

MAPEPROOF FBH SYSTEM

**RESISTANT
AND TIGHTLY BONDED
TO CONCRETE**

Fully-bonded synthetic membrane
for waterproofing underground structures





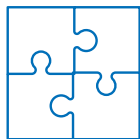
**MAPEPROOF FBH SYSTEM.
HDPE WATERPROOF SHEET COUPLED
WITH NON-WOVEN FABRIC,
FOR WATERPROOFING UNDERGROUND
STRUCTURES IN TOTAL ADHESION.**

Mapeproof FBH system

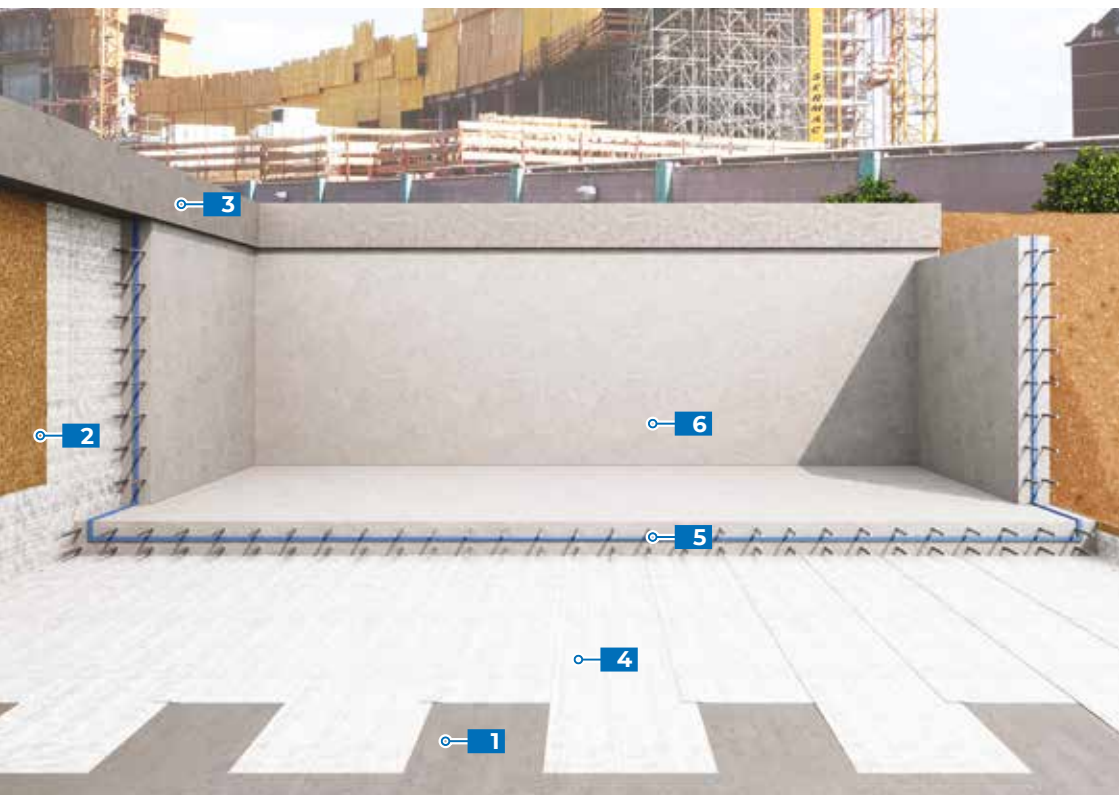
Fully-bonded synthetic membrane

for waterproofing underground structures

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Mapeproof FBH system



1 Poor concrete

2 Piling levelled
with formwork panels

3 Topping beam

4 Mapeproof FBH

5 Idrostop

6 Concrete structure

Waterproofing and durable protection of underground structures

The **development of economy** and infrastructures has led to a more and more intense **exploitation** of available spaces, especially in bigger cities' **underground**.

The **market of underground structures** is increasingly oriented towards greater and more **durable protection** and **waterproofing of structures**. This choice reduces service costs and minimises scheduled maintenance interventions on said structures.

Mapei Group has always been attentive to market trends, clients' needs and advanced research for new materials that can protect and preserve the most complicated structures. **Full-bonded membranes are proposed** as an **efficient, safe, durable** and **easy solution** for professionals and waterproofers.

