Water Isolation

Waterproblems in structures

LOGIC
CHEMIE

What are the occuring problems with Structures?

1. **Construction Methods:** The method used during construction plays a significant role in the longevity and durability of a structure. Poor construction practices or shortcuts can lead to weakened structural integrity over time.
2. **Weather Conditions:** Exposure to harsh weather elements such as rain, snow, extreme temperatures, and humidity can gradually deteriorate building materials and weaken the structure's integrity.
3. **Lack of Protection:** Adequate protection measures, such as waterproofing and sealing, are crucial for shielding the structure from environmental damage. Without proper protection, the materials are more susceptible to deterioration.
4. **Moisture and Water Damage:** Moisture infiltration is one of the primary culprits behind structural weakening. Water can seep into the building materials, causing rot, rust, corrosion, and degradation over time. This weakening process can compromise the structural stability of the entire building.
5. **Use of Unsuitable Materials:** in some cases, the use of inappropriate or substandard building materials can contribute to structural weakening. Materials that are not designed to withstand environmental conditions or structural loads may deteriorate prematurely, leading to structural issues.
6. **insufficient Materials:** insufficient quantities or quality of materials used during construction can also lead to structural weakening. inadequate materials may not provide the necessary strength or durability required to support the structure effectively.

Repairing

1. **Optimal Adhesion to Weak and Moist Surfaces:**
   Products designed specifically for repairing cracks and openings should have excellent adhesion properties, especially to surfaces that are weakened by moisture. This ensures that the repair material effectively bonds to the substrate, providing long-lasting durability and stability.

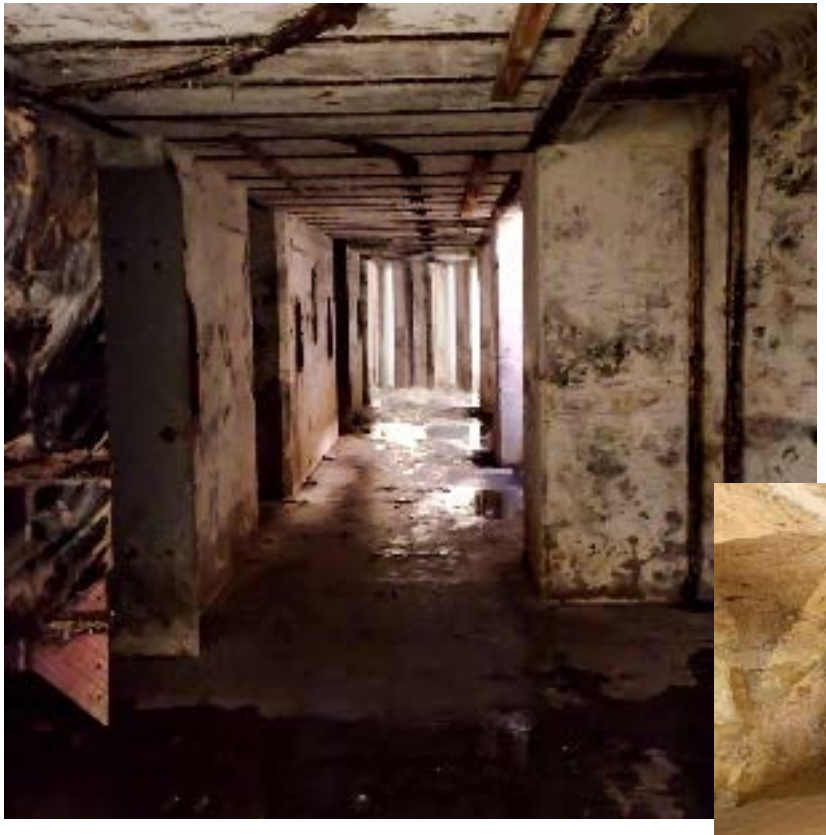
2. **Avoiding Water Reactive Products:**
   Some repair products may react adversely to water, particularly in historical structures where preservation is essential. Water-reactive products can cause harm by further deteriorating the structure or altering its appearance. Therefore, it's essential to choose repair materials that are compatible with the specific characteristics of the surface and environment.

