

# SECUFLEX®

Pre-applied fully bonded membrane system (FBVS)





## OUR MISSION: FORWARD CONSTRUCTING.

It is our mission not only to provide the very latest building technology, but also to be one crucial step ahead of the game at all times. That is why we are constantly undertaking pioneering work in all product areas. Our employees consistently put their extensive practical experience and creativity to use in the interests of our customers. In constant dialogue with our target groups on a partnership basis, we are already developing the products today that will be needed tomorrow. Our momentum continues to set new benchmarks in structural engineering – yesterday, today and tomorrow, too. This is what we mean by "forward constructing".

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We are always there for you.  
We will be wherever you are.

# TECHNOLOGY AND SYSTEM

## SEALING CHALLENGES

Construction projects today present increasingly greater challenges for all parties involved in their planning and implementation. The complexity of the constructions, environmental and any other applicable conditions, as well as an extremely wide variety of different demands in terms of use and maintenance require detailed knowledge from all concerned. Only a perfect interplay between planning and execution as well as the coordination of building materials and supplies facilitate a high standard of quality, simultaneously prevent a high level of consequential costs and, in so doing, bring a project to an economically successful conclusion.

Water-impervious buildings with high-grade utilisation are a prominent example of the construction projects described above, which is why pre-applied fully bonded membrane systems (FBVS) are increasingly used in this area. These products are applied across the surface and are used as additional support for structures planned and built in line with watertight structure guidelines to reduce the cost and effort required for curing unplanned water-bearing separating cracks to a minimum for buildings with high-grade utilisation in particular. The application of the bonding system is brought forward, as it primarily features fresh concrete and requires structural components to be accessible. As pre-applied fully bonded membrane systems are not yet regulated by watertight structure guidelines or other provisions, their use must be contractually agreed in advance with the building developer.

## AREA OF APPLICATION OF AN FBVS

The main area of application for pre-applied fully bonded membrane systems are water-impervious concrete structures with high-grade utilisation. As an additional sealing measure that is applied early on in the process, they need to be properly planned and implemented to avoid water running behind and prevent water transport to defects and unplanned separating cracks in water-impervious structures. In this way, these structures remain dry and the otherwise required subsequent repairs, usually by means of injection, are reduced to a minimum.

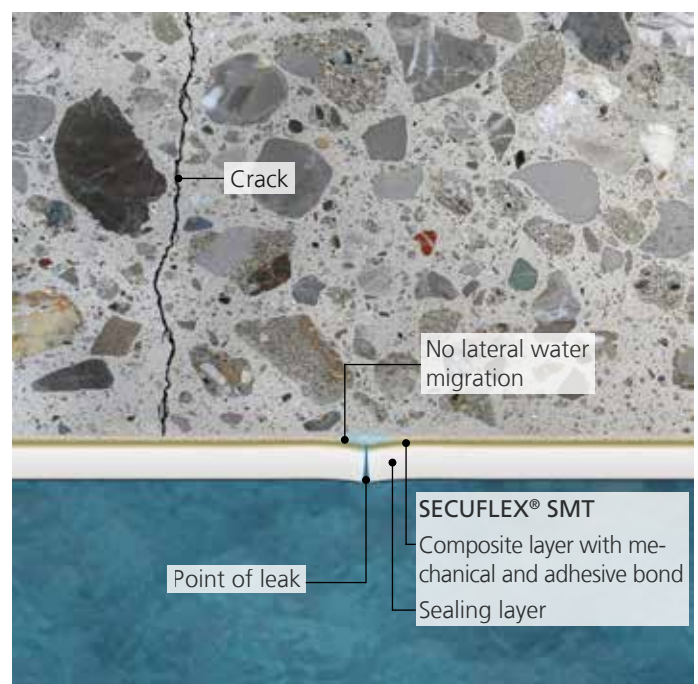
## TECHNOLOGY AND EFFECT

### HOW IT WORKS

Pre-applied fully bonded membrane systems comprise a sealing layer and a bonding layer, which are joined together permanently. These are supplemented with other components, such as adhesive tapes, liquid plastics, epoxy resin mortar, etc., which make a pre-applied fully bonded membrane system into a functional surface sealing system. Solutions for joints, penetration and corners also form an integral part of the system.

The sealing layer may contain flexible plastic or bitumen sealed against pressurised water. The bonding layer can be implemented in different ways to ensure bonding with the fresh concrete. The following versions are possible: Cement-adhesive, mechanical-adhesive, cement-mechanical-adhesive or bitumen-adhesive.

All systems aim to achieve bonding that permanently prevents water running behind in combination with a water-impervious structure. To achieve this goal, there must not be any bonding defects in the boundary layer between the pre-applied fully bonded membrane film and the concrete. If contamination, rainwater, damage or other factors impair bonding, these must be removed or repaired prior to concreting. As far as the system is concerned, the consistency of the concrete and the compacting energy can also affect the bonding quality.



# TECHNOLOGY AND SYSTEM

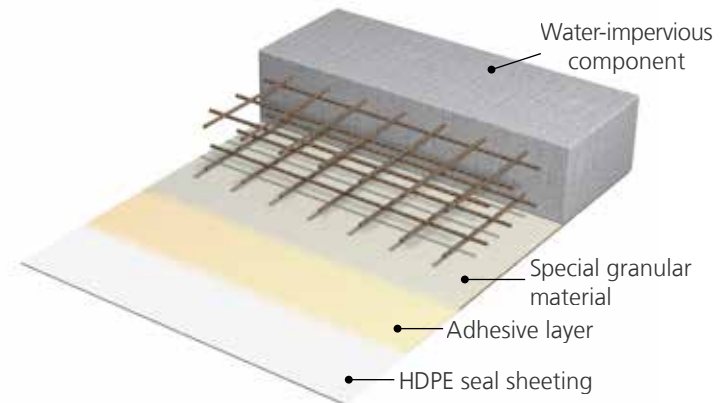
## THE PRODUCT

SECUFLEX® is characterised by its three-layer structure. The pre-applied fully bonded membrane system comprises HDPE seal sheeting as the sealing layer, an adhesive layer covering the entire surface as well as special granular material at the top. The adhesive area integrated along one edge makes it possible to connect neighbouring strips. The system also includes different sealing tapes, which are used to connect strips and corners depending on the specific situation.

The granular material serves two purposes. On the one hand, it protects the bonding layer against contamination. On the other, it increases the surface area and roughness. The resulting interlocking with the cement paste additionally increases the bonding with the adhesive layer activated by hydration heat and concrete pressure. The mechanical-adhesive bonding created in this way in the contact zone between SECUFLEX® and the concrete structure guarantees the product's basic characteristic: The high bonding strength to the structure and the reliable prevention of water running behind even when subjected to significant amounts of water. To guarantee the perfect function of SECUFLEX®, damage to the seal sheeting and contamination of the granular surface must be prevented or eliminated prior to concreting. In the case of dry, loose contamination, the surface is cleaned by sweeping or extracting. Moist or stubborn dirt is removed using a gentle jet of water. The water used for cleaning, as well as any rainwater, must be removed prior to concreting.

As usual, the familiar joint seals PENTAFLEX®, KUNEX® or PLURAFLEX® protect construction, crack control and expansion joints in the water-impervious structure. The additional use of SECUFLEX® along the outside of those joints makes for reliable surface sealing, which permanently and securely bridges even wide cracks and prevents water entering separating cracks and defects thanks to full-surface bonding.

## SYSTEM CONSTRUCTION



## SYSTEM CONSTITUENT PARTS

- SECUFLEX® SMT – HDPE seal sheeting as pre-applied fully bounded membrane film with adhesive layer and special granular material
- SECUFLEX® ST – HDPE sealing strips with adhesive layer and without special granular material for subsequent masking of joints
- SECUFLEX® MT – One-sided self-adhesive sealing tape with laminated HDPE film for connecting butt joints on the water side
- SECUFLEX® PT – One-sided self-adhesive sealing tape with special granular material for application on the concrete side, e.g. for protecting butt joints
- SECUFLEX® DT – Double-sided self-adhesive sealing tape for taping films together to replace or supplement the SMT seal sheeting tape

## SYSTEM PRODUCTS FOR A WATER-IMPERVIOUS STRUCTURE

- PENTAFLEX® – The seam sheet system for all construction joints and crack control joints
- KUNEX® – The successful joint tape for all expansion and construction joints
- PLURAFLEX® – The versatile injection hose for all commonly used injection materials





## SECUFLEX®

### PRE-APPLIED FULLY BONDED MEMBRANE SYSTEM (FBVS)

#### THE PRODUCT

The SECUFLEX® pre-applied fully-bonded membrane system is a surface seal comprising HDPE seal sheeting and different sealing tapes. It is used together with a joint seal system (e.g. PENTAFLEX®) to guard against pressurised water in water-impervious structures. An adhesive layer, combined with a matching special granular material, ensures a bond between the surface seal and the concrete which prevents water from running behind it. In this way, unplanned cracks in the water-impervious structure are reliably bridged and remain permanently dry.

