

Award

HYLO, London

Located a short distance from Old Street underground station, just north of the City, HYLO is one of the most pioneering tall-building retrofit projects in London. A 16-storey office block, built in the 1960s, has been reinvented by stripping back the original concrete frame and adding 13 new steel-framed floors to enlarge the structure into a 29-storey tower. The works also included enlarging two podiums that sat adjacent to the building, removing and replacing two existing cores, and substantial strengthening works to the existing columns to allow them to support extra loadings. The scheme delivers modern, flexible workspace together with 25 units of affordable housing, and introduces a new public arcade, with shops, cafés and restaurants that will now transform the locale.

The original reinforced concrete building had become outdated and vacated but, with a primary focus on minimising embodied carbon, it was more sustainable to refurbish and enhance the existing building as opposed to undertaking a large-scale demolition programme, which the local authority and the client were keen to avoid, and a complete new build. This refurbishment and extension solution for the site has doubled the leasable area, from 12,000m² to 25,800m², while saving 35% of the 'up front' embodied carbon in comparison with an equivalent new construction.

Information on the existing building was compiled from a series of engineering record drawings, and a fundamental redesign of the existing building followed an exercise which back-analysed the structure, verifying initial assumptions. This investigation and analysis showed that the original building had residual capacity within the floor slabs, which were believed to have been designed to accommodate printing works on some floors, and also the large diameter under-ream piles, which meant that large portions of the existing building, basement and foundations could be retained and reused.

However, the tower's two existing cores were demolished, as they were too small for the needs of the enlarged building, and replaced with a new core configuration that facilitated a more efficient floorplate, whilst also providing stability for the 13-storey vertical extension. Interestingly, the areas beneath the new cores were some of the few parts of the scheme that did require the installation of new piled foundations.

PROJECT TEAM

Architect: **HCL Architects**
Structural Engineer: **AKT II**
Steelwork Contractor: **Bourne Group Ltd**
Main Contractor: **Mace**
Client: **CIT Group**



The choice of structural steelwork for the new upper floors was made due to the material's lightweight attributes, which minimised the additional loading, and speed of construction. No other framing solution would have allowed the existing foundations to be reused, while achieving the desired spans and floor zones in the extension floors.

Throughout the structure, the concrete columns were strengthened with concrete jackets, installed on every floor. The only exception were some areas where the internal architectural vision required a slimmer solution and, in these places, steel strengthening collars were used.

From level 16, new steel columns were installed on top of the existing concrete members. However, the existing grid pattern is based around a column spacing of 6.1m x 7.6m. This was deemed to be restrictive for the new floorplates and so some column positions have been omitted, with the upper floors having just one row of internal columns and spans of up to 12m.

All of the steelwork is standard S355 grade, and the beams are all custom-made plate girders, with depths ranging from 525mm to 665mm. Modular pieces for the perimeter, weighing up to 7t, were also introduced to reduce the number of crane lifts. The floorplates are generally repetitive up to level 25, but level 26 has a step-back creating a terrace.

Considerable planning was required to devise a construction programme that allowed the works to be continuous. To achieve this, the floorplate was split into three main areas and the steelwork was built three floors at a time. Primary activities involved welding fittings to cast-in plates in the core walls for beam connections, steelwork erection, metal decking installation and on-site painting.

With the steel frame starting at Level 16, dealing with high winds during construction, while maintaining the programme and the tight erection tolerances, was challenging. In addition, the site was a confined high-rise plot, so there was limited storage space, and the steel was generally erected directly from the delivery trailer by tower crane in conjunction with MEWPs (Mobile Elevating Work Platforms).



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HYLO is a design-led work and lifestyle office development. As the line between corporate and creative becomes more integrated, HYLO delivers a workplace solution that offers flexible spaces that embrace collaboration and connectivity at the same time. The tenants enjoy the latest building amenities and specification with unparalleled views across London, while the landscaped roof terraces, breakout spaces and dining areas create a relaxed environment away from traditional desks. There are generous locker and shower facilities, as well as cycle storage for over 400 bikes, and an expansive ground floor reception incorporating a modern lounge and café makes HYLO a social hot spot all day.

Judges' comment

This exemplary transformation of an obsolete sixties concrete 'monolith' was made viable only by the ambition of the client, the skill of the team and the use of structural steel. Unrecognisable today and 13 floors taller, this now elegant and permeable building creates high-quality spaces both internally and externally in the surrounding neighbourhood.