Mapeproof FBH system, HDPE waterproofing membrane coupled with **non-woven fabric**, together with system accessories and adhesive membranes applied after pouring concrete (**Mapeproof SA**, **Mapeproof AL 1200 AP** and **Mapethene HT** and **LT**), is a perfect integration and completion to other **Mapei** systems for the waterproofing of underground structures.



Fully-bonded waterproofing

Mapeproof FBH is a waterproof **fully-bonded** membrane that **completely adheres** to concrete pouring. It is made of a synthetic **HDPE sheet coupled with a polypropylene non-woven fabric** that, after pouring concrete, completely adheres to it and remains permanently bonded over time.

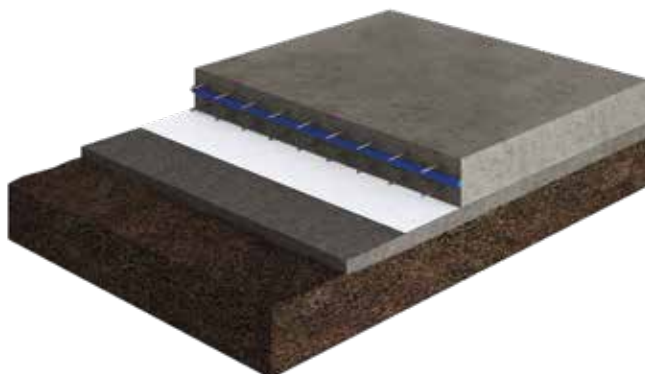
Such **adhesion completely prevents lateral water migration** between the foundation structure and the sheet.

Furthermore, **Mapeproof FBH** acts as an efficient **barrier against groundwater, soil moisture and gases** such as **Radon** and **methane**.

Mapeproof FBH system is completed by ancillary products for installation such as **Mapeproof FBT Tape 600** or **Mapeproof Liquid Membrane**. For continuous waterproofing on vertical surfaces it is possible to apply **Mapeproof AL 1200 AP** self-adhesive HDPE membrane or, alternatively, **Mapeproof SA** waterproofing membrane made of a high density, highly resistant cross polyethylene sheet (HDPE), or again self-adhesive bituminous membranes **Mapethene HT** or **Mapethene LT**.



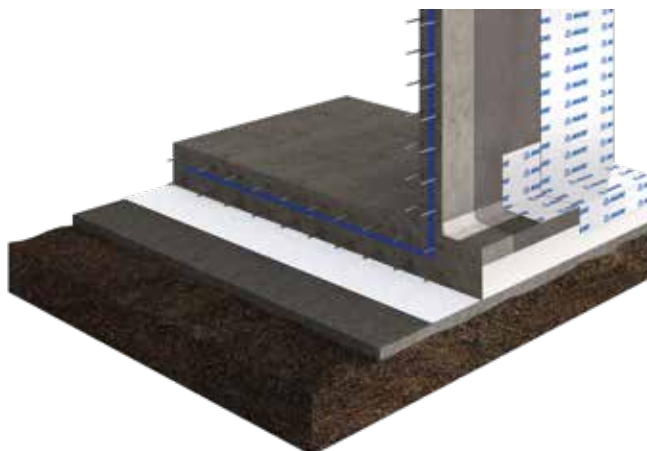
Mapeproof FBH: waterproofing below foundation slabs before pouring concrete

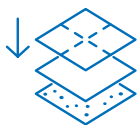


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- 2 Mapeproof FBH: waterproofing side walls before pouring concrete



- 3 Mapeproof SA / Mapeproof AL 1200 AP: waterproofing retaining walls after pouring concrete, in combination with Mapeproof FBH

