

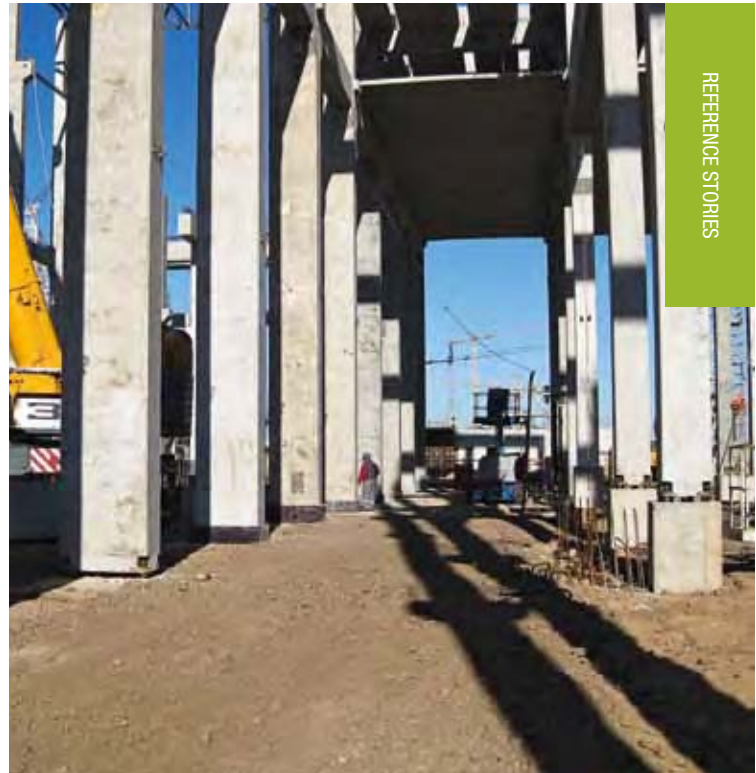


PEIKKO PARTICIPATES IN BUILDING THE WORLD'S LARGEST PULP MILL IN URUGUAY

Text: Reeta Paakkinen

Peikko Group is participating in the construction of the world's largest and most innovative pulp mill at Punta Pereira, in Colonia, Uruguay. The mill, which will have a manufacturing capacity of 1.3 million tons of pulp annually, is expected to become operational in 2013. The plant will consist of a 160-megawatt biomass-based power generation unit, wood chip plant – process and non-processing buildings – barge terminals with yards for wood storage, offices, canteen and a deepwater port on the de la Plata River, which will receive large cargo ships to transport the pulp to North America, Europe and Asia.





Peikko delivered to the site various types of precast connections, such as column shoes, anchor bolts, fastening plates and rebar coupling systems exceeding 300 tons. In Uruguay, Peikko is co-operating with several European machinery and engineering companies, including Andritz and Pöyry, Uruguayan engineering company CSI, construction companies such as Teyma, Saceem and Salfa, and precast companies Schmidt of Uruguay, and Astori of Argentina.

ships from Spain to Uruguay, but in more urgent cases they were dispatched to Uruguay by plane.

The engineering of the non-process buildings was done by the Finnish engineering firm Pöyry and the Spanish Heymo, Pöyry's subsidiary in Spain. **Tommi Rissanen**, Project Manager at Pöyry Engineering, said cooperation with Peikko Spain proceeded smoothly. "Peikko staff collaborated with us from the design phase on, solving the problems we identified. They

coordinated and planned the deliveries from Spain to Uruguay and responded to issues promptly. They also visited the site in Uruguay several times, which made work for precasters and construction companies much easier," Rissanen said.

