

# Commendation

Structural Steel  
Design Awards 2025

## ExCeL Phase 3, London

### PROJECT TEAM

Architect:  
**Grimshaw**

Structural Engineer:  
**CampbellReith**

Steelwork Contractor:  
**Severfield plc**

Main Contractor:  
**McLaren Construction Group PLC**

Client:  
**ExCeL London**



ExCeL Phase 3 is a steel-framed extension to London's ExCeL venue, located along the Royal Docks and within the City Airport exclusion zone. The project adds 40,000 sqm to the overall development including flexible, column-free exhibition and conferencing space, a 55m clear-span upper-level floor and a dramatic 13m cantilever over the dock edge. Constructional steel was the only option to deliver these complex feats of engineering. Designed for disassembly and incorporating 50% recycled steel, the structure exemplifies sustainable innovation and engineering excellence.

The building's location presented unique challenges. Proximity to a live airport restricted crane heights, requiring bespoke lifting strategies and 3D modelling to comply with flight path regulations. In addition, bespoke acoustic design solutions and testing for the building envelope were also required, given the sensitivities of conferencing within an airport environment. The venue remained operational throughout construction, including hosting the Formula E World Championships, with the racetrack passing through the new structure. This demanded precise phasing and coordination to ensure safety and aesthetic integrity during the event.

Engineering complexity was driven by the need for vast column-free spaces, integration with the existing venue, and avoidance of piling in the existing 1930s historic dock. Storey-height trusses were used to span the exhibition halls, with detailed presets and tight tolerances ensuring structural performance. The roof bracing was uniquely positioned below the purlins due to height constraints, requiring

innovative connection design. Exposed architectural steelwork in the atrium demanded hidden fixings.

Fabrication and logistics were equally demanding. Wide-load truss deliveries required police escorts and precise scheduling to meet site constraints. Cranes and MEWPs operated on floating rafts using bespoke matting systems to reduce ground pressure. Temporary stability analysis ensured safe erection of tall, exposed structures, and BIM Level 2 coordination streamlined collaboration across the project team.

The completed venue is net zero carbon in construction and operation, achieving BREEAM 'Excellent' and PAS 2060 certification. It features London's largest rooftop PV installation, delivering over 15.5 GWh annually, and includes urban greening with a 50% biodiversity net gain. Public realm enhancements include a floating pontoon, dockside landscaping, and reduced car parking to promote sustainable transport.

Social value was embedded throughout, with apprenticeships, school engagement, and support for local charities and sports academies. A 2,000 sqm production kitchen will serve community food initiatives, and venue access will support youth recreation.

ExCeL Phase 3 sets a new benchmark for sustainable, large-scale event infrastructure, combining technical ambition, environmental leadership, and community impact.

### “Judges’ comment

This thoughtful, carefully considered building which integrates with previous phases of the ExCeL site, was particularly well delivered. Working with the challenges of the City Airport exclusion zone, a live historic dock and incorporating part of a Formula E race track, this project delivers at scale and embraced the requirements of sustainable and economical design.