

**Onduline®**  
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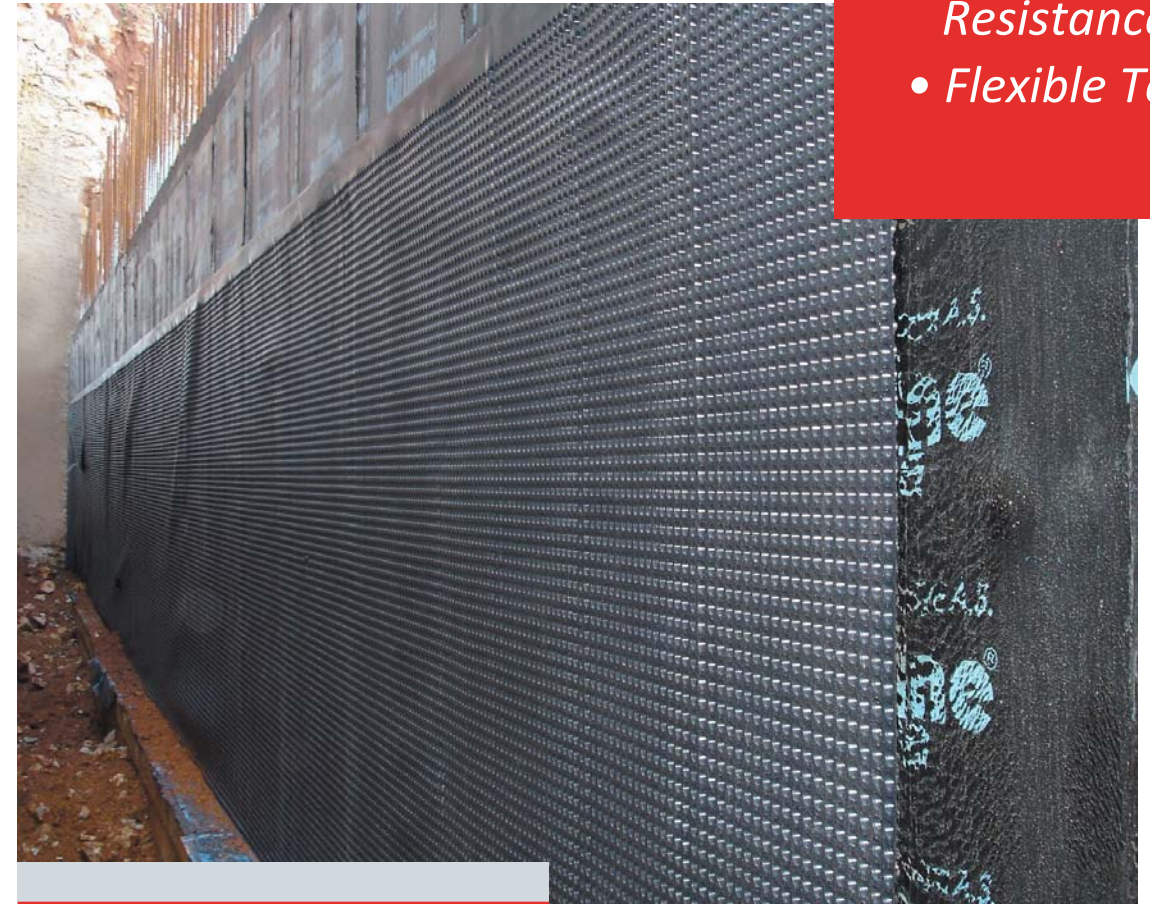


## System **FONDALINE®**



*Damp-Proofing and  
Drainage Membrane  
for the Protection  
of Foundations and  
Basements*