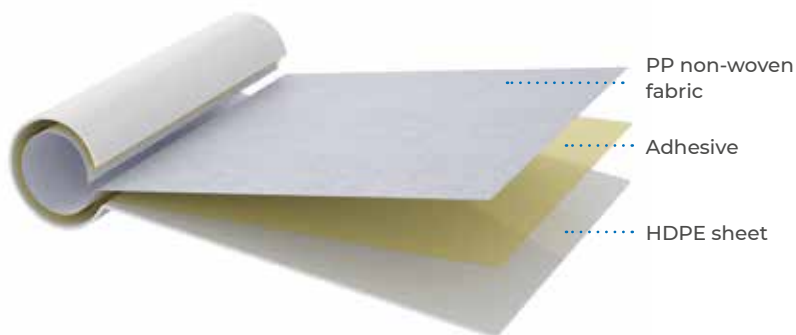




Composition of Mapeproof FBH membrane

Mapeproof FBH is a waterproofing membrane made of a **synthetic HDPE sheet** which is tightly coupled with a non-woven fabric layer through a strong adhesive. The **non-woven fabric**, when in contact with poured concrete, grants an **excellent adhesion**.

Furthermore, a **double adhesive selvedge** is present on both sides of the roll (**SealLap**), granting a **perfect sealing of overlaps** in any weather condition.



Characteristics of Mapeproof FBH

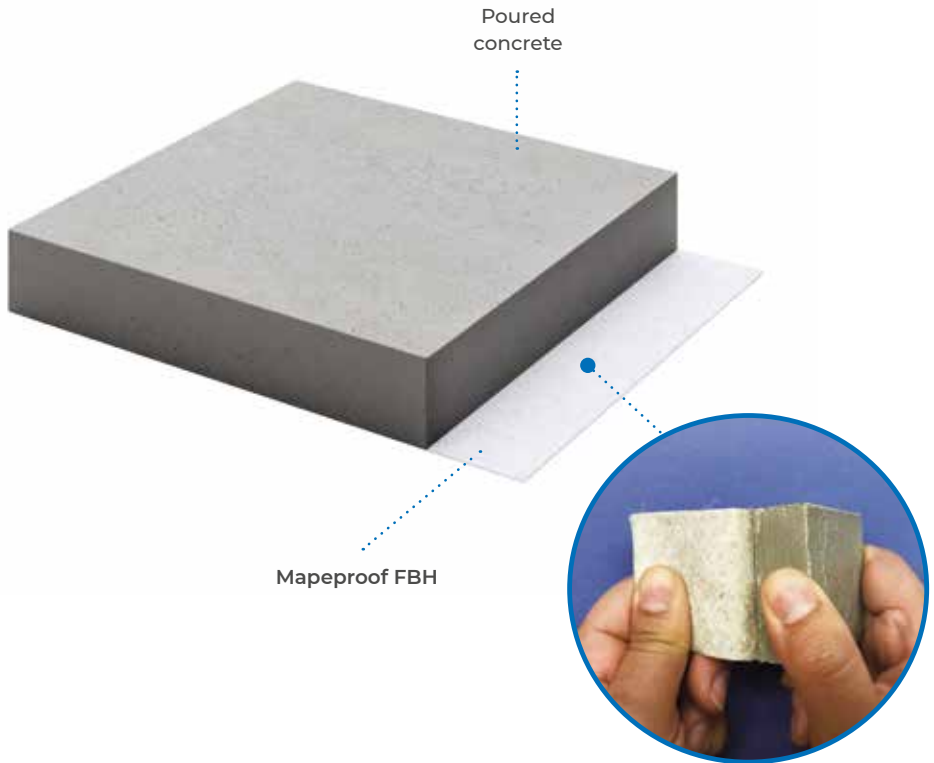
- Monolithic bond with the concrete and **permanent adhesion over time**.
- No **lateral water migration** between foundation structures and the membrane.
- **Completely watertight overlaps** thanks to **SealLap** technology.
- **Cold-applied**, no heat and /or naked flames are required.
- **Easy to install**: can be easily shaped during application.
- No protection cover required.
- Guaranteed **constant thickness** of 1.25 mm (0.8 mm of HDPE sheet).
- Can absorb and **level off small deformations** that can occur during application.
- **Puncture resistant**.
- **Resistant to aggressive or polluting substances** present in soil and underground.
- **Highly durable**.
- **Compatible with other Mapei** waterproofing **products** for underground structures.



About Mapeproof FBH

Mechanical adhesion to poured concrete

Mechanical adhesion to concrete is made possible by the numerous fibres of non-woven fabric that are embedded and bonded with the structure, when compressed by the weight of the poured concrete.





