

MAPEPROOF FBT SYSTEM

A TOUGH BOND TO PROTECT FOUNDATIONS

FULLY-BONDED WATERPROOFING MEMBRANE
FOR UNDERGROUND STRUCTURES





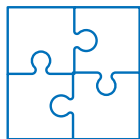
MAPEPROOF FBT SYSTEM.

**FULLY-BONDED SYNTHETIC WATERPROOFING
MEMBRANE WITH NON-WOVEN FABRIC BACKING.
IT IS USED IN COMBINATION WITH DIFFERENT
KINDS OF TAPE FOR WATERPROOFING
STRUCTURES BELOW GROUND LEVEL.**

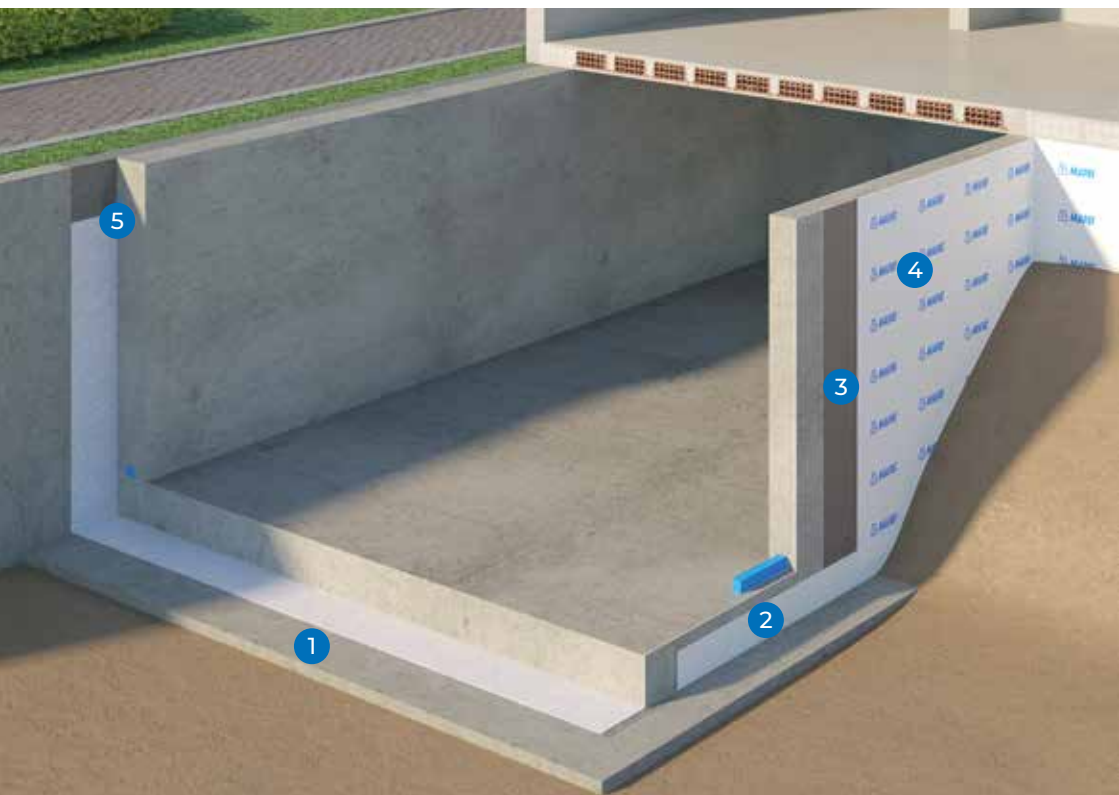
Mapeproof FBT system

A tough bond to protect foundations

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Mapeproof FBT system



Underground structure waterproofed with the Mapeproof FBT system

- 1 Mapeproof FBT
- 2 Idrostop
- 3 Mapeproof SA Primer
- 4 Mapeproof SA
- 5 Mapelastic Foundation

Longer-lasting underground structures with even better protection

The trend in the underground construction market is becoming increasingly targeted towards the use of better and longer-lasting protection and waterproofing solutions for structures. Choosing this type of solution helps reduce running costs and minimises unscheduled maintenance work.

Mapei Group has always kept a close watch on market trends and the needs expressed by its clients and constantly carries out cutting-edge research to develop materials that help protect and conserve the most critical structures. **Mapei** offers effective, safe, durable and simple solutions for all professionals from the sector and for companies specialised in waterproofing work.

