Structural Steel Design Awards 2024

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Structural Steel Design Awards 2024 sponsors

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“ Introduction

**Professor Roger Plank –
Chairman of the Judges Panel**

It has been my privilege to chair the judging panel for this year's awards. I would like to thank my fellow judges, each an expert in their own field, and sharing a passion for high quality design and construction, for giving so freely of their time.

The Awards scheme provides an opportunity for the sector to showcase excellence in the use of structural steel across a wide range of projects varying in nature, scale, regional location and budget. We were pleased to see the inclusion of so many large prestige commercial buildings this year, but we are just as interested in small projects of any type and would like to encourage a greater number of submissions across the widest range of structures. We look for high quality in all aspects of a project, and are particularly keen to understand the challenges faced, how these were addressed, and the contribution of steel to the outcome. Aspects such as innovation, smart working, problem-solving and community benefit are therefore as relevant as appearance and scale. And at a time when climate change is high on everyone's agenda, we are keen to learn about ways in which a project contributes to a more sustainable future.

The judging process starts shortly after the closing date for submissions with a preliminary selection based on a 'desk-top' review of the entries. It is therefore critically important to provide clear, concise, well-illustrated documentation highlighting those aspects of the project which make it special, with contributions, where appropriate, from each member of the project team. Good photographs, particularly of the finished structure, are especially helpful.

The entrants of the shortlisted schemes are all then notified and invited to host a visit by the judges. These visits are a special feature of this award scheme, giving the judges a firsthand opportunity to understand and experience the selected projects, and to quiz the project teams about any specific points. In this way, we can build up a much clearer view of the special merits of individual entries and this is extremely helpful in coming to our final decisions. It is particularly useful if the visits involve all key members of the project team, including the client, to provide the broadest perspective.

Once all visits have been completed, the judging panel reassembles to compare notes and exchange views. We consider the merits of all aspects including architectural and engineering, the quality of fabrication and assembly, any innovations or challenges, issues of sustainability, and the contribution the project makes to society at large. With such a diverse range of projects, this is no easy task, but the judges bring all their professional experience and expertise to bear in reaching a consensus.

In conclusion I can say, on behalf of all the judges, that the awards, commendations, the single merit, and national finalists recognised in the Structural Steel Design Awards this year, reflect the impressive quality of the current steel construction industry, and everyone involved should be proud of what has been achieved.

THE JUDGES

Professor Roger Plank PhD BSc CEng FIStructE MICE – Chairman of the Panel
Representing the Institution of Structural Engineers

Richard Barrett MA (Cantab)
Representing the Steelwork Contracting industry

Paul Hulme BEng (Hons) CEng FICE
Representing the Institution of Civil Engineers

Emily McDonald MEng MA (Cantab) CEng MICE
Representing the Institution of Civil Engineers

Chris Nash BA (Hons) DipArch RIBA FRSA
Representing the Royal Institute of British Architects

Sarah Pellereau MEng CEng MIStructE
Representing the Institution of Structural Engineers

Bill Taylor BA (Hons) DipArch MA RIBA FRSA
Representing the Royal Institute of British Architects

Oliver Tyler BA (Hons) DipArch RIBA
Representing the Royal Institute of British Architects

Objectives of the Scheme

“ **...to recognise the high standard of structural and architectural design attainable in the use of steel and its potential in terms of sustainability, cost-effectiveness, aesthetics and innovation.**

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.

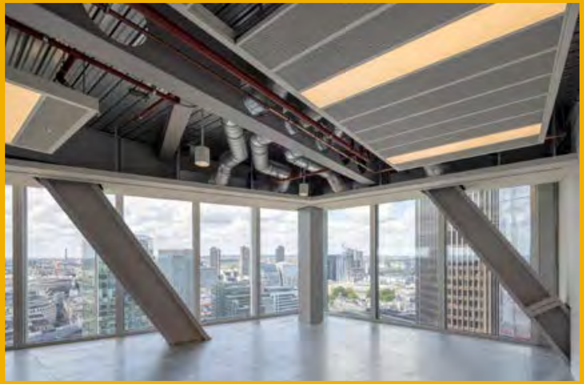
The steel braced box in the mid-rise portion of the building was utilised to tie the two concrete cores together for building stability. This allowed the cores to be minimised in area and pushed to less desirable parts of the floorplate.
A significant additional use of the steel braced box was that it 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.

Award

Aviva Studios, Manchester

PROJECT TEAM

Architect: **Office for Metropolitan Architecture**
Structural Engineer: **Buro Happold**
Steelwork Contractor: **William Hare Limited**
Main Contractor: **Laing O'Rourke**
Client: **Manchester City Council**

Aviva Studios in Manchester stands as a premier cultural venue, embodying the creative vision of Manchester International Festival (MIF). Led by the architect, the building occupies around 17,000m^2 and includes a large warehouse space and adjoining theatre that can be used independently or together. Set within the St. John's regeneration area and strategically positioned on the former ITV Granada Studios site, the building enhances the city's status as a hub for arts and culture, fostering skills development, talent retention and social change.

The warehouse serves as the central core of the facility, boasting an impressive internal volume measuring approximately 34m by 68m on the floor plan and standing 20m high. Its cuboid design creates a visually striking open space for audiences. This effect is achieved through the strategic use of long-span steel trusses, eliminating the need for floor columns.

Modified Pratt trusses are seamlessly integrated into the roof space, allowing for service distribution and rigging access across the entire roof area. The high strength-to-weight ratio of the steelwork ensures an efficient structural solution while supporting a robust load-bearing system. The warehouse can suspend a total rigging load of 200 tonnes across the full technical grid, providing the necessary flexibility to accommodate a wide range of events. Additionally, large movable partitions are suspended from the roof steelwork, allowing for smaller, acoustically sealed performances within this versatile space.

A steel framework forms the 'mega walls' either side of the warehouse. These elements provide support to the warehouse roof, floor and the theatre, whilst also facilitating circulation around the building. Due to the site constraints, there are only three localised zones along the wall length where a vertical structure can be located down to foundation. At the northern and southern ends of the wall, braced steelwork towers termed 'mega columns' support the mega wall structure. However, directly carrying the central mega column (bearing a load of 3,000 tonnes) vertically to foundation was not feasible due to utilities located below the Water Street footpath.