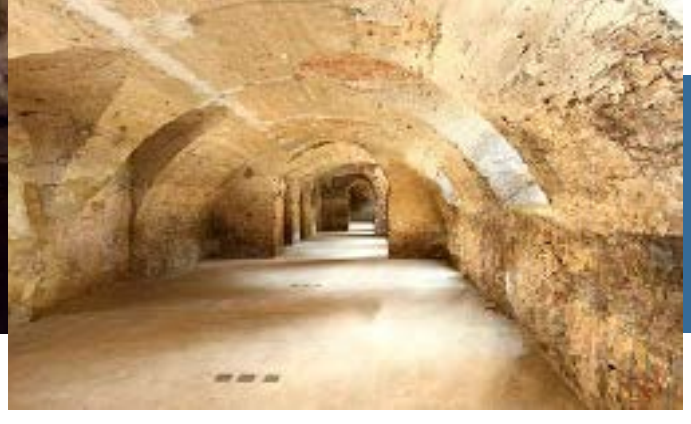
3. **Avoiding Heavy Chemicals and Acids:**
   When working with monuments or historical structures, it's important to avoid using heavy chemicals and strong acids for repair purposes. These harsh substances can cause damage to the original materials, leading to irreversible harm to the structure's integrity and aesthetic value. Instead, opt for gentler repair solutions that are suitable for preserving the monument's original features.

4. Consideration for Preservation:
Preservation should be a top priority when repairing cracks and openings in monuments or historical structures. The chosen repair products should not only effectively address the structural issues but also respect the historical significance and integrity of the monument. Selecting compatible materials and techniques ensures that the repairs blend seamlessly with the existing structure while safeguarding its heritage value.

5. Professional Expertise:
Repairing cracks and openings in monuments often requires specialized knowledge and skills. It's advisable to seek guidance from professionals or experts in historic preservation to ensure that the repair work is carried out with the utmost care and sensitivity to the monument's unique characteristics and historical importance.

Pressure water coming from the soil

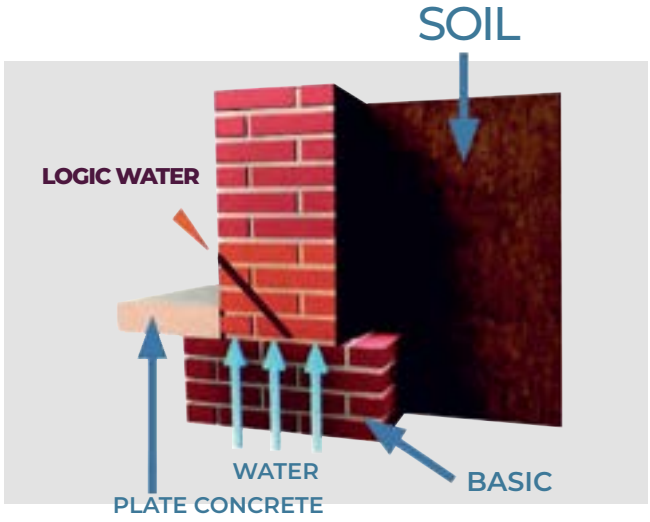


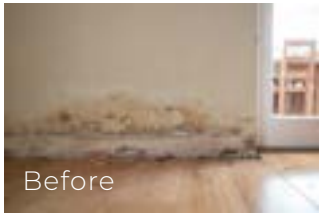


- Pressure water coming from the soil can be solved with Logic Water
- Logic water is a waterrepellant based on parafinne
- Paraffine is an oil based product that does not harm human beings, animals and the environment

Conrete drying & repairing with **Logic Water**

- Logic Water is a solution designed to extract moisture from concrete, facilitating its evaporation.
- It creates a barrier against incoming moisture while permitting air to pass through. This dual function accelerates the drying process and guards against concrete deterioration.
- Application involves drilling holes at 25 cm intervals, allowing the product to permeate the concrete surface over a 21-day period, owing to its specialized composition.