Mapei has now added the **Mapeproof FBT system** to its range of waterproofing solutions for underground structures, a **fully-bonded waterproofing membrane** that integrates and completes to perfection **other protection and waterproofing systems offered by Mapei**. For applications after pouring concrete, the **Mapeproof FBT system** is completed by the use of **Mapeproof SA self-adhesive membrane**.

Day after day, **Mapei** R&D laboratories are constantly committed to **innovating their products** and industrial processes in order to supply **unique technologies** that develop and simplify the work of their clients.



Fully-bonded waterproofing

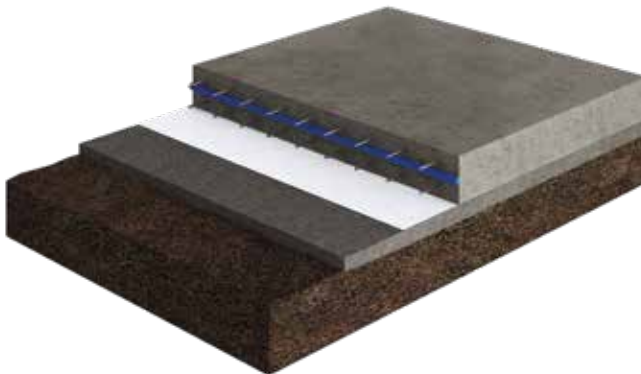
Mapeproof FBT is a waterproofing system that becomes fully bonded to poured concrete. It prevents water from migrating laterally between the foundation structure and the membrane.

It consists of a synthetic membrane with non-woven, polypropylene fabric backing which, once concrete has been poured, forms a monolithic bond with the concrete and remains perfectly bonded over time.

Mapeproof FBT forms a highly effective barrier against groundwater, moisture in the ground and radon and methane gases.

The **Mapeproof FBT** system is completed by accessory items (tapes) and **Mapeproof SA** self-adhesive membrane. By using this system, an effective, fully-bonded waterproofing membrane can be created both before and after pouring concrete.

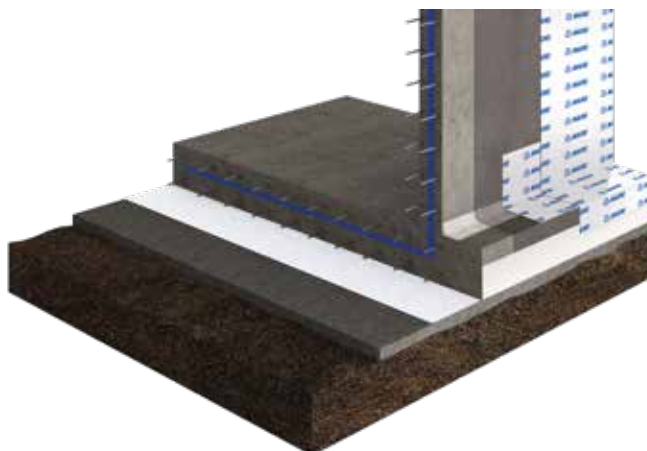
1 Mapeproof FBT: waterproofing below foundation slabs before pouring concrete

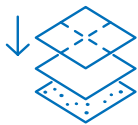


2 Mapeproof FBT: waterproofing side walls before pouring concrete



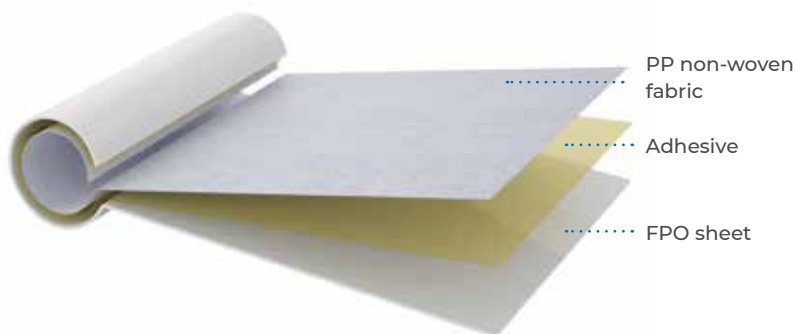
3 Mapeproof SA: used in combination with Mapeproof FBT for waterproofing retaining walls after pouring concrete





Composition of the membrane Mapeproof FBT

Mapeproof FBT is a waterproofing membrane made up of a **synthetic FPO sheet** tightly coupled to a layer of non-woven fabric thanks to an adhesive. When it comes into contact with poured concrete, the non-woven fabric forms a tough bond with the concrete.