Initial design development involved a reinforced concrete transfer structure. However, further subsurface investigation revealed that utility services were located closer to the foundation than anticipated. This discovery rendered the original design unfeasible without diverting these services, which would have incurred high costs and a lengthy process. To address this challenge, an alternative solution was sought - one that could extend the cantilever over Water Street, mitigating the need for any diversions.

The breakthrough came when the construction material was changed to steel. Evaluating different options and geometries, engineers focused on balancing stiffness against tonnage. The goal was to find a solution that effectively controlled deflection, while remaining materially efficient, cost effective and sustainable. The shift to steel construction provided a feasible path forward.

The complex geometry of the theatre's steel frame emerged through intelligent computational design, leveraging the 3D surface provided by the architect. The backbone of the structure consists of four steel roof trusses. These trusses span between the theatre columns at the rear of the balcony and one of the warehouse's mega walls located above the proscenium arch, providing both vertical and lateral support.

A series of ribs play a crucial role in supporting both the inner and outer acoustic skins, shaping the faceted profile of the envelope. Additionally, the triangulated ribs on each side of the balcony structure form side trusses within the interstitial space.

Effectively controlling sound transmission out of the building and between internal spaces was the primary concern to enable concurrent performances, and a key planning condition that led to the box-in-box construction of both the theatre and warehouse.

The loading through installation of the precast concrete cladding on elements locally in areas, was found to be more onerous than the in-service condition covered in the permanent works design. The design checks performed needed to be representative of the full construction duration requiring a constantly changing set of support conditions and loading as the steel frame was erected and the load was applied. Through this design, the impact of the sequential installation of precast concrete cladding panels on the steel superstructure was better understood.

The movement of the superstructure as the cladding was installed could be estimated, and this movement was benchmarked against performance requirements, which could be accommodated by the precast concrete panel-to-panel junctions. The design significantly shaped the process that informed the magnitude for the setting/packing of the precast brackets for various superstructure elements.

The steel frame at Aviva Studios gains a competitive edge over other construction materials due to the utilisation of prefabricated components. The extensive collection of long-span trusses found in both the warehouse and theatre were meticulously produced, fabricated and protective coatings applied within a controlled environment. Erection of the structure set within tight tolerance limits was achievable through the high level of precision afforded through the offsite manufacturing.

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Judges' comment

A world class cultural venue housing a warehouse space capable of supporting 200 tonnes of rigging from long-span steel trusses, and adjoining theatre, to be used independently or together. The result is a visually striking space able to host a wide range of events with large audiences, enhancing the city's status as a hub for arts and culture.

Award

Beaulieu Parkway Bridge, Chelmsford

PROJECT TEAM

Architect: **AECOM**
Structural Engineer: **AECOM**
Steelwork Contractor: **Briton Fabricators Ltd**
Main Contractor: **GRAHAM**
Client: **Countryside Zest LLP**

The 161m long, three-span superstructure marks the final phase of a £35 million infrastructure program aimed at reducing congestion for Chelmsford residents and road users. It is the longest curved multi-span bridge over land in England.

Initially constructed onsite in a temporary location between February 2022 and September 2022, the superstructure underwent a complex and meticulous process to reach its final position. It was first manoeuvred and cantilevered over the Great Eastern railway line and the A12 north bound slip road in September 2022. In October 2022, the superstructure was prepared to be moved to its permanent position and lowered onto the substructure, spanning the Great Eastern railway line and the A12 northbound slip road.

One of the standout features of this project is the use of composite weathering steel fabricated girders. The design and installation of this structure were particularly complex due to its unique geometry. Curved on plan with a pronounced camber profile, the steel elements consisted of four lines of 2.7m deep plate girders. These girders were 'spiral' in construction and had 'offset' flanges to webs, designed to twist into shape under load. Accuracy of the fabrication was controlled in the workshop using laser levels and purpose made jigs, with information derived from an advanced 3D model prepared in-house by an experienced modeller.

Tight site access posed additional challenges, necessitating the delivery of plate girder beams in smaller sections. These sections were then welded together at ground level. Temporary trestles were designed and deployed, encapsulated to allow welding, blasting, and weld testing. Once the paired beams were assembled into 40m lengths, these sections were lifted to a height above the adjacent overhead line structures and settled onto another temporary works set up. This 'at height' set up mimicked the final abutment and central supports, plus two rows of purpose-built trestles at weld locations. Once at height, the whole structure, at its corresponding connections, was welded.

The final installation scheme for the superstructure was particularly intricate due to its location. A complex chorography involving multiple Specialist Propelled Moveable Transport (SPMT) was employed. The bridge superstructure weighed a total of 2,400 tonnes during installation. It was manoeuvred by adding and removing SPMTs at different stages, rotating in a carousel motion until the bridge was positioned over and lowered onto temporary trestles. The bridge was then lifted from the temporary trestles using SPMTs and MJS300 jacking systems located on top of the SPMTs. It was transported and positioned on either side of the railway boundary and driven into place over the permanent abutments and piers. This project is the longest bridge installed using SPMTs in the UK.

Lasers were used to align the bridge with 16 permanent bearing positions to an accuracy of +/- 10mm. Temperature control was crucial to maintain these tolerances.

The design, fabrication, and installation of the complex geometry curved steel set of weathering grade steel plate girders for the road bridge, is a testament to the skill base in the civil engineering sector. The high level of skill, quality, and rigorous testing regime ensured the bridge was delivered well within tolerance. Additionally, the complex SPMT choreography employed during the installation made this a standout structure.

The opening of the new Beaulieu Parkway bridge and relief road is a significant development for the traffic management in the area. It provides a crucial strategic link for commuters traveling from the A130 to the A12, helping to alleviate congestion around Springfield for those journeying to and from Braintree, Stansted, and the M11. Additionally, it will facilitate easy access to the new Beaulieu Park Station in 2025.

The local council has reportedly implemented several transport developments in this part of Chelmsford. Alongside the relief road, the new bypass and train station are all vitally important for ensuring the transport network is fit for the future. These developments aim to provide local people safer, greener and healthier travel options.

Overall, the successful completion of the Beaulieu Parkway bridge is a milestone achievement that underscores the importance of strategic infrastructure investments. It reflects the commitment to enhancing the quality of life for residents by reducing congestion, improving safety, and promoting sustainable transportation solutions.

