROOF STANDARD COMPLIANCE	UNI 11235:2007		EN 12691	
OTHER COMPLIANCE			BS EN 13252	EN 12310
TEMPERATURE TOLERANCE	-30°C TO +80°C		MDV	
RESISTANCE TO CHEMICALS	ROT-PROOF, RESISTANT TO FUNGUS AND BACTERIA. WILL NOT LEACH CHEMICALS. NOT HARMFUL TO DRINKING WATER. NO HEALTH HAZARDS UNDER NORMAL USE.			
BIOLOGICAL CHARACTERISTICS				
PHYSIOLOGICAL CHARACTERISTICS				
WARRANTY				
FIRE CLASSIFICATION	B2 (B1 AVAILABLE BY SPECIAL REQUEST)		B2	DIN4102

THIS DATASHEET REPRESENTS THE CURRENT KNOWLEDGE OF THE PRODUCT, BUT MAY BE REVISED BY WALLBARN IN THE FUTURE. IT IS THE DUTY OF THE CUSTOMER AND INSTALLER TO BE CLEAR THAT THIS PRODUCT IS SUITABLE FOR THE PURPOSES IT IS USED FOR. THIS TECHNICAL DATASHEET MAY BE REVISED OR CHANGED AT ANY TIME WITHOUT PRIOR NOTICE. IT IS THE DUTY OF THE CUSTOMER AND INSTALLER TO BE SURE THEY POSSESS THE LATEST VERSION OF THE DATASHEET.



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