#### ADVANTAGES

- Very good material properties
- No water running behind due to mechanical and adhesive bonding
- Crack-bridging
- Consistency class from F3
- Bonding independent of vibration energy
- Integrated longitudinal tape

#### THE APPLICATION

The SECUFLEX® pre-applied fully-bonded membrane system is primarily used for buildings with high-grade utilisation, such as libraries, schools, shopping centres or hospitals. It is intended for use with water-impervious concrete structures and subject to appropriate contractual agreements with the building developer.

# TECHNICAL INFORMATION



## SECUFLEX® SMT 1212

HDPE seal sheeting as pre-applied fully bonded membrane film with adhesive layer and special granular material.

Dimensions:

- l = 20 m
- w = 1200 mm
- d = 1.2 mm



## SECUFLEX® ST 600

HDPE sealing strips with adhesive layer and without special granular material for subsequent masking of joints.

Dimensions:

- l = 20 m
- w = 600 mm
- d = 1.2 mm



## SECUFLEX® MT 150

One-sided self-adhesive sealing tape with laminated HDPE film for connecting butt joints on the water side.

Dimensions:

- l = 50 m
- w = 150 mm
- d = 0.3 mm



## SECUFLEX® PT 150

One-sided self-adhesive sealing tape with special granular material for application on the concrete side, e.g. for protecting butt joints.

Dimensions:

- l = 20 m
- w = 150 mm
- d = 1.0 mm



## SECUFLEX® DT 75

Double-sided self-adhesive sealing tape for taping films together to replace or supplement the SMT seal sheeting tapes.

Dimensions:

- l = 30 m
- w = 75 mm
- d = 1.0 mm

# TECHNICAL INFORMATION

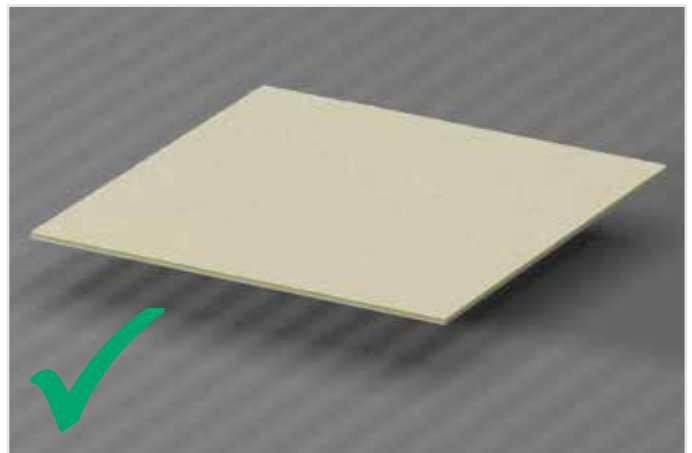
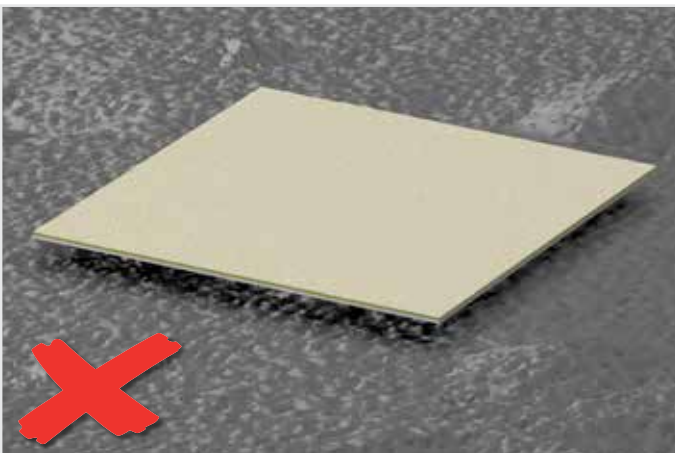
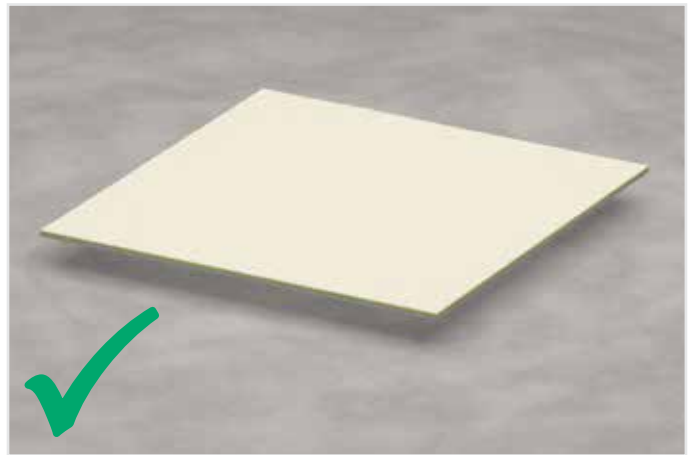
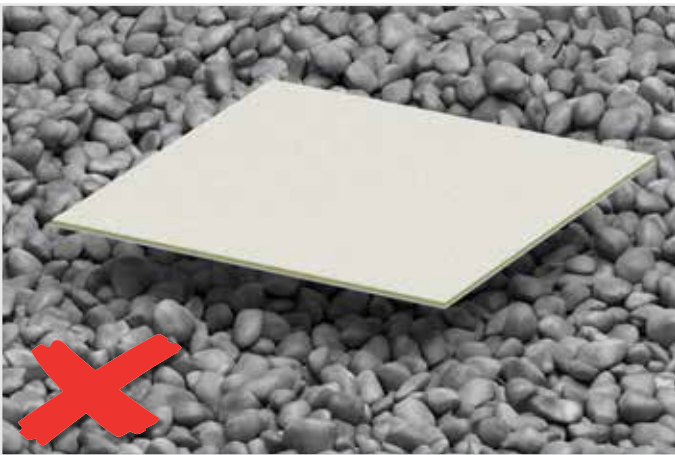
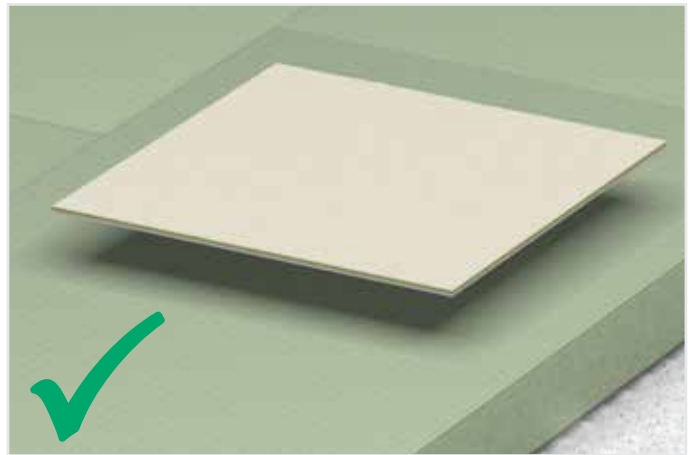
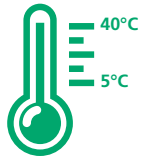
## MATERIAL CHARACTERISTICS

Properties in accordance with DIN 13967	Testing standard	Test result
Visible defects	DIN EN 1850-2	Passed
Dimensions and deviations	DIN EN 1848-2	Length: 20 m ± 0.10 m Width: 1200 mm ± 5 mm Straightness: Passed
Thickness and area density	DIN EN 1849-2	Membrane thickness: 0.9 mm (+10/-5%) Area density: 1550 g/m <sup>2</sup> ± 10%
Watertightness	DIN EN 1928-A Water pressure 60 kPa (0.6 bar)	Passed
Watertightness	DIN EN 1928-B Water pressure 400 kPa (4.0 bar)	Passed
Resistance against impact load	DIN EN 12691-A Substrate: Al plate	Fall from 400 mm height
Resistance against impact load	DIN EN 12691-B Substrate: EPS plate	Fall from 800 mm height
Durability against heat ageing	DIN EN 1296 and DIN EN 1928-A	Passed
Durability against chemicals	DIN EN 1847 and DIN EN 1928-A	Passed
Compatibility with bitumen	DIN EN 1548 and DIN EN 1928-A	Passed
Tear propagation resistance (nail shank)	DIN EN 12310-1	Longitudinal ≥ 500 N Transverse ≥ 650 N
Shear resistance of joint seams	DIN EN 12317-2	≥ 650 N/50 mm
Steam permeability	DIN EN 1931-B	g: 6.97*10 <sup>-10</sup> kg/(m <sup>2</sup> *s) ± 30%
Resistance against static load	DIN EN 12730-A Substrate: EPS plate	Load ≤ 15 kg
Resistance against static load	DIN EN 12730-B Substrate: Concrete	Load ≤ 20 kg
Resistance against static load	DIN EN 12730-C Substrate: EPS plate	Load ≤ 15 kg
Tensile properties (maximum tensile force)	DIN EN 12311-2	Longitudinal ≥ 120 N/6 mm Transverse ≥ 140 N/6 mm
Tensile properties (tearing strength)	DIN EN 12311-2	Longitudinal ≥ 13 N/mm <sup>2</sup> Transverse ≥ 14 N/mm <sup>2</sup>
Tensile properties (elongation at tear)	DIN EN 12311-2	Longitudinal ≥ 500 N Transverse ≥ 650 N
Fire behaviour	DIN EN ISO 11925-2 and EN 13501-1	Class E