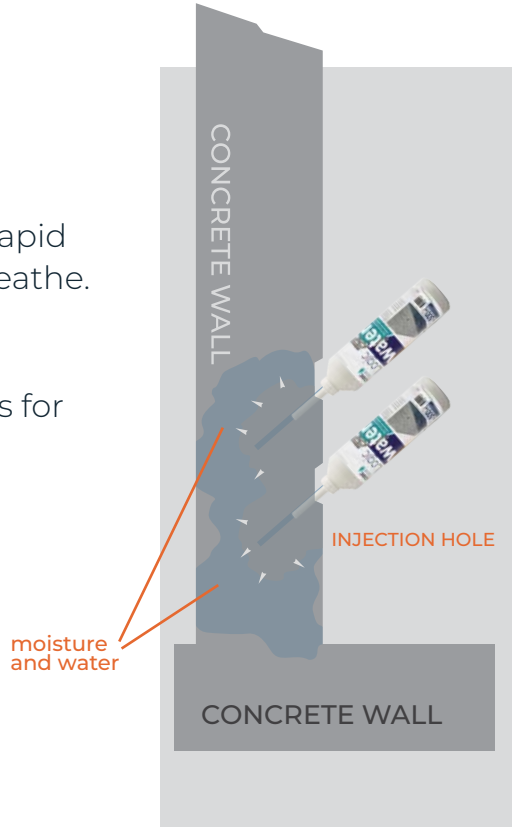




Logic Water **solutions**

Concrete water damage repair solution facilitates rapid moisture dissipation while enabling concrete to breathe.

It provides protection against concrete decay and ensures long-term durability, safeguarding surfaces for up to 20 years.



LOGIC EX

- Logic Ex: ideal for water-repellent treatment on exterior walls, floors, and rooftops.
- Convenient application by spray or brush with quick drying time (three hours).
- Unique technical composition penetrates deeply, becoming invisible.
- Repels water and dirt while maintaining air circulation.
- Water beads on the surface, providing dual benefits of 35% energy savings and a 15% increase in building value.
- Prevents dirt and water from entering pores, keeping surfaces clean.
- Enjoy a healthy living environment with up to 20 years of protection.
- Smart choice for long-lasting, efficient building maintenance.