Judges' comment

This 161m long, three-span highways bridge has an extraordinary construction story. The structure, which spans a road and live railway, is curved in plan and section. Built on the ground, complete with much of its deck, the structure was then driven into position on multiple specialist propelled moveable transporters.

Co-op Live Arena, Manchester

PROJECT TEAM

Architect: **Populous**
Structural Engineer: **Buro Happold**
Steelwork Contractor: **Severfield**
Main Contractor: **BAM Construction**
Client: **Oak View Group**

Co-op Live Arena, which opened in May 2024, is the UK's largest indoor venue, integrating cutting-edge technology, sustainability and multifunctionality. It has an overall capacity of 23,500, houses 41 individual bars and restaurants, and has a seating bowl that brings fans 23m closer to the stage than at any comparable venue.

In accordance with the client's brief, sustainability was at the heart of the venue's plan, designed to support Manchester's Zero Carbon 2038 commitments. It incorporates a suite of cutting-edge sustainability features to create an inclusive, low carbon and low waste venue, with a target of sending zero operational waste to landfill. The building is powered entirely by electricity, with no reliance on fossil fuels. Renewable energy purchased from the National Grid is being supplemented by a large photovoltaic array mounted across the 10,500m^2 of roof.

The project also took a sustainable approach to construction and material sourcing, with many packages and subcontractors being local to the project, minimising transport and creating opportunities for local communities. All temporary steelwork was returned and will be reused on the next project.

Initially, the proposed structural frame was partially concrete, however, due to the known complexities in the ground and the short programme, it was switched to an all steel construction to maximise offsite production and minimise onsite erection.

The building was divided into four quadrants by movement joints, partly in response to the zonal release of the site from the groundworks, to enable sequential construction. This presented several challenging temporary condition states that had to be incorporated in the design.

The complexities associated with supporting the large overhangs of the 'stacked box' appearance, and the requirement for a 100m clear spanning roof over the internal seating and arena floor, was made possible due to the selection of structural steel.

A critical aspect of the design was the structural system for the long-span roof, fabricated primarily from grade S460 steel to minimise the overall weight. The site is constrained on all four sides, and given the requirement for the roof to be erected after the completion of the main bowl superstructure, the steel for the roof had to be sub-assembled on the arena floor and erected from inside the building footprint.

The erection strategy involved just-in-time deliveries due to the limited storage space, the restricted craneage and plant movement across the site. The steel required for the roof trusses was delivered to site in smaller sections, and sub-assembled into larger components at ground level prior to erection. The size of these components was dictated by the craneage that could be rigged safely within the bowl's footprint, combined with the requirement for it to be de-rigged underneath the completed roof structure. This element posed one of the biggest challenges of the steel construction process.

The steel superstructure is stabilised by a series of precast concrete twin-wall cores, which required significant coordination of the steel to concrete interfaces. This was achieved through the digital coordination of embedment plates, connections, and service penetrations, maximising offsite prefabrication using shared BIM models and digital fabrication information.

The roof structure consists of 100m long steel trusses, each capable of supporting approximately 30 tonnes of event rigging in multiple configurations. Parametric design tools were used to optimise the roofs tonnage and ensure compatibility with the fabrication and erection approach, assessing the impacts of different truss depths and cladding options.

The terrace design required complex raker and truss steel to be fabricated and erected with conventional column and beam steel. Interfaces with the precast concrete terrace units and walls were developed within the steel package, enabling these elements to be coordinated and connected to the steel. The erection process, complicated by the building geometry and tolerance requirements, was facilitated by using collaborative working and a skilled off and onsite team.

The short design programme necessitated the need to adopt a strategy of suspending most of the building services beneath the steel floor beams and composite decks. The roof cladding and internal spaces had several strict acoustic requirements because of the arena location being adjacent to residential buildings. Another offsite solution was developed using a series of acoustic 'cassettes' that could be slotted into the main roof steel structure. A metal deck and concrete solution was added over the top of the acoustic liner to carry the waterproofing and photovoltaic units.

The steel frame adopted a fully fire-engineered design approach to minimise the amount of intumescent paint, based on the location and structural function of the steel. This involved the fire design engineer assessing the required fire resistance, the structural engineer supplying element utilisations and the steelwork contractor optimising the required film thicknesses. This significantly reduced the amount of fire protection and intumescent material required when compared with a non-engineered approach.

Judges' comment

A 100m clear spanning roof forms the dramatic focus of this state-of-the-art purpose-built black box performance venue. Skilfully controlled surrounding spaces are defined, but never dominated by, the expressed structure that creates them. Built to exacting standards, this is a holistic and architecturally confident solution of high quality.

Award

n2 Nova Evolved, London

PROJECT TEAM

Architects: **Lynch Architects, Veretec**
Structural Engineer: **Robert Bird Group**
Steelwork Contractor: **William Hare Limited**
Main Contractor: **Mace**
Client: **Landsec**

n2 Nova Evolved is a 17-storey commercial building in the heart of Victoria, located on a very congested subsurface infrastructure with Thames Water and London Underground Limited assets underneath. This second phase of the Nova development offers 14,800m^2 of office space along with terraces on the upper levels.

Built on top of the major assets, the building is an excellent example of how engineering excellence can unlock value in heavily constrained sites without compromising on quality and sustainability. The existing Victoria Line station, along with the Thames Water sewer, presented significant constraints to the provision of foundations, only allowing for the installation of big diameter piles down to approximately 79m – the deepest pile in London – at a few locations.

The core is located on the west side of the building where there are no underground constrains. The building includes a basement on this side which is linked to Nova's basement. The four areas where piling was possible, were within the works exclusion zones specified by London Underground and Thames Water, so derogations were needed for these interventions.

A proposed single pile in the centre of the building needed to be just 1.6m away from the Victoria line tunnels. The south side of the building is supported by piles at each end. The pile cap on the west side cantilevers over the passenger access tunnel and shaft. The east side is supported in one place by two 1.8m diameter piles and the southeast corner is on a pile cap that bridges over the passenger access tunnel close to the north ticket hall.

A pile test was carried out onsite to optimise and reduce the pile diameter. Completion of the test justified a reduction of the diameter required from the original 2.4m down to 1.8m, which saved 50% use of concrete. For one of the anchor pile tests, Earth Friendly Concrete was used marking the first time for zero cement concrete to be utilised. In addition, considerable cement replacement was used in the substructure, achieving up to 75% ground granulated blast furnace slag replacement in the deep pile caps.

