



EXPO 2010 SHANGHAI CHINA

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FAST FACTS

Penetron crystals are insoluble and waterproof concrete for the entire life of the structure.

Internal Waterproofing for Concrete

Shanghai World Expo 2010

May 2010



Over 200 tons of Penetron products were used to waterproof the Expo Axis

The Shanghai Expo 2010 (from May 1 to October 31, 2010) has opened its doors and it is the biggest World Expo in size to date. Its theme "Better City, Better Life" signifies Shanghai's new status in the 21st century as a major economic and cultural center. More than 190 countries and international organizations are participating in the event and it is estimated that 70-100 million people from around the world will visit this World Expo in China, which would make it the largest in history in regards to visitors.

The World Expo will take place in the heart of Shanghai where the former river port was transformed into a spectacular venue of permanent and temporary Expo pavilions.

The Expo Axis, the largest single building of the Expo, is a one-kilometer-long and 100m wide walkway and runs from the Expo site's main entrance straight to the Celebration Square by the Huangpu River. The structure, designed by SBA Architects (Germany), consists of two underground and two above-ground levels and connects the major exhibition areas on the Shanghai Expo 2010 site and houses commercial, food catering, entertainment and exhibition service facilities. It will also connect several metro stations and the elevated pedestrians' walk. During the Shanghai Expo the Expo Axis will serve as the major traffic-way for gathering and guiding the heavy pedestrian flow.

According to the Expo's motto of "Better City, Better Life" the Expo Axis was designed as a sustainable structure for the future. It features six "Sun Valleys" that open up to the sky and provide sufficient sunlight and fresh air, while its steel-glass funnels effectively collect rainwater. A pipeline-system with a total length of 700 kilometers under the pile foundation introduces geothermal and river water that keeps the area warm in the winter and cool in summer.

Penetron was applied as a dry-shake to completely waterproof and protect the entire bottom concrete slab of the Expo Axis against the high groundwater table due to its close proximity to

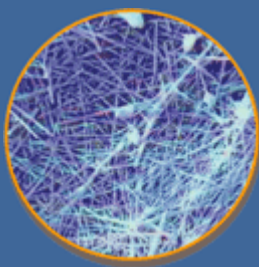
the Huangpu River; in total more than 216 tons of materials were applied.



Penetron® Worldwide: Focus on Peru



Los Olmos Project, Peru



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



Witness Penetron's crack sealing ability



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Much of Peru's coast is a barren scrubland. Rain is scarce due to the Andes creating a barrier blocking the rain clouds from the Amazon basin. The 190 million dollar Los Olmos Project, currently the biggest project in Peru, was designed to divert water from the Huancabamba River on the East side of the Andes to the typically dry Los Olmos riverway that runs to the Pacific. When completed the Los Olmos project will irrigate more than 56000 hectares of scrubland near the Northern Peruvian town of Chiclayo.

Brazilian construction firm Odebrecht is handling the first phase of the project as a part of a 20-year design-build-operate contract. The project included the construction of the 43m-high Limón dam on the river and boring a 20km-long tunnel through the mountains. The 275 hectar reservoir will hold approx. 44 million m³ of water.



The centerpiece of the Los Olmos project is the trans-Andean tunnel, which was dug 2300m below the surface, and which was completed in March 2009. The entire first phase was completed in March 2010.

After commencing its operation more than 2 billion liters of water will flow through the tunnel to the Pacific coast annually.

Together with the local Penetron-Team and the contractor Odebrecht, Penetron products were used to protect the concrete structure at the tunnel exit, with outstanding performance. [Click here](#) to read the recommendation letter from Odebrecht.



Sedapal Waste Water Treatment Plant Manchay, Peru



Under the supervision of their client SEDAPAL, the water resources agency for Lima, Spanish contracting firm Abengoa constructed a new wastewater treatment plant to meet the country's new stringent regulations for the re-use of effluent for agricultural applications. The plant, located in Peru's Manchay district near Lima was completed in the fourth quarter of 2009. It employs a modified sequencing batch reactor (SBR) process and tertiary filtration to produce enough treated effluent to irrigate 1,000 acres of farmland each day. Peru has a critical need for biologically treated wastewater because its supply of extracted freshwater is decreasing, and about 80 percent of it is currently being used for agricultural purposes. As a result, the country enacted new regulations in July 2008 for the re-use of wastewater, including effluent that is applied toward animal care and crop cultivation.

The works executed by Abengoa Peru mainly comprised of the supply and installation of more than 267 kilometers of lead lines, mains, distribution, overflow, collectors, secondary drinking water and wastewater pipelines, and 7,800 drinking water and sewerage connections to households; the construction and fitting out of fourteen reservoirs, five tanks, three entry chambers and 244 chambers (for pressure reduction, diversion, air valves and purge valves); the wastewater treatment plant for more than 88,000 l/s treatment flow; medium and low voltage power system; reservoirs with pumping house, tanks, pumping station, head reservoirs, control and measurement chambers, and sundries for the potable water supply system; as well as the drainage pumping station and control and automation system.



The Penetron System was used to waterproof and protect the concrete of three water tanks in the Manchay plant against corrosion and chemical attack. [Click here](#) to read the recommendation letter from Abengoa.



Huachipa-Ramal Norte Potable Water Treatment Plant, Peru

The Huachipa Consortium led by Brazilian construction firm Camargo Correa is in charge of designing, building and operating the three components of this project. They include the water intake installations from the Rimac River, the water treatment plant at Huachipa with a nominal capacity of 10m³/s (5m³/s in the first of the three stages) on the bank of the Rimac



River and a 27km-long water conveyance pipeline from Huachipa to the North Zone of Lima (Ramal Norte). When completed in December 2010 this 360 million dollar project will be

largest potable water treatment plant in Latin America supplying water and sanitation services to 2.4 million people living in the Northern and Eastern areas of Lima, who are currently left without or very limited access to water. Further it will help to ensure water supply to the growing metropolitan area of Lima and a reduction of infant mortality in the areas benefited by the project.

The Penetron system, which is approved for potable water use, was used for the concrete's protection and waterproofing on this water treatment plant, to the client's full satisfaction.



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