- High Quality
- High Pressure Resistance
- Flexible Texture



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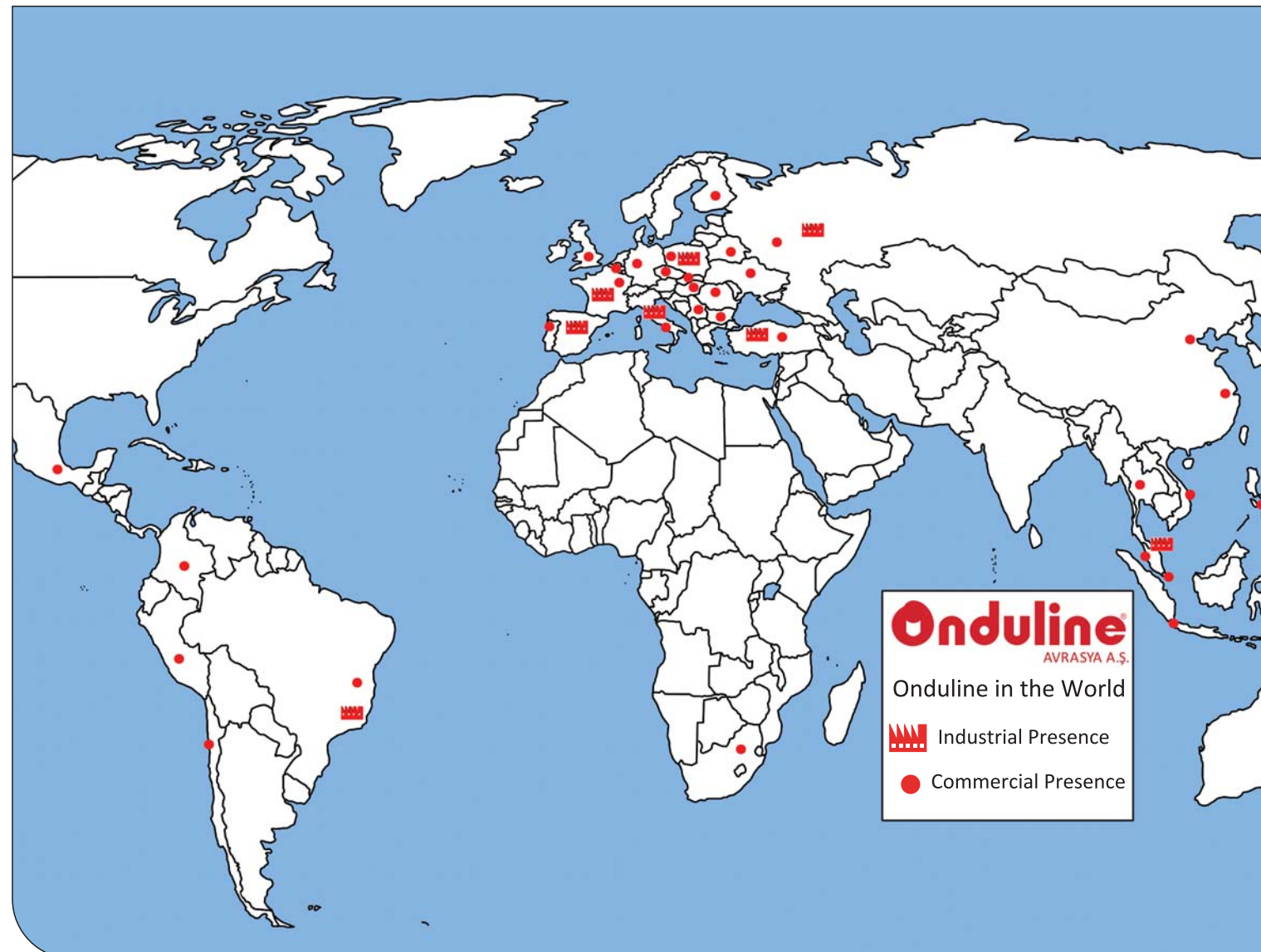


## ONDULINE GROUP - ONDULINE AVRASYA

Onduline Group, the world leader in cellulo-mineral and bitumen based roofing and siding sheets, while pursuing activities in Eurasia since many years, decided in 1994 to directly invest in Turkey and Onduline Avrasya was established as a subsidiary of the Group in Istanbul in August of the same year.

Beginning from its foundation, the product range which was limited to Onduline roofing sheets only, was intensively developed resulting today in a range inclusive of those for the roofs and foundations, in a way to meet all the requirements of the end users, with related products and systems.

