NOV/DEC 2026

NSC

Olympia reimagined

Signature roof for Cambridge academia

Darlington gets government HQ

Leisure boost for Northern Ireland



Building Systems UK

Tata Steel UK Construction Solutions

Introducing Optemis® Evolve

Optemis® Evolve is the identity for a new phase in our journey of transformation that reshapes not only how steel construction products are produced, but what they represent. It symbolises a deliberate shift - to modern electrified production; from linear consumption to circular regeneration; from high carbon intensity to smart, measurable reduction.

Our Optemis® Evolve family is available across our portfolio including, Trisomet® & Trimapanel® panel systems, Trisobuild® site assembled systems and RoofDek & ComFlor® structural decking.

Example carbon saving project using Optemis® Evolve ComFlor®

Specification Details	ComFlor® 51+ 0.9 mm	ComFlor® 51+ 1 mm	ComFlor® 51+ 1.2 mm	Total
	26,000 m^2	3,000 m^2	4,000 m^2	33,000 m^2

What is Optemis® Evolve?

Optemis Evolve is our lower embodied CO_2 offering with up to 45% reduction in embodied carbon when compared with base line (BOS) emissions.

It delivers a higher recycled scrap content contributing to the circular economy and reducing reliance on virgin resources. The steel is processed at Tata Steel UK in the normal way and manufactured into low emissions construction products in accordance with our customers' specifications.

It's the same products our customers know but with significantly lower embodied CO_2 helping our customers meet their corporate or project emissions reduction targets.

Base Line

Carbon Factors & CO_2 emissions

ComFlor® 51+ 0.9 mm
36.3 kg CO_2/m^2

ComFlor® 51+ 1.0 mm
40.7 kg CO_2/m^2

ComFlor® 51+ 1.2 mm
48.0 kg CO_2/m^2

Total CO_2 emissions:
1,258 tonnes CO_2



Optemis® Evolve

Carbon Factors & CO_2 emissions

ComFlor® 51+ 0.9 mm
20.0 kg CO_2/m^2

ComFlor® 51+ 1.0 mm
22.0 CO_2/m^2

ComFlor® 51+ 1.2 mm
26.1 kg CO_2/m^2

Total CO_2 emissions:
691 tonnes CO_2

45% reduction in embodied carbon

Our Journey...

Learn more

Optemis® Evolve represents our next chapter in responsible manufacture of steel enabled construction products.

The name captures our continuous improvement, innovation, and the systemwide change behind our transition to EAF steelmaking - all realised through the Optemis journey to carbon neutral steelmaking.

To talk to us about our Optemis® family of products and your project needs.

Tel: 01244 892 199

www.buildingsystemsuk.com



NOV/DEC 2026
Vol 34 No 10

NSC

Cover image
Olympia, London
Main client: Yoo Capital & Deutsche Finance International
Executive architect: Adamson Associates
Principal design architects: Heatherwick Studio and SPPARC
Main contractor: Laing O'Rourke
Structural engineer: Robert Bird Group
Steelwork contractor: BHC
Steel tonnage: 20,000t

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NSC IS PRODUCED BY ALIGNMENT MEDIA ON BEHALF OF THE BRITISH CONSTRUCTIONAL STEELWORK ASSOCIATION AND STEEL FOR LIFE IN ASSOCIATION WITH THE STEEL CONSTRUCTION INSTITUTE

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2027 entries opening soon
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In pursuit of harmony



Chris Durand
BCSA President

I have been involved in numerous projects across Europe where we are trying to sell structural steel to markets where it is not necessarily the material of choice. Unfortunately, when working in other European countries it soon becomes evident that life is not as straightforward as was intended by the architects of the single market.

When selecting any structural framing material, the design efficiency, availability, ease of supply and increasingly, the surety of cost must all be considered. The advent of tariffs and quotas has made steelwork availability an issue but also the importance of bias by a design team towards the material that they know best is an important consideration. Experience on some of our projects has also highlighted that for some, the overall use and interpretation of Eurocode 3 is another problem.