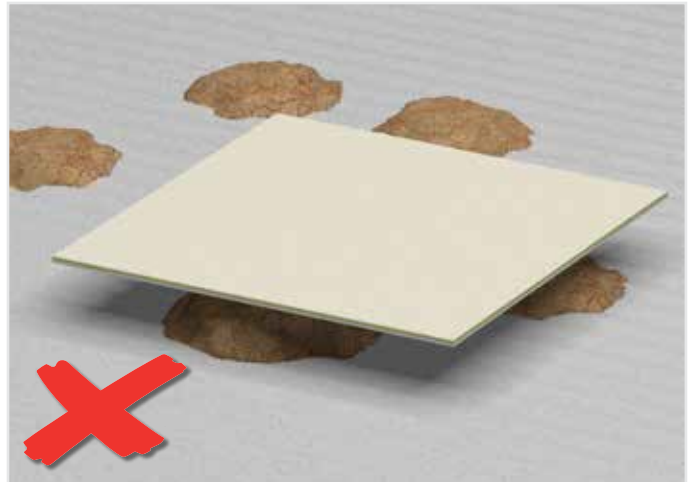
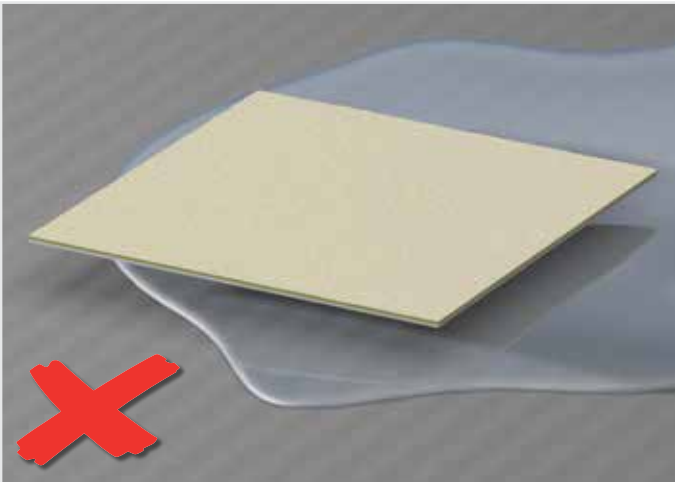
# INSTALLATION INSTRUCTIONS

## PRELIMINARY NOTES



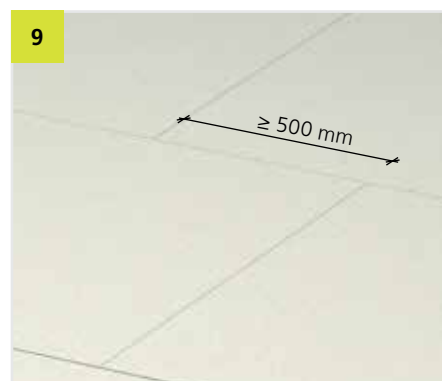
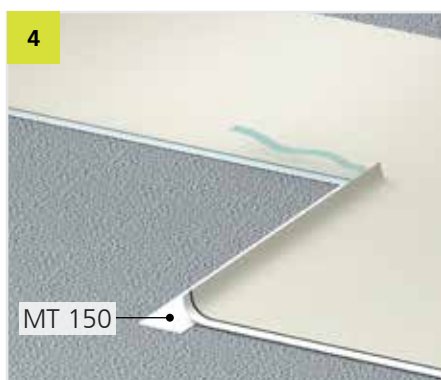
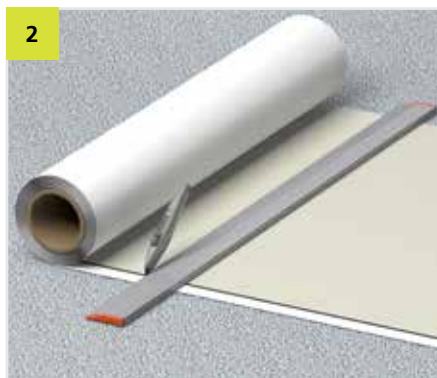
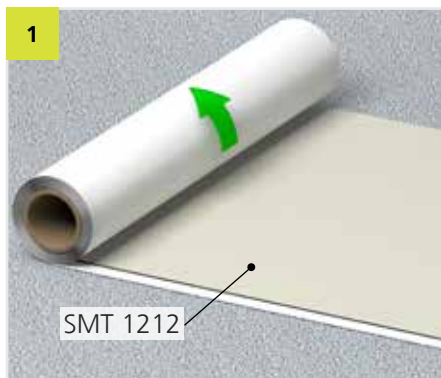
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## PRELIMINARY NOTES



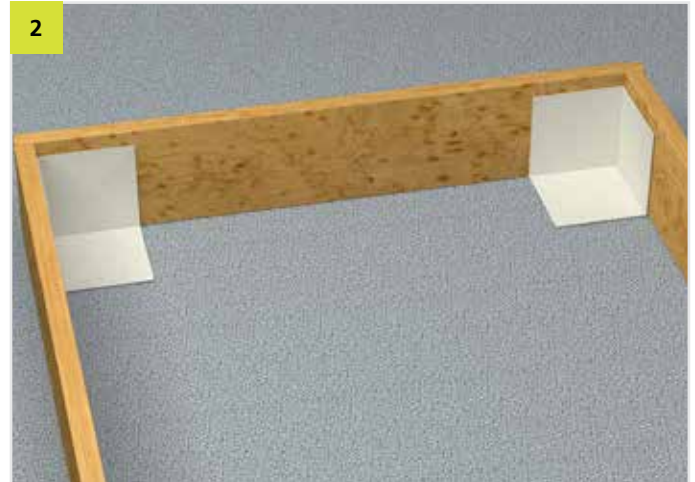
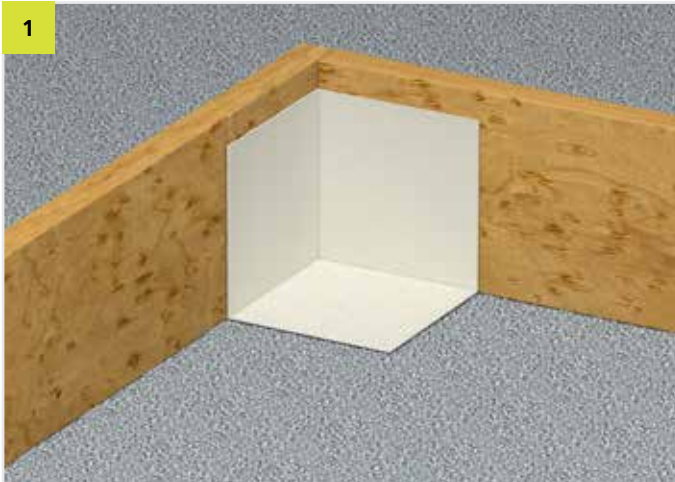
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## FLOOR