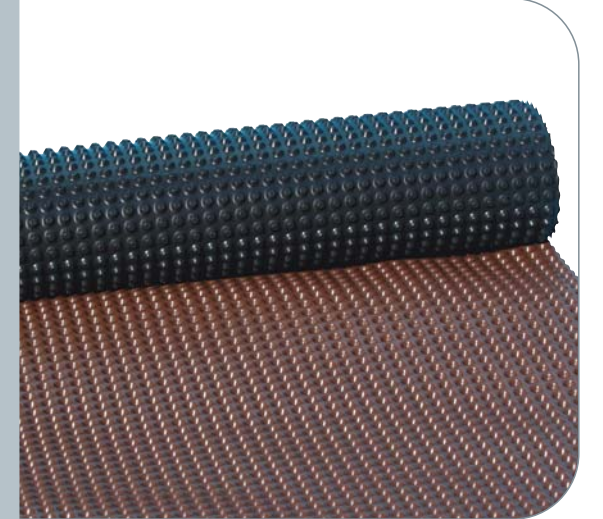
As a result of continuous research and development activities, Onduline Avrasya keeps the principle of serving the market by offering a large but innovative range, made of complementary products in compliance with each other. With especially innovative products developed for undertile insulation, like specially profiled undertile sheets and lastly the ardoise system with Isoline, versatile roofing systems are supplied. The headquarter being situated in Istanbul, the production units of Onduline Avrasya are located on 120.000 sqm total area, in Sapanca/Adapazarı, where roofing & siding sheets and membranes are produced according to world standards. Apart from ISO 9001 and ISO 14001 Quality standards Onduline Avrasya figures among the first companies in the sector possessing CE marking for all the product range. Onduline Avrasya beyond keeping its leader position in the local market since 15 years is pursuing the goal of becoming the leader in the 25 countries of Eurasia...



## System FONDALINE®

HIGH QUALITY

Fondaline, made of high density polyethylene is used for the draining of ground water and the protection of the underground waterproofing systems against damages caused by ground pressure. Its strong and flexible naps resist against the mechanical impacts caused by the back filling of the ground avoiding any kind of damage on the surface of the waterproofing layer. The air gap created by the naps of Fondaline between the ground and building parts like basement walls or floors is ideal for all kinds of drainage.



The modern line of Onduline Italia plant in Altopascio has been equipped with the newest technologies and enables the production of high density polyethylene membranes of high performance and long life time.



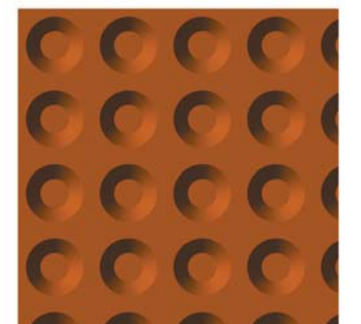
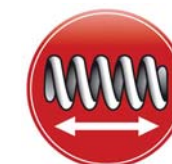
### Pallet

Width x length x height :	80 cm x 120 cm x 215 cm (±3)
Pallet weight	: 240 kg
Packing	: 1 roll= 40 sqm
Fondaline 400	: 15 rolls/pallet= 600 sqm/pallet
Fondaline 500	: 12 rolls/pallet= 480 sqm/pallet
Fondaline 600	: 12 rolls/pallet= 480 sqm/pallet



### Storage Conditions

Pallets should never be placed onto each other. Direct exposure to rain and sun must be avoided. Pallets should be stored in a closed area.



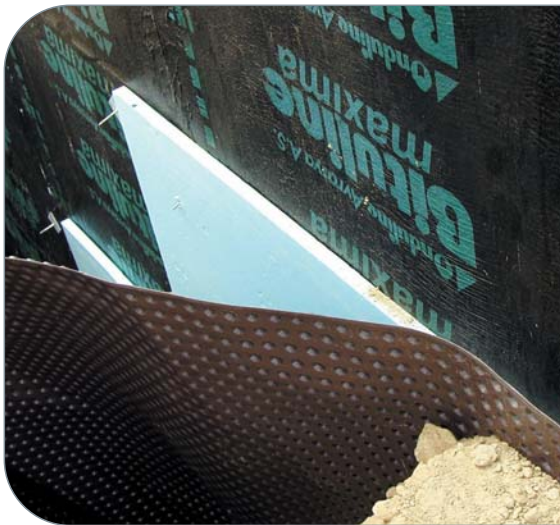
1850 naps/sqm

The naps of Fondaline resist against compressions even higher than 250 kN/m<sup>2</sup> keeping continuously an air gap of 5,5 l/sqm between the walls or floors of the building and itself. This space is big enough for the drainage of the rain or ground water, as well as for the evaporation of humidity if supported with a suitable system of ventilation.