Designers lacking in structural steelwork experience generally take a very proscriptive view of the design code rules often leading to delay and confusion. Steel is steel; we are all using the same design code and there should be greater consistency across borders. The Eurocodes replaced numerous national standards with National Annexes and Nationally Determined Parameters (NDPs) developed to smooth the transition. Over time there should have been greater acceptance of the basic rules and a reduced reliance on NDPs, but this doesn't seem to be the case in practice which acts as a particular disadvantage for steelwork.

A search of the European Commission website shows that at present, Eurocode 3 has 6 parts which are then subdivided, resulting in 20 separate documents and another 3 if you require composite design. All can contain NDPs which change recommended design values and thereby alter calculated design resistances. For comparison, reinforced concrete design has four main parts and structural timber gets by with three.

Overall, the structural Eurocodes contain 1573 NDPs with 437 belonging to structural steel and another 55 to composite construction; roughly a third of the overall total. Eurocode 2 for reinforced concrete only achieves a poor third place with 231 NDPs.

Within Eurocode 3, material safety factors are typically subject to NDP. This can result in the same column section being more likely to buckle in one country than another. Even something as simple as the tabulated steel yield strength used to design this column has to be verified by National Annex as the product standards for the materials we purchase have differing values to those in the text. This amount of variance cannot help our sector and the need to simplify the process should be self-evident.

The EC website states that harmonisation should only diverge where geographical or climatic conditions or specified levels of protection make that necessary. Variations due to climate or geography are understandable but the protection consideration results in even the basic load combinations in Eurocode 1 changing within different jurisdictions. The safety factor for Dead Loading can be 1.15, 1.25 or 1.35 but for some, this factor together with the imposed loading also vary with Execution Class despite the use of a common execution standard.

Structural safety is paramount but, the question has to be asked "if a structure was designed using only the recommended values given in the Eurocodes would it be unsafe"? Geographical implications on the applied loading are noted but the answer in terms of member resistance has to be no. The structural Eurocodes are calibrated design standards that have been developed to produce statistically safe results. It should be acceptable to use the recommended values to design structures anywhere in Europe with NDPs only being accepted where greater structural efficiency can be demonstrated.

Many practicing engineers are not academics, both ease of use and general understanding should be an important consideration when writing any design standard. In my view, the number of individual documents and sheer quantity of NDPs within Eurocode 3 counter ease of use and reinforce resistance by some designers to structural steelwork. Going forward, a simpler approach for all would be to allow more of the recommended values in the pursuit of greater harmony.

STEEL for life

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New Manifesto launched to secure future of UK steelwork



At a Parliamentary reception, with speakers including Blair McDougall MP, Minister for Reindustrialisation, the British Constructional Steelwork Association (BCSA) launched a refreshed manifesto setting out its priorities for strengthening Britain's constructional steelwork industry.

The BCSA's manifesto, UK's Future in Steel Construction, sets out a series of recommendations aimed at improving the competitiveness of British steelwork businesses, supporting investment and safeguarding skilled manufacturing jobs.

These include extending the UK's steel import tariffs and quotas to fabricated steel products, making UK-produced and UK-fabricated steel the default choice for Government projects, and strengthening technical education and skills.

The association has spent the past six months (since the publication of the Government's Steel Strategy) engaging extensively with ministers, opposition politicians and MPs from across the political spectrum to highlight the tariffs issue.

While this engagement has helped secure important concessions and greater recognition of the industry's contribution, the BCSA believes further action is necessary to ensure the benefits of the Steel Strategy extend across the entire domestic steel supply chain.

Of particular concern is the continued exclusion of fabricated structural steelwork from the UK's tariff and quota framework, which the association warns leaves British fabricators exposed to competition from overseas manufacturers that are not subject to equivalent trade measures. It argues there needs to be a change in Government procurement that puts UK supply first, unlike many publicly funded projects for which there is no option but to import steel products.

Jonathan Clemens, BCSA Chief Executive Officer, said: "The publication of the Steel Strategy was an important moment for British industry, and we've welcomed the Government's renewed commitment to protecting our steel sector and strengthening our sovereign manufacturing capability.

"Our refreshed manifesto sets out a practical programme for supporting the industry, including addressing the continued exclusion of fabricated steelwork from the UK's tariff and quota arrangements. Protecting steel production while leaving fabrication exposed to unfair competition risks losing much of the economic benefit further along the supply chain."

