



Permanent, Durable, Chemical-Free - Building Protection and renovation with Lime Crystallization Technology

Permanent, Durable, Chemical-Free Building Protection and Renovation with Lime Crystallization Technology

FUTURE OF BUILDING 2018

Vienna, Austria



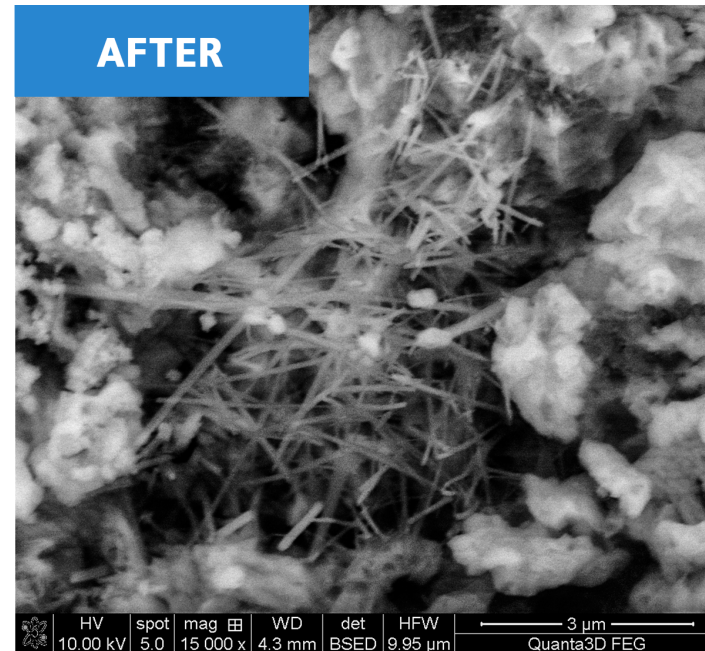
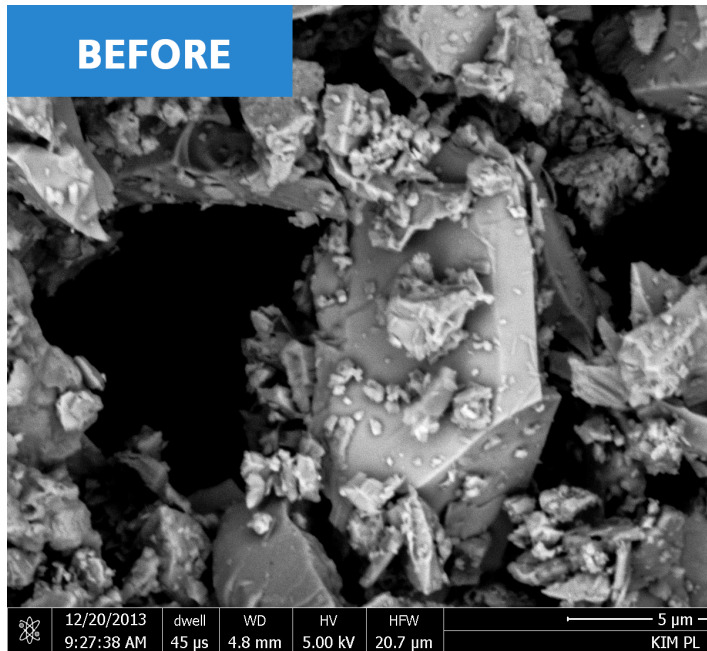
“Building is the eternal fight with water.”
Bogdan Pisarek, CEO

- Surface water (rain)
- Ground water (hydrostatic pressure, capillary rise of water)
- Air Moisture (humidity)