Temperature differences after application with Logic Ex

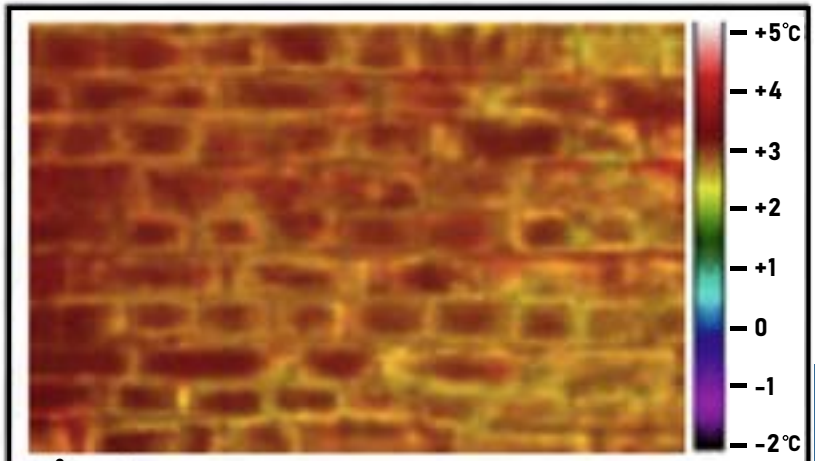


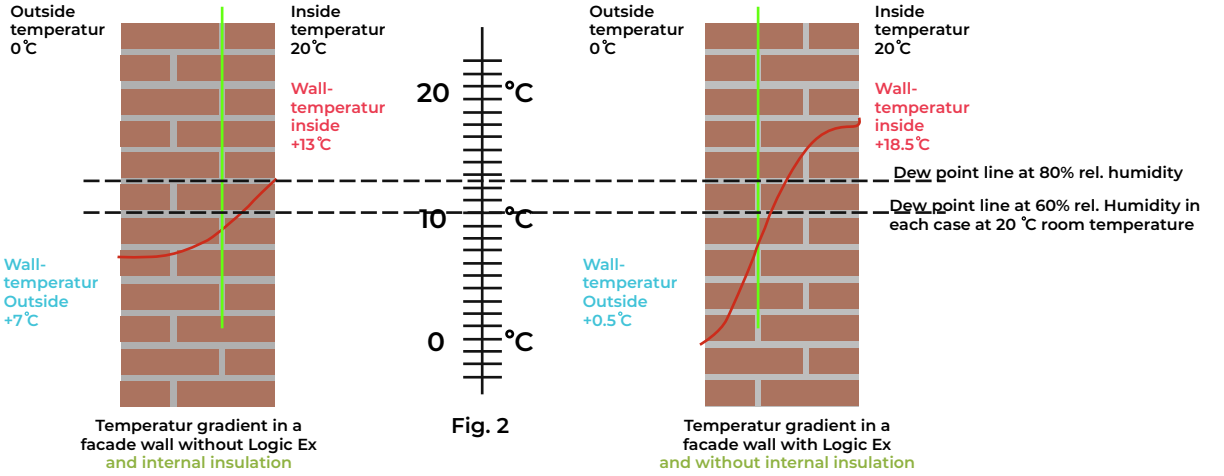
Fig. 4

Atmospheric temperature	**2.2°C**
Average temperature	**3.4°C**

Fig. 5

Atmospheric temperature	**0.3°C**
Average temperature	**-0.5°C**

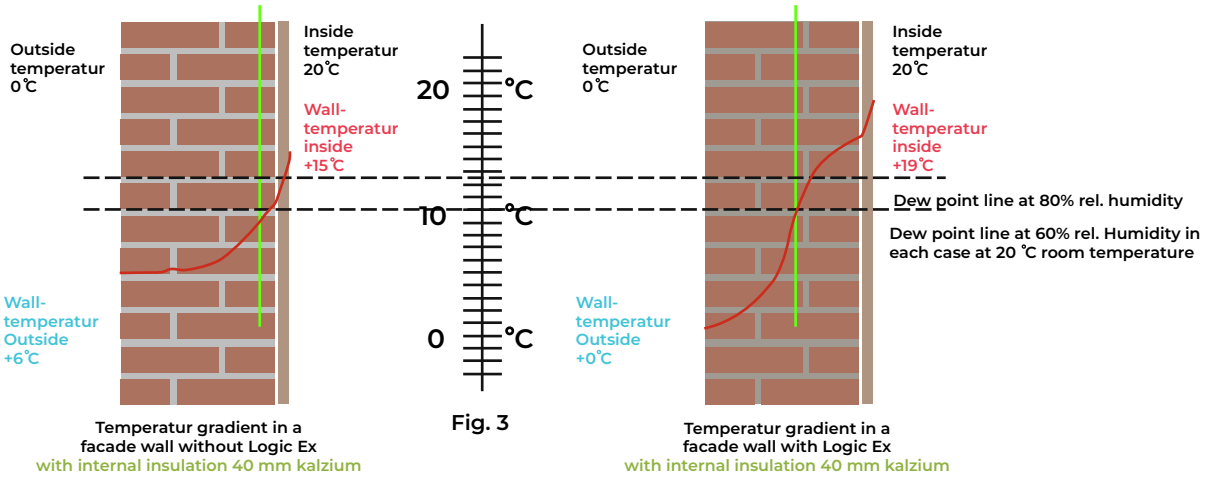
The best insulation?



Temperatur gradient in a facade wall without Logic Ex and internal insulation

Fig. 2

Temperatur gradient in a facade wall with Logic Ex and without internal insulation



Temperatur gradient in a facade wall without Logic Ex with internal insulation 40 mm kalzium

Fig. 3

Temperatur gradient in a facade wall with Logic Ex with internal insulation 40 mm kalzium

How does water enter buildings?

Water can enter buildings through various pathways, both external and internal.

External sources include rainwater, flooding, groundwater seepage, surface water, and poor drainage.

Internal sources include plumbing leaks, condensation, and HVAC system issues.

Common entry points include roofs, windows, doors, walls, foundations, and building envelopes.

Prevention measures include proper building design, construction, maintenance, and regular inspections.

Water always tries to find its way in.

How does water effect a building?

