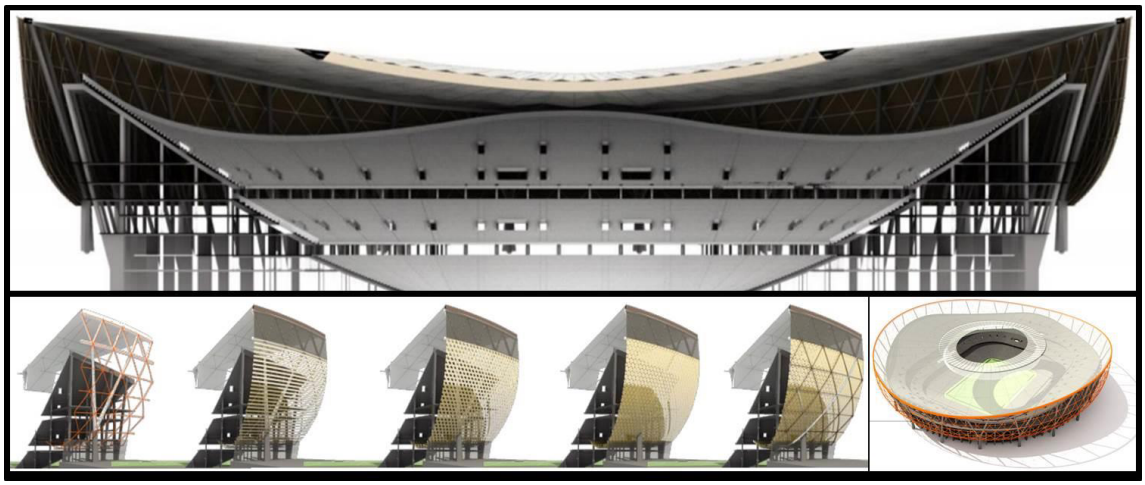
Lusail Stadium

Doha, Qatar / 2016

Structural type	concrete structure with metallic roof and façade
Owner	Supreme Commitee for Delivery & Legacy
Client	UTE Acciona Ingenieria- Redco Construction-Almana
Constructor	UTE Acciona Ingenieria- Redco Construction-Almana
Scope	structural support in the tender process
Architect	Fenwick Iribarren Architects



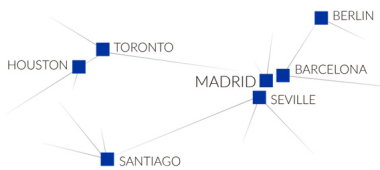
The new Lusail Stadium is designed for 80.000 spectators and his shape is circular, with 280 meters of approximate diameter. The stadium has a basement level, a ground level and seven uppers floors which defined the concourse. Three levels of inclined terraces are proposed for the bowl.

Concrete is proposed to solve the concourse structure and bowl. In general, the concourse slab will be solved with precast concrete but in situ concrete will be used in areas with openings. The slab or hollow-core slab supports on beam of in situ concrete. The terraces slab always will be solved with precast concrete and these will support on in situ concrete raker beams.

The principal concrete structure of the stadium is solved by 88 radial portal frames and 28 cores. The columns support with footings on upper rock. The structure concrete is divided in six areas through eight joints in radial direction.
The distance between portal frames is variable, 8.90 m in general. The beams have a T shape with dimension of 1.05 x 1.00 meters. The hollow-core slabs rest on 15 centimeters surfaces from the beams.

The portal frame is designed to support the horizontal and vertical loads. The beams will be working in bending and the columns in compression. The footings will be between the rock and the columns.

The columns will have a size of 50 cm in the transversal direction of the portal frame and a variable size in the longitudinal direction of the portal frame, depending on the loads and stresses supported by each column. In this way, reinforcement cages of beams and columns could be standardized so there is a minimum interference between them. The columns will have four lines of reinforcement and the beams will have five lines of reinforcement.



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