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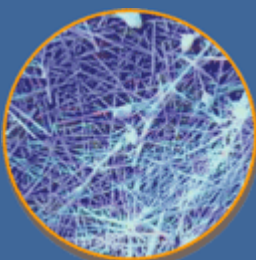
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FAST FACTS

Unlike other waterproofing systems, Penetron® has the ability to seal cracks deep into the concrete.



An intricate web of insoluble crystals forms in the presence of

Internal Waterproofing for Concrete

Penetron® Industry Newsletter

February 2008

Intro: Penetron Admix enables flexible construction scheduling and significant cost savings

High-end crystalline waterproofing is now widely accepted in the developed world as a superior way to waterproof and protect concrete structures. The paradigm shift among designers and specifiers away from traditional membrane solutions towards crystalline slurry was slow and hard-fought.



Mr. Jozef Van Beeck, Director International Sales & Marketing, inspecting KCRC works in Hong Kong

Another paradigm shift is happening at a much faster rate, for obvious reasons: from crystalline slurry to crystalline admixtures - - After the decision has been made to use a crystalline system, it is easy to understand the advantage of dosing it directly into the concrete mix. The benefits are obvious: no more waterproofing treatment needs to be done, i.e. no loss of time due to bad weather, no extra preparations and allowance for waterproofing contractors to come in, no more failures due to faulty workmanship, no more need for protection boards and screeds etc. and, as a result, significant cost savings.



Penetron® news: First Metro project in China waterproofed with crystalline Admixture



Guangzhou – China; The Penetron team in China worked closely together with the Guangzhou Metro Corporation (GMC) for over 3 years with a view of designing waterproof and durable concrete for the

Guangzhou Metro System. Once the project directors were convinced of the merits of high – end crystalline waterproofing, they immediately set their sights on the cost benefits of using Penetron Admixture. GMC then appointed the South China University of Technology to conduct an intense testing regime, which lasted from April to October 2006. The main objectives of which were to investigate:

- Compliance of Penetron Admix to national standard GB18445
- Comparison of slump, bleeding, compressive strength, shrinkage, impermeability and resistance to chloride ion penetration
- Influence of different dosage rates on waterproofing effect of Penetron Admix
- Penetron Admix' crack sealing ability
- Presence of Penetron crystals through microscopic photography

Penetron® and H₂O
creating a permanent
protective seal



Witness Penetron's crack
sealing ability



View a 3
minute video
demonstrating
how Penetron
works



Send to a friend or
colleague.



Guangzhou metro (Penetron photo)

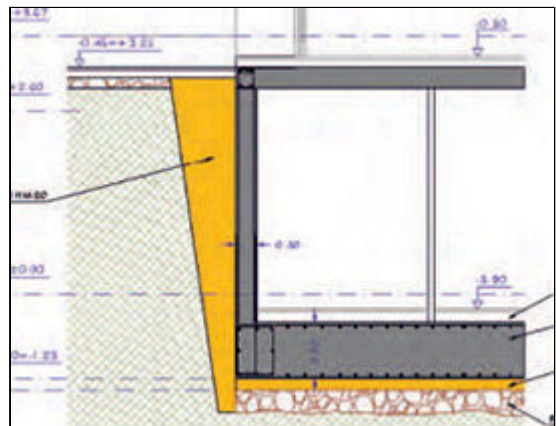
After receiving indisputably positive results from the South China University of Technology, GMC decided to use Penetron Admix on all main and accessory structures of Xicun Station of Metro Line No. 5. To date, over 70 tons of Penetron Admix have been used on this project.

[Click here for full article on Penetron Admix in Guangzhou Metro.](#)

 **Penetron® Worldwide: 2 projects showcasing concrete in salt water conditions**

 **SPAIN - Puerto de la Cruz, Tenerife, Canary Islands, New commercial development with CEMEX concrete**

- Concrete mix design: CEM II/A-P 42,5 R/MR
- Concrete supplier: CEMEX
- Dosage rate for PENETRON® Admix: 4 kg/m³ for base slab, exterior walls and pillars
- Bottom slab thickness: 80 cm (~31.5")
- m³ concrete with PENETRON® Admix: 2,500 m³
- Cold joints: PENETRON® Slurry



[click here to enlarge drawing](#)



The foundation of this project is 1.23 m under the sea level and the distance from the ocean approximately 200 meters. As such, there are hardly any basements in this area of Puerto de la Cruz and the few basements that exist are constantly battling with water ingress. After having been introduced to the Penetron system, the engineers took the “risk” to design a basement floor.

Despite continuously pumping water out, the excavation area constantly had 5 – 10 cm of standing water. Penetron Admix was dosed in all CEMEX concrete for base slab, exterior walls and pillars. During high tide, the water level rose significantly and the pumps had to be turned off at night due to noise pollution. Hence, the base slab was repeatedly flooded with water.

It is worth noting that the cold joints were simply treated with a coat of Penetron slurry, no other joint waterproofing material was applied. Even in these critical conditions, this was enough to completely waterproof these joints. Hairline cracks were simply treated with Penetron. Four days later, there was no more water leakage through these cracks and white crystal growth could be seen on the surface. Needless to say, the engineers are extremely satisfied with the Penetron performance.



hairline cracks were simply treated with a coat of Penetron slurry



crystal growth after 4 days, no water leakage



USA - Capri Residences, Miami, FL



Located in the exclusive area of South Beach Miami, Florida, Capri Residences is an exclusive new development featuring 72 luxury condominiums covering nearly three blocks right on Biscayne Bay with breathtaking downtown city and water views in one of Miami's finest locations.



This premiere project will be comprised of 2 new towers, 14 and 6 stories, as well as the renovation of a 3 story structure built by renowned architect Igor Polivitsky with over 105,000 square feet (9755m²) of living space. This one-of-a-kind oasis also features oversized balconies, a lap pool, waterfront gym, private roof top terraces, on-site boat slips and private underground parking.

The location of the Capri site, right on the edge of Biscayne Bay, posed some critical concerns for its owner and design team with regard to waterproofing protection from the high hydrostatic saltwater pressure that would be encountered.

The designs called for the construction of underground parking facilities below the building and extending 10 feet (3.05m) below sea level. To support the new 14 story structure a new retaining wall would be poured to hold back the headwaters of the Bay as well as 4 foot (1.22m) thick Tremie slab poured underwater and then subsequently pumped dry. This would essentially create a "bathtub" and the Tremie slab would be topped later by a 4 foot thick (1.22m) structural slab.

As pouring such a large volume of concrete at one time at such thicknesses would almost guarantee the formation of cracks in the concrete, a decision was made to include Penetron Admix in the concrete to ensure that a watertight structure would be obtained once all was completed. Penetron's technology would not only lower the permeability of the concrete and increase the concrete's performance under the hydrostatic pressures being applied by the Bay, it would also afford the concrete the ability to seal any hairline shrinkage and heat cracks that might appear.

Due to the thickness and volume of concrete that had to be poured in each slab, the concrete supplier, Rinker Materials, proposed mix designs that were low in cement to reduce the heat generated as the concrete hydrated. Penetron worked closely with Rinker Materials in reviewing their mix designs, dosage rates and dosing operations at their plant to ensure that more than 7,000 cubic yard (5352m³) concrete pour went smoothly.

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