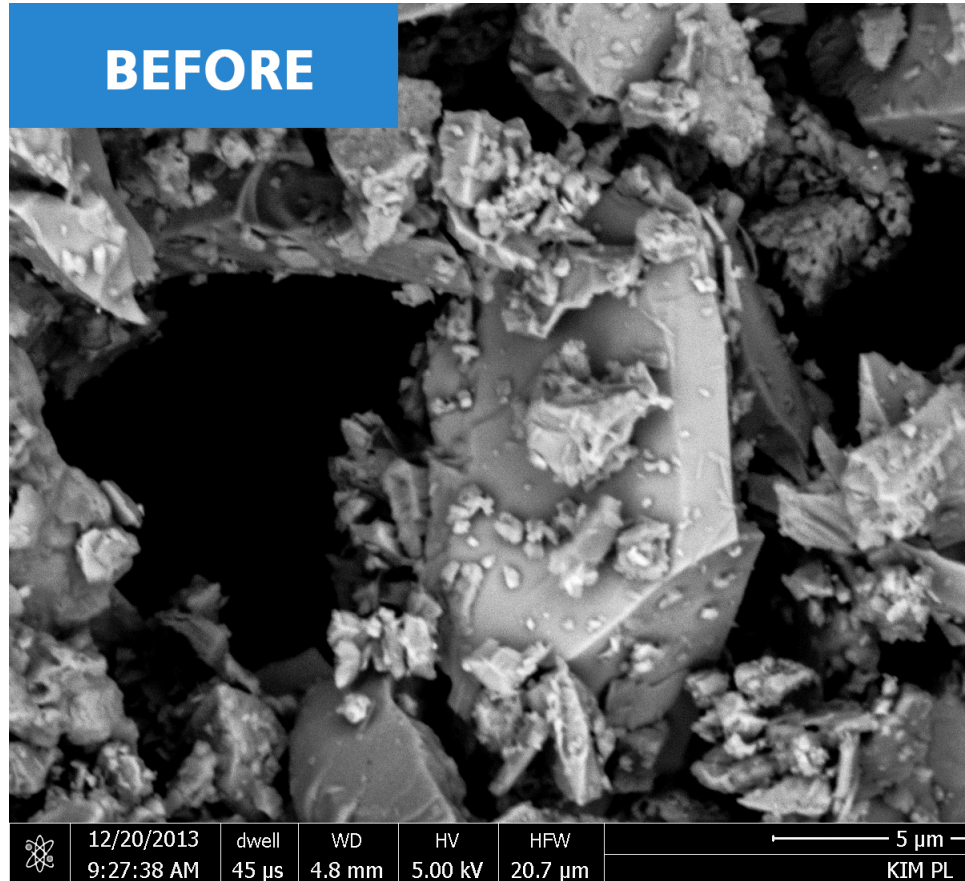
- The problems arising from water:
 - Corrosion
 - Cracks
 - Damp (bad indoor climate)
 - Fungi, Algae
 - Efflorescence

- **The solution: Natural Crystallization Technology**

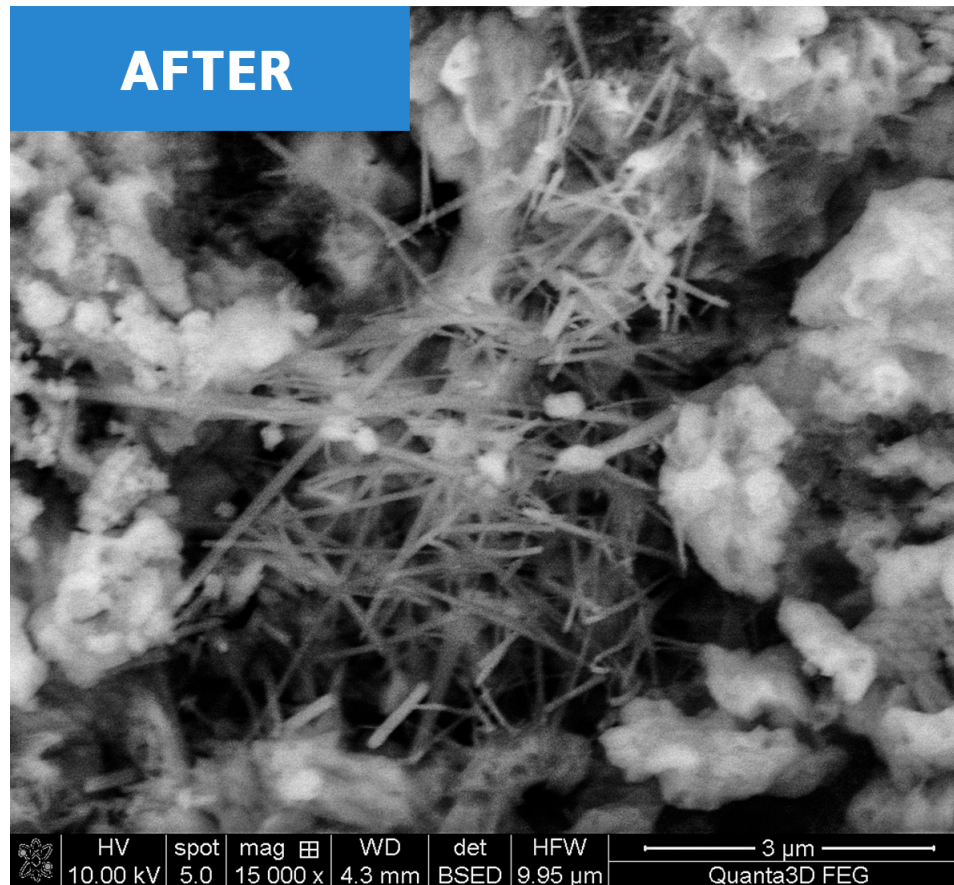
- In order to solve all these problems, NCT mortars were created, based on Portland cement or lime and NCT catalyst. The technology of active hydration of cement and lime constitutes one of the oldest technologies of manufacturing construction materials. NCT is a catalyst for crystal formation which in moist mineral materials reacts with water and then dissolves the separated components (e.g. calcium hydroxide, mineral salts, mineral oxides, non-hydrated or partially hydrated cement molecules).
- As a result, insoluble crystal is obtained, very similar in its material structure to regular cement stone, however demonstrating a completely different crystal structure.