Characteristics of Mapeproof FBT

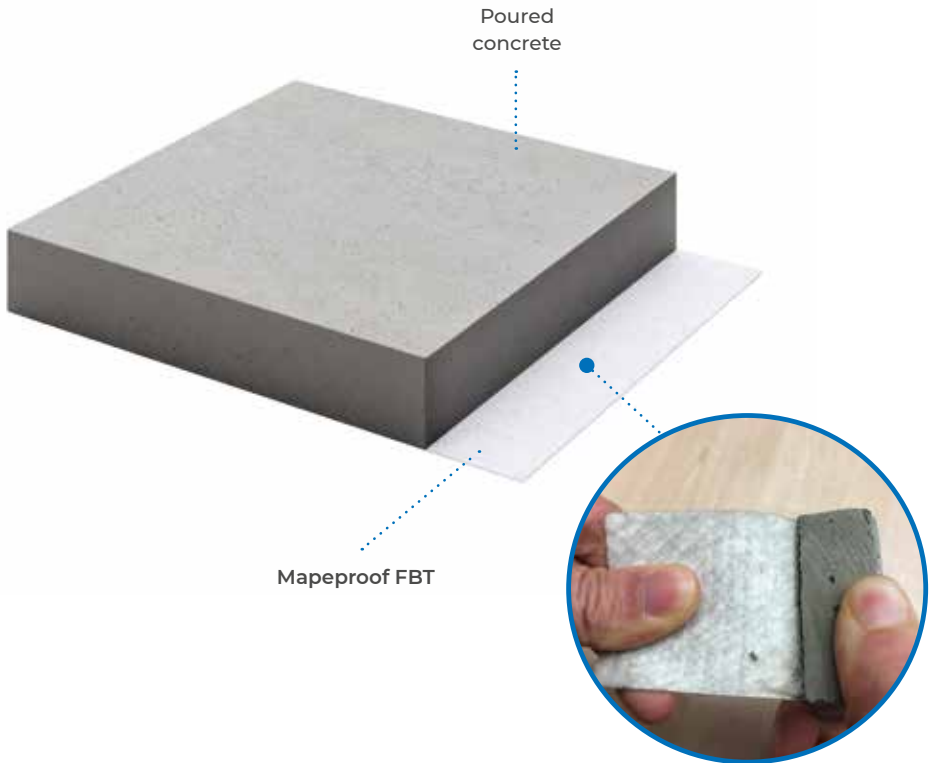
- It forms a monolithic bond with the concrete and remains **perfectly bonded over time**.
- It **prevents water from migrating laterally** between the foundation structure and the membrane.
- **Absorbs and “bridges” minor deformations** that can occur while in service.
- **Completely watertight overlaps**.
- **Cold application**, no heat and/or naked flames are required.
- It **does not require** a protective layer.
- Easy to install: it is extremely flexible and easy to **shape during installation**.
- **Guaranteed constant thickness** of 1.7 mm (thickness of FPO layer 1.2 mm).
- Highly **durable**.
- **Compatible** with other Mapei waterproofing products for underground structures.



An in-depth look at Mapeproof FBT

Forms a mechanical bond with poured concrete

A mechanical bond with poured concrete is made possible by the **numerous fibres in the non-woven fabric** which, when compressed by the weight of the poured concrete, become embedded and bonded in the concrete.



