Award

8 Bishopsgate, London

PROJECT TEAM

Architect: **WilkinsonEyre**
Structural Engineer: **Arup**
Steelwork Contractor: **William Hare Limited**
Main Contractor: **Lendlease**
Client: **Stanhope PLC**

Dirk Lindner

8 Bishopsgate adds to the City of London's cluster of tall buildings, providing a 50-storey, office-led, mixed-use asset. It offers a wide range of amenities for tenants and features a public viewing gallery. The building incorporates high sustainability and low energy initiatives in its construction and operation, with the achievement of a BREEAM 'Outstanding' rating.

The project challenges the traditional tower by breaking the massing into smaller blocks, allowing the tower form to address the site constraints and bring human scale to the building. These blocks are differentiated by scale, materiality, and structural function, and the building's stepped form is accentuated by terraces and cantilevers that contribute to a cohesive and visually dynamic composition.

A major challenge was designing the overall massing, as the site is located within the City of London cluster. This is moderated by the constraints of the London View Management Framework, and a local view from Fleet Street, where the new building could not impinge into the 'sky space' around the dome of St Paul's. In response, by incorporating steel as the structural frame material and the building designed with a stepped profile, it successfully satisfied the requirements and breaks down the overall scale of the building into a legible form. Not only this, but by using steel, it also unlocked significant carbon savings and allowed for an additional 15% Net Internal Area (NIA) to be added to the highly desirable office space in its constrained footprint.

8 Bishopsgate addresses energy used in construction and operation by the optimisation of materials and structure, adaptive façade, and innovative building services. The double-skin closed cavity façade prioritises energy efficiency with an extremely high thermal performance. The building envelope and façade performance were optimised to provide thermal comfort, which delivers energy savings and provides a greater level of daylight internally. Adaptive shading that responds to the weather conditions reduces the total building cooling demand by a further 530kW (5%).

Designed around occupants' health and wellbeing, the building employs smart building systems and flexible heating, ventilation, and air conditioning design and tenant amenities. Building users share the ground floor public café, upper floor mezzanine café with lounges and breakout workspaces, and a 200-seat auditorium with retractable seating. The Lookout at level 50 is an admission free public viewing gallery with uninterrupted views of the many city landmarks.

Typically, tall towers use piled foundations to transfer the large vertical loads, which add carbon and time. By adopting a lightweight steel frame and composite floor solution, the introduction of a pile assisted raft reduced the number of piles from 89 to 28, cutting construction time by two months and saving 500 tonnes of CO_2.

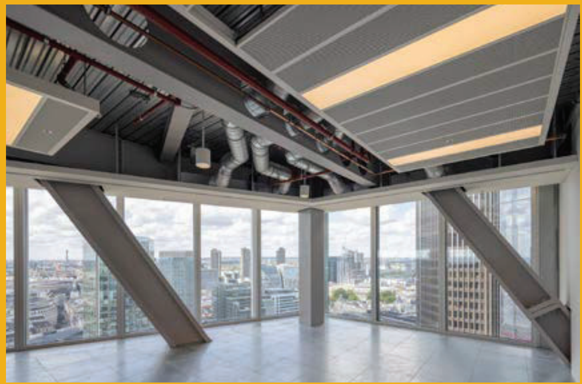
The steel braced box in the mid-rise portion of the building was utilised to tie the two concrete cores together for building stability. This allowed the cores to be minimised in area and pushed to less desirable parts of the floorplate.
A significant additional use of the steel braced box was that it allowed for the introduction of the west face building cantilever. This extends up to 9m over the pavement below and supports the west face of the building from level 6 to 52 with minimal impact to steel tonnage and the associated carbon. This intervention increased the NIA by 15% and facilitated the realisation of the stacked block architectural aspiration.

The structural engineers worked closely to develop a layout of services that allowed the steelwork and servicing to be fully optimised. Advanced analytical modelling and automation processes were developed to design every steel beam, column and bracing element for the individual load it would bear across its design life. This reduced the required steel weight by 25%, saving 5,000 tonnes of CO_2. A further 140 tonnes were saved by optimising the beam spacing and the incorporation of an innovative dampening layer for the high-rise portion of the building to stop footfall vibration.

The bracing that formed the hybrid stability system also resulted in key steel to steel connections. Designing these as efficiently as possible whilst ensuring the member was not tri-axially overstressed, required the connection design to mimic the primary member approach using plastic theory. This required careful consideration of around 300 load combinations that necessitated a co-ordinated, collaborative approach to how the key data was shared between all parties.

The hybrid stability system to the mid-rise block also avoided any significant transfer structures and facilitated the level 6 overhang. This relied on a 'completed truss' between level 6 and 12, so an extensive round of construction engineering took place to ensure that the structure was built to the correct levels using an active jacking approach, considering the various movements that took place as the building progressed.

8 Bishopsgate is believed to be the most sustainable speculative tall commercial scheme in the UK.



Judges' comment

Eschewing the creation of a simplistic city icon, this 50-storey building successfully combines a fragmented form, determined by function and site constraints, with a rigorous structural system. The resulting variety of spaces has proved a letting masterstroke. Impeccably constructed through a Construction Management contract, this is a top-class project.