Jonathan Brash MP for Hartlepool, who hosted the reception, said: "Steel is part of Hartlepool's DNA. I know just how important this industry is to skilled jobs, local communities and the wider British economy.

"The Government's Steel Strategy is an important step forward, but we must recognise that a strong British steel industry means supporting the entire supply chain. There is little point protecting British steel production if the businesses that turn that steel into the buildings and infrastructure, we depend upon are left exposed to unfair competition."

"I was delighted to host the BCSA in Parliament and welcome Minister McDougall to hear directly from the industry. Their manifesto makes a compelling case for ensuring British steel and British steelwork are at the heart of our national infrastructure ambitions. We have the skills, the expertise and the businesses to deliver, and we should be doing everything we can to back them."

First phase of HS2 Saltley Viaduct lifted into place

Completion of the new Saltley Viaduct has moved a step closer following the installation of the structure's first steel span over the Birmingham to Derby railway lines.



The replacement viaduct, which will span over new high speed rail lines, is being built by engineers (including Severfield) working for HS2's construction partner, Balfour Beatty Vinci (BBV).

The first 55m-long steel section was assembled on land adjacent to where the original viaduct previously stood. Once the section was assembled, it was moved a distance of 125m, using self-propelled modular transporters (SPMTs), and installed during a temporary railway closure.

Nic Ryder, HS2 Ltd's Project Manager for the works, said: "Our engineering team is making fantastic progress and everyone worked incredibly hard to ensure we were finished in time for the railway to reopen.

"In the three months since the road closed, they have demolished the original structure and successfully installed the first span of the replacement bridge, putting us on track to proceed to the next phase."

Work is currently progressing on the second 35m-long span, which will cross over the new HS2 railway line. The final two sections, over the Birmingham and Warwick Junction Canal, will also be installed later this year.

Hill Dickinson Stadium named Best Project of the Year



Demonstrating that UK steel fabricators are among the best in the world, the Hill Dickinson Stadium in Liverpool has been named Best Project of the Year at the 2026 constructsteel Awards.

Working on behalf of main contractor Laing O'Rourke, Severfield fabricated, supplied and erected more than 12,500t of steelwork for the project.

A spokesperson for Severfield said: "We're proud to have played a part in delivering this landmark project, with the Award recognising the engineering expertise, collaboration and hard work that went into bringing the stadium to life.

"A huge thank you to our teams and project partners who helped make it possible, and congratulations to all this year's winners!"

Hosting matches since 2025 and built to replace Everton FC's historic Goodison Park ground, the Hill Dickinson Stadium is the newest venue in the English Premier League.

The design incorporates four interlinked rectangular stands (the ground's four corners are infilled with further seats), which are topped by a continuous cantilevering roof.

The sweeping, low-profile barrel roof, which responds to the industrial character of the surrounding maritime buildings, is said to define the stadium.

Organised by constructsteel, the World Steel Association's steel construction market development programme, the awards recognise exceptional achievements in the worldwide steel construction sector.



Steelwork's benefits highlighted at Building the Future Conference

The advantages of using metal decked flooring solutions, how to reduce cost and time on tall building projects, and working with BS 99001 were just some of the topics discussed at the BCSA and Steel for Life's Future of Steel Construction sessions, which formed part of the Building the Future Conference 2026.

Held at Convene Sancroft in the City of London, the conference commenced with a keynote speech by Vistry Chief Executive Adam Daniels.

Pete Baker, Technical Market Manager – Building Systems at Tata Steel, opened the Future of Steel Construction with a presentation on mixed-use developments that have successfully utilised composite steel flooring.

The selection of high-profile projects included Battersea Power Station and Luton Airport Car Park.

All of the schemes, which had a variety of requirements, highlighted composite steel flooring's key benefits, such as speed of installation, safety, flexibility and services integration.

As part of the company's transition to Electric Arc Furnace (EAF) steelwork, Tata Steel has a green steel offering known as Optemis Evolve. It has lower embodied carbon and a higher recycled content.