Tough bond with concrete

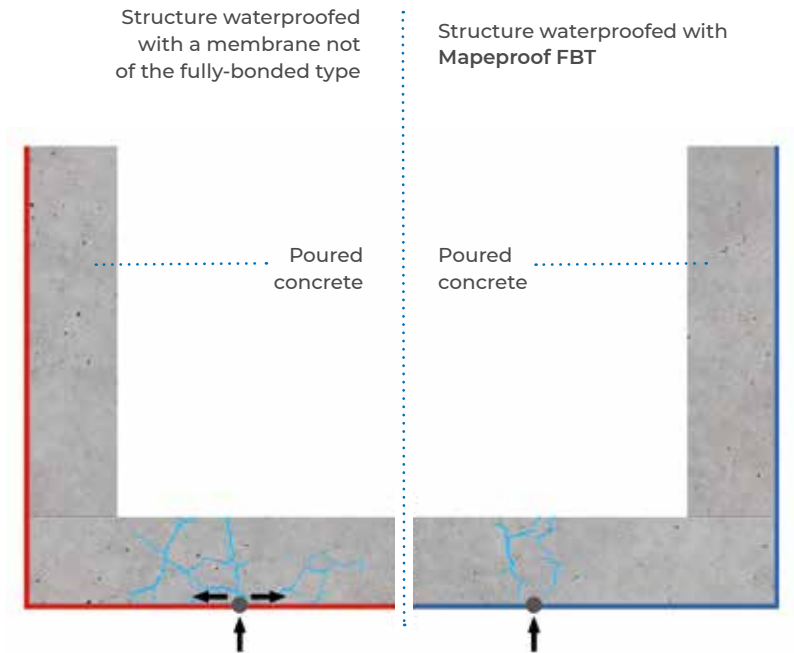


An in-depth look at Mapeproof FBT

No lateral migration of water

The main advantage of a **fully-bonded membrane** is that there is no lateral migration of water if the waterproofing system is accidentally damaged. This allows any damage to be identified very easily, which results in lower costs and downtime if the membrane needs to be repaired.

This particular characteristic is also recognised by the specifications of the **American standard ASTM D5385: Mapeproof FBT** guarantees there will be no migration of water until the **pressure reaches more than 7 bar**.



Crack-bridging

Apart from the non-woven fabric side of the membrane bonding to poured concrete, **Mapeproof FBT** also has a 1.2 mm thick **layer of flexible FPO**. This type of polyolefin guarantees the membrane has excellent mechanical properties. It also has the capacity to “**bridge**” **minor defects** that may appear in concrete structures.



*Picture taken in the laboratory showing the crack-bridging capacity of **Mapeproof FBT**.*



Advantages of the Mapeproof FBT system

The **Mapeproof FBT system** is **versatile**. It may be used to **waterproof any type of foundation** and by any **specialised waterproofing company** with experience of working with other types of waterproofing systems for foundations.



NO NAKED FLAMES
NO ENVIRONMENTAL RISKS
SAFER



EASY AND QUICK TO APPLY
COMPLETELY WATERTIGHT OVERLAPS
THE MEMBRANE HAS **EXCELLENT WORKABILITY**
AND IS VERY EASY TO HANDLE



COMPLETELY BLOCKS ALL WATER AND DAMP
NO LATERAL MIGRATION OF WATER UP TO 7 BAR
PERFECT BOND TO CONCRETE



PASSIVE BARRIER AGAINST RADON AND METHANE GASES
RESISTANT TO CHEMICALS NORMALLY FOUND
IN SOIL AND GROUNDWATER



HIGHLY FLEXIBLE FPO MEMBRANE
CAPACITY TO **ABSORB SETTLING** TYPICALLY FOUND IN
FOUNDATIONS



CE marking

Mapeproof FBT has CE marking in compliance with EN 13976
*"Flexible sheets for waterproofing - Plastic and rubber damp proof
sheets including plastic and rubber basement tanking sheet".*

CE marking is a further guarantee of the quality of this product and of the consistency of the characteristics and properties from different production batches, which remain constant over time.



Application of the Mapeproof FBT system

The **Mapeproof FBT** system is composed of **Mapeproof FBT** and **Mapeproof SA membranes**. The system is completed by special **tapes** which are required to seal joints and to waterproof around construction features. The system is **extremely easy to apply** and no heat or naked flames are required. All these characteristics allow work to be carried out quickly and in complete safety. The system is so **simple to apply** that you can always be sure of obtaining excellent results.

The Mapeproof FBT system

- A** Mapeproof FBT system
- B** Poured concrete

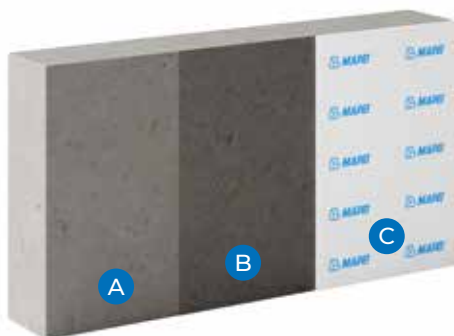




Application of the Mapeproof FBT system

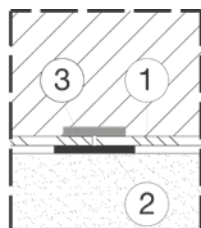
The Mapeproof SA system

- A Concrete wall
- B Mapeproof SA Primer
- C Mapeproof SA



How to make overlaps

Overlaps along the long sides of the membrane are easy to make thanks to the self-adhesive edges. **Joints between the ends** of rolls, on the other hand, are made by using **strips of Mapeproof SA Tape** and **Mapeproof FBT Tape** to create a perfectly watertight joint.