# INSTALLATION INSTRUCTIONS

## FLOOR

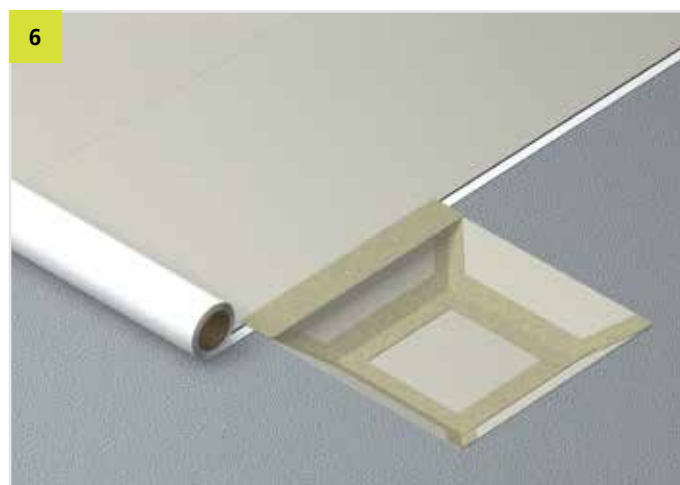
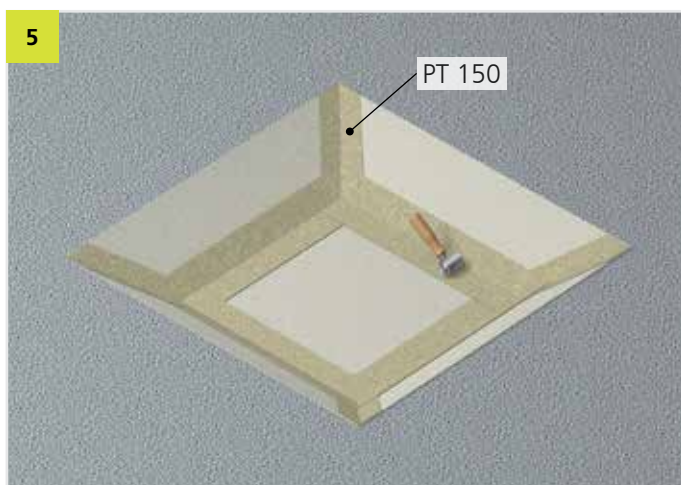
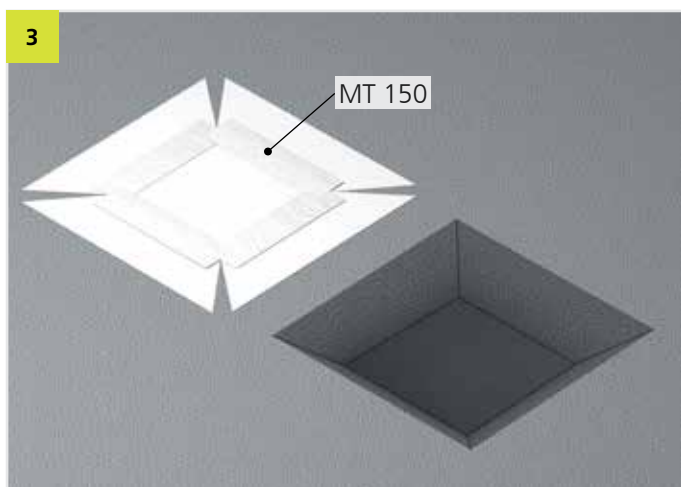
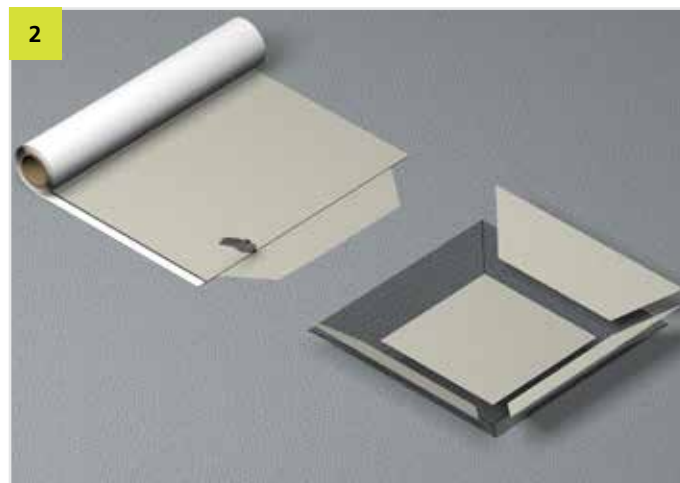
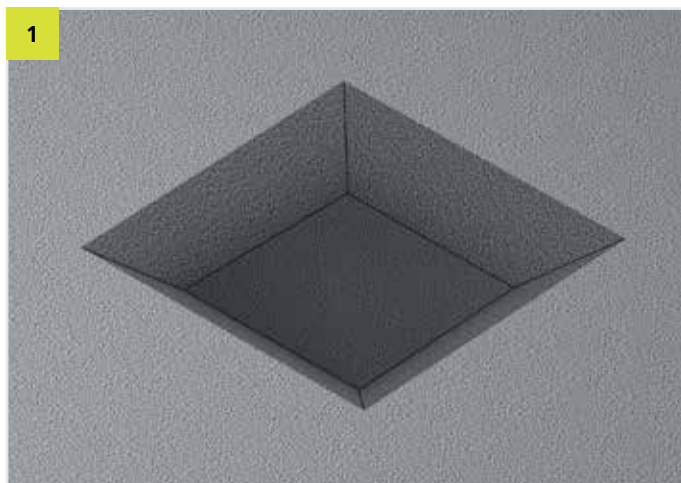


Our Applications Technology department would be pleased to assist in finding further solutions.  
 Phone: +49 (0) 7742 9215-300  
 Fax: +49 (0) 7742 9215-319  
 E-mail: [technik@h-bau.de](mailto:technik@h-bau.de)