For the superstructure, an optimised grid of 9m by 10.5m for the office space was proposed. The typical arrangement consists of composite secondary beams spaced at 3m with overlaid 130mm thick composite flooring.

The limited number of support points at foundation level meant that the substructure supports are not aligned with the building's superstructure vertical elements, so a transfer system was required. A series of trusses positioned between level 0 and level 3 were used to transfer the force from the superstructure into the foundation piles.

The depths of the trusses vary from single to double storey in height and consist of steel plate fabricated box or H-sections. With a span of up to 45m, the use of steelwork for the truss system was key to delivering a sustainable design solution.

Three internal full height trusses at level 2, span between the core and the eastern perimeter truss. They were integrated with the plant room that is located at level 1 and level 2. The south and east architectural V shape trusses span over the passenger access tunnel and north ticket hall. They are key visual elements, so were cast in situ and sanded to highlight its colour and expose the aggregate.

Most of the trusses were fabricated from steel plate ranging in thickness from 25mm to 75mm in transportable sections, then erected with bolted connections in situ. The eastern truss needed a different erection approach. The bottom chord was fabricated with 150mm thick plate due to design loads, and a bolted connection was not feasible. To avoid site welding, a 27m long section was installed overnight during the weekend using a 450-tonne capacity mobile crane.

Due to the congested site and structural complexity, the steel contractor and main contractor were appointed by the client under a pre-construction service agreement to minimise risks. The early engagement of the contractor, working together with the design team, allowed the steel frame to be erected without any site amendments.

The n2 Nova Evolved project is an excellent example of unlocking the opportunity offered by land, in the heart of London, in a heavily constrained environment. It is thus a high-risk project where collaboration is key, allowing for piles to be placed in locations that would have not been previously considered and enables the operation of the London Underground.

Judges' comment

A complex site with congested services restricted building supports to just a few points, resulting in steel trusses creating a distinctive double-height feature at ground floor. Secondary transfer trusses between first and second floors house the plant, with the rest of the building free to create a unique, top-class office space.

Award

Sky Innovation Centre, London

PROJECT TEAM

Architect: **AtkinsRéalis**
Structural Engineer: **Arup**
Main Contractor: **ISG Ltd**
Client: **Sky**

Sky Innovation Centre showcases structural engineering excellence in holistic low carbon design processes and lean design using advanced analysis. The minimalist structure creates an inspiring working environment for Sky's most inventive, forward-thinking minds.

The design fosters ideation and collaboration putting human centric design at the forefront. A dynamic activity-based working strategy was devised for a hybrid workforce, offering the very highest sustainability, wellness and Whole Life Carbon (WLC) performance standards. It showcases excellence in holistic sustainable and user-centred design, whilst supporting Sky's ambitious net zero vision. The building achieved BREEAM 'Outstanding' and WELL 'Platinum'. Sky is the first European Broadcaster to achieve this accolade.

To satisfy the requirement for an easily adaptable workspace, the structure provides uninterrupted floor plates with a rear core, maximising natural daylight, openness, transparency and connectivity across the workspace.

Staff well-being drove the design - building a strong connection between the workspace and the external landscaping, creating a bold 'internal landscape'. Sky and the project team have created a striking and unique building, with an outstanding workspace that delivers delight to its occupants, creating an impactful and lasting impression.

The energy strategy aligns with UKGBC 2025-2030 net zero targets and trajectory, prioritising passive measures such as fabric efficiency, effective shading, free cooling and passive exhaust ventilation.

The embodied carbon of the structure is 202kg CO_2e/m^2 of GIA, which is a 10% improvement on LETI 2030 target, and a SCORS rating of 'B' puts the structure 40% ahead of the IStructE decarbonisation trajectory for 2023. Embodied and WLC were tracked through the design stages to inform decision making.

The façade geometry adds 12% to the façade area, which increases embodied carbon significantly. Lean design in the frame and finishes, and low carbon materials, were able to mitigate this impact and achieve a WLC ahead of industry decarbonisation goals.

The steel frame was constructed offsite, which enabled the construction to progress during COVID-19 with minimal delay (site shut down for 3 days only) and required a few workers onsite, so the pandemic protocols could be maintained.

The structure maximises design for disassembly by avoiding toppings on precast concrete planks. The highly optimised trusses provide a 'light structural feel', increase the perceived clear height and are used to achieve clear-span floorplates with minimum steel. T-plate bottom chords minimise visual appearance, whilst facilitating simple welding of truss nodes. The visual impact of the trusses is reduced by integrating the top chord box section into the slab depth. The highly efficient steelwork trusses are integral to the architectural feel of the space and are achieved by advanced structural analysis and design, resulting in a steel weight of 60kg/m^2.

Advanced footfall analysis supported omitting toppings on slabs. A base case that followed SCI-P354 was supplemented with sensitivity models, using different walking speeds, defined routes, and varied damping. The results were combined in a Monte Carlo probabilistic risk analysis to demonstrate very low probability of adverse footfall response.

The primary frame geometry is linear and regular for direct load paths and ease of construction. The ziggurat is formed using 7 shaped secondary steel members. This enabled primary frame fabrication to start while final façade coordination continued, shortening the critical programme path by two months.

Splay columns reduce bending stress and deflection in the primary beams, improving footfall response of the slab and providing stiff landing points for atrium stairs connecting onto the floorplate. This saved 19% CO_2e compared with vertical columns.

Beautifully detailed trusses, elegantly tapering splay columns and flat soffits provide Sky's desired 'sophisticated industrial' look and feel. The team could design out ceilings and other finishes, thereby substantially reducing the overall embodied carbon.

A timber-hybrid mezzanine enables disassembly and reconfiguration in the atrium, without raising significant insurance concerns. The client wanted adaptability for their mezzanine level that weaves around the atrium, so cross-laminated timber (CLT) slabs were proposed on the steel frame. Due to limited headroom, the CLT planks are integrated into the steel beam zone at this level. The mezzanine grid is distinct from the primary grid, with planks spanning 6-7.5m onto steel beams, which are then directly supported on the mezzanine column lines. The modest column grids achieve a 300mm structural zone without excessively heavy beams and can be supported through the ground slab.

Underfloor air ventilation provides a clear floorplate and enables layout reconfiguration with minimal services strip-out, re-routing and commissioning. Exposed ceilings with exposed services and an 'open' truss structure, enables flexible services distribution and simple relocation of partitions.