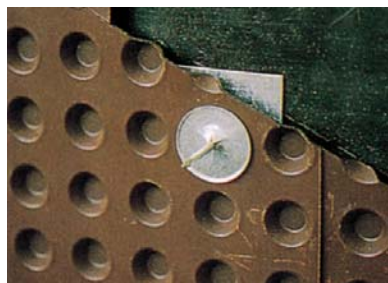
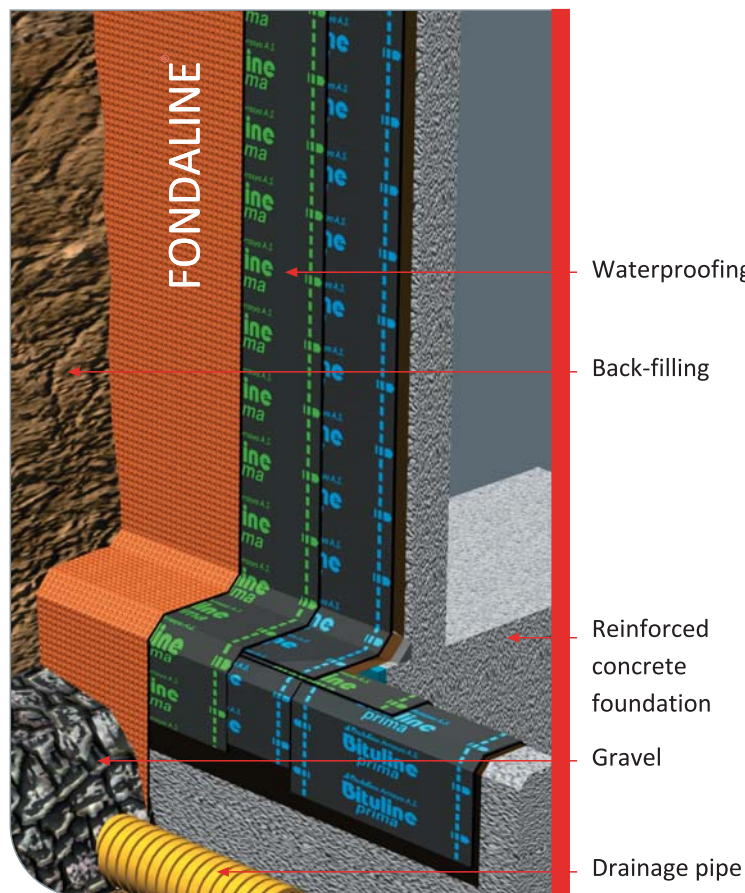
In the underground parts of the building there is also the problem of the compression caused by the soil leaning to the basement walls. Fondaline's 1850 naps by sqm provide a homogenous distribution of the ground pressure and do not allow any mechanical damage on the surface of the waterproofing materials.



## PROTECTION OF BASEMENT WALLS AND FOUNDATIONS



**DESCRIPTION:** The underground parts of buildings must be protected against damp and ground water. This is not only necessary for a comfortable use of the building but also for safety reasons. Humidity leads to the corrosion of the steel. When rust affects the reinforcement of the concrete the structure system is also damaged and this can be dangerous for the stability of the building especially in critical situations like earthquakes. Therefore, foundations and basements have to be waterproofed.



Moreover, the waterproofing materials are very sensitive. If not properly protected, they are under the risk of being damaged during the back-filling of the building site. Fondaline's tough but flexible body absorbs mechanical impacts of ground parts like stones and gravel and prevents any such damage on the waterproofing layer even if they might hit the wall.

Furthermore the air gap created by Fondaline's naps links the ground water to the drainage tube on the bottom.