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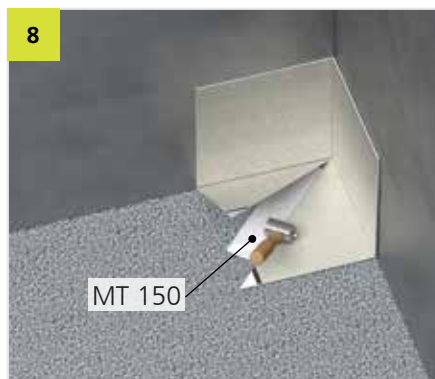
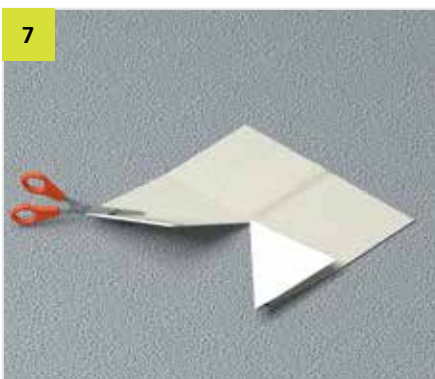
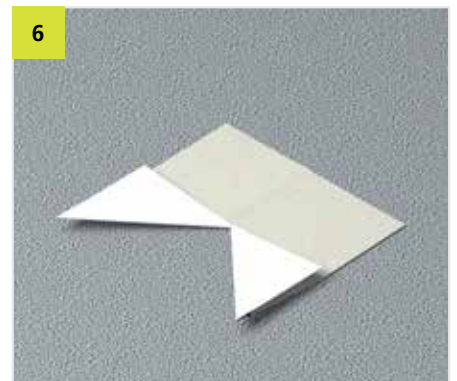
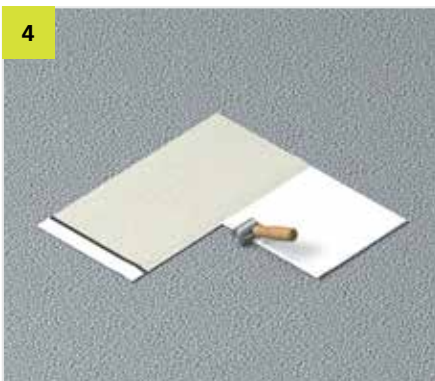
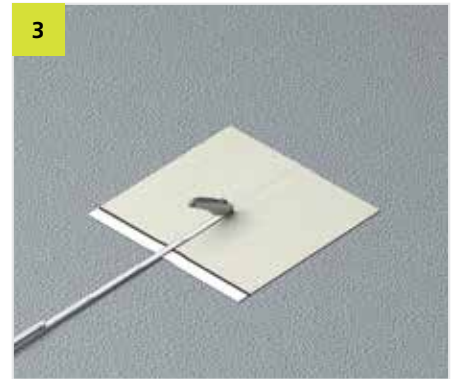
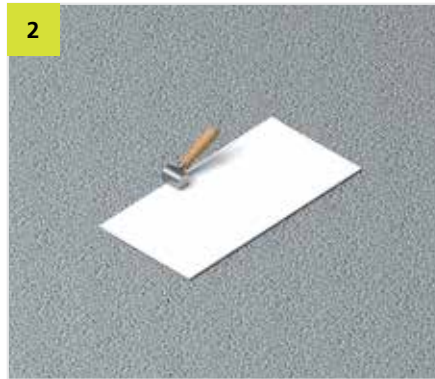
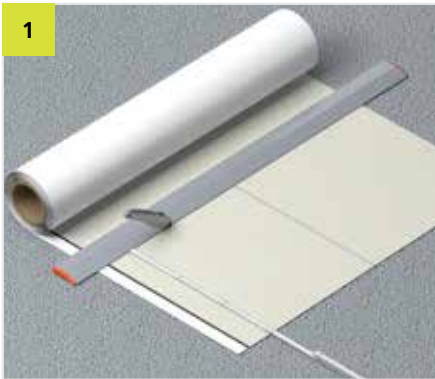
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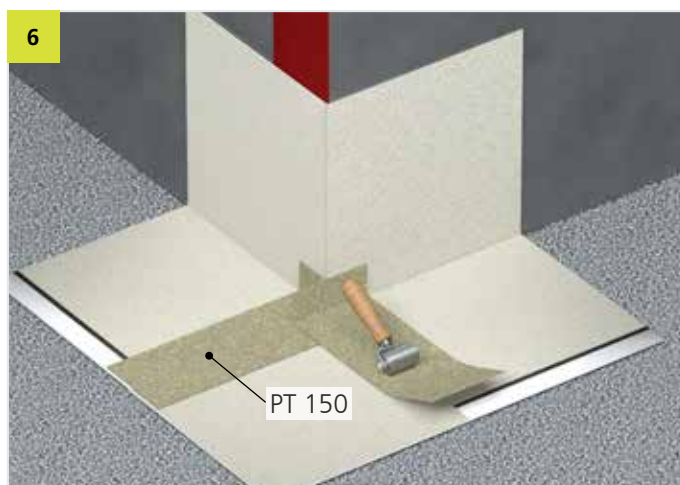
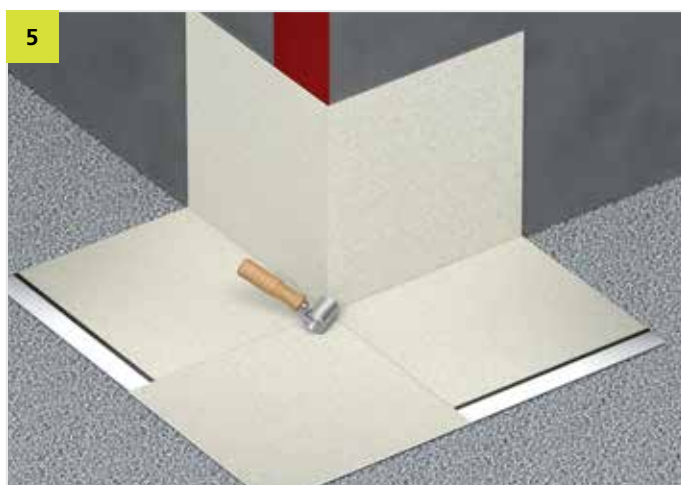
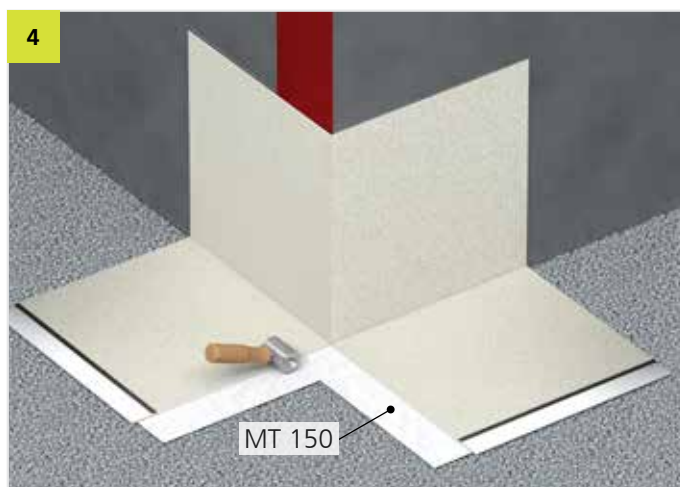
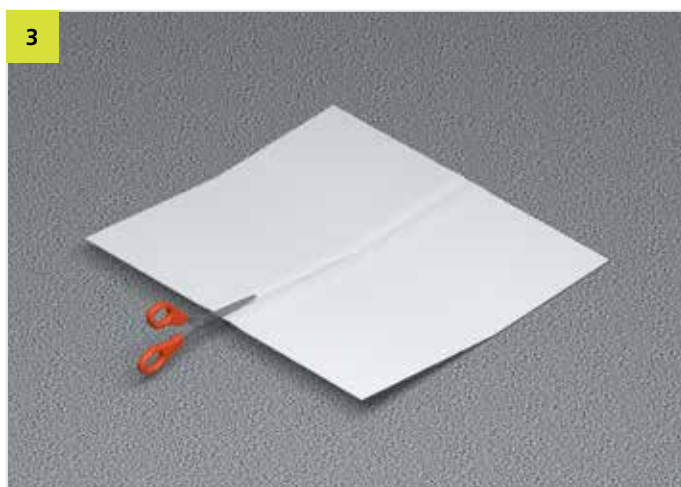
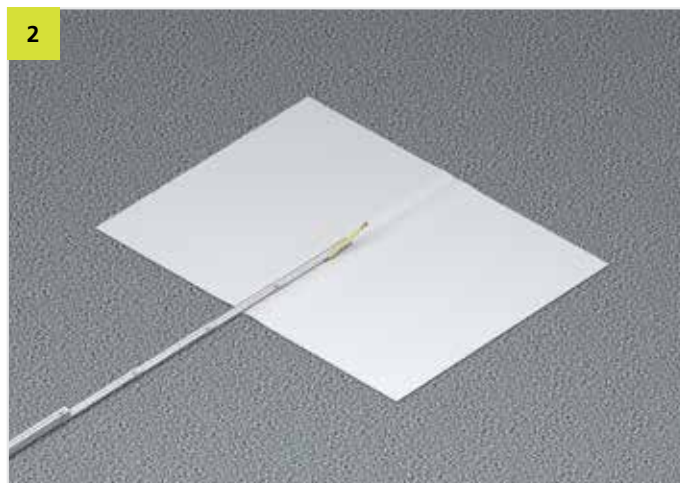