Hector Scelza, Engineering Project Coordinator at CSI, responsible for the engineering of the mill, said his firm had also been in a close cooperation with Peikko throughout the project. "Peikko's technical department visited our headquarters in



HISTORICAL INVESTMENT FOR URUGUAY

The owner of the mill, Montes del Plata, is a forestry company founded in Uruguay in 2009 by two major forestry companies, Arauco of Chile and Stora Enso of Finland. The facilities are being built in a free trade zone in Punta Pereira, 190 kilometers West of Uruguay's capital Montevideo, whilst the eucalyptus plantations that will feed the mill are located in various areas of Uruguay. Total investment in the mill stands at approximately EUR 1.5 billion, making it one of the biggest private sector-led industrial investments in Uruguay's history.

CALCULATIONS, DESIGN AND STEEL CONNECTIONS FROM PEIKKO

Peikko's Spanish subsidiary provided technical support for the design of structural connections, and produced and delivered Peikko's products to the site. Most of the deliveries were made in containers by cargo





Montevideo several times to make our work easier and supported us until the design of the mill was ready," he said.

A VENTURE TO NEW PASTURES

The cellulose pulp mill represents a venture to new pastures for Peikko, because it was the first time the firm delivered goods to South America. **Topi Paananen**, CEO of Peikko Group, noted the project paves way for Peikko's expansion to South America in the future. "We are proud to be part of this large and demanding project. Peikko is not yet present with own operations in South America and the market is being developed by Peikko's Spanish organization. But this project, as well as coming years, will show when and where we will start our own operations in the region," Paananen said.

STRUCTURE OF THE WORLD'S LARGEST PULP MILL

The world's largest cellulose pulp mill will consist of several industrial buildings where wood chips or other plant fiber sources are turned to thick fiber board. The structures of these buildings are made of precast concrete, in-situ concrete and steel. Each stage of cellulose pulp manufacture is completed in a different industrial building.

In the process buildings, Peikko

supervised the design task and helped to standardize the connections between the HPKM Column Shoes, with HPM Anchor Bolts. In some cases, for example in the pulp drying premises, it was necessary to use larger PEC Column Shoes, because of the larger dimensions and capacity required for the columns section.

In the premises housing the fiberline, the columns were connected to the foundation using the standard HPKM Column Shoes. In addition, rigid beam-column connections designed and supplied by Peikko were used. It was also useful to use MODIX Rebar Coupling system, in order to connect the reinforcement of the in-situ



topping, which was 500 mm in depth, with the precast columns.

Some of the precast buildings where Peikko's solutions were used, include the turbo generators and the pulp storage buildings. In the turbo generators building big PPM Anchor Bolts were used with column shoes. In addition, hundreds of special big fastening plates in black steel, and Hot Dip Galvanized (HDG) treatments were used. The PPM Anchor Bolts were supplied with HDG treatment.

The pipe bridges building, on the other hand, is made of a steel structure, which was connected to the concrete foundation using almost one thousand of Peikko PPM Anchor Bolts. Due to the geometry of the foundation it was adequate to use long anchor bolts.

The engineering companies decided to use Peikko's TERA Joint Floor Joints because of the heavy loads in the mill and technical requirements of the floor. Accordingly, Peikko designed a special height TERA Joint to fit the 300 mm deep floor, and according to the needs of the subcontractor, who will install the joints. Around 2.600 m of specially designed joints were delivered to Uruguay.

SAFER, COST EFFECTIVE MATERIALS

Enrique Hernandez, Managing Director at Peikko Spain, said using Peikko's connections instead of traditional socket foundations made the construction process of the pulp

mill more efficient and cut down on overall costs. Peikko's connections made the foundation of the premises also thinner than it would have been if built using traditional systems. "This saved time as well as materials during the construction phase," he said.

Compared to traditional systems, Peikko's solutions made the installation of the columns also safer. "The connection of the columns using the Peikko system is rigid immediately after tightening the nuts, so it is not needed to brace the structure during the assembly of the columns or during the process of grout mortar sets. No braces are needed and free access on the site is guaranteed. Faster assembly of precast structures also offers cost savings in cranes and employment costs," Hernandez concluded. ■

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