

## Spectra, University of Hertfordshire

### PROJECT TEAM

Architect:  
**ADP**

Structural Engineer:  
**AECOM**

Steelwork Contractor:  
**Elland Steel Structures Ltd**

Main Contractor:  
**Morgan Sindall Group**

Client:  
**University of Hertfordshire**

### Judges' comment

The Spectra Building is an inspiring new university facility, designed within strict parameters. Constructed in steel, the long spans provide flexibility, enabling spaces to adapt as funding and study needs evolve. This forward-looking approach delivers functionality, sustainability, and design excellence, creating a building the university can rightly be proud of.



The Spectra Building is a five-storey composite steel-framed teaching and research facility located at the University of Hertfordshire's College Lane Campus in Hatfield. Designed to unite the university's STEM departments under one roof, it is now the largest and most adaptable building on campus. Its structural steel frame, paired with precast concrete cores and piled foundations with suspended ground floor slabs, supports a highly flexible layout that accommodates civil, structural and automotive engineering, physics, computer science, mathematics, robotics, and astronomy.

The building's regular 9 x 9m grid and lack of transfer structures enable future adaptability while minimising carbon impact. Exposed steelwork and services are celebrated throughout, showcasing engineering principles to students and visitors. The columns are spliced at level 2 where the section size reduces to limit carbon expenditure. In addition, it has supported differing activities on each floorplate, which require combinations of high loads and vibration sensitivity. Feature elements include long-span steel staircases, timber-clad handrails, and full height atriums, so multiple construction materials can be witnessed in a single view. The ground floor CDIO (Conceive, Design, Implement, Operate) workshops feature operable walls suspended from the steel frame to divide or combine adjacent spaces, and a strong floor workshop with crane beams designed for destructive testing rigs.



Fabrication and erection required innovative sequencing due to delays in the precast core delivery. Temporary bracing and modified connections allowed the steel frame to be constructed independently, maintaining programme momentum. The long-span stairs were delivered in one piece, requiring precise routing and welding to meet architectural and regulatory standards.

The building's design supports disassembly and reconfiguration of non-load-bearing partitions, enabling the university to evolve its teaching and research spaces over time. Sustainability was embedded from the outset, targeting BREEAM 'Excellent' through a fabric-first approach, prefabricated materials, daylighting strategies, and low-energy services. All primary steel sections were sourced from EAF production, thus reducing embodied carbon.

Spectra's impact extends beyond the university. It addresses national STEM skills shortages by providing state-of-the-art facilities for students and researchers, while enhancing collaboration across disciplines and with industry partners. Communal spaces and visible research areas foster interaction and innovation.

The Spectra Building exemplifies how structural steel can deliver a sustainable, flexible, and inspiring educational environment. It stands as a beacon of engineering excellence and collaborative design, ready to support the future of STEM education and research.