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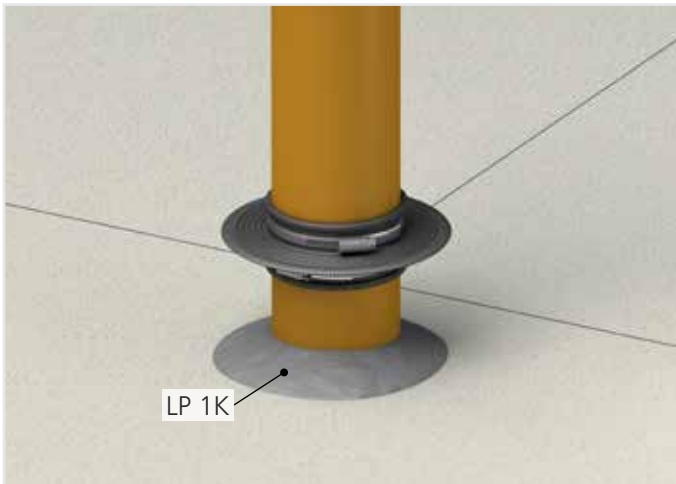
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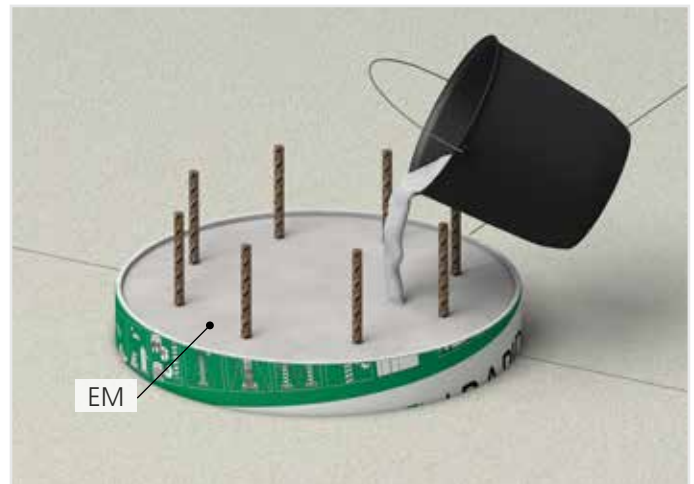
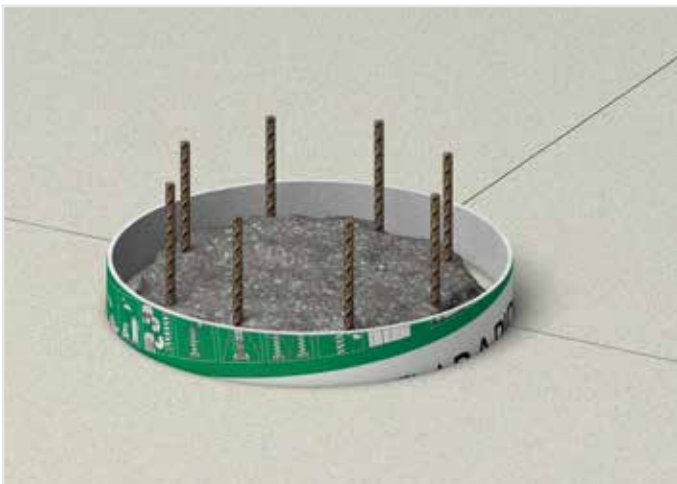
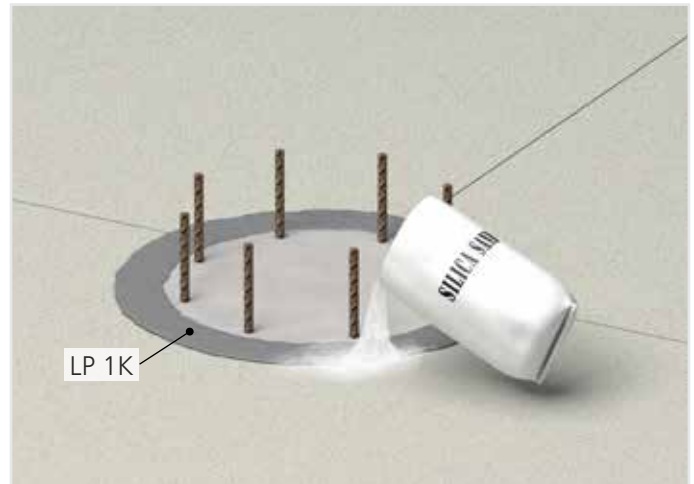
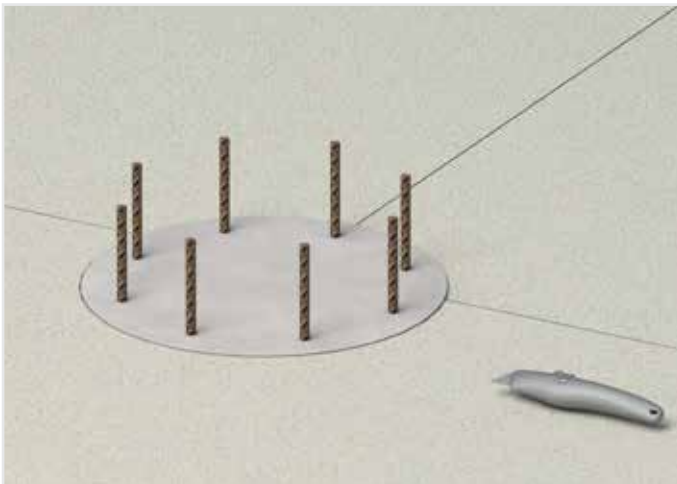
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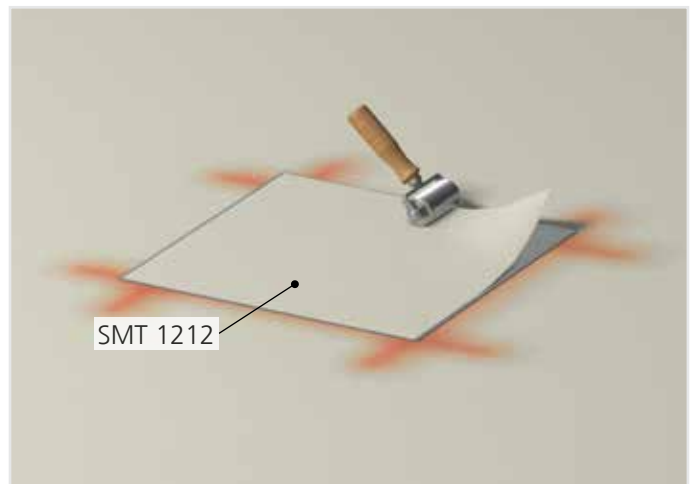
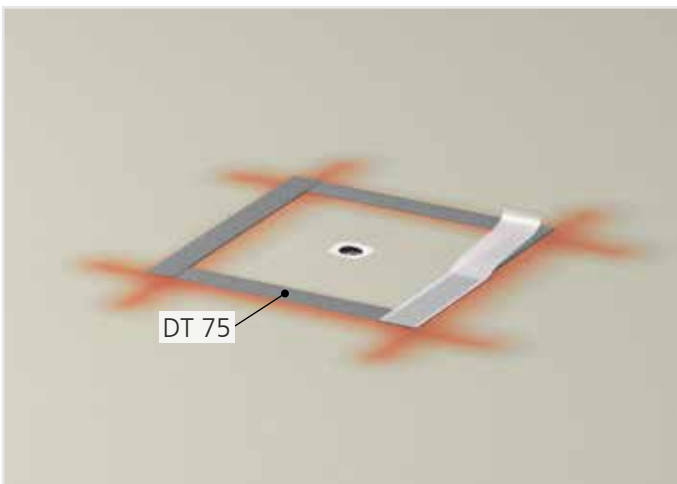
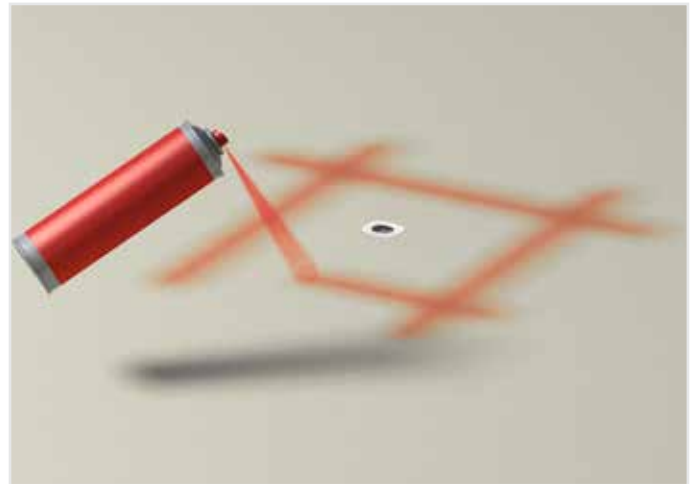
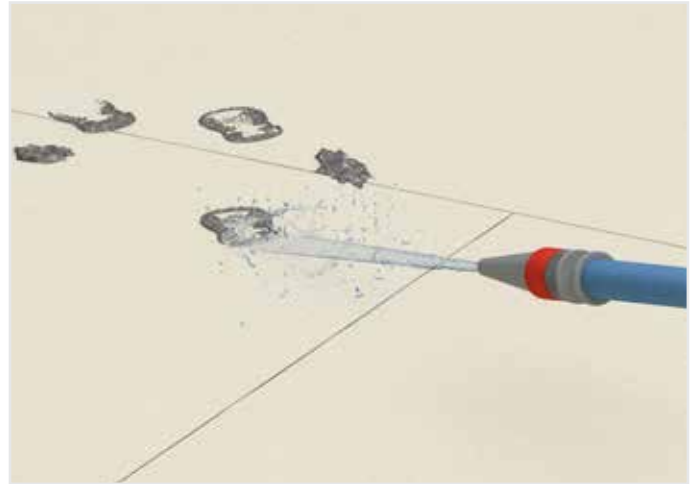
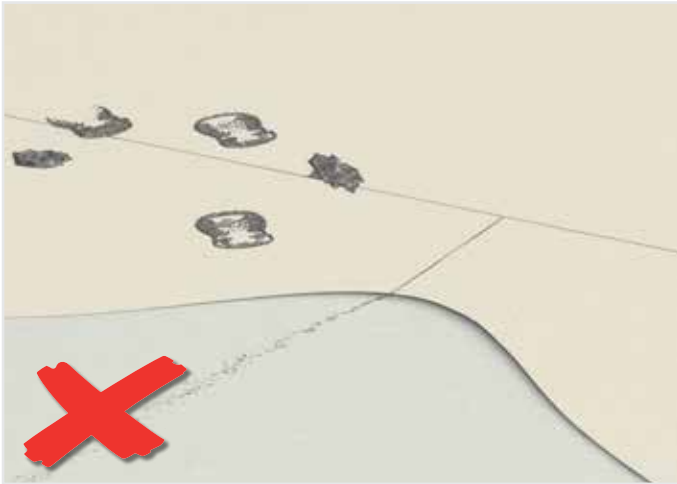
# INSTALLATION INSTRUCTIONS