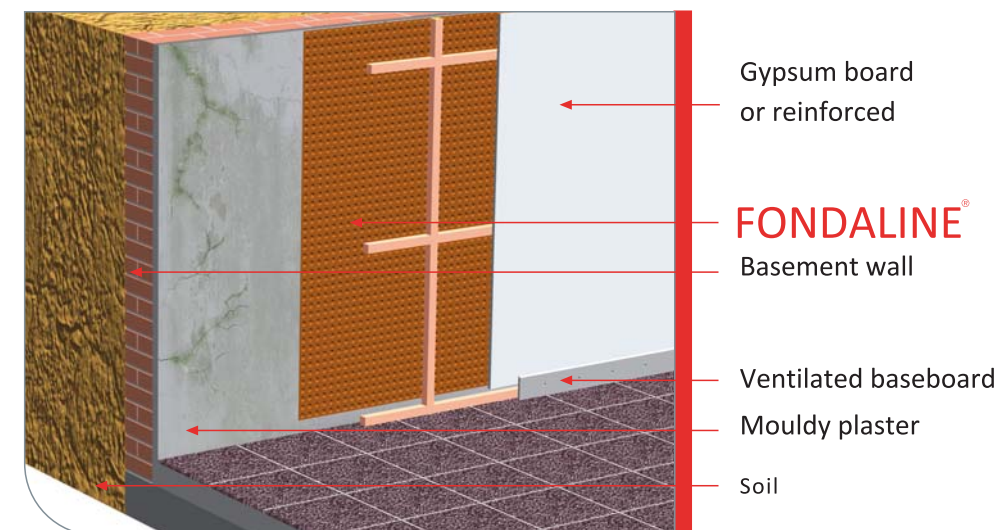
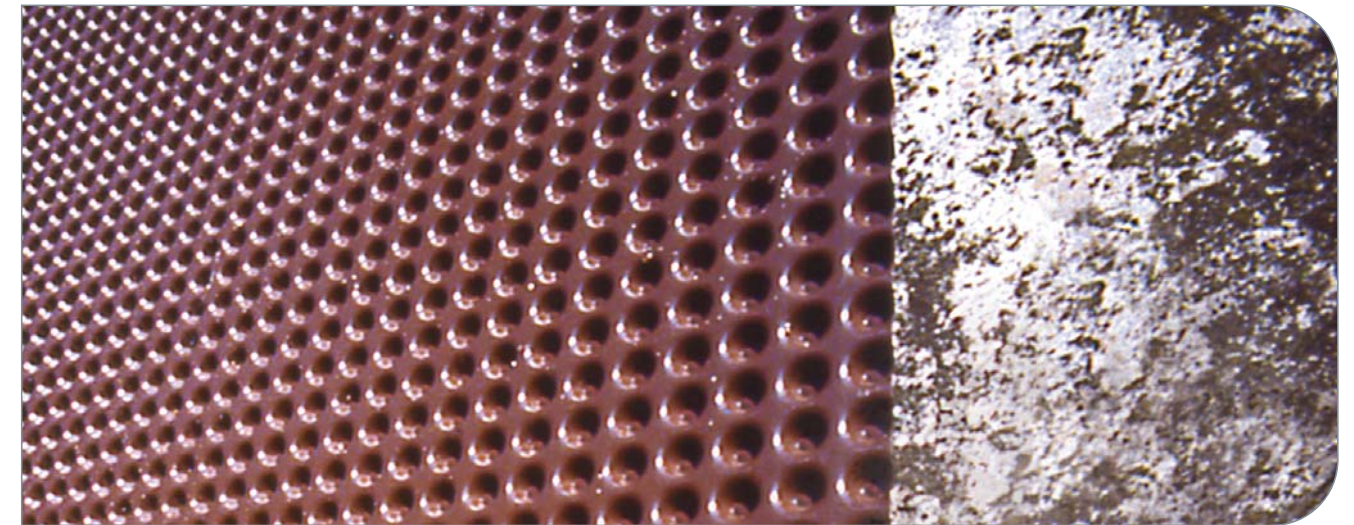
In places where there is no risk of ground water, Fondaline is also efficient if it is used as a single layer for damp proofing. During the life-time of the building Fondaline continues to protect the underground walls also against the attacks of roots and most chemicals which might be harmful for underground building parts.

### APPLICATION:

Fondaline has to be placed so that the black side touches the wall, the brown side the soil. Rolls can be applied horizontally or vertically depending on the depth of the building. Overlaps of 10 cm are necessary.

