CEMflex Waterstop

Active joint sealing with coated steel plate

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Content

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Important notes

All current safety regulations and guidelines applicable in those countries where our products are used must be observed.

The photos shown in this brochure feature construction sites in progress. For this reason, safety and anchor details in particular cannot always be considered conclusive or final. These are subject to the risk assessment carried out by the contractor.

In addition, the computer graphics used are to be regarded as system representations. To facilitate understanding, these and the detailed illustrations shown have been partially reduced to certain aspects. The safety installations that are not shown in these detailed descriptions must nevertheless be available. The systems or items shown might not be available in every country.

Safety instructions and load specifications are to be strictly observed at all times. Separate structural calculations are required for any deviations from the standard design data.

The information contained herein is subject to technical changes in the interests of progress. Errors and typographical mistakes reserved.

CEMflex Waterstop

Active joint sealing with coated steel plate

Water resistant concrete structures continue to gain importance. However, construction joints have often proven to be the achilles heel in water tight structures. Through its water impermeability, the patented CEMflex Waterstop convinces contractors, engineers and the site personnel alike.

The patented CEMflex Waterstop provides full efficacy whilst also being very simple to fit.

CEMflex ensures that your concrete structures, foundations and tunnels are completely waterproof. It functions as an active and passive barrier for the transmission of water at the construction joint.

Additionally, the design allows a simple and fast installation by hand. It is possible to install CEMflex either before the concrete is poured or in the fresh concrete.

Furthermore, CEMflex enables the sealing of vertical and horizontal joints in concrete structures. Its unique functionality is proven and certified by a variety of independent test laboratories.

Simple and fast installation by hand
possible pre-applied, attached to the reinforcement, or post applied in the fresh concrete

Highly effective waterproofing
verified and certified by independent test laboratories

Unique functionality
as the active crystallization process ensures water-proof concrete structures, up to 8 bar water pressure

Simple and fast installation by hand

possible pre-applied, attached to the reinforcement, or post applied in the fresh concrete

The simple design of CEMFlex ensures an easy to understand and fast installation process and minimises the need for expensive remedial work. You can install CEMflex flexibly either before or after the concrete pouring.

The installation process is self-explanatory: even inexperienced personnel can quickly learn how to handle the system. No special preparation and no special installation tools are required. Additionally, no cutting, welding or glueing of the waterstops is necessary.

The system is fully weatherproof. It can be installed both in wet and dry weather conditions.

Cost savings

Experience and feedback from site show that the usage of CEMflex minimises your expenses significantly:

- You can save up to 80 percent installation costs compared to conventional PVC waterstops
- You can save up to 80 percent installation costs compared to hydrophilic waterstops

Installation before pouring

For the installation before the pouring takes place, only a few steps are necessary that you can carry out quick and easily.

Firstly, place CEMflex in the middle of the joint and attach it to the steel reinforcement. Therefore, you can either use a CEMflex Omega Holder or alternatively a CEMflex Clip. By doing so, ensure that CEMflex is embedded at least 3 cm into the first pour of concrete. It is also necessary that the overlap is at least 5 cm.

Installation after pouring

It is also possible to insert CEMflex easily into the fresh concrete. By doing so, make sure that the plate is embedded at least 3 cm, allowing the remainder of the plate to be covered by the next pour of concrete.

To connect elements, simply overlap the plates by 5 cm and secure them with a CEMflex Clip.

Easy and fast forming by hand

Due to its high malleability, CEMflex plates can be easily formed to any shape and even difficult angles by hand. Therefore, you can even install round forms and difficult angles, for example at corners and wall intersections.

Simple and fast installation by hand

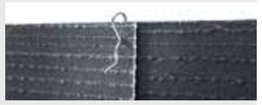
possible pre-applied, attached to the reinforcement, or post applied in the fresh concrete

Connection between CEMflex plates

Using CEMFlex Omega Holders or Clips, you can connect CEMflex plates to each other and attach them to the reinforcement. For the installation, no welding is needed, as the blades are only overlapped.

The crystallization proess between the overlapping area of the CEMflex plates seals the connection.
No further bonding is required.

CEMflex Omega Holder



CEMflex Clip

Formation of corners

To form corners, firstly bend the CEMflex plate to the desired form by hand. Afterwards, place the CEMflex plate in the middle of the joint.