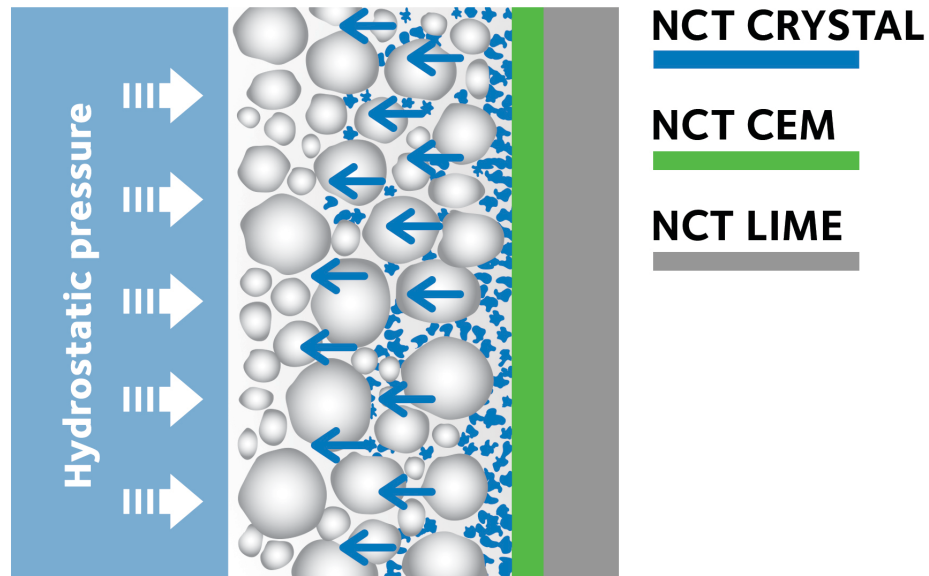
- The provided significantly magnified photos were performed with the use of electron microscope and they represent the change in wall structure as a result of NCT action.