- 1 Mapeproof FBT
- 2 Mapeproof SA Tape
- 3 Mapeproof FBT Tape

1. Preparation of the substrate

Mapeproof FBT

The substrate must be sound and stable. It may be damp but there must be no ponding water. The surfaces on which **Mapeproof FBT** is to be applied must be **even and have no large protruding areas or hollows**. Substrates suitable for applying **Mapeproof FBT** include concrete, rigid insulating panels and wooden panels.

Mapeproof SA

After preparing the substrate as specified (refer to the relative Technical Data Sheet for each product), treat the surface with **Mapeproof SA Primer**, one-component primer.

Mapeproof SA Primer has a fluid consistency and is easy to **apply with a paintbrush or roller**.

2. Waterproofing

Horizontal surfaces

Install a regulating layer of lean concrete on the ground to create an even layer on which to apply the membrane. Spread **Mapeproof FBT** over the horizontal surface and run it up along the side walls to form a strip wider than the thickness of the foundation slab.

Overlap the sheets lengthways and bond them together along the self-adhesive edges. Create and seal joints between the ends of rolls with **Mapeproof FBT Tape** and **Mapeproof SA Tape**.

Before **positioning any rebar** and **pouring the concrete**, make sure all the joints are well bonded. If any of the joints are not bonded correctly, go over those areas with **Mapeproof FBT Tape**.



Application of the Mapeproof FBT system

Vertical retaining walls before pouring concrete

Before applying the sheets against **diaphragms** or **micro-piles**, **hydro-blast the surfaces** and **level off the installation bed** and the ends of the tie-rods, which should not be too rough or have large hollows, with **Mapegrout T60** fibre-reinforced, controlled-shrinkage, sulphate-resistant, thixotropic mortar for restoring concrete admixed with 0.25% of **Mapecure SRA**.

When applying the sheets against **piles**, these only need to be **hydro-blasted**. Then waterproof all the side walls by applying **Mapeproof FBT**, starting at the top of the walls and working downwards, until it blends in with the strip of **Mapeproof FBT** at the bottom of the walls, before pouring the concrete for the foundation slab.

After applying the waterproofing system, and before pouring the concrete, check all the overlaps and joints. Make sure they are all well bonded and, if any of them are not bonded correctly, go over these areas with **Mapeproof FBT Tape** to make them watertight.

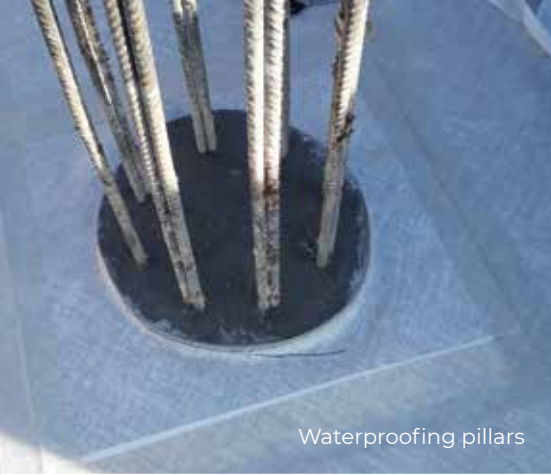
Vertical retaining walls after pouring concrete

After applying the primer, lay the **Mapethene SA** membrane on the substrate:

- remove around 30 cm of the protective film
- line up the membrane in the direction it is to be applied
- apply the membrane to the substrate, starting from the highest point
- gradually remove the protective film so that the membrane bonds evenly to the substrate

Overlaps between adjacent rolls of membrane must be at least 5 cm wide. Continue applying the membrane by lining it up with the HDPE film of the roll of membrane already positioned and apply the adjacent roll of membrane.

It is important to carefully go over the overlaps again with a rubber roller.



Waterproofing pillars



Installing the membrane on perimetral formwork



Waterproofing horizontal surfaces



Positioning rebar

A horizontal surface completely waterproofed



Waterproofing horizontal surfaces



Positioning rebar



Example of site with a waterproofing system

EVERYTHING'S OK WITH MAPEI

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