. Moisture (rainwater) from soil
. Pressure water from soil
. Capillary water in between the walls
. (Rain)water coming from outside through the roof or other leaks

	Moisture (rainwater) from soil	Pressure water from soil	Capillary water in between walls	(Rain)water coming from outside or leaks
Rooftop and terrace	-	x	-	-
Foundation	x	x	-	x
Balcony	-	x	-	-
Wet areas (kitchen, bathroom etc)	-	x	-	-
Water depots and swimmingpools	-	-	x	-

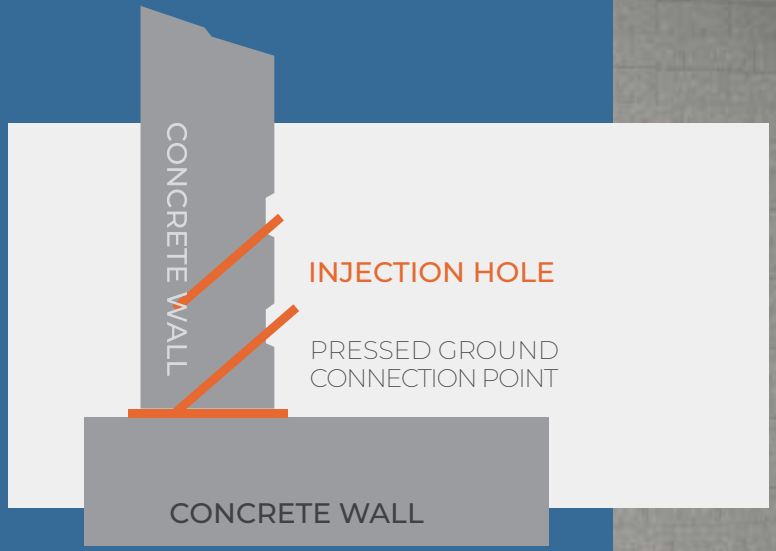
Repair and Reinforce

- To repair cracks and openings you will need products that have an optimal adhension to weak and moist surfaces
- You need to be careful with products that react to water with monuments, as it can cause harm
- Heavy chemicals and sours need to be avoided while working with monuments

LOGIC UW

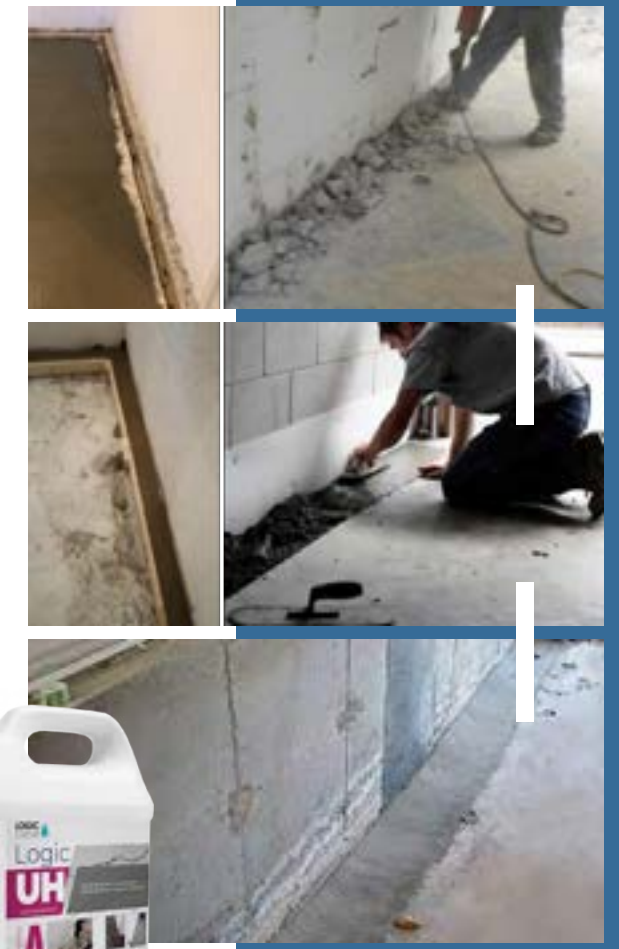
- Logic UW is a unique product based on epoxy resin, free from foam or other additives.
- its innovative technology allows it to spread effortlessly through pores, effectively repairing even the smallest capillary cracks.
- Unlike traditional products, Logic UW does not dissolve in water, ensuring it won't contaminate drinking water sources.
- Moreover, it is formulated without harmful ingredients or vapors, making it safe for use on porous surfaces without causing damage. This versatility and safety make Logic UW an ideal choice for various repair applications where water resistance and environmental friendliness are paramount.

