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FAST FACTS

The Penetron system has successfully waterproofed concrete structures for over 27 years.

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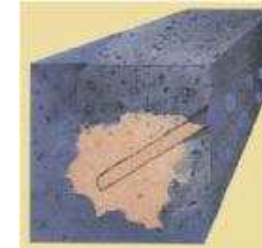
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Penetron Industry Newsletter

September 2006

Welcome to another edition of the Penetron industry newsletter. One of the main advantages of the Penetron concrete waterproofing system is that it is extremely versatile in its application, it can be applied as a coating, a dry-shake or an admixture. The cavity-fill method is yet another effective way to introduce the Penetron chemicals into existing concrete and waterproof it, literally, from within !

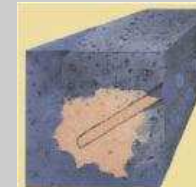


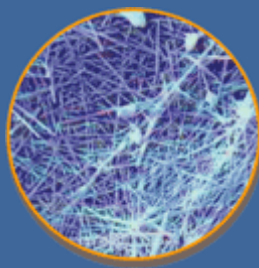
Product Feature: PENETRON CAVITY FILL METHOD

The Penetron cavity-fill method is an extremely effective solution to rising damp problems and situations where existing moisture and dampness needs to be dried out with minimal surface damage. The process consists of drilling angled holes into the moisture affected concrete structure and then filling them with a Penetron slurry. The final few inches of the holes would be capped off with Penetcrete Mortar.

In this way, the active ingredients in the Penetron slurry is allowed to react with the moisture present in the concrete creating an insoluble crystalline structure within the concrete pores and capillary tracts. The concrete eventually becomes permanently sealed from within the structure as the Penetron reaction expands to seal it internally from further water and moisture intrusion from any direction. Over time, the system continues to improve as the crystals reach greater depths and increases in density, further eliminating any remaining moisture from the concrete.

The Penetron cavity-fill method is ideal for use on marine concrete structures, commercial and civil engineered structures, tunnels, structural walls, as preventative maintenance to at risk





An intricate web of insoluble crystals forms in the presence of Penetron and H₂O creating a permanent protective seal

ISO 9001 : 2000

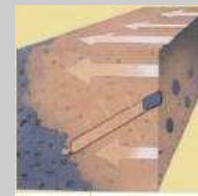


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TUV Rheinland of North America

structures and any other application where rising damp or internal moisture problems needs to be addressed.



BASILICA FULVIA-AEMILIA in Rome waterproofed by Penetron Cavity-fill method

Five years ago, Alda Fendi, of the Fendi fashion empire, bought a section of a Renaissance palace in central Rome just yards away from the Column of Trajan. In the course of gutting the space for an art gallery, laborers digging in the basement discovered architectural footings of the Basilica Ulpia, a law court built by Emperor Trajan in 112 AD. Under the supervision of Rome's archeological Superintendency and after three years and 600,000 EU, the state archeologists recommended that part of the basilica paving be restored and left visible. This meant digging through to the ancient foundation which, when unearthed, was found to be subject to intrusion from groundwater.



The Penetron system was approved for use and the cavity fill method was used in one meter deep holes drilled 10 - 15 cm in a ring at 60° around the foundations. Considering the age of the concrete foundations, it was necessary to increase the free calcium for the most effective application. This was accomplished by adding a calcium acetate solution before filling the cavities with the Penetron slurry. The use of modern Penetron technology allowed the area to become completely dried out allowing sections of this almost 2000 year old, historic structure to be restored.



Case Study: Precast Concrete Plant



Fairfield, Iowa, USA

The customer was looking for a way to enhance the performance of their precast concrete septic and sewage units to reduce cracking and provide a lasting waterproofing solution. After a series of tests using both Penetron and Penetron Admix, they made the decision to include Penetron Admix as part of their normal concrete design mix.

During a quality control review, they identified a few tanks that had developed some early stage shrinkage cracks. One of the tanks was filled with water and left for observation to confirm the benefits of Penetron Admix in their concrete.

Initially, while there was no noticeable drop in the water level, a number of leaks became apparent, showing themselves as continuous, dripping leaks. After three (3) days the leaks had been reduced to a slow seepage with moisture creeping down the face of the tank 3 – 4 inches before evaporating. At this time, crystals were plainly visible as they began to fill in the cracks. After seven (7) days all leaks had stopped completely as crystal growth continued in the cracks until there was no moisture. The customer also noted that the shrinkage cracks that were also appearing in the precast concrete lids of these tanks had also lessened through the use of Penetron Admix.



Day 1 Leaks appear as the tank is filled



Day 3-Crystals begin to grow filling the cracks



Day 7-All cracks have been filled and leaks completely stopped



Penetron Worldwide - USA Focus



Pendleton Station – South Carolina, USA

Just a few miles from Clemson University in South Carolina, an academic residential and town center development is being constructed. The Pendleton Station Development's historical architecture will blend with the community of Pendleton, focusing upon the typical South Carolina Style.

The construction techniques used at Pendleton Station are unrivaled in the building industry. Insulating Concrete Forms (ICFs) are being used in all fire walls, exterior walls, floors and ceilings. The ICF construction technique consists of expanded polystyrene blocks stacked around steel rebar. Concrete is then poured inside the blocks giving the unit strength and an outstanding insulating quality (R52) and sound suppression capabilities. To further raise the quality of the ICF construction, Penetron Admix is being added to the concrete.

Penetron's superior ability to lower the permeability of concrete gives the ICF construction both waterproofing and corrosion protection without incurring additional costs to over-excavate for exterior applied systems while avoiding the additional scheduling impacts that such systems bring. Penetron Admix also provides other benefits such as increased compressive strength of the concrete, freeze-thaw resistance and greatly increased resistance to chloride ion penetration.





Recently Earth Tech, Inc (an international provider of global water management and transportation, engineering and environmental services for municipal, government and industrial clients) was selected to design the new systems additions to the Summerville Commissioners of Public Works (SCPW) Waste Water Treatment Facility. In the design of this project, which includes a new 5.0 MGD screenings facility and RAS/IAS Pump station



among the many other additions and . conversions, Earth Tech, Inc specified the use of Penetron Admix for the entire structure of the new Pump Station Wet Well, base slab of the Clarifier Tank and the floor and retaining walls of the Screenings Building. With these facility additions and changes, the SCPW is estimated to realize an initial annual savings of approximately \$350,000 per year.

Notice to Readers

You are receiving this newsletter; because you have either subscribed or been pre-subscribed by someone in our global network. Many Penetron aficionados have been asking us to regularly update them with project news, new product applications, company news etc. Any suggestions or [feedback](#) you may have is appreciated.

Penetron products are currently available in over 60 countries. Should you wish to be contacted by a local representative and learn how Penetron can solve your concrete problems, please [contact us](#).

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