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A PASSION FOR RED

The distinct precast cladding
of a Manchester hotel

LOW-CARBON CONSTRUCTION

Decarbonising concrete with no
impact to cost or programme

REPAIR AND STRENGTHENING

Carbon savings of a repair and
rehabilitation alternative

HYLO TOWER, LONDON

The HYLO Tower is an innovative office and mixed-use development located in the trendy district of Islington, close to the city of London. In this neighbourhood, old and new merge; the structure itself is a renovation and extension of the former Finsbury Tower. The design team thoroughly examined the original structure and took the decision to extend it by 13 storeys, rather than seek replacement.

Stephen Cherry of **Horden Cherry Lee Architects** and **Beni Kohen** of **Fibrobeton Yapi Elemanlari** report.

Two unusual features distinguish the new high-rise structure. The brick and precast concrete cladding is in sharp contrast to the all-glass façades of many nearby high-rise towers. This helps HYLO blend well with adjacent brick residential buildings. Also, by retaining the 16-storey existing structure and extending upward by 70% and sideways by 24%, it doubled the net rentable space, while reducing the embodied carbon by 35%, compared with new construction.

The original Finsbury Tower sat clumsily on a low podium stretching further to the north and south. The tower has now been brought to ground and the two podium elements to the north and south extended upwards from four to seven storeys. With insufficient lift shafts to service the extra space, two new cores were built on the northern corners of the tower to house high-speed double-deck lifts. The project team evaluated the existing structure using time-dependent, finite-element analysis to understand existing and proposed construction throughout its past and future life cycle. The substructure and superstructure were capable of supporting 13 steel frame and composite concrete floors with some localised column strengthening.

The remodelling and extending of the existing form have enabled a larger building to sit more comfortably in its context. The sculptured form and play between flush and highly recessed glazing subtly express the memory of the

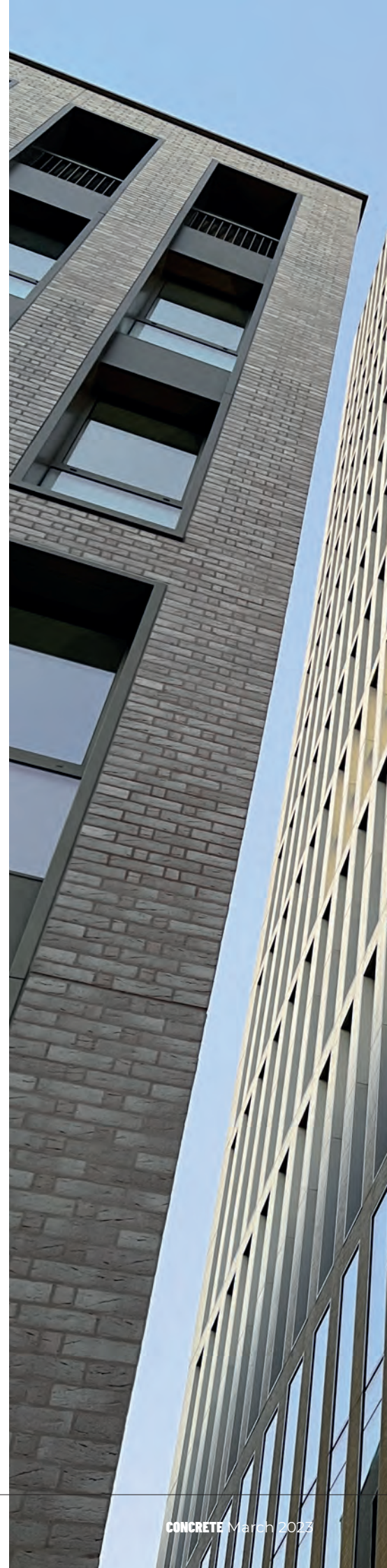
former building. Cutbacks create landscaped terraces for the office tenants. The existing and new concrete structures have been left exposed to reflect the building's origins and add character to the new interiors.

