Adolfo Suarez Airport. T4S Building

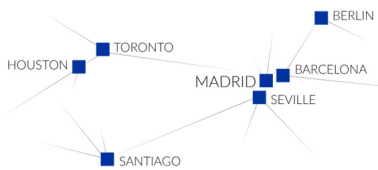
Madrid, Spain / 2006

Structural type	frames of pre-stressed concrete beams with precast hollow core slabs
Owner	AENA
Client	AENA
Constructor	UTE Satelite dragados obras y proyectos – ohl
Scope	detailed design and construction support
Architect	Richard Rogers & Estudio Lamela

The 70,000 m2 occupied by the Satellite Building of the new terminal of Barajas Airport are distributed between a central zone of 144,00 x 180,00 m on plan and two lateral dike-like constructions of 396,00 x 54,00 m. Depending on the area, these dike-like constructions have up to three underground levels and two over ground ones. A distinctive feature of one of these dike-like constructions is its resting on the tunnel of the M-111 motorway.

Mainly, a grid of columns of 9,00 x 18,00 m has been used to build an alignment of frames of 18,00 m span and 72,00 length. The circular cross section columns of the frames are of 0,80 to 1,20 m diameter and the post-tensioned girders of 1,80 m width and 0,80 or 0,90 m depths, with two tendons with 15 strands of 0,6" each . To supply the frames of 72,00 m with enough continuity in order to reach almost 1,000 m in the area of the dike-like constructions, joints are located at 1/5 of the span and dowels of great load-bearing capacity and horizontal displacement were used which had been especially tested for this purpose.

Taking into account the more than 40 km of pre-stressed post-tensioned girders that had to be built, the construction system has been the following: concrete casting of the beam on moveable scaffolding, removal of scaffolding and translation of the formwork with the beam, not yet pre-stressed, acting as a normal reinforced element, threading of the strands and pre-stressing, mounting of the hollow core slabs and concrete casting of the upper deck on them.



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