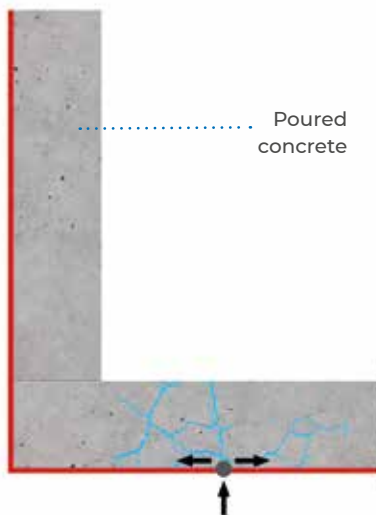
About Mapeproof FBH

No lateral migration of water

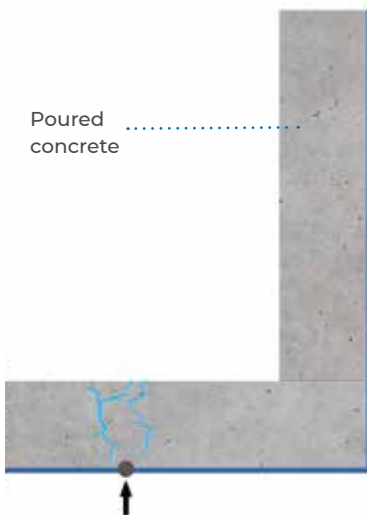
The main advantage of a **fully-bonded membrane** is the **absence of water migration between membrane and concrete** in case of accidental damage to the waterproofing system.

This enables any **damages** to the membrane to be **spotted easily** and thus quickly repaired. This feature has been evaluated according to **ASTM D5385 American Standard: Mapeproof FBH** prevents water migration up to over 7 bar pressure.

Structure waterproofed with a not fully-bonded membrane



Structure waterproofed with Mapeproof FBH

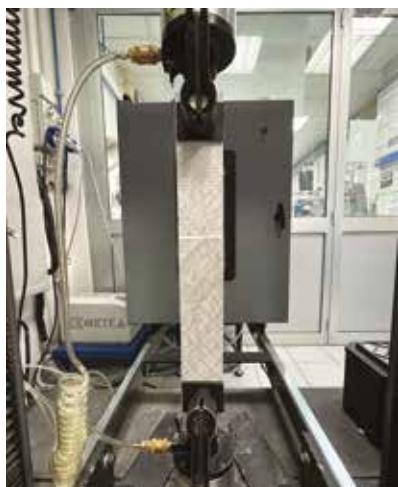


SealLap: high yield performance for overlaps

Mapeproof FBH membrane stands out for its **double selvedge** on the full length of the roll. Thanks to the double adhesive layer, **SealLap** grants a **perfect seal between sheets** during application and most of all a **stable yield** both at **higher and lower temperatures**.



*Mapei laboratory:
peel test on SealLap.*



Mapei Laboratory: share test on SealLap.



Advantages of Mapeproof FBH system

Mapeproof FBH is suitable for **waterproofing any type of foundation before pouring concrete**, through application guaranteed by the **best teams of installers** of synthetic membranes.



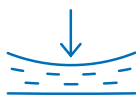
NO NAKED FLAMES
NO ENVIRONMENTAL
RISK
BETTER SAFETY



PASSIVE BARRIER
TO RADON
AND METHANE GAS
RESISTANT TO
CHEMICALS PRESENT
IN SOIL AND
GROUNDWATER



QUICK AND EASY
TO APPLY
FULLY WATERPROOF
OVERLAPS
HIGHLY WORKABLE
AND MANAGEABLE
MEMBRANE



HDPE **HIGHLY**
FLEXIBLE MEMBRANE
CAN **ADAPT TO**
FOUNDATIONS'
NATURAL
SETTLEMENTS



TOTAL BARRIER
AGAINST WATER
AND MOISTURE
NO LATERAL WATER
MIGRATION UP TO 7 BAR
PERFECT ADHESION
TO CONCRETE



DOUBLE ADHESIVE
SELVEDGE
HIGH YIELD OVERLAPS
IN ANY WEATHER
CONDITION



CE marking

Mapeproof FBH is CE marked according to EN 13967 "Flexible sheets for waterproofing - Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheets".

