

Project name, location

Pollok Multi-Storey Car Park, Glasgow

Year of completion

2006

Contractor

Dunne Building & Civil Engineering Ltd



Project description

Under the regeneration of Pollok town centre, the construction of a new shopping facility required the construction of a four level (32,000m²) multi storey car park.

The contractor elected to utilise an innovative frame construction technique comprising pre-cast concrete edge beams and columns and a SSUKL post tensioning system to reinforce the deck slabs and the 17m span beams. The structure is tied to 2No. RC slip formed stair cores and founded on a grid of pre-cast concrete piles. By introducing post-tensioning techniques, the slab depth for the car park was reduced to 150mm (permissibly the thinnest depth for a car park slab). The beam tendons were 50m long and double end stressed through pre-formed holes in the pre-cast concrete edge beams.

Due to the complexity of the interface between the PT system and the pre-cast elements, clear and detailed communication was maintained with the contractor throughout the project from design to completion on site.

The quick erection of the precast units in conjunction with the efficient pre-pour installation timings offered by the PT system, enabled the contractor to programme completion of the frame in just 20 weeks.

Environmentally, post-tensioned slabs contain less concrete and less steel than RC slabs. In addition there is less storage required on site and fewer crane lifts. With reference to demolition, recycling is easier as the concrete is won from the steel more easily.

PT tonnage

170t

PT system(s) and size(s)

Bonded flat duct, 5no 12.9mm strands

Principal benefits of using PT on this project

Speed of construction, economy