The mezzanine framing was a late addition to the project, so designed to be constructed from lightweight components that could be installed with low-level handlers, after the roof was constructed. This also avoided the risk of water damage to CLT during construction and allowed time for the fit-out package coordination. With simple stack connections, the framing and planks could be easily disassembled and reconfigured in the future enabling circular economy benefits.

Judges' comment

This minimalist structure, comprising highly optimised steel floor trusses supported on splay columns to reduce bending, maximises design for disassembly. A key aim of the client, adopted throughout the supply chain, was to minimise environmental impacts. The result is a very adaptable, high quality workspace with excellent sustainability credentials.

Commendation

4 Angel Square, NOMA, Manchester

PROJECT TEAM

Architect: **SimpsonHaugh**
Structural Engineer: **Buro Happold**
Steelwork Contractor: **Billington Structures Ltd**
Main Contractor: **Bowmer + Kirkland**
Client: **MEPC**

Judges' comment

This operational net zero, BREEAM 'Outstanding', 22,000m² office building utilises long-span cellular beams to create a column free interior environment. In a nod to the sightlines of the main road, the four upper floors are offset, a challenge that was structurally achieved using fabricated transfer beams and cantilevers. A well-run project that successfully met the client's brief.

4 Angel Square, north of Manchester city centre, is an operational net zero contemporary office building. It is situated in NOMA's thriving business district and exemplifies the commitment to creating sustainable, healthy workplaces for the future.

The demand for Grade A office space led the client to request a speculative development, with flexibility as a key requirement. This guided the design philosophy to focus on external aesthetics and internal simplicity to meet the client's demands. These requirements were met through long-spans, creating open column-free internal environments on each floor, and minimising transfer structures. The final design offers approximately 22,000m² of space, with office floor plates ranging around 1,800m².

Steel was the optimal choice of material for this type of structure, consisting of an 11-storey composite steel frame, stabilised by a central reinforced concrete core, with columns only about the perimeter. The floor plate also pivots around a central point on the north and south elevations at the seventh floor, requiring a transfer structure to distribute the load between the differing frame arrangements.

By utilising long-span cellular beams, ranging from around 12-15m, the design team incorporated the services into the structural depth, achieving high floor-to-ceiling heights and minimising the impact on the overall height of the building while increasing the material efficiency of the frame.

During the early stages of design, the change in geometry on the upper floors of the building presented challenges in optimising the column grid. However, through productive coordination with the architect and the wider design team, the geometry of the building evolved to accommodate an efficient structure while also realising the vision of the architect and client.

One of the key architectural features of the building is the 'twist' on the seventh floor, resulting in the north and south façade columns moving in plan. A series of fabricated transfer beams and cantilevers, up to 1m in depth, facilitate this step in columns and transfer the loads to the column grid below. Several options were explored to meet the geometry and serviceability requirements. The chosen and most efficient option was to utilise the steel beams and columns in these overhangs and backspan bays as a Vierendeel cantilever, engaging the structural depth of all four floors above.

Angel Square excels as a sustainable office building, marked by LETI Pioneer and NABERS UK 5-star goals, BREEAM 'Outstanding', Fitwel '2 Star', WiredScore, and ActiveScore 'Platinum' recognitions.

Commendation

Bishops Square, London

PROJECT TEAM

Architects: **Foster + Partners, Bond Bryan**
Structural Engineer: **Price & Myers**
Steelwork Contractor: **Elland Steel Structures Ltd**
Main Contractor: **VolkerFitzpatrick**
Client: **J.P. Morgan**

Judges' comment

One could be forgiven for considering this a relatively modest, straightforward project such is the quality of the design and construction achieved in response to the significant complexities that literally underly it. The efforts and commitment of the entire team have been amply rewarded in this fine project.

Forming part of the multi-million-pound Bishops Square redevelopment, which has transformed a large area next to east London's historic Spitalfields Market, a standout steel frame structure has been constructed to add a further 10 retail and food outlets for residents and shoppers to enjoy.

This distinctive building, designed to be in keeping with Spitalfields' heritage, features an exposed structural steel frame, coated in a dark red iron oxide, infilled by glazing, canopies and partitions, to give it a modern and industrial feel.

The architectural exposed frame required the steelwork contractor to fabricate, supply and erect 750 individual pieces of steel, amounting to an overall weight of 360 tonnes. The highly decorative fire protection finish on the frame was achieved through meticulous planning and preparation of the offsite elements, with a final topcoat polyurethane sealer applied onsite. The exposed joints were carefully designed for uniformity, with 5,500 bolts visible. The steel frame is a rigid frame design both laterally and longitudinally, with the only braced member being on the frame elevation under the main canopy.

Several logistical challenges had to be managed during the construction of the steel frame, as the structure is situated above an existing basement vehicle ramp. The basement, which serves as a car park for an adjacent building, remained operational throughout the construction. Above ground, the site was very confined, with much of the available space taken up by the new building's footprint.

Temporary movement and deflection monitoring sensors were installed within the basement to ensure the site's 70-tonne capacity mobile crane was always positioned and did not overload the substructure. Based around a regular 8m column spacing, the back elevation columns are directly supported on an existing basement retaining wall, with the side elevation columns supported off a combination of a longitudinal ground level transfer beam, together with a short span balanced cantilever truss spanning between the subterranean columns of the piazza ground floor.

In addition to providing the scheme with its integral aesthetic look, structural steelwork was chosen for its speed of construction. The material also creates a lighter structural frame than many other forms of construction, an important consideration since the new building is positioned and founded on an existing car park substructure.

Commendation

Clarice Pears Building, Institute of Health and Wellbeing, Glasgow

PROJECT TEAM

Architect: **AtkinsRéalis**
Structural Engineer: **AtkinsRéalis**
Main Contractor: **Multiplex**
Client: **University of Glasgow**

Judges' comment

The building encourages open community engagement concerning health inequalities at street level, while the triangular gridded form generates connections between floor levels around an attractive and welcoming atrium. Team collaboration led to efficient design, fabrication and erection where sustainability, potential adaptability and design for end of life was a central consideration.