CE marking us a further guarantee of the product's quality and of its features' consistency over time, through all the production batches.



Application of Mapeproof FBH system

Mapeproof FBH system is made of waterproofing membranes to be applied before (**Mapeproof FBH**) and after pouring concrete (**Mapeproof AL 1200 AP** or **Mapeproof SA** or **Mapethene HT/LT**), together with adhesive tapes and complementary products. The system is extremely **easy to apply** and **does not require heat**, nor **naked flames**. These features enable working fast and in **total safety**, while the **easy application** of the system always grants an **excellent final result**.

Mapeproof FBH system

- A** Mapeproof FBH
- B** Poured concrete





Application of Mapeproof FBH system

Mapeproof SA or Mapeproof AL 1200 AP system

- A Concrete wall
- B Mapeproof SA Primer
- C Mapeproof SA or
Mapeproof AI 1200 AP



How to carry out overlaps



Longitudinal overlaps are easily carried out thanks to **SealLap** double self-adhesive selvedge.



End joints between different rolls or on **corners** and **edges** are instead carried out thanks to **Mapeproof FBT Tape 600**, which creates a perfectly sealed junction.

1. Preparation of the substrate

Mapeproof FBH

Substrates must be sound and stable and may also be damp, but there must be no standing water. The surfaces on which **Mapeproof FBH** is to be applied must be even and have no large protruding areas or hollows.

Substrates suitable for applying **Mapeproof FBH** include concrete, rigid insulating panels and wooden panels.

Mapeproof SA or Mapeproof AL 1200 AP

For wall application after pouring concrete and after a suitable preparation of the substrate (always refer to the respective Technical Data Sheets), apply one-component **Mapeproof SA Primer**. **Mapeproof SA Primer** has a fluid consistency which makes it very easy to apply by brush or roller.

2. Waterproofing

Horizontal surfaces

Pour lean concrete on the ground to create an even layer on which to apply the membrane. Place **Mapeproof FBH** over the horizontal surface and run it up along the side walls to form a strip wider than the thickness of the foundation slab (confined excavations) or slightly below the external side of the slab (open excavations).

Overlap the sheets lengthways so that the self-adhesive dual lap selvages hold them in place. Use **Mapeproof FBT Tape 600** to **join the ends** between different sheets.

Before placing the steel reinforcement and pouring the concrete, make sure all the joints are well bonded. If any of the joints are poorly bonded, apply more **Mapeproof FBT Tape 600** to form a better bond.



Application of Mapeproof FBH system

Vertical retaining walls prior to pouring concrete

Before applying the sheets against **diaphragms** or **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 carefully hydro-blasted.

Then waterproof the side walls by applying **Mapeproof FBH**, starting from the top of the walls and working downwards until it joints with the strip at the bottom of the walls, applied before pouring the foundation slab.

Once the waterproofing system has been installed, check the overlaps and joints before pouring the concrete to make sure they are all well bonded. If any of them are poorly bonded, apply more **Mapeproof FBT Tape 600** to form a better bond.

Between each pour of concrete, the construction joint that forms must be sealed with **Idrostop**, hydro-expanding acrylic profile to be placed at the midpoint of the construction joint.

Vertical surfaces after pouring concrete

Clean the surface and apply **Mapeproof SA Primer** with brush or roller after complete curing of vertical structures. Wait for the primer to dry and when its surface is still sticky to the touch, apply **Mapeproof SA** or **Mapeproof AL 1200 AP** self-adhesive membranes:

- remove approx 30 cm of protective film
- put the sheet in place
- apply the membrane on the substrate, starting from the top
- gradually remove the protective film, making sure the membrane adheres perfectly to the substrate

Adjacent sheets must have an overlap of at least 5 cm. Continue the application aligning the new membrane on the HDPE layer of the already applied sheet and carry out application of the adjacent roll.

Both before and after pouring concrete, while applying membranes, it is fundamental to accurately press all overlaps using a rubber roller.



Building site



*Unrolling Mapeproof FBH
on horizontal surface*



SealLap double adhesive seldge



SealLap double adhesive seldge



*Application of Mapeproof FBH
on vertical surface*



Joining corners of Mapeproof FBH

EVERYTHING'S OK WITH MAPEI

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