

BALTIMORE WHARF



Baltimore Wharf is a large mixed use major development situated on the east side of Millwall Dock and adjacent to the Crossharbour DLR Station.

Phase 1 comprises five residential buildings; two 10 storey, a 12 storey, a 14 storey and a 17 storey building. There is also a Community Centre building providing child play centre and a 5-a-side indoor football pitch, ground floor retail outlets and a private gymnasium/leisure centre.

In total there is 115,400 ft of residential apartments, (1,100 apartments of which 805 are private and 295 are affordable). The Apart-Hotel comprises 119 hotel rooms and 187 serviced apartments. There is a double height basement across the entire site (approx 185,000 ft), which provides approx 900 car park spaces and a private Leisure Centre with swimming pool. The majority of the basement is constructed in phase 1.

All the buildings are typically concrete flat slab construction and use RC shear walls around the stair and lift cores for lateral stability. The basement comprises a full perimeter secant pile wall and a Grade 2 water-resisting basement slab. The main contractor for Phase 1 has opted for unbonded post-tensioned slabs and slip formed cores.

CLIENT:

Ballymore Group - Phase 1
O.J.O'Shea/Frogmore/Galliard - Phase 2

ARCHITECT:

Skidmore, Owings & Merrill

WSP SERVICES:

Structural Engineering
Civil Engineering
Geotechnical
Fire Engineering
Transportation Consultancy



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WSP provided structural design services for the London South Bank University for a number of buildings which are a part of a first phase of redevelopment of the Elephant and Castle campus.

The K2 design team adopted a holistic approach with regard to the structure, building energy and environmental principles in the overall building design. Moreover, the design approach not only focused on operational energy, but also resource efficiency in the form of reduced embodied energy.

The frame construction is a hybrid construction consisting of precast and insitu troughed floor slabs. Columns have an exposed concrete finish and as such careful consideration was given to the detailing and construction of these elements. Leaving these elements undecorated with an exposed concrete finish minimised the amount of future maintenance required thus reducing the life cycle costs.

Even when subject to moderate exposure conditions, provided the quality of the material components is considered in the specification and provided the workmanship on site is carefully controlled during construction, reinforced concrete is by its inherent nature is robust and needs very little maintenance thus assisting in the long term management of the building.

The concrete structure is used for enhanced energy efficiency by using the ability of the concrete structure to absorb and store heat. The exposed concrete acts as a 'thermal flywheel' by absorbing heat and then being cooled overnight, thus recharging itself. The underside of the troughed floor slabs are the best part of the building as they are uniformly distributed and cover a large area. The ribbed nature of the troughed slab maximises the heat exchange area.

The structure is founded on 750mm diameter 28m long piles. The number and depth of the piles made it beneficial and economical to transfer and store geothermal energy between the structure and the underlying ground mass, by casting into the piles a network of plastic pipes which are subsequently connected to the heating and cooling system.

A number of value engineering ideas have been developed for the project, including the reuse of existing piles, adoption of a piled raft solution and consideration of a number of alternative cladding options, including a cable net façade.

CLIENT:

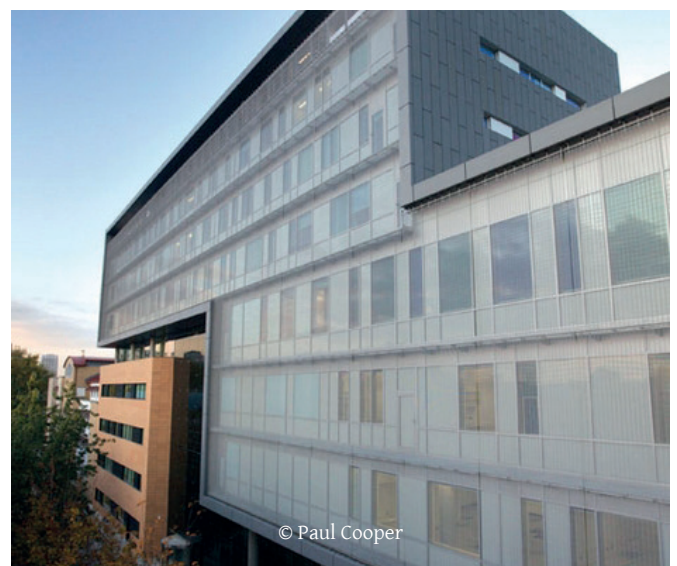
London South Bank University

ARCHITECT:

Grimshaw

WSP SERVICES:

Structural Engineering

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THE HERON & GUILDHALL SCHOOL OF MUSIC



The Heron site is located within an area of office blocks and residential buildings on land at Milton Court, Moor Lane, in the Barbican District of London.

The project comprises a new 36 storey development with a six storey lower level structure for the Guildhall School of Music and a residential tower built above the School. The basement contains plant rooms, rehearsal rooms and a studio theatre. A mezzanine level within the basement houses additional plant space and water tank storage. This level also provides a link to the existing Silk Street basement car-park which will become additional pump rooms.

The ground floor provides the entrance lobby for the residents towards the north east corner of the site. The entrance main lobby for the School and concert hall are at ground level along Silk Street. Other ground level space is used for management offices and storage. The foyer for the main concert hall and the theatre under the tower area are at level 1.

The concert hall and theatre are 6 storeys high and include stages, galleries and fly towers. A central area between the concert hall and the theatre on levels 2, 3, 4 and 5 is designed for teaching rooms, staff rooms and School offices. Level 5 provides space for plant rooms serving the concert hall.

Level 6 over the concert hall roof is reserved for a roof garden, club and bar while plant rooms, cold water storage tanks and theatre plant occupy the entire floor under the tower. Level 7 and above in the tower are for residential use with duplex apartments and penthouse suites provided in the upper levels. Part of the tower roof level is used for window cleaning machinery and plant.

The foundation for the tower and the School consists of piled rafts designed to spread the load evenly and to minimise differential settlement. The design of the rafts and pile caps is such that final individual pile positions can be adjusted to avoid the need to remove existing piles should a positional clash become apparent. The main challenge of the steel framed concert hall is that it is designed as fully acoustically isolated 'box-in-box' construction.

CLIENT:

Heron Land Developments

ARCHITECT:

David Walker Architects / RHWL

WSP SERVICES:

Structural Engineering

Geotechnical

Fire Engineering

Façade Access



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King's Cross Central is the redevelopment of a 67 acre brownfield site creating 8 million sq ft of mixed use accommodation.

WSP was appointed through Carillion to provide engineering services for building R4 - a 15 storey residential building providing; Supported Housing, General Needs Social Rented Apartments, Extra Care Facility and Shared Ownership Apartments.

The Building is constrained by 150 year old Network Rail masonry tunnels running below the site, our services included analysis of the impact of R4 works on the tunnels and submissions associated with the Network Rail asset protection process.

R4 was constructed using a reinforced concrete frame with post tensioned slabs, with stability provided by reinforced concrete shear walls at vertical circulation risers. The building sits on piled foundations, with storey height ground beams taking building loads away from the Network Rail tunnels below.

The whole development is to be served by a centralised energy centre that allows a high reduction in CO2 levels. R4 also has Photovoltaic panels fitted at roof level, and achieved a CfSH rating of 4.

CLIENT:

Argent /Carillion

ARCHITECT:

PRP

WSP SERVICES:

Structural Engineering
Geotechnical
MEP Engineering
Acoustic Engineering
Transport Engineering
CfSH



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The Bushey School was built in the 1920's to accommodate the Junior Boarding School for the Royal Masonic School and it reopened as an Academy in September 2009.

As part of the Academy programme the buildings were replaced and new facilities built to house the 1,350 pupils. The new buildings include a new theatre and science mega lab capable of accommodating up to 120 pupils.

As part of the Kier Academy Framework WSP provided a full range of engineering services for this project.



CLIENT:
Kier

WSP SERVICES:
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Geotechnical
MEP Engineering
Acoustic Engineering
Transport Consultancy
Fire Engineering



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