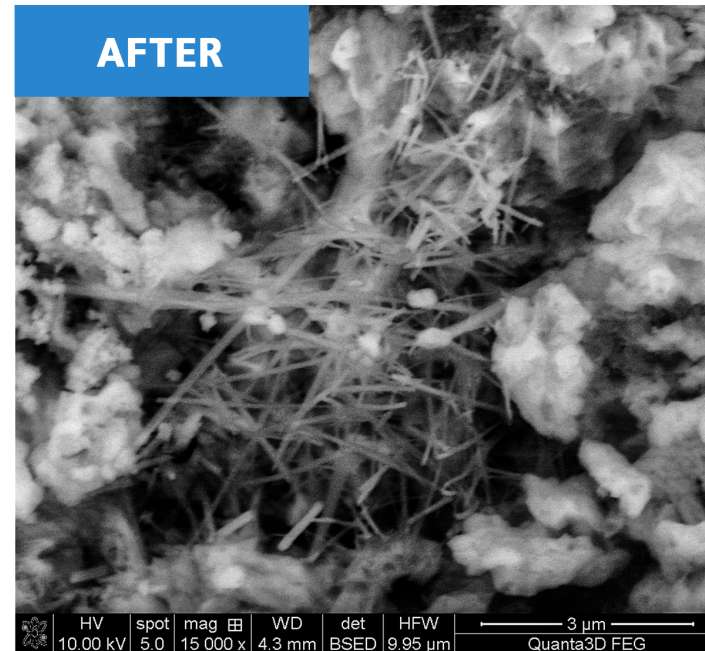
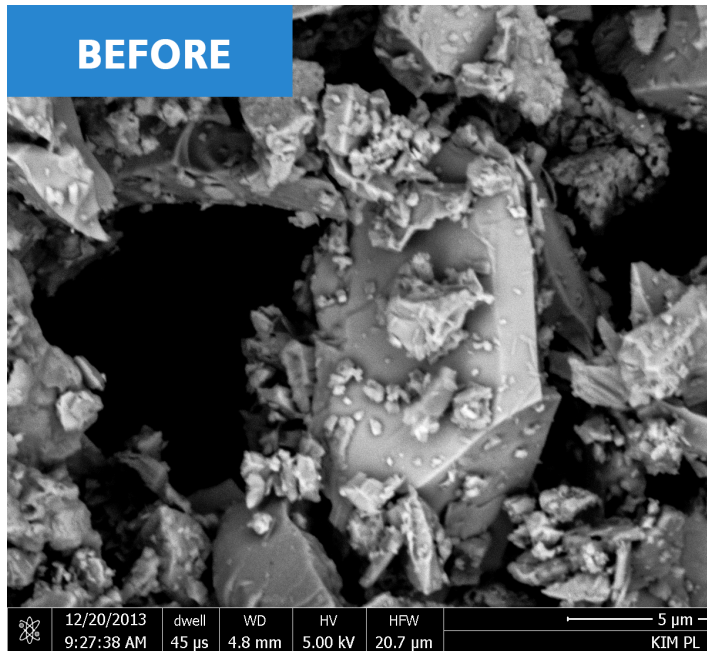
- The first photo represents construction material before the application of NCT technology. Regular cubic molecules are visible, together with by-products of lime and cement hydration. Pores being the source of leaks are also clearly visible.



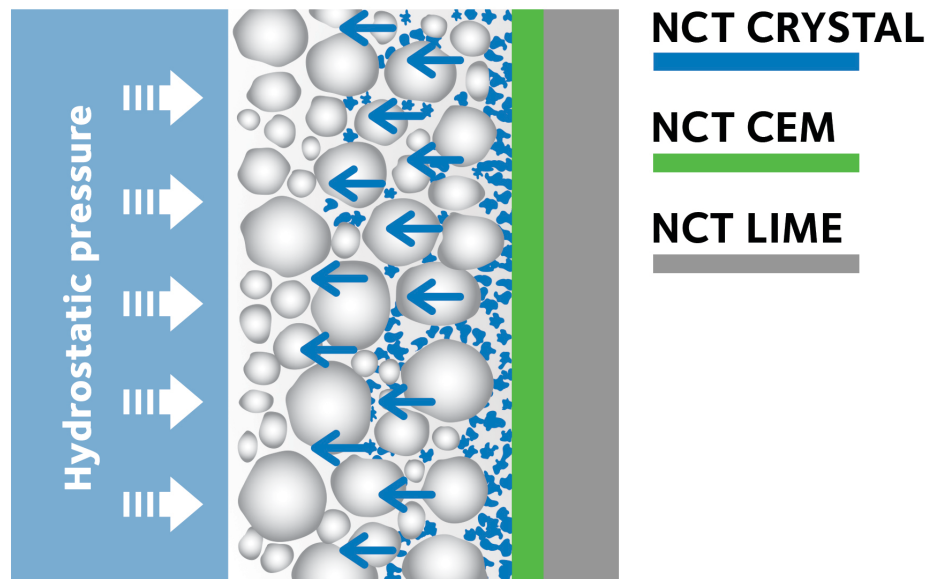
- The second photograph represents the sample covered with NCT CRYSTAL and NCT CEM after 28 days. The structure has been sealed with needle-shaped NCT crystals.