Formation of T-junctions

You can also form T-junctions by using CEMflex. Therefore, bend the CEMflex plate as needed with a minimum overlap of 5 cm.

Formation of round shapes

Additionally, CEMflex enables you to form even round shapes by hand.

Sealing of horizontal and vertical concrete joints

CEMflex can be installed both horizontally and vertically to form a continuous watertight construction joint system.

Connection with other waterstop technologies

It is also possible to realise water-prove connections with expansion or construction joint waterstop products. Therefore, you can use a CEMflex Clamping Plate.

CEMflex Clamping Plate

Highly effective waterproofing

verified and certified by independent test laboratories

By using CEMflex, you can be sure that the concrete joints and structures of your buildings are waterproof and sealed. This strenghtens your legal protection against liability issues from customers.

CEMflex fulfills the internationally approved standards for waterstops. The effectiveness of CEMflex has been tested successfully under very severe conditions in accordance with many independent and international test laboratories:

- European Organisation for Technical Assessment
- Institute of Building Materials, Concrete Construction and Fire Safety of the Technical University Braunschweig
- British Board of Agrément
- Commission des Avis Technique for France
- International Code Council Evaluation Service for USA and Canada

This page gives you an overview about the most common and internationally valid certificates. Please feel free to contact us for more information about the test certificates and further information about local certificates that are valid in your country.

You can find additional information about the PERI Components portfolio as well as the right local contact person for your projects on the PERI homepage.

Additionally, CEMflex is tested successfully for a wide range of application areas. Therefore, you can use CEMflex flexibly for your individual project.

The functionality of CEMFlex is tested and approved for **water pressure up to 8 bar (80 m)** by Vattenfall Research and Development AB, Sweden.

CEMflex is approved for **fresh drinking water applications** by the Ruhr District Institute of Hygiene of Germany.

The German Institute for Structural Engineering has verified that CEMflex is **resistant against manure, silage leachate, gasoline and oil.**

CEMflex contributes towards satisfying the following credits under **LEED (Leadership in Energy and Environmental Design)**:

MR Credit 3 "BPDO – Sourcing of Raw Materials"
MR Credit 4 "BPDO – Material Ingredients"
EQ Credit 2 "Low Emitting Materials"

The German Sustainable Building Council confirms that CEMflex meets the requirements of quality level 1 to 4. It contributes to achieve 100 of maximume 100 achievable checklist points according to the criterion '**ENV1.2 Local Environmental Impact**'.

CEMflex contributes toward satisfying HEA 02 "**Indoor air quality**" under BREEAM (Building Research Establishment Environmental Assessment Method).

Unique functionality

as the active crystallization process ensures water-proof concrete structures, up to 8 bar water pressure

The functionality of CEMflex is unique and patented. Normally, water searches its way along physical structures and flows through gaps and cracks. By assembling CEMflex, both a physical and a chemical barrier are created. These barriers ensure that your concrete structure is waterproof for its whole lifetime.

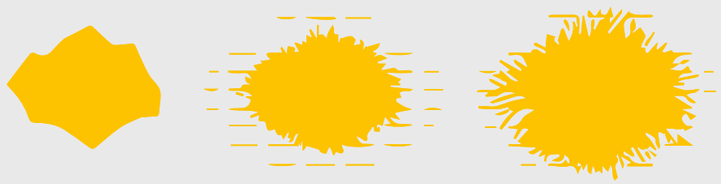
To prevent the water flow around the physical barrier, an additional bonding to the concrete is necessary. Thanks to the patented crystallization process, CEMflex ensures this bonding. When the CEMflex plate comes into contact with water, the overlapping steel plates connect completely with each other and prevents lateral waterflow. The water can not longer run around the physical barrier. Even small gaps and cracks are closed by the crystals.

The surface as well as the edges of the CEMflex plate are overall coated. This makes the installation quite simple and minimises the likelihood of application errors by the jobsite personnel – there is no wrong or right side to install the plate.

Additionally, the crystallization process leads to a higher efficiency on your site and saves valuable time. There is no temperature and waiting time between different work processes.

