Bywater – London

Case Study ESG

Net-zero aligned timber development in Central London

PROJECT:
Paradise SE11

COMPANY:
Bywater

LOCATION
London, UK

Challenge

Paradise SE11 was conceived to transform a disused roastery site in central London into a low-carbon office building aligned with RIBA 2030 and LETI benchmarks.

The ambition was to reduce embodied carbon while supporting wellbeing, biodiversity and community engagement within a commercially viable development.

The challenge was to deliver a high-quality workspace that met ambitious sustainability targets while navigating post-Grenfell fire regulations, tight site constraints next to railway lines and the need for rapid, low-impact construction.

Solution / Approach

To achieve the low-carbon targets, Paradise SE11 adopted a mass timber structure using exposed Cross-Laminated Timber (CLT) slabs and glulam beams, creating a biophilia-led office. Given the post-Grenfell regulatory context, achieving fire safety compliance was central to the design process.

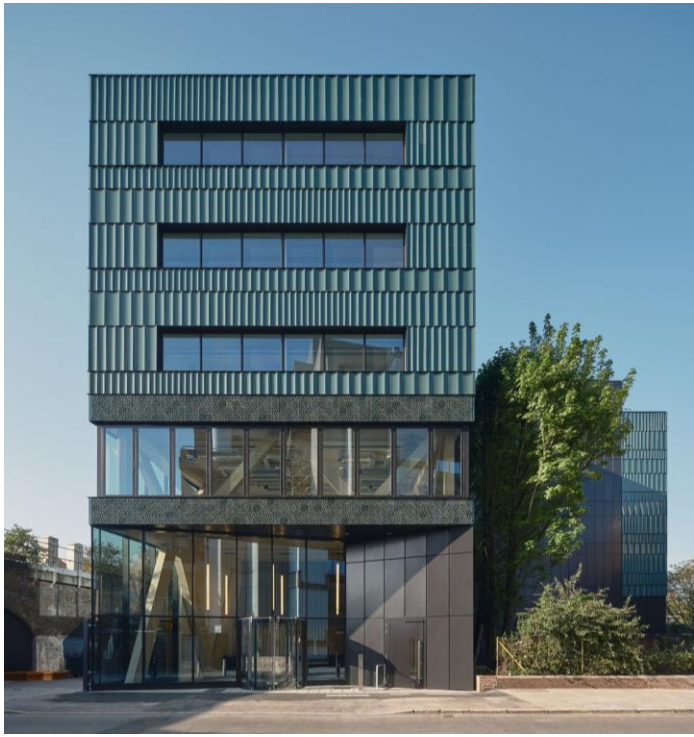
A full-scale, load-bearing fire test was undertaken in collaboration with Building Control, insurers and the London Fire Brigade, resulting in a validated 90-minute fire rating that exceeded Eurocode requirements and provided regulatory certainty.

A pragmatic material strategy guided the detailed design. A concrete core simplified the overall fire strategy, while localised steel was used where required to accommodate service penetrations and maintain generous floor-to-ceiling heights.

Costs were actively managed throughout, with the construction cost only 2% over typical construction, despite the research and collaboration required.

Circular economy principles were integrated from the outset. The mass timber frame was designed for disassembly using bolted connections, and fire protection boards were used instead of cement screed to preserve timber value for future reuse.

The timber structure stores an estimated 1,884 tonnes of CO_2, with demountable design supporting potential long-term retention.



Results

- **Embodied carbon:** 413 $kgCO_2e/m^2$ upfront; 31% better than the Greater London Authority 2030 target;
- **Carbon sequestration:** 1,884 tonnes of CO_2 stored in the timber structure;
- **Operational performance:** 100 kWh/m^2/year, aligning with CRREM 2034 operational energy targets;
- **Certifications:** Fully electric, powered by rooftop PVs and high-efficiency heat pumps, and achieving EPC 'A', BREEAM 'Excellent', and targeting WELL 'Gold';
- **Circularity:** Demountable timber frame and removable fire-protection boards designed to support reuse and extend carbon storage;
- **Social value:** Four co-design workshops with 33 students informed the façade, increasing confidence and awareness of design and built-environment careers.

Outcome

Paradise SE11 sets a new benchmark for sustainable urban development. The project demonstrates that mass timber can deliver high-performance, fire-safe and low-carbon buildings in dense urban contexts while remaining commercially viable. Reflects the balance of regulatory requirements, technical feasibility and long-term sustainability goals.

