

GRACE HOUSE, ST JOHN'S WOOD, LONDON

PROJECT VALUE - £55M

CLIENT - CENTRAL & CECIL

HOUSING TRUST

MAIN CONTRACTOR - REGAL

LONDON

ARCHITECT - RYDER ARCHITECTURE

STRUCTURAL ENGINEER -

BRADBROOK CONSULTING

M&E ENGINEER - FHP

PCE SCOPE OF WORKS -

- DESIGN, MANUFACTURE & CONSTRUCTION

- BRICKFACED AND RECONSTRUCTED STONE MULLION & SPANDREL FACADE CLADDING PANELS

PCE CONTRACT VALUE - £7.1M

EXTERNAL DESIGN - ROSCOE

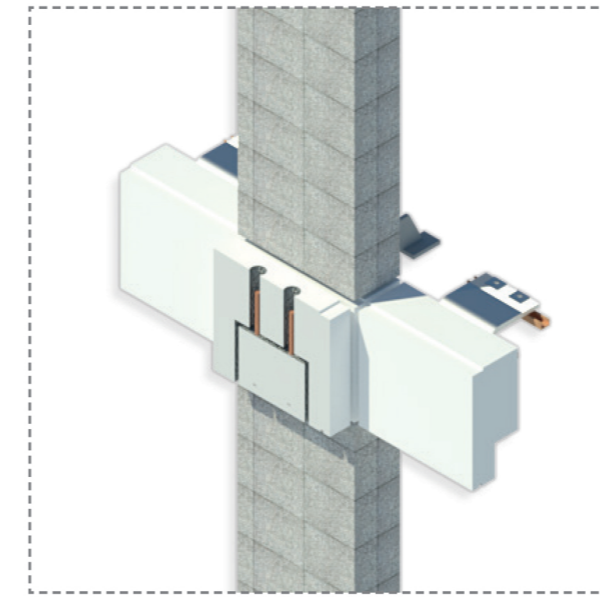
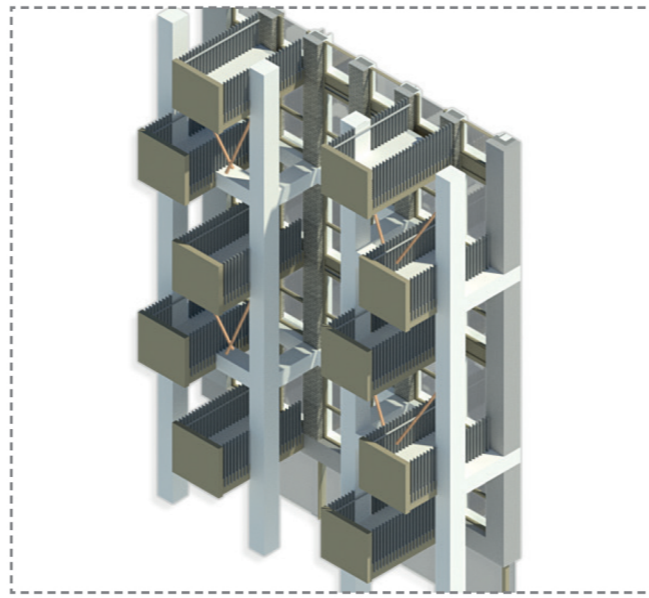
Introduction

PCE Ltd was delighted to have been appointed by Regal London to deliver the architectural precast façade for their new prestigious Central and Cecil Housing Trust housing development in St. John's Wood, London. PCE was responsible for a contract package covering the design, offsite manufacture and assembly on-site of over 1000 precast concrete units forming the mullions and spandrels with reconstructed stone and brick faced finishes to create the primary façade of the building as well as framing for the remaining fenestration and façade features. The reconstructed stone finished spandrels were also manufactured with integrated balcony support connections and ventilation ducts cast within them to service each apartment with fresh air. PCE were also responsible for the structural exoskeletons to the North and South facades using the same reconstructed stone concrete mix within a series of offsite manufactured double storey columns and linking beams. The exoskeletons were a key component of the architectural intent for the building facades and integrally link with the main feature balconies to form the composite system.