Karen Cook, Co-Founder of Spice Design, hosted a session entitled 'Tomorrow belongs to those who can hear it coming: a design methodology'.

It focussed on reducing time and cost on tall building projects, while maintaining quality and efficiency.

It was recommended that project teams engage with planners and trades early, overlap sequential activities and embrace techniques to unlock carbon savings.

Led by Arwen May, Managing Director of the Specialist Construction Certification Scheme, the third and final Future of Steel Construction session featured a panel of experts discussing BS 99001.

The conference concluded with the Architect of the Year Awards 2026, which included the Young Architect of the Year Award sponsored by Steel for Life.

BCSA Chief Executive Officer Jonathan Clemens said: "Architectural design, along with engineering excellence, is foundational in delivering a better built environment, in terms of wellbeing, sustainability and pride. Therefore, it was with pride that Steel for Life was able to sponsor the Young Architect of the Year Award."

Fabrication specialist scoops double manufacturing award



Steelwork contractor Shufflebottom has celebrated its 40th anniversary by winning two prestigious manufacturing awards.

The company was named Manufacturing Business of the Year at the Carmarthenshire Awards in July and Manufacturer of the Year (under £25 million) at the Made in Wales Awards on 1st October.

The Made in Wales success has now qualified Shufflebottom for the Made in the UK Awards, which will be held in Manchester on 19th November.

The double win brings local and Wales-wide recognition to Shufflebottom's manufacturing operation in Cross Hands, Carmarthenshire, from where it supplies bespoke steel-framed buildings for projects across the UK.

Its work covers industrial, commercial, agricultural and equestrian buildings, with specifications developed around each customer's requirements and the intended use of the building.

A Shufflebottom spokesperson said: "Every project relies on colleagues across sales, design, detailing, fabrication and transport working together. Winning these two awards is a proud moment for everyone involved and reflects the contribution of teams throughout the business."

NEWS IN BRIEF

William Hare Group has reported a year of continued growth, with Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA) increasing to £42.7 million (2024: £33.4 million). Pre-tax profits grew from £31.4 million in 2024 to £39.9 million in the year ending 31 December 2025. This growth comes despite a drop in the group's turnover, which reduced to £338.2 million from £422.5 million in 2024.

Robertson Construction North West has been appointed to transform the Gamble Building in St Helens town centre into a creative and learning hub. Built in 1896 with funding from Sir David Gamble (St Helens' first Borough Mayor), the Grade II-listed building has been a prominent part of the town's civic and educational heritage for more than 130 years.

Work has started on the redevelopment of Holy Trinity Church of England Secondary School in Crawley. **Bouygues UK** will construct a new three-storey school building to the south of the existing campus, which will accommodate an assembly hall, sixth-form social and study spaces, a library resource centre and specialist teaching areas.

Passengers across **Yorkshire** are set to benefit from major station improvements, as the government has confirmed a new station at Bradford Interchange. The city's connections with some of the North's largest cities, including Leeds, Manchester and York, will be transformed as passengers will be able to benefit from more frequent trains, improved journey times and reliability.

Work has started on the £25 million Energy Central Institute at the Blyth Energy Central Campus, which will bring higher-level education to the town for the first time, focusing on skills development, research and technological innovation. Working on behalf of main contractor Kier, **Hambleton Steel** is fabricating, supplying and erecting the steelwork.

Fabrication academy will protect skilled labour pipeline



Aiming to develop a long-term pipeline of skilled fabricators while also helping the company's succession planning as experienced members of its workforce approach retirement, Billington Structures has officially launched the Billington Fabrication Academy.

Working with training provider Betterweld, the Academy has been established to create a structured route into steelwork fabrication.

The first intake consists of 15 apprentices who will initially undertake a 12-month programme combining academic learning with workplace training. Apprentices will spend four days each week at college and one day within the Billington business.

This approach enables them to apply their learning in a working environment while developing an understanding of the processes, skills and standards required within steelwork fabrication and the wider construction industry.

Before transitioning fully into the workplace, apprentices will complete mandatory safety and workplace training, alongside recognised BS EN ISO 9606 welder qualifications, ensuring they have the skills and competencies required to progress safely into the live production environment.

