



Locked on

Ancon's lockable dowels are offering time and cost savings on a healthcare project in Scotland

Five hundred Ancon lockable dowels have been installed by PJ Carey on the new 10-storey Emergency Care Centre in Aberdeen. These unique dowels have replaced the need for pour strips to be left in the post-tensioned concrete frame to accommodate concrete shrinkage.

Project manager Eamonn O'Donnell says: "PJ Carey chose

the lockable dowel system because it offered time and cost savings that accelerated an already fast-build programme."

A key design consideration in a post-tensioned concrete structure of this magnitude, where long column-free spans are required, is the accommodation of normal concrete shrinkage.

This movement is often accommodated by leaving pour strips in the slab, which are 1 m-wide openings. These strips are then filled once the concrete has stabilised to provide the desired continuity in the frame.

As an alternative to pour strips, lines of lockable dowels were installed on this project at temporary movement joints in the structure. These dowels

accommodate an initial phase of movement and are then locked in position with a mechanical plate and epoxy resin. Once locked, the dowels continue to transfer vertical load but prevent further movement taking place.

No more delays

Use of this Ancon system eliminated the long site delays associated with propping the concrete slabs while the pour strips were left open, typically four to eight weeks per floor level.

Early removal of slab props improved site access and allowed follow-on trades such as building services to move into an area earlier on in the build schedule.

Matthew Consultants, a specialist in post-tensioned

concrete design, specified the Ancon dowels. Director Ben Ume explains how and why the products were used: "Before the introduction of lockable dowels, the construction details on a building of this type would have been quite different.

"On each floor level, a pour strip would have been located midway between two cores. These strips divide the area into two smaller slabs, reducing the amount of movement to be accommodated without shortening the overall span of the floor.

"Although a common approach to take, it leaves rebar exposed on site, which can cause a trip hazard and requires the floor to be supported from below for several weeks.

"Ancon's dowel system allows this centrally positioned pour strip to be replaced by a temporary movement joint between the slab and a core wall. The sleeve component will accommodate movement well in excess of what we anticipate here so the slab can be cast in a single pour, and as shear load is transferred by the dowel bar, propping times are significantly reduced.

"It is a proven engineered solution which reduces onsite man hours and improves site access."

The centre is due to open in 2012 and will bring together unscheduled care services from across the Grampian region in one strategic location. The main contractor is Robertson Construction Group.