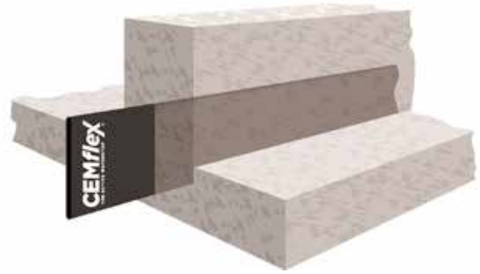
How the crystallization process works

The CEMflex plate is coated with a crystalline admixture. The particles of this special coating of CEMflex automatically start a chemical reaction when they come into contact with water or water-based liquids. By doing so, the sintering in the concrete structures begins that in turn provokes a natural formation of limestone.



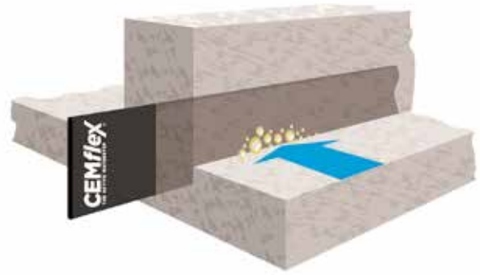
Physical barrier

The CEMflex plate is cast centrally along and perpendicular to the construction joint. By doing so, it creates a physical barrier and prevents the transmission of water at the construction joint.



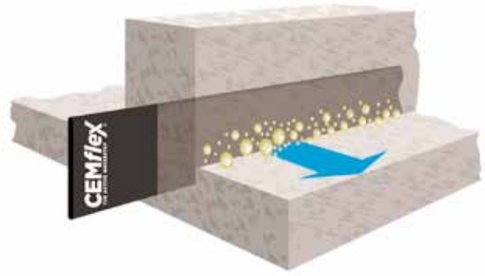
Chemical barrier

At the same time, the CEMflex plate creates also a chemical barrier. The fresh concrete activates the patented coating on the CEMflex plate causing the coating to soften and expand slightly penetrating any cracks where it solidifies and seals the joint. The connection of the special coating to the concrete prevents any waterflow through the concrete construction joint.



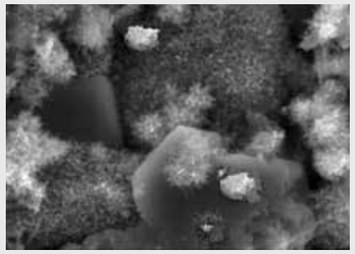
Unlimited sealing capacity

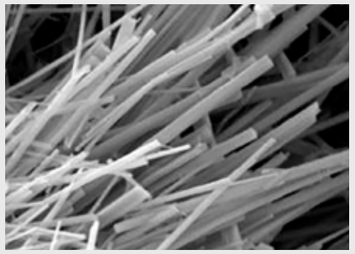
Once installed the coating has unlimited sealing capabilities. In the event of water ingress, the coating will be reactivated at any time throughout its lifetime – with a life expectancy of 100 years.



The crystallization process under the microscope

You can observe the active self-healing process of CEMflex under a microscope. When the chemical reaction of the coating takes place, calciumhydroxy-based crystalline fibres and needles are created.





Additional advantages

Eco-friendly packaging and safe storage on site

Eco-friendly packaging

CEMflex is delivered in a wooden box. This reduces the onsite wastage.

CEMflex is supplied in a length of 2 m x 150 mm. There are 50 blades and 50 clips per box. The accesories, for example extra Clips or Omega Holders, are sold separately.

Safe storage on site

CEMflex can be stored safely onsite in its original packaging. Make sure to always store the plates in the boxes. For long-time storage, the plates should be stored off the ground, in dry conditions which are free from frost.

In addition, the unique functionality and the crystallization process of CEMflex allows you to store the boxes in all weather conditions for a short time. In the event of rain, the coating will not be activated and thereby secures a safe storage.

- More eco-friendly jobsite with less waste as no plastic liner is necessary
- Long life expectancy and long lasting time on construction site
- Dust and dirt resistant surface, so that CEMflex can come in contact with sand or concrete splashes without any problem
- Weather and temperature resistance during the installation period on the construction site

Benefits for all project participants

Contractors, engineers and the site personnel benefit alike

In comparison to traditional water-stop systems, CEMflex convinces not only through its effectiveness, but also through a variety of other advantages.

All project participants – contractors, engineers as well as the site personnel – benefit equally from the unique and sophisticated functionality.