Billington Structures Managing Director Dan Duffield, said: "The opening of our training academy represents a key milestone in our long-term commitment to addressing the growing skills gap within our industry."

Billington Structures Production Director Jon Wright added: "This is more than a training facility; it's an investment in our people and the future of Billington, giving us a structured approach to developing the skilled fabricators our growing business requires in the years ahead."

New River Nene pedestrian bridge underway



Working on behalf of Peterborough City Council, M Group has started construction work on the Cygnet Bridge, which will span the River Nene.

Once complete, the steel bridge will provide a more convenient route for pedestrians and cyclists between the city centre and the Fletton Quays area.

Councillor Angus Ellis, Cabinet Member for Environment and Transport, said: "I am absolutely delighted that work on this exciting project is progressing well and look forward to seeing it further develop. The bridge will play a key role in creating a more connected and walkable city, improving access across the Embankment and opening up potential development opportunities in future."

Mayor of Cambridgeshire and Peterborough Paul Bristow said: "Better connecting the south of the river to the Embankment and city centre is an important step for the future of Peterborough. Cygnet Bridge puts infrastructure in place ahead of the further regeneration and development this city needs and deserves."

The total project budget is estimated to be £8.3 million. The Combined Authority has contributed £5.4 million, the Ministry of Housing, Communities and Local Government (MHCLG) has pledged £2 million and the remainder will come from the council's own redevelopment budget.

Working on behalf of M Group, Nusteel Structures is fabricating the bridge steelwork.

Derby city centre site chosen for rail HQ building

A site close to the recently completed Vaillant Live Arena in Derby city centre has been chosen for the Great British Railways' (GBR) headquarters.

Construction of the office block is expected to begin in early 2027 and be completed by spring 2029. The new HQ will bring hundreds of rail jobs to the city and an estimated £151 million boost to the region's economy, supporting the government's mission to drive growth in every postcode.

Prime Minister Andy Burnham said: "Great British Railways will have its home in Derby, a city that has railways in its DNA. This will bring investment and good jobs, giving young people the chance to build their future in the place they call home."

Transport Secretary Heidi Alexander said: "The biggest shake-up to our railways in a generation is underway. Great British Railways will bring the railway together around one mission - better services for passengers - with Derby at the heart of its future."

The headquarters will accommodate up to 450 GBR staff and be supported by better public transport links and walking routes, delivered in partnership with the Department for Transport, Derby City Council and the East Midlands Combined Authority.



New Orange Book is an essential tool for design teams



The second edition of the British Constructional Steelwork Association's (BCSA) Orange Book, *Allocation of Design Responsibilities in Constructional Steelwork for Buildings*, is now available to download for free.

Updated to reflect current legislation and industry practice, the publication provides practical guidance to help project teams establish clear design responsibilities and manage information effectively.

Accurate, timely and comprehensive design information is essential. When responsibilities are unclear or information arrives late, the consequences can include costly changes, delays and disputes.

To help navigate current practice, the BCSA's second edition of the Orange Book includes revised checklists aligned with the RIBA and IStructE Plans of Work, alongside updates covering BIM, temporary works and intumescent paint systems.

The project directory and checklists can be downloaded and completed on any device, making them practical tools for everyday project use. Use them to record project participants, allocate design responsibilities and agree what information is needed, who should provide it and when.

A free copy of the Orange Book can be downloaded from the BCSA Book Shop: https://bcsa.org.uk/product/allocation-of-design-responsibilities-in-constructional-steelwork-pdf/

Deborah Harrison, Legal Director and Company Secretary at BCSA is hosting a webinar on Tuesday 26th January to explain how BCSA's updated Orange Book can help project teams define design responsibilities, identify gaps and overlaps, and translate the agreed allocation into clear contractual obligations. Sign up for free: https://us02web.zoom.us/webinar/register/WN_C5K7ZI8zTM2eN44u4z1a6w

Port Talbot EAF production facility takes shape



Following a long period of preparation works, Sir Robert McAlpine's (SRM) project team has begun installing the foundations, infrastructure and buildings that will support Tata Steel's new electric arc furnace (EAF) plant at Port Talbot.

