

# Corinthians Itaquera Arena

The Corinthians Arena, located in the east of the city of São Paulo in Itaquera, shall be able to seat 48,000 spectators. A main requisite laid down by FIFA to hold the opening ceremony of the 2014 Football World Cup, is a necessary increase of an additional 20,000 seats. This extra seating capacity shall be provisional and removed once the championship is over. These works which cover a surface area of approximately 200.000 m<sup>2</sup> shall have some 3,500 car park spaces. In addition, the stadium foresees installations to receive the 32 Heads of State, representatives from participant countries and upwards of 5,000 journalists from all over the world.

The project has also taken a sustainability approach by employing rainwater recycling systems and self-generation of energy using photovoltaic panels placed on the façade.

The football pitch is in a north-south direction. The main grandstands have been placed on the East and West sides where practically all the necessary services for the stadium are available. The West side is the greatest in height. The stands, in both the north and south ends of the stadium, practically reach pitch level.

The four sectors of the structure shall be built with structural concrete. Practically 80% of the structural concrete structure is prefabricated, whereas the remaining is either in situ or composite structure, steel beams and concrete compression slabs.

Due to the importance of the prefabricated structure in this project, a prefabrication workshop has been installed on site. The workshop shall manufacture columns, beams, tiered grandstand beams and stands. Sectors East and West, which as previously mentioned house all the services required by the project, have been fulfilled in respect to the vertical loads, employing in most cases, prefabricated beam-column frames. These frames are set each 7.50m except in special areas, specifically the outer spans, which are placed each 10.35m.

The slabs are 20+6cm hollow core to cover spans of 7.50m and 25+6cm for the 10.35m spans.

Regarding the horizontal loads, stiff vertical cores have been built which stabilize the structure against horizontal loads, along with the collaboration of the frames in their corresponding resistant directions, and against the effects of vibration so as to assure spectator comfort caused by the dynamic effects generated by the spectators themselves.

Due to the ground conditions, all the foundations have been fulfilled with prefabricated driven piles. Here, 50 and 70cm diameter piles have been employed.

The columns are prefabricated and conceptually identical to those used in other stadiums. In the East side the columns are single elements whereas on the west side they may be composed of two or three elements which are spliced together.



## Brazil /2013 Project data

Structural Typology:  
Prefabricated concrete beams, columns and slabs. In situ reinforced concrete core. In situ concrete slabs.  
Composite beams  
Opening date:  
2013  
Owner:  
Sport Club Corinthians Paulista  
Construction:  
Odebrecht  
Scope of Works:  
Detail Project and Technical Assistance