



DOWNLOAD  
PENETRON®  
BROCHURE

**SUBSCRIBE**

## INSIDE THIS ISSUE

[Penetron® Feature:  
IPT Brazil: Penetron  
Admix demonstrates  
its ability to dry out  
concrete under  
continuous water  
pressure](#)

[Penetron® news:  
Penetron® supports  
Engineers without  
borders.](#)

[Penetron® Worldwide](#)

[China: Long Tan  
Hydroelectric Dam,  
Guangxi Province](#)

[Malaysia: Dataran  
Gemilang, Precinct 4,  
Putrajaya](#)

[Australia: Chatswood  
Transport  
Interchange,  
Chatswood](#)

[USA: Lakeshore Drive  
Wastewater  
Treatment Plant,  
Trumbull County, Ohio](#)

## FAST FACTS

Penetron Admix  
completely waterproofs  
concrete under  
continuous water  
pressure

## Internal Waterproofing for Concrete

### Penetron® Industry Newsletter

September 2008

Engineers Without Borders - USA (EWB-USA) is a non-profit humanitarian organization established to partner with developing communities worldwide in order to improve their quality of life. This partnership involves the implementation of sustainable engineering projects, while involving and training internationally responsible engineers and engineering students. ICS Penetron proudly supports this cause and provided scholarships for two chapters. Read more under Penetron news below.



### Penetron® Feature: IPT Brazil: Penetron Admix demonstrates its ability to dry out concrete under continuous water pressure

In April, 2007, the following test was initiated at the reputed Brazilian IPT (Technological Research Institute of São Paulo State, Brazil) facility to demonstrate the ability of Penetron



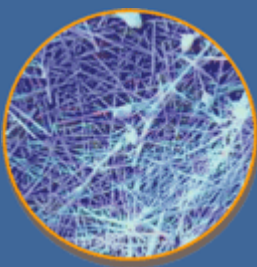
Admix to completely dry out concrete under continuous water pressure. Porous (20 MPa) concrete samples treated with Penetron Admix were subjected to continuous water pressure up to 0.7 MPa (234 ft. head water). The concrete was then observed for a period of 4 weeks. The images below demonstrate the waterproofing progress over this 4 week period.



1 week after start of water pressure



2 weeks after start of water pressure



An intricate web of insoluble crystals forms in the presence of Penetron® and H<sub>2</sub>O creating a permanent protective seal



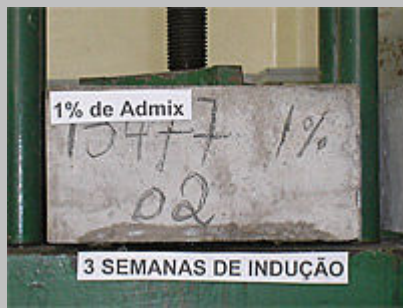
Witness Penetron's crack sealing ability



[View a 3 minute video demonstrating how Penetron works](#)



[Send to a friend or colleague.](#)



3 weeks after start of water pressure



4 weeks after start of water pressure

Please contact [info@penetron.com](mailto:info@penetron.com) if you wish to receive the complete test report.



### Penetron® news: Penetron® supports Engineers without borders

Penetron is currently involved in supporting Engineers Without Borders-USA, a non-profit humanitarian organization that strives to improve the quality of life of developing communities worldwide. The EWB-USA Annual Conference was held at the University of Washington and had over 600 attendees comprised of engineering students, academia and private enterprise professionals. The conference focused on the issues related to Sustainable Engineering and Global Health. The keynote speaker Bill Gates Sr., co-chair of the Bill & Melinda Gates Foundation offered an inspirational speech to the attendees, affirming the audience of their social responsibility and challenging them to be active in implementing sustainable engineering solutions to significantly impact the developing communities in which they serve.



Ms. Sue Yi (4th from the right), ICS Penetron Corporate Relations, with UT scholarship recipients

In support of the event, Penetron provided scholarships for two Student Chapters; the University of Iowa and the University of Texas at Austin. Jessica Smith, chapter President of the University of Iowa shared their process of implementing a future project in Ecuador. Christopher Lombardo, chapter President of EWB-UT/Electrical Engineering PhD student, and his colleagues offered insight to their missions to utilize their available resources to implement basic infrastructure projects in developing communities and to train internationally responsible engineering students through real-life, hands-on projects. Currently the EWB-UT chapter has five ongoing projects--water projects in Limbe, Cameroon; Sieykin Naso Community in Panama and Jaboncillos Chicos, Mexico; a computer project in Coahuila Desert and a Mobile HQ Project to improve overall project functionality.

Established in 2002, EWB-USA now has over 11,000 members engaged in over 300 projects around the world, providing access to basic needs like clean water, sanitation and renewable energy. Visit [www.ewb-usa.org](http://www.ewb-usa.org) to learn more about Engineers Without Borders.