Recognised as one of the UK's most significant industrial transformation projects, the EAF plant will replace the site's traditional blast furnace operations, supporting Tata's move towards lower-carbon steel and helping secure the future of steelmaking in South Wales.

SRM said it achieved a key milestone recently with completion of the first piling package, covering areas including the future Fume Extraction Plant and the Consteel conveyor spine.

The team are now progressing a second major piling package using a combination of precast, CFA and rotary bored piles. Across the site, no fewer than six piling rigs and two pre-bore rigs are in operation as foundations are installed for some of the project's most important assets, including the furnace itself.

National Grid's new substation is under construction, while plans are progressing for four major electrical buildings that will distribute and manage power across the site. Dedicated piling, civils and building works will support these facilities, which are critical to the commissioning of the EAF.

The first section of the permanent scrap road has also been completed and will eventually carry 100-tonne loads of steel between the scrap handling area and the main EAF plant.

Steelwork contractor delivering multiple packages for Midlothian water treatment scheme

Working on behalf of water engineering specialist JN Bentley, AJ Engineering & Construction Services (AJE) has secured two additional work packages at the Bilston Glen water treatment project.

AJE has been delivering the structural steelwork and cladding package for the project, but as work has progressed, it became evident that the site's restricted footprint and complex programme requirements would benefit from a contractor capable of delivering multiple disciplines.

Consequently, the company will also be providing the access metalwork and mechanical installation packages.

AJE Project Manager James Mashedder said: "We're delighted to further strengthen our relationship with JN Bentley through the award of these additional packages at Bilston Glen.

"One of the key factors in our success within the water sector is our ability to deliver multiple work scopes simultaneously, providing clients with a simplified and coordinated approach to project delivery.

"By bringing together all of the packages under one contractor, we can improve communication, reduce interfaces and create programme efficiencies that ultimately benefit the client."

The integrated delivery approach has already enabled AJE to identify significant installation benefits. By installing sections of the access metalwork while the building steelwork remains exposed, work can be completed ahead of the cladding installation, resulting in a more efficient construction sequence.



The same site team responsible for the access metalwork installation will also undertake the mechanical package, reducing the overall number of operatives required on the constrained site.

The completed project will clean and treat water coming from the former Bilston Glen colliery, ensuring the surrounding rivers are pollutant-free.

Diary

For SCI events, contact SCI Education, tel: 01344 636500 email: *education@steel-sci.com* web: *https://portal.steel-sci.com/trainingcalendar.html*
For BCSA events, visit: *https://bcsa.org.uk/events/*

Tue 17 & Thu 19 November 2026
Design of Light Steel Framed Buildings
On-line Course
This course introduces the uses and typical applications of cold formed steel with particular focus on load-bearing light steel framing. Specific structural design issues related to light steel framing are addressed, including; robustness and avoidance of disproportionate collapse, connection design and floor serviceability conditions. Other specific topics that are covered include: durability, acoustic performance, NHBC Standards Chapter 6.10 and tolerances.

Wed 25 November 2026
An Introduction to Sheet Pile Design
Free-to-all On-line Webinar
This webinar will cover the principles of sheet pile design, highlighting possible pitfalls and opportunities to ensure robust, sustainable and economical results in practice. The event will be presented by Miles Fenton, Design Manager for the specialist subcontractor Berryrange. Notable past projects include the Tottenham Hotspur Stadium and multiple shafts along the route of HS2.

Tue 1, Thu 3, Tue 8 & Thu 10 Dec 2026
Portal Frame Design
On-line Course
Although an apparently simple form of structure, the design of portal frames must address the complexities of reversing bending moments, axial compression in slender members, second-order effects of flexible frames and the necessity to provide effective restraints. The course aims to provide in-depth coverage of the major issues surrounding the analysis, design and (crucially) the detailing of portal frames. The course covers frame design to BS EN 1993-1-1.

MP wants to help develop more skilled workers for steel sector


Left to right: Mark Denham, Elland Steel Chairman and Managing Director, Kate Dearden, MP for Halifax, Maximus Robbins, Gary Roe and Bailey Slade from Elland Steel.

Kate Dearden, MP for Halifax, has heard first-hand about the challenges facing the constructional steelwork sector during a visit to locally-based Elland Steel.