: Logic UW


CONCRETE WALL
INJECTION HOLE
PRESSED GROUND
CONNECTION POINT
CONCRETE WALL

LOGIC UH

- Logic UH is a product formulated from epoxy resin combined with sand, free from foam or any additional additives.
- Leveraging innovative Logic technology, this product seamlessly spreads through pores and exhibits optimal adhesion to surfaces.
- Primarily used for repair and sealing applications, Logic UH is ideal for joints, roofs, and construction beams.
- Notably, it remains insoluble in water, ensuring it does not contaminate drinking water sources.
- Furthermore, it is free from harmful ingredients and dampness, making it suitable for use as repairing mortar in porous buildings.

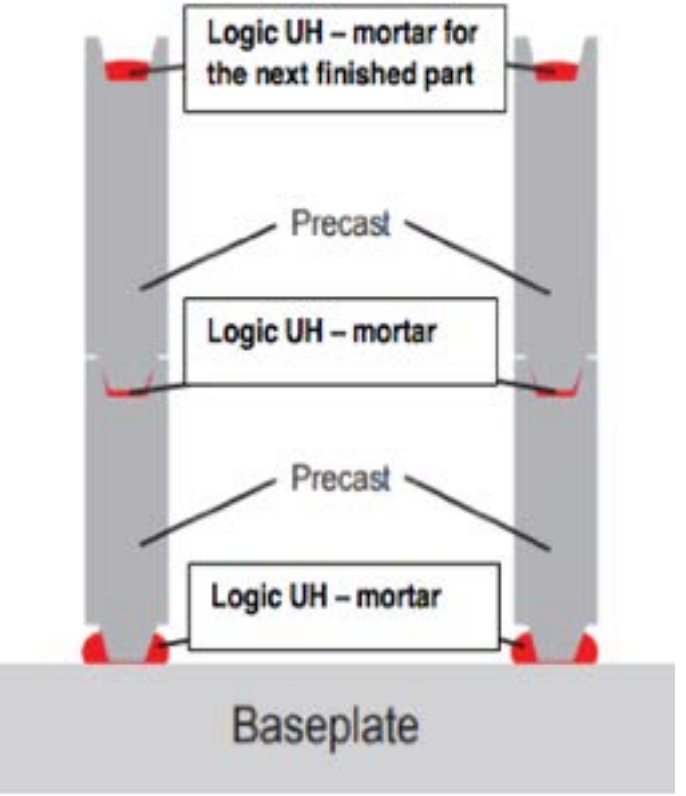


Logic UH

- Logic UH serves as a proactive measure during building construction, where it can be applied preventively between layers to enhance protection. its elasticity enables it to absorb movements and vibrations, effectively preventing cracking.

- Additionally, Logic UH can be utilized to repair weak columns, reinforcing their structural integrity.

- This preventive approach not only safeguards against potential damage but also enhances the overall stability and longevity of the building.



Why should we use the Resin Products of Logic Chemie?

- The resin products exhibit insolubility in water, ensuring environmental friendliness and non-harmfulness to drinking water and groundwater.
- Their advanced binding technology provides a substrate bond 20 times stronger than that of competing products.
- Additionally, these resin products boast water-repellent properties, enabling their use underwater or on wet surfaces. With a flexibility range between 30-75%, they efficiently repair damages and offer greater strength than concrete.

Dilitation and cold joint insulation

Proper waterproofing of expansion joints between structures is crucial to accommodate various structural movements. Many building leaks stem from inadequate insulation in these areas.

Dilatation applications must be seamlessly integrated with the waterproofing system employed. Hence, to enhance the longevity of building materials and ensure safety, it's imperative to implement water-moisture insulation with suitable materials, precise detailing, and qualified applications.

Dilitation and cold joint insulation

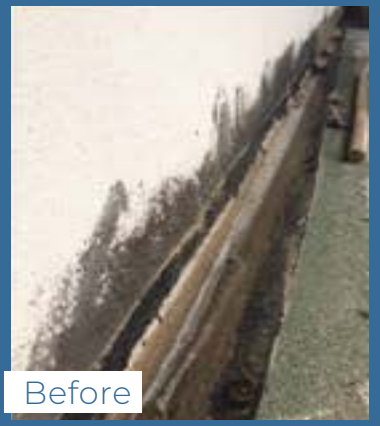
- Principally; epoxy repair
  Principally, epoxy repair mortar is applied on both sides of the cold joint, and a special membrane with holes on both sides is affixed to this mortar to create an impermeable barrier.

