

ONE CAPITAL SQUARE, CARDIFF



Cardiff's city centre has undergone a remarkable transformation over the past decade. High-quality retail development and strong urban design have helped create a distinctive and contemporary city centre that is evident in the increasing numbers of visitors coming to the city. The change began in 2013 when Rightacres Property Company appointed Rio Architects to consider development proposals on the site known as One Central Square. Acting as a catalyst for regeneration, the site is within the boundary of Cardiff City Council's proposed Business District Master plan.

Of course, a major transformation such as this involves much more than the construction of a building or buildings. In this case, the developers defined their main aims as to:

- ensure that Central Square becomes the destination of choice for major employers and to attract and secure new investment and high end users in the financial and professional services sector
- improve the public realm and connectivity throughout the area to ensure that visitors have a positive first impression of the city
- strive for the highest standards of design and construction for all new buildings in the area
- ensure effective management of the environment and traffic, and considerably strengthen the street scene throughout the city
- create a multifunctional civic square with opportunities for accessible and family friendly events using the newly developed public spaces
- deliver a new, distinctly urban part of the city centre that builds on the city's success and encourages a mix of high-quality developments
- integrate the transport needs of the area, including pedestrian and cycle movements, with the wider city-centre transport strategy and identify opportunities for developing linkages to surrounding areas to improve functionality and connectivity.

One Capital Square, the first phase of the development – a grade A speculative office scheme – is now virtually complete and is forecast, over the next three to five years, to lead to the construction of one million square feet of new office, retail and residential space, providing a huge boost for the economy of the region. The project will also feature one of the tallest structures ever constructed in Wales – a 27-storey 92-metre high building. As well as new office space and student accommodation, Central Square could also see around 450 private residential units, new retail outlets and a 200-bedroom hotel.

Creating a wonderful working environment with 360-degree views over the city and Cardiff Bay, the building plan of One Capital Square is based on a typical traditional B1 office layout. The frontage is oriented to create a boulevard that connects Central Square to Millennium Walk. A ceramic granite-clad podium has been created

that overlooks the boulevard, grounding the design with a fully glazed element separating the podium from the precast concrete clad office space above.

With Willmott Dixon as main contractor, Rio Architects specified a precast concrete façade and curtain walling to produce the high-quality finish needed for a building facing an entrance to the high-profile Millennium Stadium. Early in the design process, Sterling Services realised that the proposed plan for this façade – namely using separate mullion and spandrel units – could be radically improved by casting them as a single frame unit. This not only simplified the design process and speeded production but also reduced cold bridging as many fewer connections were required between the frame and façade. Furthermore, using a modular approach enabled any panel to go in any position in the building. This standardisation increased productivity and reduced installation time. In view of the large number of uses required from each mould, Sterling designed and tested resin-coated moulds that quadrupled their lifespan. In addition, insulation was pre-cut by the supplier and bespoke trailer frames were constructed to speed delivery. Before manufacture began, the company produced mock-up panels for approval. Owing to the lengthy planned construction programme, a stockpile of aggregate was assembled at the quarry that would last six months, so ensuring consistency of product and colour.

Sterling Services produced over 400 precast concrete window units in a Portland mix with a medium acid-etched finish for the first phase. The units, which range from three to five tonnes in weight, were in assorted sizes to give the required asymmetrical appearance. Although they would normally have been loaded and delivered to site using an A-frame, Sterling Services developed an alternative box-frame system that was able to take up to ten units at a time, stacked vertically on the bespoke trailer. This ensured the safe, upright transit of these units to site, where Sterling's site team carried out the installation. On arrival at site, the units were offloaded either straight into position using one of the two tower cranes or, if there was any delay, they were stacked on an extra rack provided for the purpose.

Currently in the final stages of completion, One Capital Square totals 135,000ft² over nine floors, with floor-plates of about 16,500ft² and basement car parking. The building will achieve a BREEAM rating of 'Excellent' upon completion. The top two floors have been pre-let to Blake Morgan solicitors. In addition, BBC Cymru Wales has recently chosen Central Square as the preferred location for its proposed new 150,000ft² headquarters building, which will accommodate 1,200 staff.

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