LIGHTWEIGHT

Masonry cladding on precast panels was originally considered but deemed too heavy. The project team preferred a unitised curtain-walling system for speed and simplicity. The result was a unitised aluminium cladding system with brick-faced ultra-high-performance concrete (UHPC) panels attached. Bespoke brick slips were used to minimise the weight and cast into UHPC precast panels that are just 75mm thick, half that of a standard panel. The double-height panels create a solidity using textured bricks with flush lime pointing, reminiscent of neighbouring 19th Century brick buildings.

The glass and aluminium panels were made by Turkish cladding specialist Metal Yapi, with the precast brick panels made by another Turkish company, Fibrobeton. The project architect was Horden Cherry Lee Architects. To simplify logistics, the two elements were brought to site from their respective locations and were assembled on-site – this improved tolerances and reduced damage. The panels were then installed as conventional unitised cladding is installed.

The unusual approach for the cladding system kept the weight that was placed on top of the old structure and foundations to





a minimum. The special glass-fibre-reinforced concrete (GRC) Fibrobeton panels were cast with stiffening steel frames and custom dimensions. Panels ranged in size from 1008 × 512mm to the largest being 8728 × 500mm. The different geometries, including panels with numerous angled corners, which wrap the outer edge of the building, totalled 6200m² of precast elements.

Precast production was adapted to accommodate the vast quantity and complexity of shapes and sizes, with the brick slips carefully in-laid on each panel face and set out to rigorous tolerances. UHPC was poured over brick slips in special moulds to ensure the panels were thin and incorporated fixing bolts in defined locations.

The installation of the panels was also challenging. The panels were launched from the slab edge adjacent to the cores and moved around on a monorail system. The installers worked from a cradle in front of the panels, attaching the pieces to brackets on the core.

MAIN IMAGE:

The strong masonry corners and deep reveals create sculptured architectural form and composition.

INSET BELOW:

The repetitive double-storey recessed glazed expression with a bespoke gasket at the movement joint between utilised cladding panels.





Between each panel, a bespoke movement gasket was installed to accommodate estimated settlement and movement over the next 60 years.

The result is a building that is uplifting, honest and legible. It belies its site within its context and on closer inspection reveals the memory of the original building. Internally it is a modern, sustainable, attractive workplace with all amenities – generous reception, high-speed lifts, landscaped terraces, intelligent technology and energy efficient services. The building is within walking distance of public transport, shops, restaurants, open spaces and the city. In addition to smart building features, HYLO is environmentally friendly and is certified WELL 'Gold' and BREEAM 'Excellent'. At street level, 1579m² of retail space fronts Bunhill Row, with a new arcade opening up an old historic route.

The unique cladding system incorporating UHPC precast brick panels inset into unitised aluminium and glass is the first of its kind on a tall building. The project absorbs the former, mid-rise Finsbury Tower office building into a modern, high-rise mixed-use development.

The development transformed the original fortified site, creating new public routes and spaces, reconnecting existing neighbourhoods and creating a safer environment. The social objectives alongside considerations of carbon saving, occupants' welfare and sustainability – not to mention the structural challenges – ensure HYLO is the most pioneering retrofitted tall building in the UK.

MODERN SPACE

The HYLO retrofit project reconfigured and extended a 1960s tower to create a modern, mixed-use office and retail space in London. Thirteen floors of steel framing were added on top of the original 16-storey concrete tower structure. Three floors of new in-situ concrete frame were added on top of the existing podium. Innovative use of UHPC and GRC successfully reduced the weight of the cladding panels, which were embedded with bespoke brick slips. The finished project used 3595 pieces of various shapes of brick-faced UHPC and GRC panels. UHPC panels as unitised cladding had never been used before on such a large scale or for such tall building. The project was completed in November 2021. **C**

ABOVE:

The flush glazing zone expresses the memory of the original podium.

BELOW:

Sculptural form seen from the south with landscaped terraces at each cutback. The first tower cutback reveals the original height of the 16-storey tower.