Until the back-filling the position of Fondaline has to be fixed so that no damage occurs on the waterproofing by any kind of fixing element. For this purpose the system consisting of self adhesive nails and washers can be used. If needed, the system can also be combined with hard-board insulation panels like XPS or EPS. Fondaline can be nailed directly to concrete only on levels where there is no risk of infiltration of damp or ground water.

## INTERNAL REPAIR OF WALL DAMAGES CAUSED BY DAMP AND HUMIDITY



### DESCRIPTION:

If basements are not correctly waterproofed from outside, the walls get mouldy and the damage of the humidity cannot be repaired by repainting or plastering from inside.

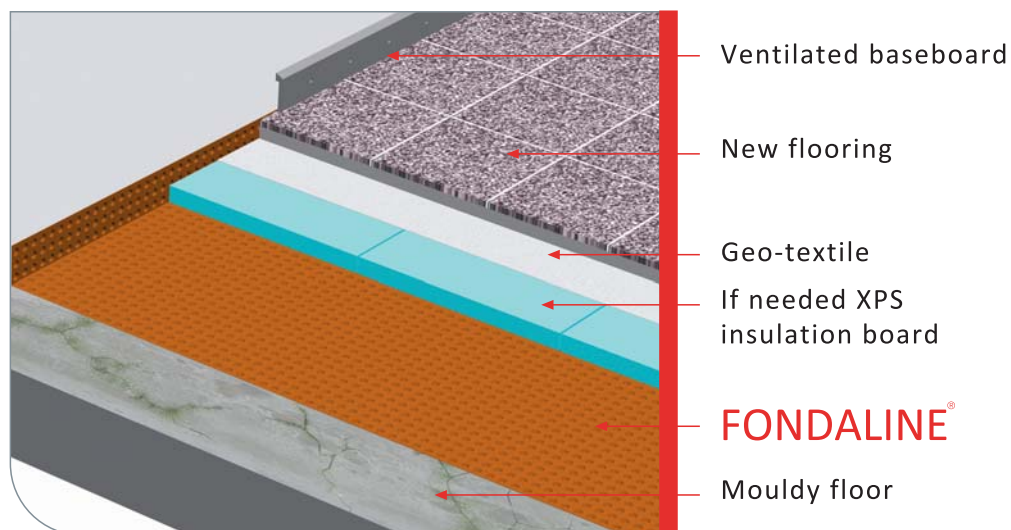
If Fondaline is applied together with a new layer of plaster or gypsum board, the final surface of the wall remains clean and smooth. Combined with openings for ventilation on the floor- and ceiling level the air gap created by Fondaline between the new finishing and the existing wall helps also to the evaporation of the damp.

### APPLICATION:

In case of roughness the existing plaster has to be repaired with cement based compounds. Fondaline has to be placed with the black side against the wall. It has to be fixed every 30cm by nails or dowels and screws. Overlaps must be of 10cm. If plaster is used for the final finishing, a reinforcement mesh, to be fixed to the wall together with Fondaline is necessary.



