



Overhead view of pavilions Overhead view of pavilions Overhead view of pavilions

Expo-Zaragoza Pavilions

Zaragoza

CLIENT	Water Expo 2008
PROJECT DATE	2006
LOCATION	Zaragoza, Spain
FIELD OF ACTION	Construction Project and Technical assistance during construction

More than 100 countries and dozens of organizations and companies took part in the International Exposition event in summer 2008 under the motto of “Water and sustainable development”.

The complex includes, among other elements, two new bridges across the Ebro River, a river park, a viewpoint tower, the pavilions of the participant countries and a space of thematic squares next to the river.

The project foresees from the beginning the integration of the complex in the city once the exposition is over.

Pavilions host the expositions in two floors 8 meters high with a total built surface of 160,000 m². Facilities are located under



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ground level in a big concrete box occupying all the floor plan.

Although some elements were cast in place, most of them were precast elements in order to reduce construction periods (the figure in the left shows the first floor, with precast structures in green and cast in place in pink).

Vertical structure is composed of precast concrete columns joined to the structure cast in place by screwed unions, and steel cores to resist wind forces.

Horizontal structure uses precast concrete beams and slabs, where the geometrical definition allows it, and prestressed concrete slabs cast in place in curved areas and long cantilevers up to 10.50 meters.

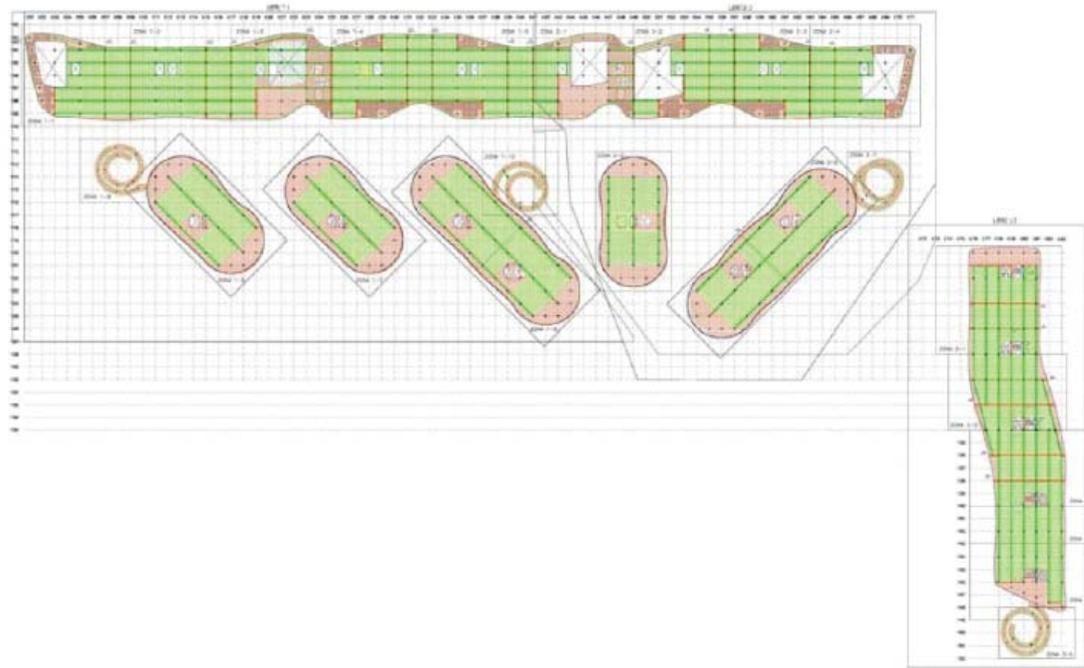
Beams span distances up to 16 m and slabs from 8 to 16.30 m. The union beam-column is fixed by cast in place concrete.

Hollow-core concrete slabs are prestressed or reinforced 0.60 m thick, with large cantilevers up to 10.50 m.

Construction of slabs in situ at elevation 8 and 17 m required a large amount of formworks.



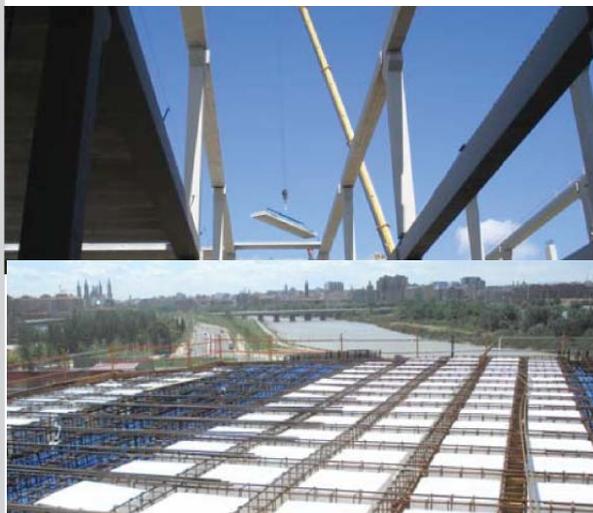
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Cover slabs between buildings are quite remarkable. First of them, between pavilions Ebro and Ronda, is built over inclined pillars, spanning 20 m. The second one is accessible, between Rani-Ilas and Ebro pavilions. Spans are 18.50 in both directions and slab thickness is 0.75 m.

Ten walkways were built to connect different buildings. These walkways were free-standing composite structures, and they were removable.

Due to the construction process, works were accomplished in only 10 months, under supervision of Ines Engineers.



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