Meeting representatives from steelwork contractor and the British Constructional Steelwork Association (BCSA), a range of issues were discussed, including skills shortages, access to training, investment in automation and technology and the need to ensure UK businesses can compete globally.

Kate Dearden, MP said: "Having worked closely with the steel industry as a trade unionist, I am acutely aware of both the opportunities and challenges facing the sector. I also know how important it is to support businesses to grow, innovate and develop the next generation of skilled workers.

"That's why I've written to the Minister for Skills about creating new training opportunities, and in the coming weeks I'll be bringing together local steel companies and the Minister responsible for steel."

Mark Denham, Elland Steel Managing Director, said: "One of our biggest challenges is skills. We want to recruit, train and retain people locally, but the training infrastructure that once supported industries like ours has reduced considerably.

"Twenty years ago, when I interviewed draughtsman they generally all served their apprenticeships at two main companies. Since they ceased trading, nobody has replaced them.

"It was great to be able to showcase that we're investing heavily in the business, including in automation to deliver improved productivity. That technology is there to support our workforce rather than replace it, and investment in equipment has to go hand-in-hand with investment in people."

The BCSA also raised wider concerns affecting the constructional steelwork sector, including the exclusion of fabricated steel products from the UK's steel tariffs and quotas framework.

Fabrication for replacement Somerset bridge underway

Following the demolition of the 85-year old Winterstoke Road Bridge, fabrication is underway for its replacement structure.

Commissioned by North Somerset Council and funded by the Ministry of Defence, the new bridge, which is due to open in early 2028, will reinstate one of the main routes into Weston-super-Mare, easing traffic congestion and lessening travel times.

Working on behalf of main contractor Octavius, Adey Steel is fabricating and supplying 160t of bridge steelwork for the project.



It consists of eight main girders with each section having an overall length of 64m. For ease of transportation, each girder is being fabricated in three pieces (two 16m-long sections and a 32m-long central span).

The original bridge was built during the Second World War to provide access to an RAF aeroplane factory. In recent times, due to its age and condition, it had a 7.5t weight restriction and was deemed unsuitable for modern traffic volumes.

Councillor Mike Bell, Leader of North Somerset Council, said: "In replacing Winterstoke Road Bridge, which will be built to last 120 years, we're making a key, long-term investment into local infrastructure. It is an investment that will maintain and expand current road capacity, while also building the resilience and reliability needed to prepare for future growth."

Excellent police HQ opened in Hertfordshire



Achieving both BREEAM 'Excellent' and WELL Platinum, the steel-framed £56 million headquarters for Hertfordshire Constabulary in Welwyn Garden City has officially opened.

The 9,000m², four-storey building, delivered through the SCAPE Construction framework, replaces ageing 1960s accommodation on the Constabulary's Stanborough site with a single, secure base for more than 500 officers and staff.

The headquarters co-locates functions previously dispersed across the estate, including the Major Crime Unit, victim services, the dog unit, the senior leadership team and operational support, while reducing the long-term running costs of the site.

The building also provides integrated custody and operational suites designed in line with national policing standards, secure and discrete vehicular access with holding bays, open-plan office space, conference and training facilities, and welfare provision including quiet rooms, a restaurant, gym, showers and cycle facilities.

Andy Prophet, Chief Constable for Hertfordshire Constabulary, said: "This is more than just a state-of-the-art headquarters; it is a space that will enable us to provide an outstanding service to the communities we serve."

Working on behalf of main contractor Willmott Dixon, AC Bacon Engineering fabricated, supplied and installed the steelwork.

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Steel roof by design

A full replacement of the roof structure was the most cost effective option.

A replacement steel and glass pyramid-like roof structure is being installed on the University of Cambridge's Stirling Building, as part of its wide-ranging refurbishment.

Nestled in the heart of the University of Cambridge's world-famous education and research Sidgwick site, the Grade II*-listed Stirling Building, regarded as one of the most significant works of post-war British architecture, is currently undergoing a major refurbishment.

Designed by Sir James Stirling (who died in 1992 and has the annual British prize for architecture named after him) and completed in 1968, the landmark building has been dogged with numerous maintenance issues over the years and refurbishment was urgently needed.