## INTERNAL REPAIR OF FLOOR DAMAGES CAUSED BY DAMP AND HUMIDITY



### DESCRIPTION:

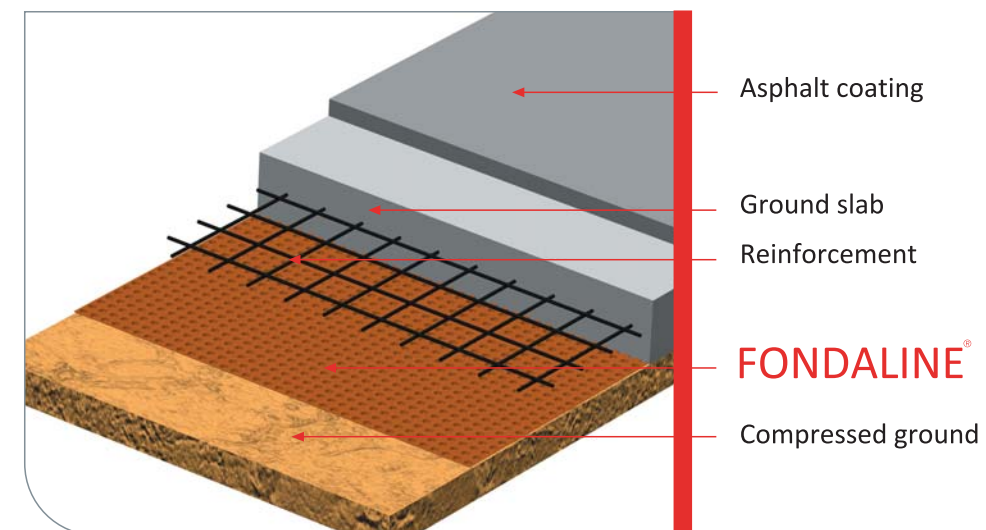
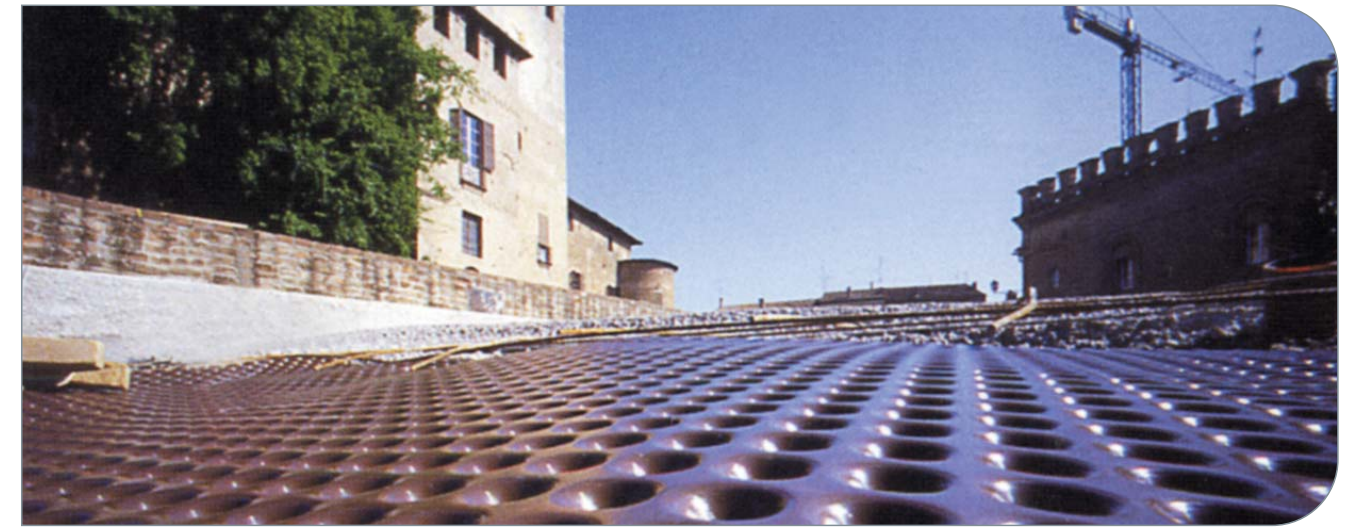
Mould is a problem also for ground slabs. If no waterproofing is made during the construction period, damages and deformations appear on finishing layers of ground slabs caused by humidity. The problem can be solved by an additional damp-proofing layer.

Fondaline is the ideal material for the internal damp-proofing of floors, because it can resist not only against humidity, but also against vertical loads, as Fondaline's 8mm high naps do not squash down. So, a continuous air gap is provided between the existing- and the new floor, which can also be ventilated at wall flashings.

### APPLICATION:

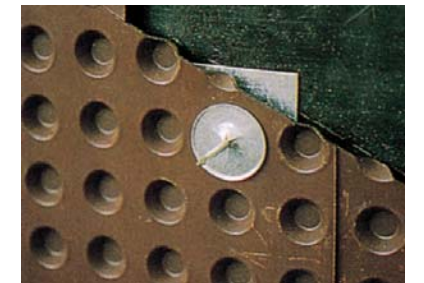
In case of roughness the existing floor has to be repaired with cement based compounds. Fondaline has to be laid with the naps (black side) to the ground. It has to be fixed every 30cm. Overlaps must be of 10cm. At wall flashings 10cm of Fondaline has to be turned upwards in order to provide a good air circulation. If necessary an insulation layer of XPS or EPS can be laid over Fondaline, which is to be covered with reinforced screed and flooring materials.

