



An element of work we were particularly impressed by was the installation of optical fibre cables in the concrete columns and walls, as this practice is a first for high-rise construction in the UK and therefore makes Principal Tower a very worthy winner - **judging panel at the CONSTRUCT Awards 2019.**

Summary:

Careys was awarded several packages at the Principal Place scheme in ‘the unsquare mile’ in Shoreditch, London. As a result of our collaborative and successful contributions the Principal Tower project was awarded by *The Concrete Society* at the 2018 Concrete Awards as ‘highly commended’. In addition, the project won at the CONSTRUCT awards in 2019 in the ‘Projects over £2.5m’ category.

Our works involved the construction of three residential towers measuring five-, 15-, and 50-storeys, in addition to a basement that ranges between two and four levels. The basement was constructed through a combination of top-down and blue-sky. Our team also completed the groundworks, enabling works and piling attendance. We collaborated with Careys in-house Design Team (CDT) and implemented an extensive temporary works scheme across the project.

Principal Place is located in the Borough of Hackney, sandwiched between the City of London and the vibrant Shoreditch. It has been designed to appeal to both established financial or legal businesses, as well as media and technology companies usually attracted to Shoreditch. Principal Place also features 20,000 sq ft of restaurants, shops, a boutique gym, and a vibrant half-acre public piazza to be used for year-round events. The mixed-use development also includes a 50-storey residential building, Principal Tower, due for completion in 2019.

Key challenges:

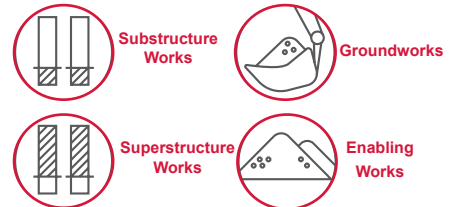
One of the biggest challenges on this project was ensuring that the floor-to-floor cycle was as efficient as possible against the programme. Careys co-developed a jump rig system with the overseas manufacture, which ultimately allowed the client taking possession of the structure 16 weeks earlier than planned. Following the necessary CAT 3 design checks, we got the bespoke rig manufactured and shipped to the UK. Principal Place was the first time this type of rig was used outside of the United Arab Emirates and Australia, and it saved the project approximately two-and-a-half days per floor cycle.

Part of the building is located close to Liverpool Street Station, which

Also involved:

CAREYS DESIGN TEAM

Scope of works:



Key facts:

- The total value of this development is £180 million.
- It will provide over 600,000 sq ft of office space, 18,200 sq ft of retail space, a cycle hub with storage for 600 cycles, shower and changing facilities, 22 parking spaces, and 102 motorcycle bays.
- Careys designed and developed a bespoke self-erecting jump form rig for this project, saving two-and-a-half days per floor cycle.

Client

Multiplex / Concorde Pacific / Brookfield Office Properties

Location

Shoreditch, London

Principal Contractor

Multiplex

Value

£- million

necessitated close collaboration with Network Rail to ensure we prevented disrupting their assets. Careys has significant experience with engaging with stakeholders, especially Network Rail and Transport for London. In addition, we facilitated archaeological digs to investigate the remains of the first gasworks in London; dating back to 1813 these were set up by the world's first gas company, *Gas Light and Coke Company*. MOLA (Museum of London Archaeology) excavated the area which had the potential to cause delays to our works. We managed both of these situations successfully and they had no negative impact on our programme of works.

Key successes:

As a central London site, there were many challenges on this project in terms of logistics. CDT developed a hybrid basement solution utilising both 'top-down' and 'blue-sky' construction methods. Their use of 3D modelling demonstrated to our client how our methodology, combined with the use of our telescopic clamshell excavators, would (and did) enable us to overcome the site's logistical complexities. A 4D model was also then produced to illustrate the proposed build sequence.

The Principal Tower project was awarded by at the 2018 Concrete Awards as 'highly commended' - "*the innovative jump-form system enabled the construction of all walls and columns as one, in an efficient and safe environment.*" Using this method of construction removed an entire element of works from each floor cycle, and once the walls were formed our team were able to install the post-tensioned slabs, all of which was protected by a perimeter screen for safety purposes.

The east and west capping beams produced and installed by our team were more akin to walls, standing at five metres in height. These form the perimeter of a new eight-track tunnel, which will eventually encapsulate a new extension to the current London Underground network. Following this our team began the construction of the ground floor slab, entailing a large mesh of interconnecting horizontal steel beams that tied in the heads of each plunge column. This served as the temporary works structure required for the simultaneous excavations for the basement, core, and superstructure.

Sustainability:

Multiple visits by the client resulted in excellent feedback on the quality and standards of safety encountered throughout the site - especially on the jumpform rig itself. Due to the design of the jump form rig the working platform is fully enclosed, as a result the rig is extremely safe to work on for operatives and the edge protection eliminates the risk of tools and objects falling.

Careys Design Team worked alongside Careys Civil Engineering at the pre-contract stage to develop a strategy that enables the use of the bespoke jump form system. To enable us to understand the logistics we decided to use VR technology. This allowed us to 'see' the system before it was built and make any necessary changes to ensure its safety and efficiency.