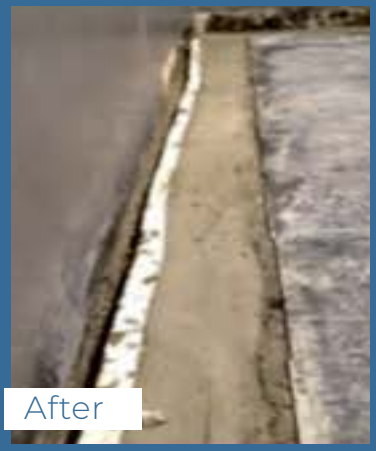
- The following membrane types are commonly used for this application:
  - PVC
  - HYPOLON
  - EPDM

- These membranes are suitable for use in dilations. To ensure the membrane's impermeability, it is essential to use LOGIC UH.

Dilitation and cold joint insulation with **Logic UH Flex**

- Logic UH Flex is a product comprising epoxy resin mixed with sand, devoid of any polyurethane or (PU) foam.
- It serves to create a sealing zone for surface cracks, joints, grating edges, cold joints, and dilatation zones.
- Leveraging Logic Chemie technology, the mixture deeply penetrates and establishes a highly robust bond with repair and sealing surfaces.
- Notably, it does not dissolve in water, poses no harm to drinking water post-curing, and contains no hazardous materials or gases.
- Additionally, it can serve as a repair mortar for porous buildings.

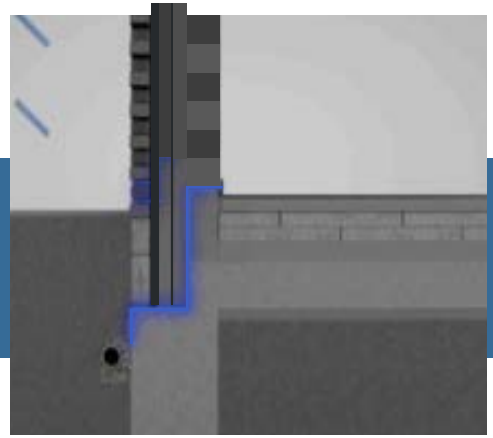




Concrete binding with **Logic UH Flex**

- Logic UH Flex is ideal for creating a strong bond between two concrete surfaces or between old and new concrete. It is well-suited for such situations.

- Following the waterproofing and solving problems with Logic DP, Logic UH Flex can be applied to seal the joints effectively.



