

Multi-use building in Salamanca

This new building covers a total constructed floor area measuring 31,879.56 meters squared. It can hold around 900 public servants, it has an auditorium for 281 people and a kindergarten for up to 60 children. The edifice consists of two storeys below ground level and a ground floor topped by three further storeys which are built around three internal gardened patio zones.

The Project brings together a wide and interesting variety of materials, structural typologies and construction processes: reinforced and post-stressed concrete, self-compacting concrete, large span lightweight slabs, constant and variable depth solid slabs, single and multi-strand post-stressing systems, large shore systems and conventional propping and specialized formworking.

The office area measures approximately 90x90m and is free of expansion joints so maximizing its exploitation and functionality. As the building is arranged around a number of patioed areas, 14.0m spans have been created on the lateral store spaces which have cantilevers stretching outwards between 2 and 7 meters. To make the most of the available space, only two lines of columns have been erected: one of which coincides with the external façade and the other which runs around the internal patioed areas. These slabs are 40+8 deep, one-way ribbed slabs which are post-stressed with two 0.6" strands so offering a passive amount of steel of 28 kg/m².

To concrete in a single pour and to embed the post-stressing heads, these have been placed in the step which exists between the interior area and the gardened external cantilevered area.

The large 7m cantilevers are done with solid slabs which vary in depths of between 0.48m and 0.30m employing single strand post-stressing so that the useful depth is greater.

At the corners, where the spans are less than 9.0m, the slabs have been executed with a grid layout with the same depth as the adjacent one-way slab. The slabs in basement -1 and the ground floor are 0.37m deep grid slabs with a center-to-center distance of 0.84m, rib thickness of 0.16m and a 0.12m compression layer to guarantee fire resistance RF-120.

The Auditorium's 14.50m sloping roof was executed with a 40cm solid slab which was post-stressed with nine 0.6" strands set each 75cm. Another outstanding feature is the skylight which is executed with self-compacting concrete and decked off with wooden slats.

The building also has an interesting spiral rampway, which is external to the structure itself, which has been constructed employing 0.35m solid slabs set on the external perimeter walls and a series of columns which create an 'eye' to allow the entrance of natural light inside.



Spain /2012 Project data

Structural type:
Lightweight post-stressed slabs,
post-stressed and reinforced slabs
and cantilevers
Location:
Salamanca, Spain
Opening date:
5 December 2012
Proprietor:
CASTILLA Y LEÓN
SOCIEDAD PATRIMONIAL S.A.
Construction:
UTE DRAGADOS S.A. - RÍO VENA
Architects:
D. Emilio Sánchez Gil,
D. Emilio Sánchez Cuadrado y
D. Fernando Sánchez Cuadrado
Scope of works:
Detail Design Project