PENETRON INDUSTRY NEWSLETTER

February 2016

Welcome to another edition of the PENETRON Industry Newsletter!

The concrete industry today widely accepts that reduced concrete permeability equals an increase in durability, which is why permeability-reducing admixtures for hydrostatic conditions (PRAH, see ACI 212.3R-10) are often called 'durability admixtures.' Chloride migration tests recently showed that Penetron ADMIX provides 60 years of extra durability. (see Oct 2014 newsletter.)

Simulating real-life conditions through four consecutive cycles of water pressure tests (EN12390-8:2009) reveals the true power of the PENETRON ADMIX crystalline admixture: *zero mm water penetration*!

These test results for CEM IV 32.5 and CEM II/B-M (P-L) 32.5 concrete were achieved by independent laboratories in Greece, Brazil and India – and confirm what a growing legion of clients has witnessed on their projects: PENETRON ADMIX provides totally dry concrete in the most critical environments: 100% concrete permeability reductions (PRAH requirement = 70%).

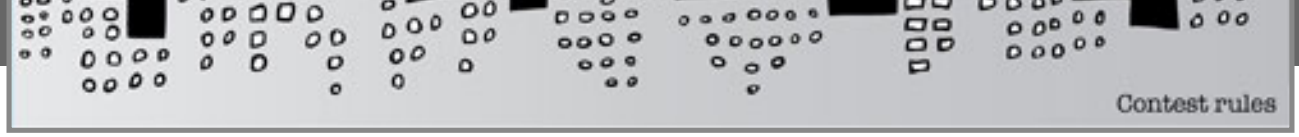
With Penetron		Without Penetron	
Average depth of water penetration mm	Maximum value of penetration mm	Average depth of water penetration mm	Maximum value of penetration mm
0 22563-09 Specimen	0 22563-09 Specimen	19 22563-05 Specimen	23 22563-05 Specimen

Visual proof: check out the new crack healing video below, showing PENETRON ADMIX at work.

Our annual PENETRON Engineers Without Borders (EWB) 2015 grant was won by the

Mississippi State University team – read the whole story below. Further in this issue are showcase projects from Brazil, China, France and the U.S.A.

Jozef Van Beeck
Director, International Sales & Marketing



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PENETRON EWB-USA Contest: “The winner is....”

The *PENETRON EWB-USA Grant Award Contest* has a winner! This year’s Engineers Without Borders (EWB) contest pitted Mississippi State students against a Harvard University team and

an Austin, Texas professional chapter. Last October's week-long voting process gave the Mississippi State (MSU) team a come from behind win.

The prize will help the MSU students expand their fresh-water sustainability project in Simwatachela, Zambia, a rural African community with nearly 4,500 inhabitants. Since the project began in 2012, Dr. Dennis Truax, faculty advisor and teams of six students have traveled to Zambia each summer.

So far, five clean-water wells have been installed and the team plans to expand the project to eight wells next summer. The prize money may allow the addition of a ninth well next year.

Located nearly 100 miles from the nearest city, the secluded Simwatachela villages have relied on shallow, hand-dug wells and depressions near rivers to collect water for personal consumption and irrigation. The centrally located wells provided by the MSU team give residents quicker access to potable water and can further enhance village life: a well installed near a school may even have the government send a teacher to work at that school.

The EWB student chapter at MSU currently has about 150 members. For the full story, see: www.msstate.edu/newsroom/article/2015/11/msu-student-group-wins-grant-expand-zambian-water-project/

PENETRON WORLDWIDE

The City Complex, Xi'an China

“The City” is a 3.3 billion yuan ($520 million) mixed development with luxurious residences, a shopping mall and a Ritz-Carlton hotel. The 300,000 m^2 (3,230,000 square feet) site includes five 28-floor luxury apartments, the 23-floor Ritz Carlton and a 4-floor boutique shopping mall (designed by British architects WATG) and executed by China Construction Fifth Engineering Division Corp.

Waterproofing and protection of the 3-level basement with a depth of minus 17.8m was a major challenge especially considering the tight construction schedule. To save time, money and improve the durability of the concrete of this iconic development, the original membrane specification was replaced with PENETRON ADMIX. All construction joints were treated using PENEBAR SW-55 waterstop.

Tumen Gardens in the City, Xi’an, China

The large, three-level underground structure (70 m x 400 m / 230 x 1312 feet) on the grounds of the Tumen Gardens was built on an 89,000 m^2 (958,000 square feet) job site using a cut-and-cover excavation (22.11 m / 73 feet deep) method. The completed structure serves as a civil defense shelter (in the bottom level) for Xi'an, while the upper floors accommodate a retail area and restaurants.

A wholly underground structure, comprehensive concrete protection of the Tumen Garden structure was essential for long-term durability. About 120 tons of PENETRON ADMIX ensured a waterproof structure and also provided significant time and cost savings to the construction project. All construction joints were permanently sealed with PENEBAR SW-55 waterstops.

Metro South Senior Apartments, Miami, U.S.A.

The Metro South Senior Apartments complex applied PENETRON crystalline technology to help complete construction on time despite the high water table at the job site. The affordable housing development includes 91 units (designed for independent living) in a seven-story structure, with a café, game room, theater, fitness center, and laundry room. A four-floor parking garage provides 91 parking spaces. There is also 2,600 square feet (242 m^2) of commercial space on the ground floor.

The high water table at the job site initially presented a sizeable challenge. But a combination of PENETRON crystalline materials overcame this problem and resulted in a durable, waterproof structure. PENETRON ADMIX SB (in soluble bags for easy dosage) was used to treat all concrete in the below-ground structures and the parking garage. PENETRON's non-staining, green tracer technology ensured that it was present in every mix where it was required. PENEBAR SW-55 waterstop and PENEBAR PRIMER were used to permanently seal all construction joints.

QC Terme Chamonix, Chamonix, France

Part of a European chain of spas and resorts, the QC Terme Chamonix is located at the foot of Mont Blanc and features 12 indoor/outdoor thermal water pools with different water temperatures for up to 350 guests. The facility also includes offers a Turkish bath, saunas and massage rooms, all with a total area of 4,600 m^2 (50,600 square feet), designed by ShapeStudio architects and HPDB Engineering & Architecture.

To ensure the durability of all the concrete structures at QC Terme Chamonix, PENETRON ADMIX was used for the entire foundation and all water-holding structures.

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