## DETAILS (BORED PILE)



# INSTALLATION INSTRUCTIONS

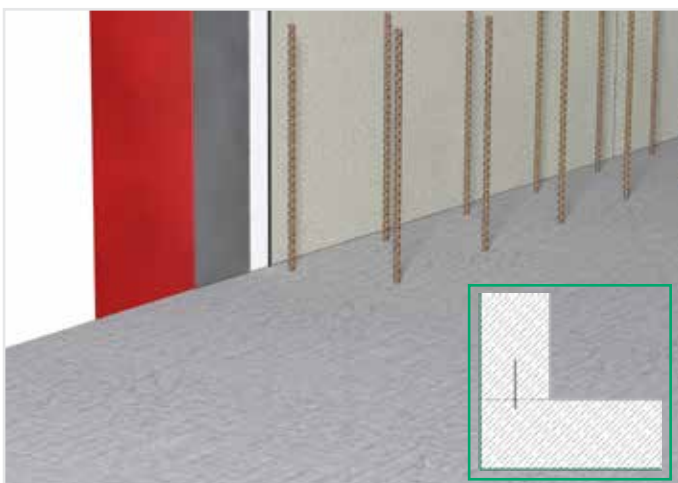
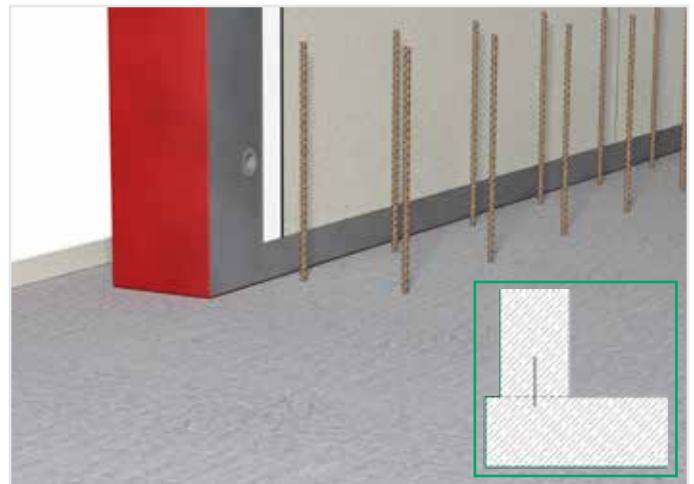
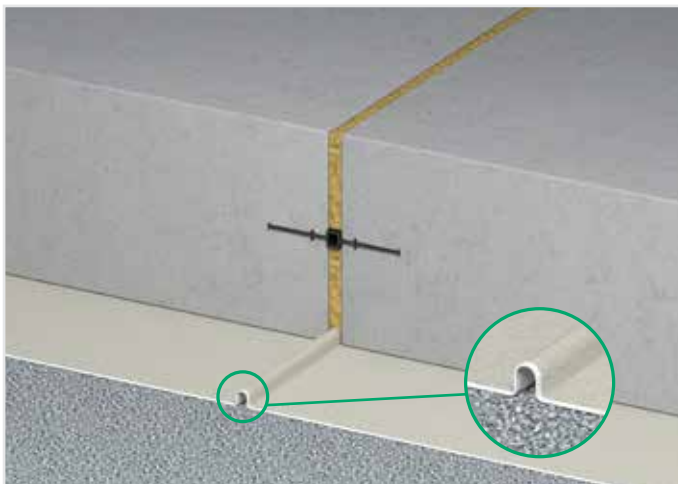
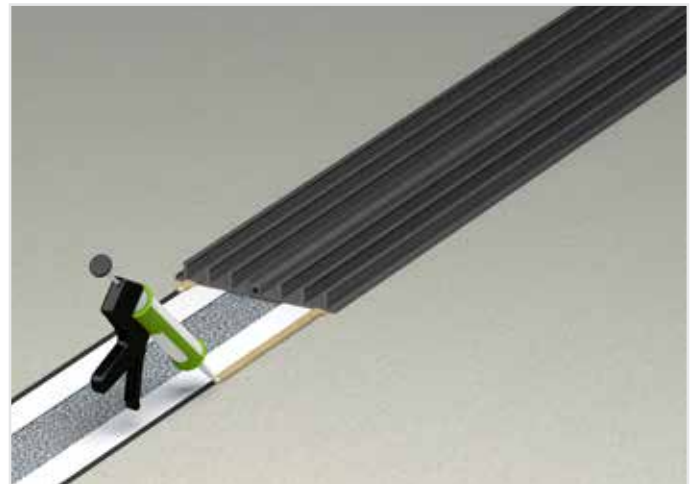
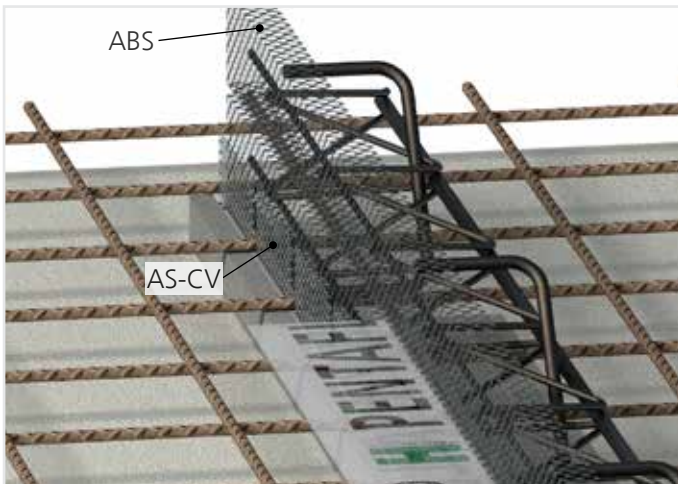
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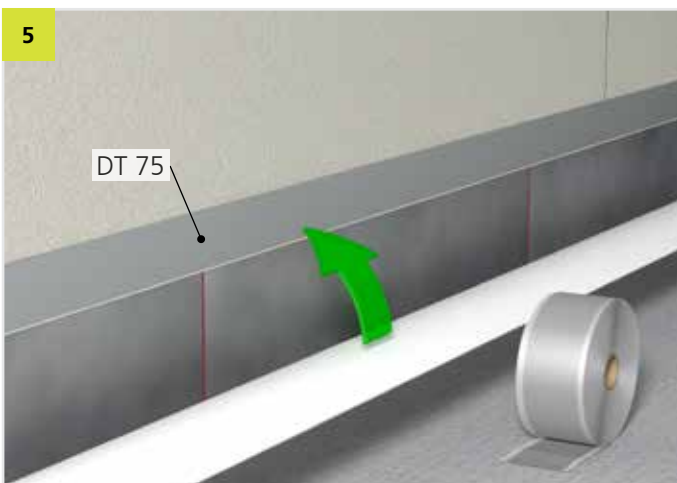
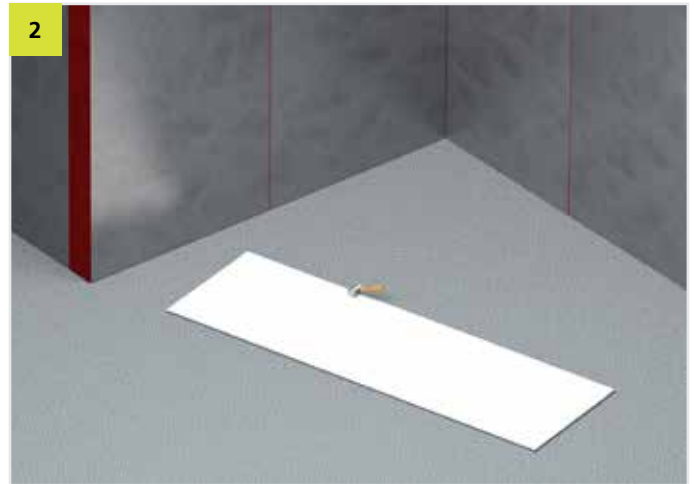
# INSTALLATION INSTRUCTIONS

## DETAILS



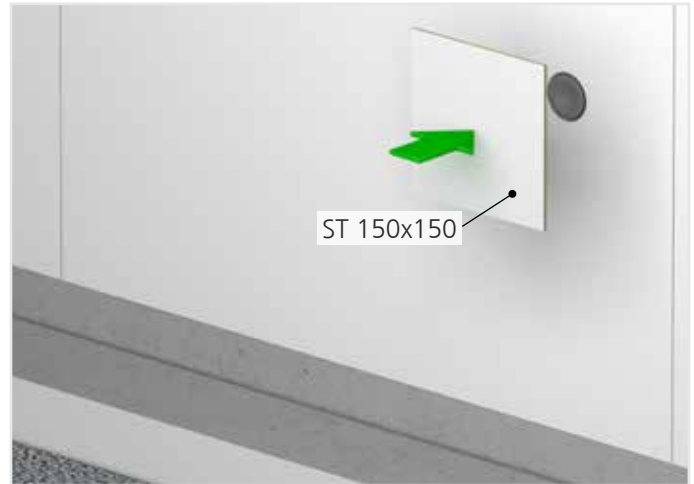
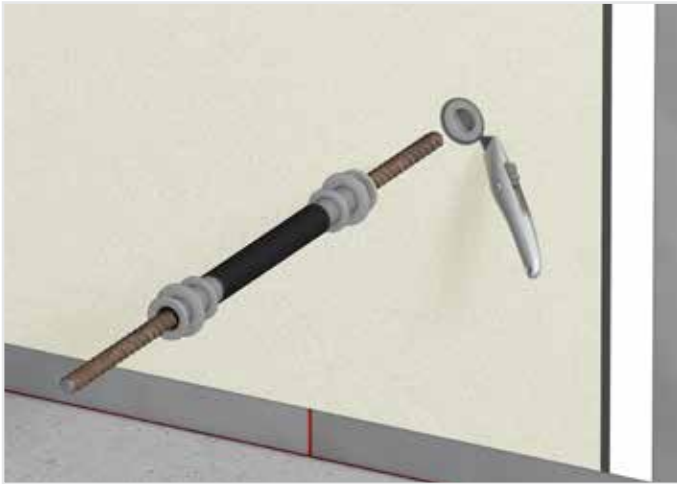
# INSTALLATION INSTRUCTIONS