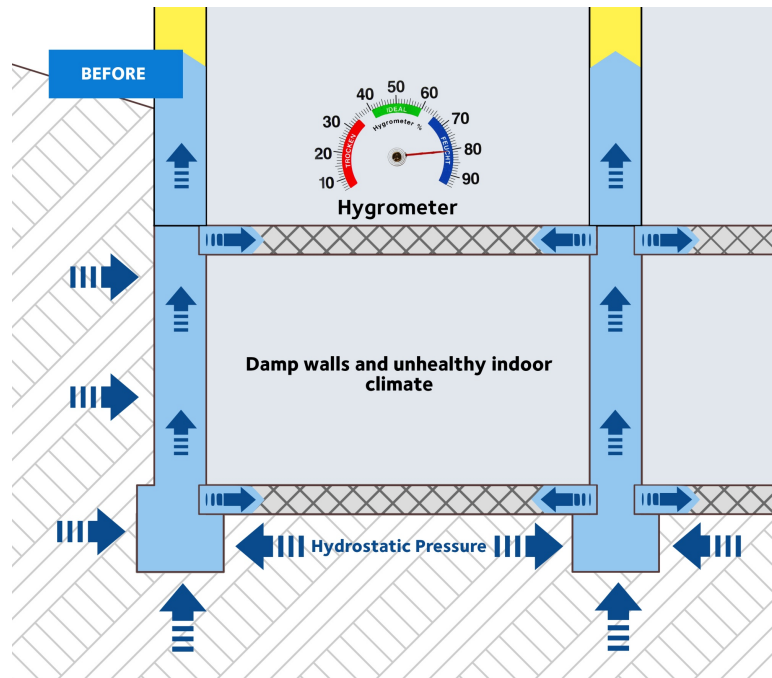
- NCT crystals have the property of attaching ever more dissolved components to the crystal structure when in contact with water and thus to grow continually. This is a very important reason for the high performance of NCT.
- With the crystallization catalyst giving the starting signal for this sealing process. The “material”, which is used for sealing in the crystallization process being virtually in unlimited supply inside the wet building material.



- As a result of this continuous growing of crystals, as shown in the pictures, water can no longer penetrate. The wet capillary pores form a crystal structure which, over time, reaches such a high level of texture that water can no longer penetrate in the liquid state of matter. The crystal growth comes to a halt once the water, which is a prerequisite for the "material transport", is drained in the capillary. If, however, through external influence, a new crack should form or increased water pressure should occur at a later time and water should penetrate again into this capillary, crystal formation shall occur again and stop the water penetrating. Therefore ensuring the long term effect of crystallization.



- The mortar is characterized by spectacular moisture protection properties. It is one of few mortars in the world which penetrates the construction material and modifies its structure to such an extent that it becomes impermeable to water.



- Typical problems on a construction site:
- Underground floor/ Cellars
 - Wet walls through capillary effect water “climbs” up from the ground



- Wet underground floor walls before and after application of NCT Technology

- Mold, Algae and Efflorescence



- Municipal buildings - corrosion in an aggressive environment - sewage treatment plants, sewerage, sewer rehabilitation
- NCT Technology can be successfully used for the sealing of tanks storing treated water, recreation reservoirs as well as reservoirs in sewage treatment plants.



- The mortar has the National Institute of Hygiene (PZH) certificate and can be used for repairing treated water tanks as well as concrete pipelines. It can also be applied for the strengthening and reconstruction of tracks in sewage treatment plants, where the environment is aggressive.



- Concrete repair - anti-aging
- Microcracks, capillary formation (pore formation), water absorption



- For all these problems, we offer NCT building materials that cause the crystallization of lime, water and cement. Through this reaction the surface as well as internal structure is compacted, repaired and made resistant to oils, acids, sugars, salts and other chemical substances.

- Advantages of NCT Technology:
 - Easy in the application
 - Time savings
 - Real solution – eradication of cause (and not only fighting symptoms)
 - Chemical Free (100% mineral based) and
 - Durable (250 freezing cycles)



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Thank you for your time!

We are looking forward to showing you our technology on
your next construction site as a preferred solution

NCT Technology for Permanent, Durable, Chemical-Free
Building Protection and Renovation with Lime
Crystallization Technology

klimaaktiv





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