Hybrid Bespoke Structure

Detailed design using the latest digital applications and controls by PCE Ltd's Design Team formed part of PCE's HybridFMA Bespoke System approach for this complex project, which ensured that the requisite structural and visual requirements were met and exceeded for property developer Regal London's Central and Cecil Housing Trust housing development. The North and South Elevations consist of vertical precast brick and reconstructed stone finished precast concrete mullions that have full depth architecturally finished returns providing the framing for the windows and door access from the apartments to the feature balconies. Precast concrete spandrel units cast with a reconstructed stone finish provide the horizontal band features above and below the windows, wrapping around each elevation of the façade at varying levels. An integral part of these two architectural façade elevations is the provision by PCE of architectural finished structural exoskeletons formed from over 200 offsite manufactured components.



Project Features

Detailed co-ordination in the digital environment was critical in the design development of the project due to the extent of the interfaces with the internal finishes, drainage, glazing and the balconies. Maintaining a seamless look to the precast cladding whilst concealing all connections was key to maintaining the architect's intent for the highest quality of finish. The design of the connection details had been co-ordinated to ensure the cladding panels could be assembled level by level to enable PCE to handover each of the 13 floors progressively to Regal London and allow windows and curtain walling to be installed at the earliest possible point in order to gain a weathertight building and provide an environment for finishes to progress. A steel framed Exo-skeleton clad in reconstructed stone panels was proposed at Stage 3, but it was obvious that this would create significant logistical and coordination challenges. Key to PCE's strategy was to re-engineer these projecting frames as a structural concrete frame consisting of a series of reconstructed stone columns and beams with integral structural steel beams cast in to support the prefabricated balconies. This approach removed multiple trades, reduced the risk of working at height, simplified the interfaces with the building, significantly reduced the risks associated with connectivity, provided the highest quality of finish, and most importantly reduced time and cost.



Key Metrics

- 13 storey concrete frame structure
- 25 Week construction programme
- 13,200 RIDDOR free site man hours
- 2,500tn of product delivered to site on 95 loads
- 1,065 off-site manufactured components
- Removal of external scaffolding allowing full extent of site to be developed
- Reduction in H&S risks with 0 RIDDOR incidents
- Significant reduction in waste
- Addition of off-site quality control
- Assembled by PCE's 8 multi-skilled site operatives.



The offsite engineered cladding units form the principal façade architecture, with a mix of brick faced and reconstructed stone finishes creating vertical and horizontal bands to the elevations which were infilled with glazing. The pattern of the bespoke textured finish draws inspiration from St John's Wood and its heritage

as a leafy London suburb hence the organic nature of the pattern and seemingly randomised appearance across both elevations. This critical phase of the architectural cladding was completed by PCE's specialist site installation team in just 10 weeks and saw the integration of the finished balconies and rainwater drainage systems within the façade elements.

Project Delivery

The installation of 994 reconstructed stone and brick-faced precast concrete cladding elements began on-site with an anticipated construction programme of just 25 weeks. The 13 storey insitu concrete frame comprising 170 apartments were clad in its entirety with the precast concrete modular façade which enabled the removal of all external scaffolding along with the concurrent installation of the windows and building envelope. The commencement of onsite assembly followed the culmination of 10 months collaboration and co-ordination through design utilising the latest digital tools and saw 7,500m² of pre-finished façade components which were designed, manufactured and assembled within 16 months of project award. The challenging city centre location of this project meant that logistical planning was critical to the successful delivery of the project. With space on site at an absolute premium, PCE's strategy to configure the minimum number of cladding components resulted in the number of deliveries to site and the number of crane lifts in assembly being significantly reduced. Through rigorous pre-construction planning, the delivery strategy with components loaded both vertically and horizontally to feed both tower cranes from the same load, was calculated to provide the most efficient and predictable solution, offering certainty to the on-site programme.