The Institute of Health and Wellbeing (IHW) develops ground-breaking research on disease prevention, improving health & wellbeing and reducing health inequalities. The new Clarice Pears building brings together five research groups, transforming the Institute's ability to develop interdisciplinary research and fulfil the client's ambition. In support of this new way of working, the building solution is flexible and adaptable to allow for these clusters to grow and contract over time.

Community engagement is critical to the IHW's success. The building's street level is designed as a marketplace, featuring social, learning and gathering spaces that create informal work zones interlaced with teaching hubs, fostering a community-focused celebration of human activity.

The building's external skin draws inspiration from Glasgow's tenements, transforming the traditional Glasgow tri-part bay window into a repeatable module of metal and glass. The façade delivers natural ventilation and high levels of natural light. Distinctive riven-stone horizontals are incorporated to deliver material contrasts and passive shading to the smooth metals and glass, while replicating the stone string courses of Byres Road tenements.

The design emphasises sustainability and energy conservation. Low and zero carbon technologies were implemented, including fabric and form optimised to maximise the potential for natural ventilation, heating via the University's CHP led district heating network, low energy LED lighting, and large-scale roof mounted photovoltaic to assist with offsetting electricity demand.

Long-spanning structural solutions with minimum internal columns, alongside complex projecting cantilevering balconies around the atrium, were achieved using high strength steel to realise the architectural vision. The layered terrace of informal settings around the atrium acts as a promenade to the upper levels and a destination for social and informal exchanges.

The building is formed with a steel frame with steel cross-bracings to achieve stability. The steel frame allows for a reduction in weight (in comparison to a concrete frame) and an efficient foundation design with piles tied together with reinforced concrete pile caps and ground beams.

Detailed connections and junctions between cantilevers and supporting internal columns allow the steel frame to be utilised. The top of steel levels varied to present the thinnest expression of floors at the edge of the building façade.

Embodied carbon calculations for the building structure and modules A1-A5 (excluding sequestration) amount to 4,003 TCO_2 which equates to 516kg CO_2e/m^2 GIA. Additionally, the Clarice Pears Building achieves an EPC 'A' rating and BREEAM 'Excellent' accolade.

Commendation

Haymarket, Edinburgh

PROJECT TEAM

Architect: **Foster + Partners**
Structural Engineer: **Arup**
Steelwork Contractor: **BHC Ltd**
Main Contractor: **Sir Robert McAlpine Ltd**
Clients: **Qmile Group, M&G Real Estate**

Judges' comment

The largest office building in Edinburgh has been constructed above two historic rail tunnels, while providing a colonnaded connection to a new public square. This has been achieved by an intelligent engineering solution that balances a steel frame calculated from the capacity of piles that could be 'threaded' in between the two tunnels.

Haymarket is Edinburgh's latest high-profile development, creating a new place to be in the west end of the capital. The development includes three Grade A office buildings totalling around 32,500m^2, a 190-room hotel and a 172-room aparthotel, alongside provision for approximately 3,700m^2 of retail and leisure space.

The buildings that comprise Haymarket surround a large landscaped public square designed to be both intimate and spacious.

The office buildings embrace large areas of floorplate that spans over the mainline Network Rail tunnels. The transfer structure was avoided through the adaptation of early structural concepts with the use of inclined columns and a façade Vierendeel truss. The steel framed cellular composite beam superstructure expands over eight-storeys, with a full height glazed atrium in between. Additionally, a reinforced concrete basement under the eastern half of the building provides car parking spaces and cycle storage.

The design approach aimed to maximise the building volume over the tunnel, ensuring a suitable and buildable design solution that controlled any possible risks to the railways during construction, and the building's lifespan.

The primary frame for both buildings consists of 750mm deep cellular beams, situated at a maximum of 3m centres, which support a 150mm composite deck slab enabling longer span beams of 16m on a 9m typical bay spacing. The overall structural zone is 900mm with services passing through the cellular beams. The northeastern façade, parallel with Morrison Street, spans approximately 30m over the Haymarket South tunnel.

A Vierendeel truss from level 3 to 7 was utilised to span the 30m over the tunnels. To construct the Vierendeel truss, a 9m temporary truss was designed and fabricated to support the steelwork that formed the main girder above.

The atrium stairs were designed and constructed in steel. The cross pattern of flights offers a prime view of the full-height atrium and beyond the development. Steel was the obvious choice for the feature stairs, due to the span the flights had to achieve, with hollow sections used to allow finishes to be fixed easily.

Haymarket has been designed to deliver sustainable commercial and societal benefits for the city, as well as providing residents and visitors a new public space, fostering community and connectivity.

Commendation

Lucent, London

PROJECT TEAM

Architect: **Fletcher Priest Architects**
Structural Engineer: **Waterman Group**
Steelwork Contractor: **Severfield**
Main Contractor: **Wates Group**
Client: **Landsec**

Judges' comment

Located on Piccadilly Circus, Lucent stands as a striking eight-storey example of innovative design and structural ingenuity comprising a complex restructuring of space for commercial and retail use, and seven new residential units, within an almost complete city block of several period buildings. This was all achieved while maintaining the operation of the iconic Piccadilly Lights.

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Located in one of London's most famous spots, Lucent is a striking eight-storey example of innovative design and structural ingenuity. It comprises of around 10,300m^2 CAT A commercial space, approximately 2,800m^2 of retail space, and seven new residential units in west London, situated directly behind the Piccadilly Lights.

This project embodies a fusion of planning, sustainable practices, and cutting-edge structural engineering. From inception to completion, Lucent has been engineered to meet the client's expectations while minimising environmental impact and maximising efficiency. Remarkably, this was achieved while maintaining the operation of the iconic Piccadilly Lights, one of the most visited attractions in London, featuring 800m^2 of LED lights. The area behind the lights had been vacant since the 1950s.

The architectural and structural design was required to maintain the surrounding existing structures, such as the Piccadilly Lights, and listed façades, while concurrently enhancing the public surroundings. The construction faced challenges due to the confined site plan, its location above Piccadilly Circus tube, and the continued operation of the three retail units sitting below the structure.

The flexibility of steel construction allowed the Lucent project to maintain the use of Piccadilly Lights. This was accomplished through a series of temporary restraints to the rear of the retained façade, enabling the new steelwork frame to be fed through.