Contractors

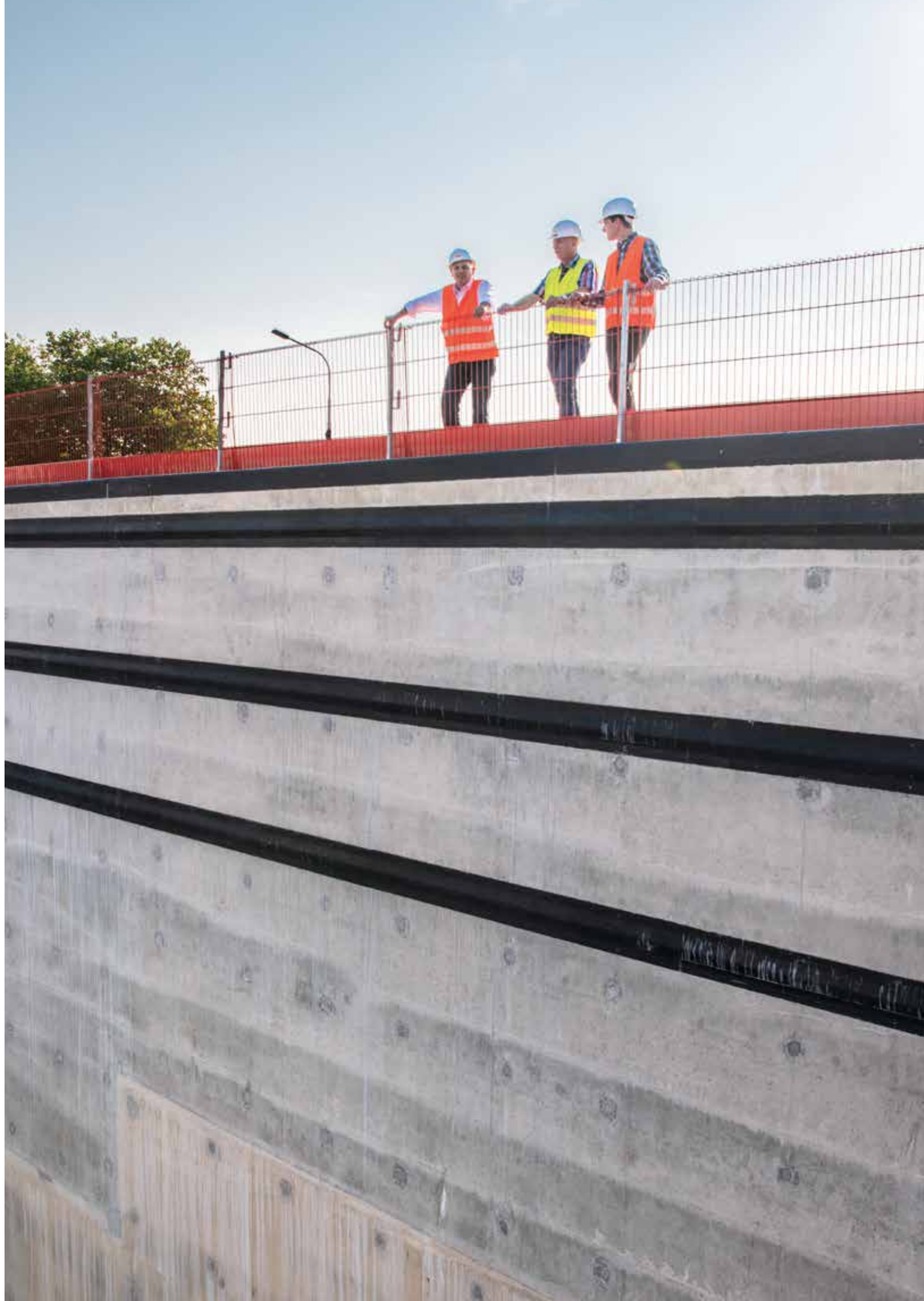
- Completely sealed buildings, verified by independent test laboratories
- Time and labour costs savings compared to alternative systems
- Fully weatherproof system, no preactivation of the coating on contact with water
- Increased health and safety conditions for workers
- No additional welding, primers or adhesives necessary
- No waste generated

Engineers

- Triple protection against water transmission
- Tested and approved for up to 8 bar water pressure
- Life expectancy of 100 years
- Can be used for horizontal and vertical joints as well as for round forms and difficult angles
- Can be used in combination with other waterstop systems
- Simple design
- Can still be used even after a longer waiting time between first and second pouring