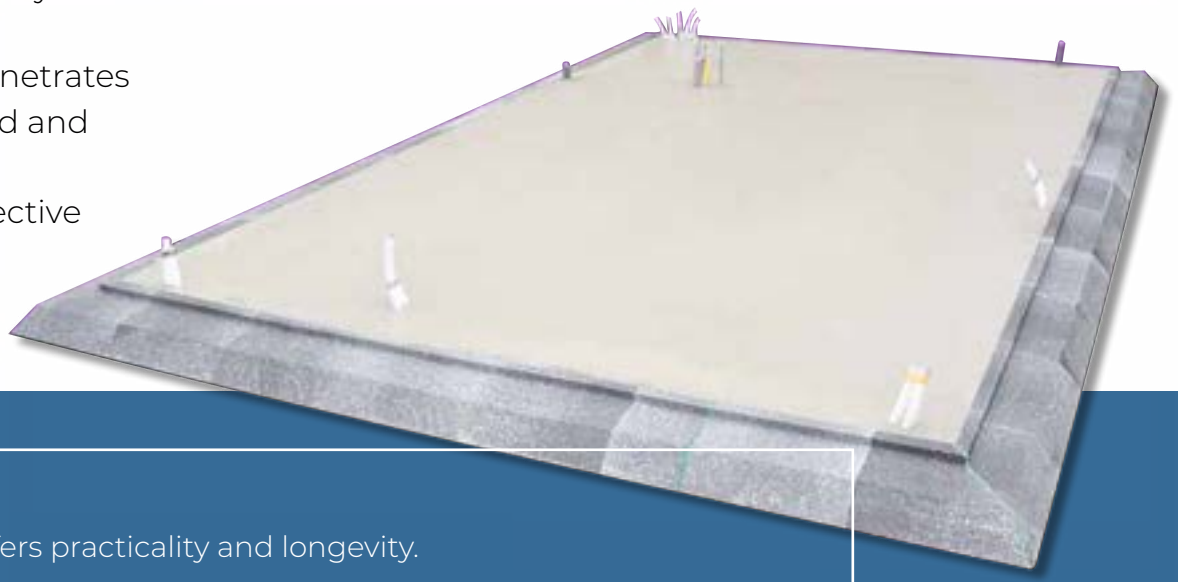
Logic DP

- Logic DP utilizes an impregnation method to protect concrete by deeply penetrating its surface.
- Upon application, Logic DP significantly enhances the strength of concrete, making it 20 times stronger.
- its technical composition provides comprehensive protection against various agents including water, mineral oil, solvents, acids, salt, combustion gases, and pressure.
- Additionally, Logic DP forms a colorless coating, preserving the natural appearance of the concrete while ensuring long-lasting durability and resistance to environmental elements.

Logic DP **solutions**

- Logic DP is insoluble in water, ensuring that it does not affect drinking water quality once the coating is fully cured.

- Thanks to Logic Chemie technology, Logic DP penetrates deeply into concrete pores, forming a strong bond and surface seal.
- This advanced penetration capability ensures effective protection and durability for concrete structures.



- More robust than membrane options, our solution offers practicality and longevity.
- Comes with a warranty of at least 20 years.
- Ideal for beams, columns, foundations, and building bases.
- For those desiring a color coating, we recommend Logic DS.

Roof waterproofing

- The rooftop is a critical component of building insulation, as it is susceptible to water pressure and cracking due to non-durable insulation methods.

- This can result in leaks and damage over time. An effective insulation material should exhibit resistance to weather and temperature changes while also providing flexibility to accommodate structural movements.

Rooftop insulation with **Logic DP**

Utilizing **LOGIC DP** for water proofing instead of membranes or other liquid coatings provides effective protection and waterproofing for the rooftop.

If a color coating is desired, **LOGIC DS** can be applied.

Combining its use with **LOGIC UH** for joints and openings ensures comprehensive coverage.

Additionally, it is advisable to apply **LOGIC UH** around other machinery, pipes, and installations for enhanced protection.

Rooftop Insulation with **Logic DP**

- Logic DP enhances concrete strength by up to 20 times.
- It is highly suitable as a rooftop waterproofing product.
- Leveraging Logic Chemie technology, it deeply penetrates pores and creates a strong bond.
- Resistant to water dissolution.
- The coating is colorless.

Rooftop Insulation with **Logic DS**

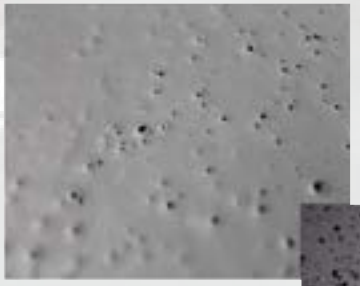
- Logic DS protects and prevents waterleakage better than other types of (liquid) membranes
- The product is resistant against more than 1.400 types of chemicals and other similar liquids
- Due to the Logic Chemie technology, Logic DS penetrates deep and well into the pores and forms a strong bond and surface sealing
- Does not dissolve in water
- Can be produced in any color by RAL-Code

Logic DS

- Logic DS is a two-component epoxy-based coating.
- Shields concrete against carbon dioxide and chloride from the air.
- Provides water-repellent effect, preventing moisture ingress into concrete.
- Technical composition enables deep penetration into concrete pores, ensuring long-term Can be produced in any color based on
- RAL code.
  Has a preventive effect against corrosion and rust formation in
- concrete.
- Prevents damage and cracks in concrete.
- Resistant to the expansion of rust spots, preventing concrete cracks.
  Stops the penetration of moisture, offering 20 years of protection.
  Includes a 10-year guarantee on the paint (color).

Difference with what's on the market

- Normal Epoxy paint looks good in the beginning.
- Doesn't penetrate enough, lays as a layer on top of the concrete.
- Lasts 2-3 years before spots occur.



Recently applied

After some month

After one year

- Polyurea coatings are more suitable for rooftops.
- Problem occur during the application.
- Molecule particles of the ingredients vary in sizes.
- While applying the coating the molecules separate leaving a non stable coating.
- Approximate 5 year durability