



# New Ikea Store

Murcia, Spain / 2006

Structural type  
Owner  
Client  
Constructor  
Scope

prestressed solid slab and steel structure  
IKEA Ibérica, S.A.  
Vías y Construcciones  
Vías y Construcciones S.A  
detailed design and construction support



The building for the new IKEA store in Murcia has a roughly rectangular shape and maximum internal dimensions of 160.0m x 120.0m. The building consists of one basement floor and two storeys above grade: ground floor and first floor.

The building is divided into three zones; the car park in the basement, the shop on the ground and first floor and the distribution store on the ground floor. The distribution store occupies almost half of the building's surface area and has a free height up to the roof.

The slabs on the ground and first floor are supported on a column layout with spans of 8.0m x 16.0m. Considering the large spans and important imposed loads a post-stressed solid slab solution has been employed for the slabs. Post-stressed solid slabs offer great advantages in respect to other solutions as they permit the fulfillment of structures which cover large spans between columns with a minimum, uniform depth, with respect to seismic actions they grant the structure high two-directional stiffness, it's the most versatile typology for arrangement and size of openings and constructively speaking it offers greater performances than other in-situ solutions.

The slab type chosen is specifically convenient for seismic areas as the slab is two-directional, the columns are braced by the slab itself and there are neither isostatic elements nor expansion joints.

A point to be highlighted is the fact that the structure is joint-free. This follows the general philosophy advocated by Fhecor in the design of buildings. This philosophy raises the problem of imposed deformations in calculations, which obtain with a minimum cost, a significant improvement in the structural functionality and durability. In the force analysis on the columns, due to the imposed deformations, it is possible to take advantage of the high ductility of the aforementioned according to seismic design employing upna confinement reinforcement for the concrete in the extreme areas related to the columns.

The foundation unit is a continuous 3.5m wide 1.2m deep footing set in the shortest span length between columns. In the other direction the foundation is braced with the 25cm ground slab for the seismic action.

The roof is a metal structure composed of main steel trusses spanning 24.0m and metal struts spaced 2.0m apart spanning 16.0m.



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