Site personnel

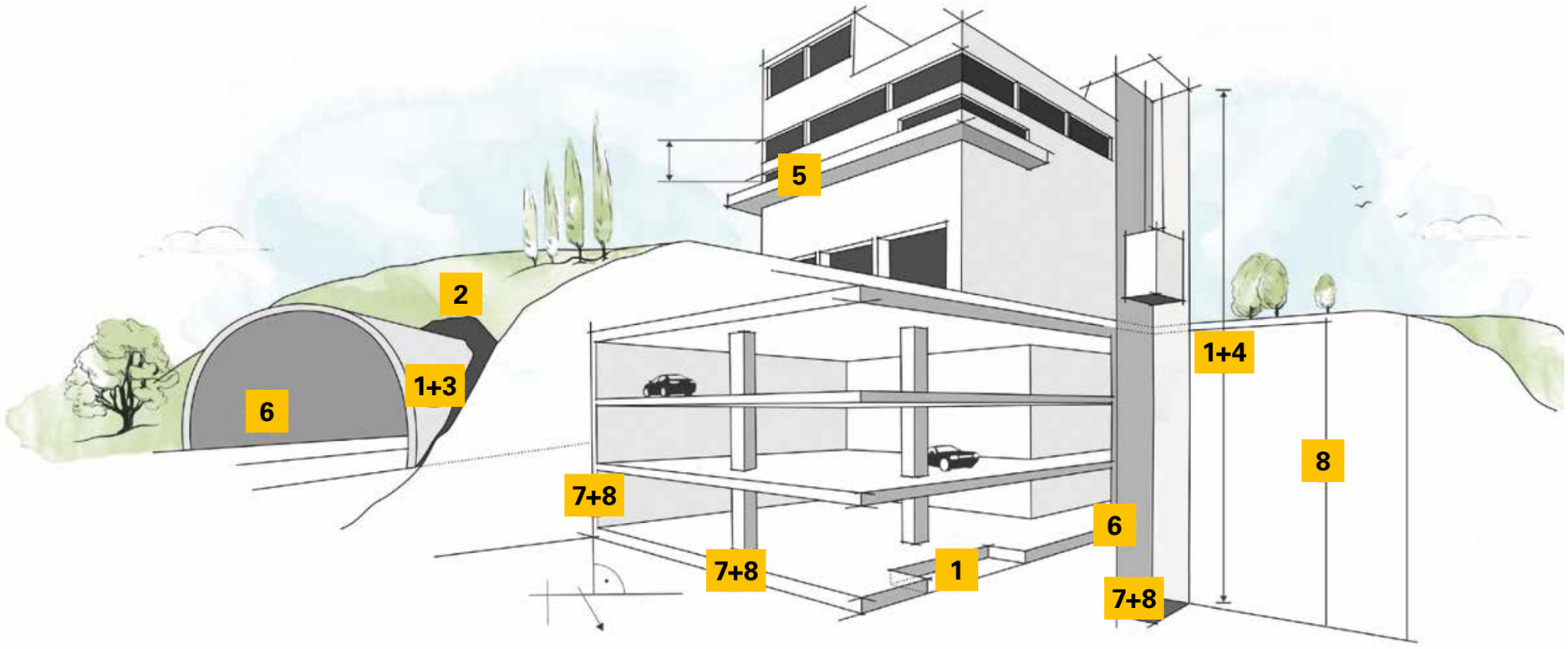
- Simple installation
- No skilled specialists for installation required
- No special installation tools required
- No special preparation required
- No welding and additional protection tapes required
- Easy forming of corners and wall intersections by hand due to high malleability
- Crystallization coating all around the plate ensures correct installation



Sealing options

Product range

Safe and effective sealing of different building areas



Besides CEMflex, we offer you a wide range of other products for the safe and effective sealing of different building areas.

Please feel free to contact us for more information about the products. You can find the the right local contact person for your projects on the PERI homepage:

1 Pre-applied water membrane

2 Injection hose system

5 Mineral waterproofing slurry

6 Hydrophlic swelling waterstop

3 Bentonite waterproofing membrane

4 Active, self-healing waterproofing membrane

7 Bentonite waterstop

8 Active, mineral steel-plate waterstop

The optimal system for every project and every requirement

Wall Formwork

Column Formwork

Slab Formwork

Climbing Systems

Bridge Formwork

Tunnel Formwork

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Industrial Scaffold

Access

Protection Scaffold

Safety Systems

System-Independent Accessories

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