Fire safety and regulatory alignment
A defining aspect of the project was validating the fire performance of exposed mass timber in a post-Grenfell regulatory landscape. The full-scale, load-bearing fire test, carried out with Building Control, insurers and the London Fire Brigade, confirmed a 90-minute fire rating that exceeded Eurocode standards. This provided the certainty required for approval. The concrete core further simplified the fire strategy and ensured robust performance.

Low-carbon construction and material optimisation
The combination of mass timber, targeted steel elements and an efficient structural layout resulted in significantly lower embodied carbon while maintaining design flexibility. The construction cost was only 2 percent above typical construction, demonstrating the feasibility of a timber-first approach even in constrained locations.

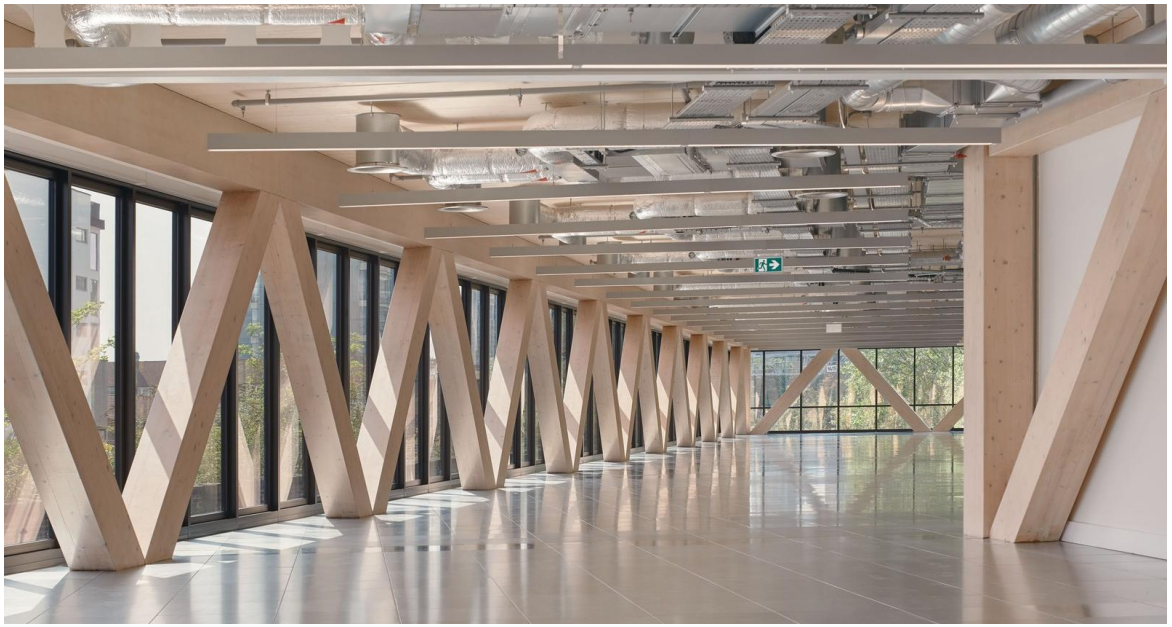
Biophilic Design
Biophilic design drives Paradise's sustainability, connecting occupants with nature through exposed timber, abundant daylight, and views of Old Paradise Gardens. These features enhance wellbeing, reduce stress, and improve productivity, creating a healthier, regenerative workspace that prioritises human experience alongside environmental performance.

Operational performance
The fully electric building, powered by rooftop photovoltaics and high-efficiency heat pumps, achieves operational energy use aligned with CRREM 2034. This full electric building will benefit from the decarbonising grid.

Social value and community engagement
The façade design emerged from workshops with 33 local students, who explored textures, made collages and prototypes refined into the final design. Their contributions now feature on the building. Follow-up engagement increased confidence in planning and engineering skills and interest in built-environment careers, showing how early engagement delivers lasting educational and community value.

Paradise SE11 illustrates how mass timber can meet sustainability, fire safety and circularity objectives simultaneously, demonstrating a pathway that could inform future low-carbon developments.

> **Bywater's unwavering commitment to sustainability and occupant well-being has been instrumental in shaping Paradise into a landmark timber-framed building that sets a new benchmark for healthy and environmentally conscious design.**
>
> **Alex Whitbread, Partner, Feilden Clegg Bradley Studios**



Bywater SFC Management Ltd

Bywater is a pioneering carbon-conscious developer and investment manager focused on driving the adoption of low-carbon development and refurbishment across the UK. Driven by our powerful ambition for change in the living environment, we champion new ways of living and working: nurturing imaginative ideas, refurbishing where we can, and always building responsibly by putting timber and low-carbon technology at the heart of what we do wherever possible.