Villanova Chapter: Baan Bo Mai, Thailand Project



**Penetron® worldwide:**



### China: Long Tan Hydroelectric Dam, Guangxi Province



With a height of 216.5m (710 ft.), a crest length of 830.5m (2725 ft.) and a normal water level of 400m (1312 ft.) Long Tan Hydroelectric Dam located at the upper reaches of Jiangshui River in China's Guangxi Province is the world's largest roller-compacted concrete (RCC) dam. Built with the support of Black & Veatch as the design and construction consultant Long Tan dam provides 18.7 billion kilowatt-hours of

power annually to the Pearl River Delta between Guangzhou and Hong Kong. The project protects 12 million people and 4856km<sup>2</sup> (1.2 million acres) of land, in one of the country's main manufacturing and investment centers, from flooding.

The Long Tan Dam also incorporates the largest underground power house ever built, housing seven 700-megawatts turbine generators. Ships pass the dam via a 179m high vertical lift, which is currently the highest and fastest ship lift in the world.



The zoning of the RCC concrete dam was divided into three parts. For each part the properties in terms of construction conditions, stress-strain behavior and stability conditions were determined. Further to this the concrete structure of the dam needed to be completely watertight and able to resist high hydrostatic pressure.

Penetron was successfully applied on this project as a waterproofing coating to ensure the impermeability of the entire upper side of the dam and to increase the anti-slide stability of the RCC layer's surface.



### Malaysia: Dataran Gemilang, Precinct 4, Putrajaya

Putrajaya is Malaysia's new government administration center, which was moved to its present location 25km south of Kuala Lumpur in 1999. Five core precincts form this site covering over 45km<sup>2</sup> (4581 hectares) of land



between the Kuala Lumpur International Airport (KLIA) and the capital.

Putrajaya is home to a number of official buildings including the prime minister's office, the Putrajaya International Convention Center (PICC) and the Putra Mosque.

The newly developed Precinct 4 is located across the Seri Gemilang Bridge from the PICC at the southeast end of the Putrajaya Boulevard and serves mainly as Business and Commercial Precinct. Being built in a wetland area it was essential to provide a sustainable protection for the basement structures of the government buildings in Precinct 4. The Penetron system was chosen to effectively waterproof and protect a sub-structure area of 40,000m<sup>2</sup> to ensure long-term use of the 4-level basements of lot 4g8 to 10.



Basement works in Putrajaya, Precinct 4



Aerial render Gemilang Square, Putrajaya



## Australia: Chatswood Transport Interchange, Chatswood

The Chatswood Transport Interchange (CTI) is being developed as part of the Epping to Chatswood Rail Line project. The Interchange, scheduled for completion 2008, is a \$360 million transport and retail facility being developed in the heart of Chatswood.

The main features of the Chatswood Transport Interchange include:

- New railway station comprising two new island platforms to accommodate the existing North Shore Line and the new Epping to Chatswood Rail Line;
- Relocation and upgrade of bus interchange, taxi ranks, and kiss-and-ride spaces, to accommodate some 760 bus movements and an anticipated 100,000 commuters and general pedestrians per day;
- A convenience and food based Retail Centre of some 10,000m<sup>2</sup>;
- Three iconic residential towers containing 509 units with secure basement car spaces; and
- Significantly improved urban design, connectivity and accessibility through the heart of Chatswood to the surrounding residential, commercial and retail areas.

In order to effectively protect the concrete structure, Penetron Australia was selected by Laing O'Rourke, the D & C Contractor and DeMartin Gasparini, concrete placement specialists, to waterproof all below ground structures, including lift pits and tanks as well as above ground areas including suspended slabs and car park decks. To date, over 1700 cubic metres of concrete has been batched by Boral Concrete with Penetron Admix as part of the concrete mix design.



Aerial view of the construction works at the Chatswood  
Transport Interchange site



Chatswood Transport Interchange

## USA: Lakeshore Drive Wastewater Treatment Plant, Trumbull County, Ohio

In its efforts to accommodate continuing development around Mosquito Lake, one of Ohio's largest lakes, in Trumbull County, upgrades to the existing treatment plant are being undertaken. The overall improvements included converting the existing treatment tanks to a flow equalization tank for wet weather events, the installation of an 85,000 GPD dual train packaged treatment system, and increasing the sand filtration area by an additional 50 percent.

The original plant expansion design specified a painted steel treatment system, however, due to the site's small footprint and staging space, the steel system proved to be undesirable. Penetron teamed with the contractor and Ohio's largest pre-caster to submit a more durable Penetron Admix treated precast concrete system which was also able to meet the installation's restrictions of the site.



Site works at Lakeshore

Drive Waste Water Treatment Plant

In addition to a more flexible footprint to fit within the project confines, the precast system also offered additional benefits such as a dual train system which allowed for convenient operation and maintenance, and a greater life span expectancy with Penetron Admix treated concrete over that of the steel plant.

The Owner, Trumbull County, and the design engineers, ES & C International, have been so pleased with the performance of the plant and Penetron Admix that they have specified Penetron's surface applied products to resolve leaks in the existing treatment tanks.

[www.penetron.com](http://www.penetron.com)

©Copyright ICS Penetron® International Ltd. 45 Research Way, 203, East Setauket NY 11733

T O T A L   C O N C R E T E   P R O T E C T I O N