

Post Tensioning – Windmill Hill Office Blocks, Swindon



The first building at topping out stage

Post tensioning floor design chosen to provide flat slab construction at minimum thickness without requirement for downstand beams.

Client	St Martins Property Investments
Consulting Engineer	Bunyan Meyer
Principal Contractor	HBG
Frame Contractor	Whelan & Grant
Post Tensioning Specialist	Balvac
Sub-Contract Value	£300,000
Completion	June 2002



PT floor slab during casting

This business park development features post tensioned floor slabs in two office buildings, one four storeys high, the other three. Post tensioning was chosen by designers Bunyan Meyer primarily to meet the client's expectation for clear flat soffits, but reduced floor depths, the ability to control slab deflections, and rapid strike times were important secondary benefits.



Live end anchors (L) Rebate filling (R)

The two buildings are generally arranged on a 9.0 x 7.5 m grid. Each floor slab typically has unbonded tendons, some in groups of three, running in the primary direction at 300 mm average centres, with individual unbonded tendons running in the secondary direction at 350 mm average centres. The floor slab is 250 mm deep comparing favourably with the likely reinforced concrete alternative in excess of 300 mm deep.



Dead end anchors prior to casting

Close liaison with Whelan & Grant ensured that the frame contractor's requirement for a central construction joint on each floor level was accommodated by Balvac re-detailing the tendon layout to incorporate intermediate anchorages. Elsewhere occasional day joints were accommodated by passing the tendons through the stop end. The construction cycle was approximately three weeks per floor level, with 100% stressing complete within 72 hours of casting. Hydraulic access equipment was used by Balvac to make good the anchorage rebates, allowing the floor formwork to be freed from the slab perimeter at the earliest opportunity.

- Primary / secondary spans 9.0 / 7.5 m
- Slab depth 250 mm
- Slab area cast 9,000 m²



PT provides flat soffits and large spans

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