

Doka expanding high-rise formwork capabilities in Bishopsgate



Doka were selected to partner with construction firm 'Expanded' (a subsidiary of Laing O'Rourke), in the construction of the £300m, 562,000 sq ft, new mixed use development located in the heart of the city of London, called One Bishopsgate Plaza.

Rising to 448 feet tall (135 metres), the 43 storey high-rise tower will comprise of the UK's first Pan Pacific luxury hotel, boasting a 5-star wellness centre, meeting and events spaces, and a double height ballroom/conference facility. It has been planned for 160 luxury private residences to occupy the upper floors of the main tower building.

Lendlease were awarded the contract and selected Expanded to build and oversee the construction of the concrete frame structure. The mixed-use building will sit alongside some of



the most distinctive buildings on Bishopsgate and Devonshire row and will become an integral part of the capitals financial district.

The demanding construction programme due to finish at the end of 2018, only strengthened Expanded and Doka's partnership, having worked together on a number of high-profile projects, including Imperial College London, City Road Tower and South Quay Plaza to name a few.

The Core

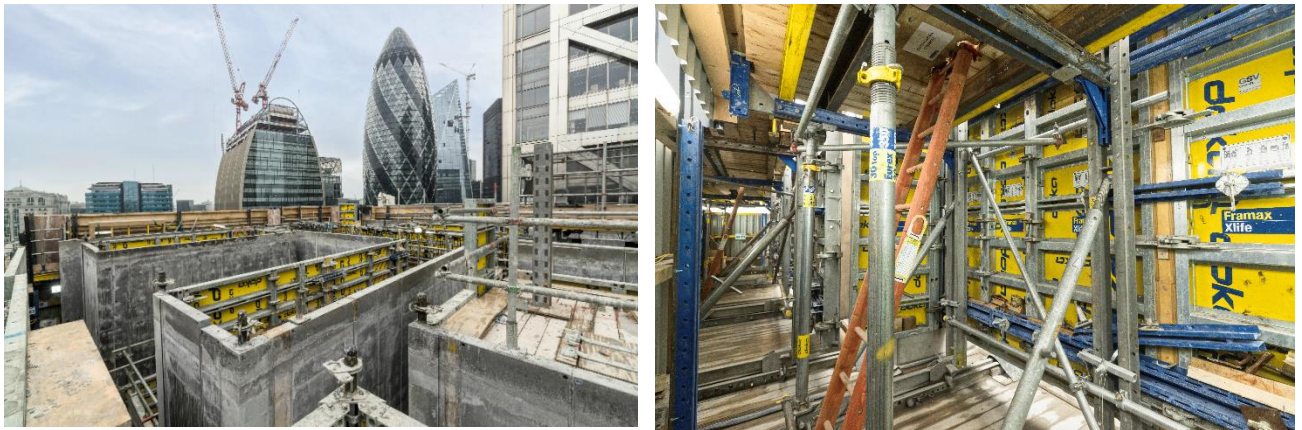
Providing tailored formwork solutions for high-rise structures is nothing new to Doka, having over 40 years' experience in self-climbing technology and having completed over 1,000 high-rise projects around the globe.

With this wealth of knowledge in high-rise, and specifically in climbing formwork, Doka provided a specially engineered solution using SKE50 Plus which hydraulically climbed the core and catered for the potential high wind demands on site. The SKE50, with its modular design, provided an efficient solution for the structure and reinforcement requirements and enabled a reduction in the core construction cycle time of around twenty-five percent.

The SKE platform was designed to operate with 21 hydraulic units each with valve control to lift the external formwork in one go. This ensured that leading edges were eliminated and that unprotected edges were minimized which improved the working at height conditions. In addition, the internal climbing mast system was specifically engineered in order to overcome planned voids in the core and the unusual top section, which turned into an L shaped spire section. This L shaped core formwork solution at the pinnacle of the building was achieved with the application of the single sided mast from Doka, allowing the anchoring of the system on just one core wall and not two as in a standard application.

