

Federico García Lorca Airport Control Tower

The set of structures in this Project consists of the Control Tower, the Services Building and the canopies for the car parks and circulating roads.

The Control Tower constitutes the central part of the Project due to its functional, architectural and structural importance. The Tower itself, which is 35m in height above grade, is conical in shape which shears out at the top in an inverted pyramidal form. The Tower Head rests upon the tower shaft and the shaft also incorporates a relax area and several technical floors. The antennas are situated on the roof of the control tower. The external façade is supported by steel profile framework which is anchored to the tower's slabs.

The one floor, rectangular shape Services Building has an internal patio where the Tower is located. In this building, there are offices, deposits, installations and so on, all of which offer support to the Control Tower. The roof of the building is set on two levels which creates a skylight in the transition point, which offers natural light to the inside of the building.

CONTROL TOWER STRUCTURE

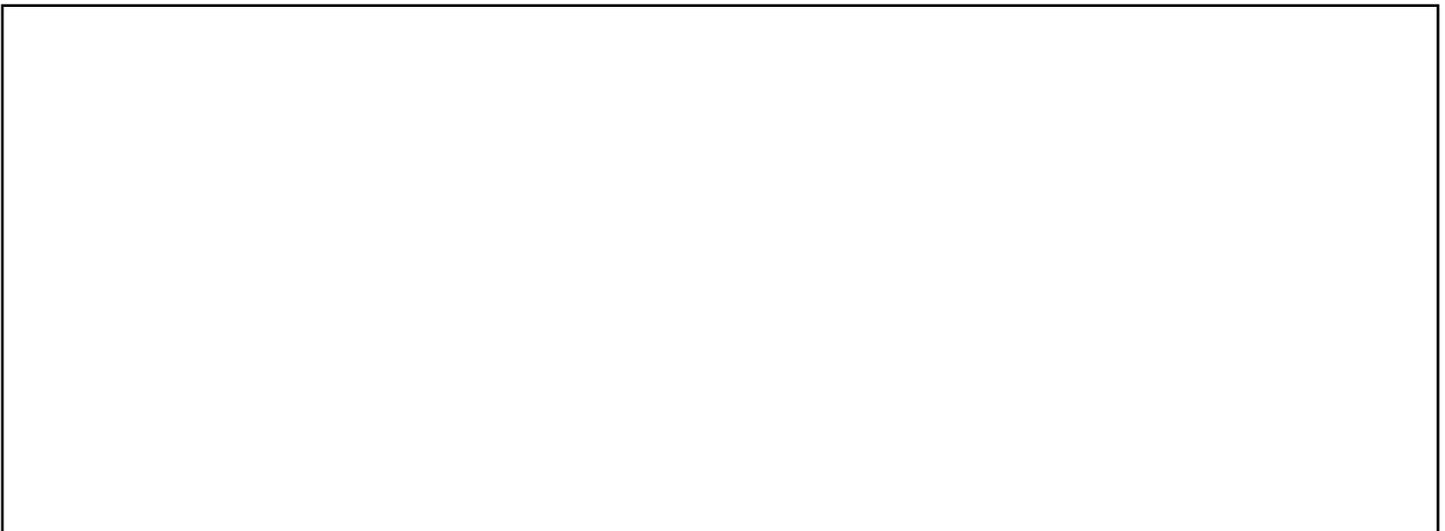
The tower foundation consists of a 13.0m x 13.0m x 2.5m The pile cap has five rows of 1.0m diameter piles with five piles in each.

The vertical structure consists of a core created by reinforced concrete walls which support the floors at different levels, so resisting both horizontal and vertical forces. The aforementioned core houses the staircase, lifts and installations and its development, on each floor, responds mainly to architectural aspects. The wall thickness varies in height so adapting to the structural need.

The floor structure has been solved employing 0.25m, 0.30m, 0.40m and 0.50m thick reinforced concrete slabs and beams. The technical mezzanine floor, the terrace and the tower head are especially complex due to their geometry and are structurally connected to the perimeter wall which offers support to the terrace and works as a folded plate.

The roof is solved, from a structural point of view, employing circular 350mm diameter and 30mm thick steel beams and columns which are supported on the tower head floor.

One of the most important requisites, from a functional point of view, was to guarantee the visibility as much as possible from the Tower Head level. To achieve this, the number of columns, as well as their dimensions was reduced to a minimum. These columns, embedded in their base and rigidly connected to the roof beams, create frames which resist horizontal wind and seismic forces upon the roof.





Spain /2008

Project data

Structural type:
reinforced concrete cores, slabs and pile
caps. observation room and roof made of
structural steel

Location:
Granada, Spain

Owner:
AENA

Client:
Prointec

Scope:
detailed design

Architect:
Ana Couto – César Portela