Lucent's commitment to sustainability extends beyond its architectural design. Rigorous carbon measurement and reduction strategies were implemented throughout the project's lifecycle, from construction to occupancy. Innovative initiatives such as energy-efficient systems, green roofs, and renewable energy sources significantly minimise environmental impact, contributing to all three pillars of sustainability. As a result, it achieved BREAAM 'Outstanding' and is pending a WELL 'Gold' accreditation.

The efficiency and effectiveness of fire and corrosion protection measures at Lucent adhere to rigorous safety protocols. Advanced fire suppression systems and corrosion-resistant materials ensure the highest standards. Since the building is behind the famous Piccadilly Lights, traditional installation methods could not be used on the fire boarding.

Lucent stands as a testament to the power of visionary planning, sustainable practices, and cutting-edge engineering in shaping the urban landscape of tomorrow. With its iconic silhouette, innovative design, and unwavering commitment to excellence, Lucent transcends mere architecture to become a symbol of inspiration, innovation, and enduring legacy in the heart of London's vibrant skyline.

Commendation

One Great Cumberland Place, London

PROJECT TEAM

Architect: **Allford Hall Monaghan Morris**
Structural Engineer: **AKT II**
Steelwork Contractor: **Bourne Group Ltd**
Main Contractor: **Galliford Try**
Client: **The Portman Estate**

© Gary Britton

One Great Cumberland Place is a high-specification development in the heart of London's West End, part of the prestigious Portman Estate. This steel framed building features three floors of retail space and seven floors of high quality Category A office space, combining a retained façade with a modern interior.

Originally built in the 1920s, the 10-storey building is directly opposite the Marble Arch monument. The project involved retaining the existing façade from street level up to level 6, while conducting a full demolition and new steel framed rebuild behind it.

One of the more complex aspects of the project was the ground and first-floor parts of the retained façades. These sections were demolished, with the floors above fully supported by a retention structure and a complex needling system. The process involved replacing them with new stonework and larger steel framed shopfronts. This required progressive surveys of the existing steel and masonry façade as each bay was opened, followed by a 'live' design review and modification to accommodate the various anomalies of the existing structure.

Intricate interfaces with a complex temporary works scheme were another challenge on the project, with the installation of varying needling systems at the second floor to support four-storeys of existing stone, brick and steelwork above, including installation and control of over 100 linked heavy jacks. Preloading steel beams prior to the part removal of the existing structure was a delicate but successful site operation between street level and the second floor.

The new steel frame is based on a regular column grid pattern of 6.5m x 9m and is stabilised by a single concrete core. It supports metal decking with a concrete topping to create a composite flooring solution for the new 10-storey building. Most of the structure's steel beams are fabricated plate girders with bespoke cells to accommodate the building's services within their depth. The soffits and steelwork are left exposed within the completed building.

Sustainability was a key focus from the outset. Strategies included using responsibly sourced materials, promoting sustainable waste behaviour and employing sustainable construction methods. Contractors and subcontractors committed to the Considerate Constructors Scheme, Environmental Management Systems and a Resource Management Plan.

This stunning development secures the future and longevity of the building as a desirable workplace and destination retail space. It is a prominent heritage asset, acting as an anchor at the end of Oxford Street and a backdrop to Marble Arch.

Judges' comment

This high specification development, located directly opposite Marble Arch, is part of the prestigious Portman Estate, so demanded a sensitive response to modernise a valued period building. Comprising retail and high quality office space, an efficient steel frame integrates a new 10-storey building within a retained 1920's original façade, where new floors and openings have been sensitively designed to correspond with historic elevational details.

Commendation

Paddington Square, London

PROJECT TEAM

Architects: **Renzo Piano Building Workshop, Adamson Associates**
Structural Engineer: **WSP**
Steelwork Contractor: **William Hare Limited**
Main Contractor: **Mace**
Client: **Great Western Developments Limited**

Judges' comment

This elegant mixed-use building features a 19-floor office 'cube' suspended above four retail and restaurant levels addressing a new public space that has revitalised the area between Paddington Station and St Mary's Hospital. An improved environment for both the travelling public and office users is complemented by a landmark structure visible through layers of diaphanous steel and glass elevations.

© Hufton + Crow

The 23-storey mixed-use building revitalises the space between Paddington Station and St Marys hospital, with a spacious piazza at its forefront. It features adaptable office space, a large lobby, four retail and restaurant floors, London's highest rooftop restaurant and a 30m tall mast, all totalling around 6,000m^2.

Paddington Square faced a unique set of challenges, contending with two sets of national strategic tunnels, a new tube station entrance, accommodations for a Grade I listed station, and a rerouted road excavated to create a sunken public square that necessitated extensive services diversion, including a major sewer adjustment.

While the exterior of the building may appear straightforward with its 'cube' shape, it disguises an intricate steel frame, which relocates the primary building columns by 4m, transitioning from a smaller footprint at ground level to a perimeter column grid starting from level 6 and upwards. The cantilevering beams, starting at 4m on the third floor, progressively decrease in length on each subsequent floor as the raking columns ascend to the sixth level.

Ascending from a robust four-level deep concrete substructure, the steel framework encloses a double-height reception area and approximately 33,400m^2 of spacious office space. The steel frame incorporates three significant trusses, which are 18m long, positioned at level 2 to create the entrance for the retail mall.

Making the extensive canopies surrounding the building as light and slender as feasible was fundamental in the architectural design. To achieve this, a system of hanging rods were implemented and rainwater pipes and gutters were integrated within the structural depth.

A scenic lift, attached to the exterior of the building, provides access to the upper public spaces. Its shaft is a series of horizontal E-frames and tension rod bars, anchored to three supporting columns, which are connected to the building's main steel frame.

Taking the blended tonnage of the steelwork frame over the Gross Internal Area (GIA) as the comparison metric, it reflects an efficient design achieving 85kg/m^2 of steel GIA, excluding connections and temporary works.

Steel was chosen deliberately for its capacity to convey a transparent frame aesthetic, revealing exposed beams and columns within the building's interior. Additionally, an articulated exoskeleton is prominently visible through the glazed elevations of the structure. It is on track to attain a BREEAM 'Excellent' rating for both office and retail space.

Holbein Gardens, London

PROJECT TEAM

Architect: **Barr Gazetas**
Structural Engineer: **Heyne Tillett Steel**
Steelwork Contractor: **Cleveland Steel and Tubes Ltd**
Client: **Grosvenor**

Judges' comment

Sustainability and circular economy were key drivers in this two-storey extension. To avoid strengthening the existing structure, a lightweight steel frame with CLT floors was used. The incorporation of re-used steel demonstrates how old sections and timber can be exposed and still work effectively together, creating a harmonious blend of materials.

