

New Terminal at Barajas Airport: Terminal Building

The 125,000m² occupied by the new Terminal Building at Barajas Airport are distributed between a central zone of 360.00m x 216.00m on plan and two lateral dike-like constructions of 396.00m x 54.00m. Depending on the area, these dike-like constructions have up to three basement levels and two levels above ground.

Mainly, a 9.0m x 18.0m grid of columns was used to build an alignment of frames 18.0m in span and 72.0m in length. The circular cross-sectioned columns of the frames are between 0.80m and 1.20m in diameter and the girders, which are 1.8m in width and have depths between 0.8m and 0.9m, are pre-stressed with post-stressed reinforcement employing two 15-stranded tendons.

To supply the 72.0m frames with enough continuity in order to reach the almost 1,000m in the area of the dike-like constructions, joints are located at 1/5 of the span lengths and dowels of high load-bearing and horizontal displacement capacity were used which had been especially tested for this purpose.

Taking into account the more than 40km of pre-stressed post-tensioned girders that had to be built, the construction system employed was as follows: Casting of the beam on mobile scaffolding, removal of the scaffolding and transfer of the formwork with the beam, not yet pre-stressed and acting as a normal reinforced element, threading of the strands and pre-stressing, assembly of the hollow core slabs and concrete casting of the upper deck upon the hollow slabs



Spain /2006 Project data

Structural type:
Frames of pre-stressed concrete beams
with pre-cast hollow core slabs
Location:
Madrid
Opening date:
2006
Proprietor:
AENA
Architect:
Richard Rogers Partnership and
Estudio Lamela
Construction:
UTE BARAJAS FCC Ferrovial
Agroman NECSO ACS Sacyr
Scope of Works:
Construction Project and
Technical Assistance