Utilising Doka's pre-assembly service for the SKE platforms and edge protection, Expanded have already recorded a time saving and reduction of site work on this high profile project. This pre-assembly service also helped to overcome the big challenge of the small footprint on site. Expanded's Senior Construction Manager, Steve Paskins, stated that this particular service has been hugely beneficial and helped the on-site team overcome the obstacle of space restrictions - a recurring issue on many high-rise buildings being constructed in central London. Doka's team of service experts also provided ongoing support during the formwork installation which in turn helped to optimise the use of the systems on site.

Doka's systemised wall formwork, Framax Xlife was selected for the core walls in conjunction with the SKE system. Having consistent 15cm increment-grids meant the formwork was easily adaptable for Explore's flexibility and logistical requirements, with the panels capable of standing upright and on their sides in order to improve inventory use on site.



Doka's visible framed formwork Framax Xlife

The Basement

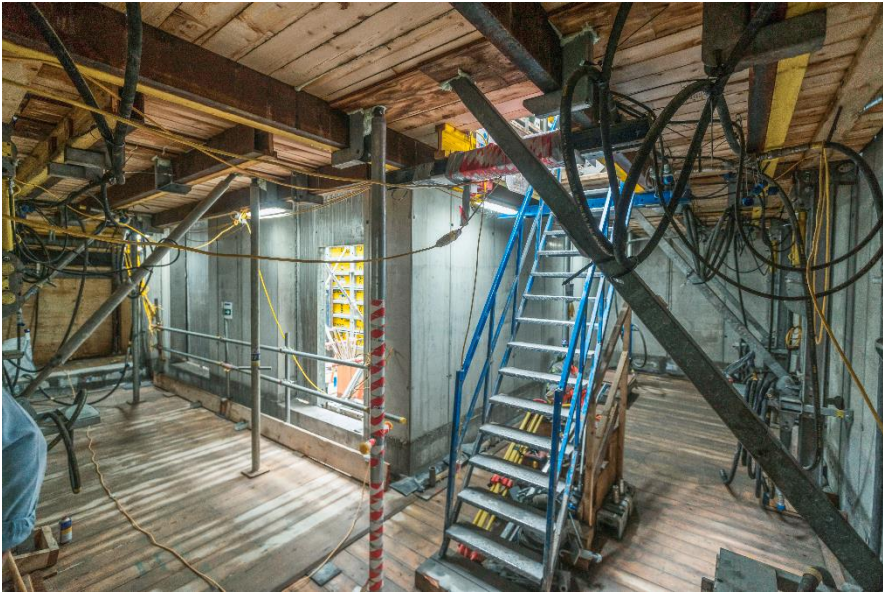
For the lower ground floors of the building, Doka proposed the use of the hand-set framed formwork Alu-Framax Xlife for the walls. A key driver of this hand-set wall formwork system was the top-down construction method being utilised and the resultant restricted crane access. Made from aluminum, the wall formwork reduces the work-strain usually associated with forming but still retains a high load capacity of 60 kN/m² and a high quality concrete finish.

Safety Solutions

As already highlighted, the SKE50 plus climbing system was designed to be raised to the next pour position in a single lift to remove any risk of trailing edges on the working platforms. Each SKE 50 platform was also required to permit a clear means of access to the workface and two-metre-high edge protection with fully enclosed mast and trailing platforms, enabling site teams to safely position the concrete pour as the system progressed.

When designing the formwork solutions, Doka's engineering experts also integrated various other site safety products in addition to the core climbing system. Doka's suspended stair tower 250 was one example of this, used for safe operative access to the structure the access solution was suspended from the SKE climbing system itself. Consisting of Doka's Staxo 100, and containing a small number of parts, the access was assembled very quickly with intermediate exits to all work-deck levels.

Expanded's Senior Construction Manager, Steve Paskins, commented *"we're extremely pleased with the pre-assembly, on-site service, solution and quality of product that Doka delivered. They are really contributing effectively to the ongoing success of the project and I am confident that we will use them again for future formwork projects"*.



Internal view from the SKE system platform at One Bishopsgate Plaza