## PROTECTION OF GROUND SLABS AGAINST HUMIDITY COMING FROM THE GROUND



### DESCRIPTION:

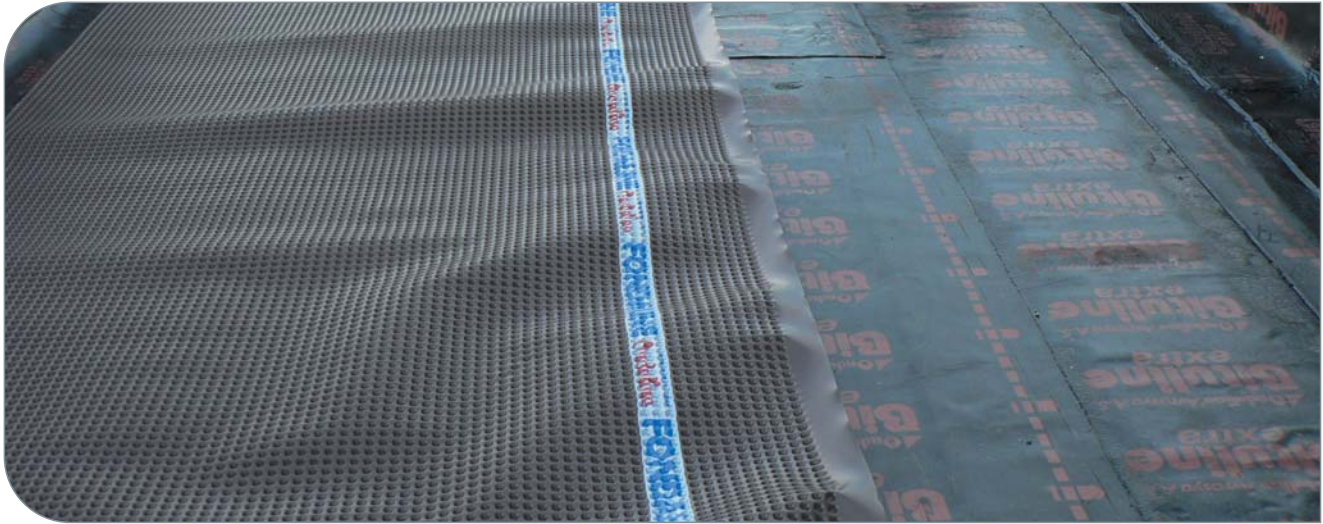
Even if concrete slabs for open areas are coated with materials like asphalt, they have to be protected against the humidity coming from the ground. The damp-proofing layer must be also resistant against impacts, compression and tearing otherwise it can easily be damaged during the construction works for the application of the ground slab. The concrete is well protected if Fondaline is laid loosely on the compressed ground. The system is also safe against mechanical damages, as the loading capacity of Fondaline is over 25 tons / sqm.



### APPLICATION:

Fondaline is laid loosely on the ground with the black side downwards. The overlaps have to be 20cm.





TECHNICAL SPECIFICATIONS	FONDALINE <sup>®</sup> 400	FONDALINE <sup>®</sup> 500	FONDALINE <sup>®</sup> 600
MATERIAL	High density polyethylene		
COLOR	Brown (to the ground)    Black (to the building)		
WEIGHT	400 gr/sqm	500 gr/sqm	600 gr/sqm
THICKNESS	0,4 mm + - % 10	0,5 mm + - % 10	0,6 mm + - % 10
LENGTH	20 m		
WIDTH	2 m		
HEIGHT OF NAPS	8 mm		
QUANTITY OF NAPS	1850 pcs/sqm		
WIDTH OF PLAIN SIDE	70 mm		
COMPRESSION STRENGTH	>100 kN/sqm	>150 kN/sqm	>250 kN/sqm
ELONGATION	% 37	% 45,4	% 43,6
TENSILE STRENGTH	5,3 kN/m	6,0 kN/m	8,64 kN/m
TEAR RESISTANCE		200 N	325 N
TEMPERATURE STABILITY		-30°C - + 80°C	
DRAINAGE GAP		5,5 L / sqm	