## WALL



# INSTALLATION INSTRUCTIONS

## WALL



# ACCESSORIES



PR 50 PRESSURE ROLLER



PR 90 PRESSURE ROLLER



PR 100 L PRESSURE ROLLER



LP 1K LIQUID PLASTIC



SILICA SAND



EM EPOXY RESIN MORTAR

# ACCESSORIES



**INNER CORNER**



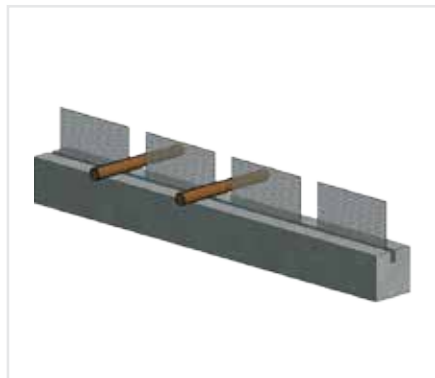
**EXTERNAL CORNER**



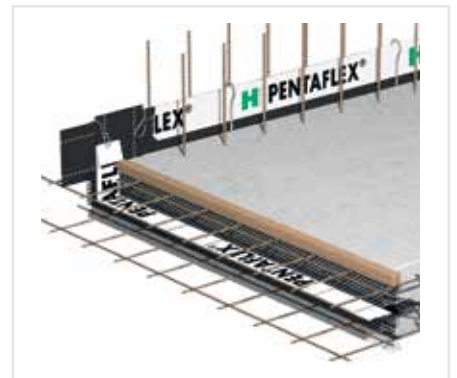
**ST 150X150**



**SHUTTERING STRIP A-CV**



**SHUTTERING STRIP AS-CV**



**SHUTTERING ELEMENT ABS**



# ADDITIONAL PRODUCTS

## IN LINE WITH WATERTIGHT STRUCTURE GUIDELINES



### PENTAFLEX® SEALING SYSTEM

PENTAFLEX® is a system for sealing joints designed for the construction of water-impervious concrete structures (white tank). The PENTAFLEX® elements are fully coated and were developed for buildings with high-grade utilisation. They ensure reliable sealing of joints in wall/floor or wall/ceiling areas, joints in wall/wall or floor/floor areas as well as joints in in-situ concrete and wall element constructions.



### KUNEX® JOINT TAPES

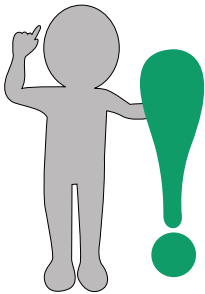
The KUNEX® joint tapes securely seal construction and expansion joints in concrete. KUNEX® joint tapes guarantee an excellent mechanical connection between the concrete components and therefore reliable sealing. The joint tapes are made from extremely high-quality thermoplastic PVC-P/TPE. The sealing tubes are used to seal dummy joints. Object-specific joint tape designs are used to create watertight connections in existing structures.



### PLURAFLEX® INJECTION HOSES

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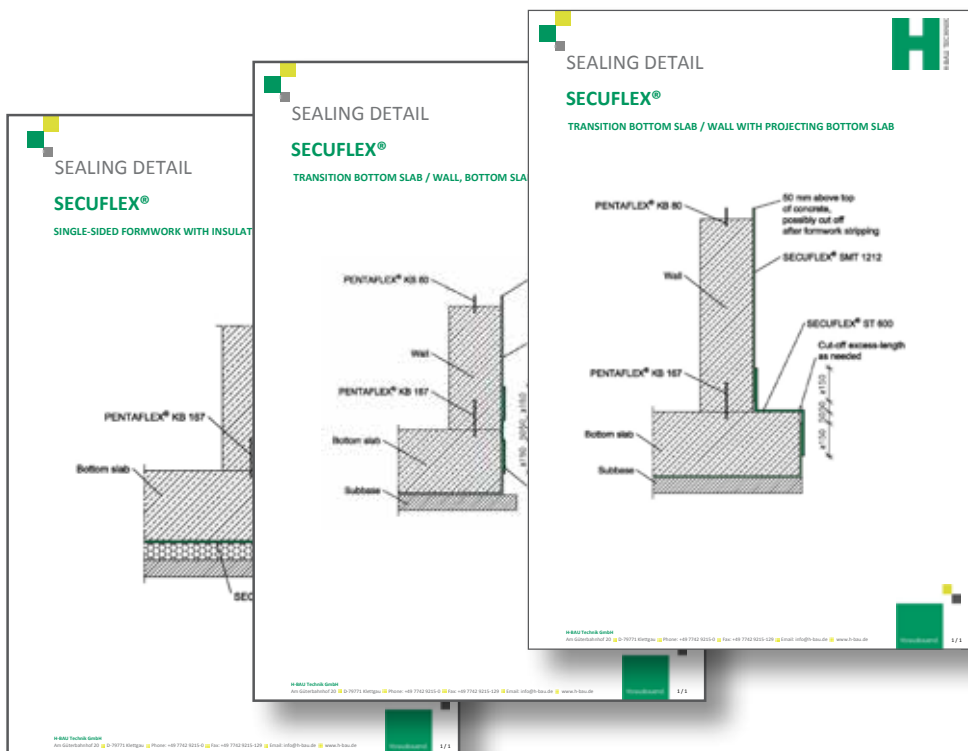
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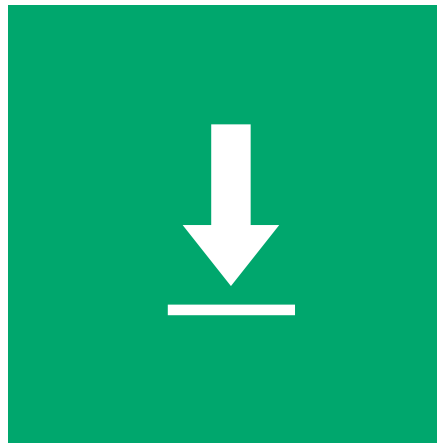
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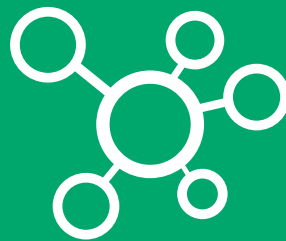
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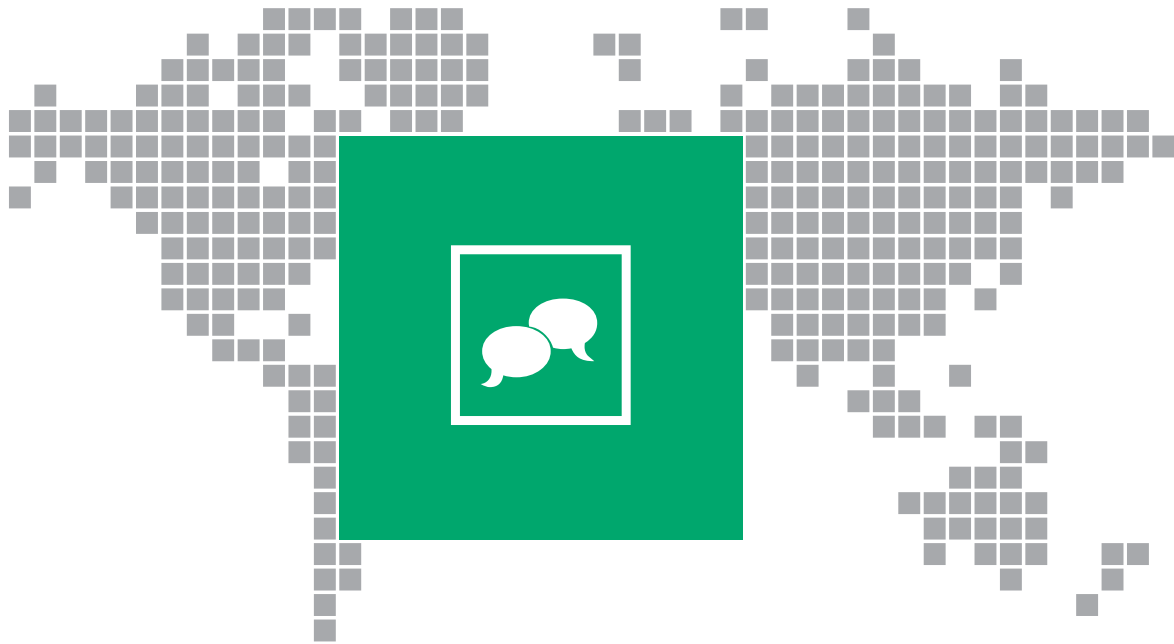
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