© Philip Vile

© Philip Vile

Holbein Gardens is a retained and extended 1980s commercial building in Belgravia, London. The finished building is a modern, sustainable workplace with increased floor area, achieved by adding a two-storey upward extension, along with a new roof terrace over the existing four-storey building, as well as a basement level.

The project champions circularity and prioritises retention over demolition, through reuse, recycling, innovative practices such as material passports, and efficient procurement and waste management.

An impressive 93% of the existing structure was retained, facilitated by extensive investigation and justification of the existing frame. This enabled an efficient structural design, with most of the new mass being added requiring minimal strengthening. Alterations to the existing frame were minimised, with only one column being transferred at the reception space, and load transfers back to the original load paths in the basement, avoiding the need for foundation strengthening.

The building avoided the need for significant changes in loading on the surrounding infrastructure, including the Thames Water sewer running under the site, Sloane Square Station and neighbouring properties.

Designing with reclaimed steel and the sourcing of the specified material has demonstrated that reuse steel in projects can be achieved within a standard procurement route.

Nine tonnes of steel came from the client's other sites and the remaining 16 tonnes of reclaimed steel stock were from the supplier. The steel had to be inspected to confirm surface conditions and existing coatings had to be removed. The sections were then re-dimensioned and tested to establish its quality, strength and grade. When completed, the steel was returned to site and installed as new where required.

The exposed structure, including the existing concrete elements, cross-laminated timber (CLT) floors and walls for the upward extension, has demonstrated how the structure can be part of the detail to create an elegant finish.

The framed nature of the building allows for future flexibility, whilst maintaining the existing structural grid, with this increased on the upper floor where transfers could be more easily accommodated.

The project is a pioneer for the direct reuse of structural steel in London, incorporating 25 tonnes of reclaimed steel. It is also one of the first commercial developments to go through the journey of including reclaimed steel in the country. The project provides approximately 2,460m^2 of 100% net zero and sustainable workspace to the local area.

The project achieves an embodied carbon figure of 300kg CO_2/m^2, surpassing LETi targets of 500kg CO_2/m^2, in addition to accreditations including BREEAM 'Outstanding', WELL 'Gold' and NABERS '5 Star'.

National Finalists

Allerdene Bridge, Gateshead

PROJECT TEAM

Architect: **Jacobs**
Structural Engineer: **Jacobs**
Steelwork Contractor: **Severfield**
Main Contractor: **Costain**
Client: **National Highways**

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Judges' comment

This three-span 290m long continuous composite viaduct in weathering steel provides a key link carrying the newly widened M1 over a busy rail line and replaces a reinforced concrete structure which was in very poor condition. Its optimal design minimised environmental impacts and enabled earlier completion despite challenging installation conditions.

Battersea Power Station Phase 3B, London

PROJECT TEAM

Architect: **Foster + Partners**
Structural Engineer: **Robert Bird Group**
Steelwork Contractor: **BHC Ltd**
Main Contractor: **Sir Robert McAlpine Ltd**
Client: **Battersea Power Station Development Company**

Judges' comment

A large, curvaceous commercial building in the Battersea masterplan is situated above the Northern Line extension, which dictated the core location and imposed weight restrictions. A moment-resisting steel frame was chosen to optimise the above-ground volume maintaining the integrity of the open-plan floor plate and allowing for cantilevered corners.

National Finalists

Devon Place Footbridge, Newport

PROJECT TEAM

Architect: **Grimshaw Architects**
Structural Engineer: **Cass Hayward**
Main Contractor: **Griffiths Ltd**
Client: **Newport City Council**

Judges' comment

The footbridge provides a safe, convenient connection over the railway and busy roads between urban areas. The design presents a clear concept; a pair of dark grey steel-plated bridges, constructed with minimal impact, and a lightweight ramp that stitches into the surrounding context. The project has transformed a neglected site into a well-connected public realm.

Maggie's Royal Free Hospital, London

PROJECT TEAM

Architect: **Studio Libeskind**
Structural Engineer: **Expedition Engineering**
Steelwork Contractor: **William Hare Limited**
Main Contractor: **Sir Robert McAlpine Ltd**
Client: **Maggie's**

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Judges' comment

This building has an unusual part conical form squeezed into a tight site. The outward raking walls enclose light filled internal spaces and rooftop garden. Whilst timber solutions were considered early on, a steel frame proved to be the optimal solution to achieve the distinctive sculptural form of the building.

National Finalists

Plot 7B New Bailey, Salford

PROJECT TEAM

Architect: **Make Architects**
Structural Engineer: **Cundall**
Steelwork Contractor: **Billington Structures Ltd**
Main Contractor: **Bowmer + Kirkland**
Client: **Muse**

Judges' comment

The New Bailey development is a £650 million regeneration project, that forms a new gateway to the City Centre. Plot 7B is an 11-storey office building, with a distinctive diagrid form and a floating corner over the main entrance. High strength steel was use in long-span plate girders giving large uninterrupted floor spaces, maximising flexibility for future tenants.

Sky Studios Elstree, Borehamwood

PROJECT TEAM

Architect: **UMC Architects**
Structural Engineer: **Fairhurst**
Steelwork Contractor: **Severfield**
Main Contractor: **BAM Construction**
Client: **Legal & General**

Judges' comment

This new build studio complex comprises large, column free 'black box' sound stages with adjacent supporting workshops and offices. All buildings are steel framed with the stages having column supported trusses 4.2m deep spanning 60m within buildings that are up to 18m tall and 90m long. This complex serves an ever-growing UK industry.

Tommy Taylor Memorial Bridge, Barnsley

PROJECT TEAM

Architect: **Arcadis**
Structural Engineer: **Waterman Group**
Main Contractor: **Keltbray**
Client: **Barnsley Metropolitan Borough Council**

Judges' comment

This cable-stayed footbridge connects the town square with the transport interchange. Triangular steel pylon legs, and a trapezoidal deck shape give an enhanced aesthetic to the bridge. Splayed staircases and a wide bridge deck allow for high throughput, such as on match days for Barnsley Football Club. Tommy Taylor Memorial Bridge, is a new landmark in the centre of Barnsley.

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