The works will transform the building into a modern, flexible and sustainable academic hub for the Faculty of History, the Seeley Library and the wider Sidgwick site.

Lucy Delap, Chair of the University's Faculty of History, says: "For those who know the Stirling Building, its iconic design and character are unforgettable. But despite its bold architectural identity, the building is no longer fit for purpose. It lacks the inclusive, collaborative, flexible and sustainable spaces needed for the calibre of teaching and research that define our university today."

Remaining true to its original design, the refurbishment will repair and upgrade the building's structure, replace outdated systems to improve thermal comfort, and implement carbon-saving and climate-resilient measures for a more sustainable future. The programme also includes the installation of new façades, services, and plant, in conjunction with internal reconfiguration.

Possibly the most eye-catching part of the refurbishment work is the replacement of the steel and glass roof structure that spans over the building's reading room.

Positioned within the inner area of the L-shaped building, the roof splays outwards, like an open book, from a central point at sixth floor level to the top of the surrounding structure's second floor.

Explaining the reason for replacing the roof structure, SDC Builders' Construction Manager Tom Kindred, says: "The amount of plate work and strengthening pieces that would have been needed to refurbish the existing roof would have altered its appearance.

"By installing a new and stronger steel frame, we've been able to more closely follow the original design."

In keeping with the project's remit to retain the architectural identity of the building, the design of the new roof structure matches that of the old steelwork. The new one consists of 24t of steelwork, slightly more than the original (21t) because it has to support 30t of inner and outer glazing (the original roof only had a single layer of glass).

Spanning from top to bottom, the main rib cage of the roof structure is formed with four 23m-long × 3m-high primary trusses, which have been fabricated from 168mm-diameter circular hollow section (CHS) steelwork.

Two of the trusses are positioned at either side of the roof structure, close to the adjoining building and a gutter line, while the other two are located towards the middle. As well as creating the splayed shape of the roof, they also form the three steps that give the structure its pyramid-like appearance.

"Each truss was precisely fabricated in a jig, in order to ensure it would fit and align perfectly during the installation," explains TSI Structures Director Spencer Lawrence.

Weighing 3.2t each, the fully-welded trusses were delivered to site as complete elements and were some of the first steelwork pieces to be erected.

Initially, each of the installed primary trusses was temporarily supported by gantry frames, which were also used to support the original roof structure during its disassembly.

The gantries incorporate a jacking system that allows the complete steelwork to be carefully de-propped into its final position, connecting each primary truss to a large node.

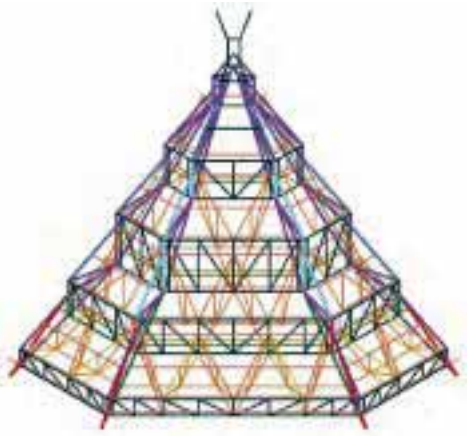
Using the gantries and jacks in this way helps the project team avoid adding any load to the existing building before its strengthening works have been completed.

"It will also allow us to control and slowly apply the roof structure's weight to the existing concrete frame, avoiding a 'ta-da moment' upon completion," adds Mr Lawrence.

Located at the roof's apex, the four primary trusses converge at a single node. The node ties the trusses together and transmits horizontal thrusting



The new tubular steel design closely resembles the original 1960s roof structure.



The roof is primarily formed with four trusses that span from top to bottom, forming the stepped pyramid shape.

forces to the main building via the vertical sliding bearing, distributing loads across the roof to the outer walls of the adjacent building.

From the node, the trusses radiate downwards and outwards across the fan-shaped space below, supporting a network of smaller interlinking secondary (114mm-diameter CHS section) and tertiary (76mm-diameter CHS section) trusses.

"Simply put, the roof structure resembles a ladder propped up against the main building," says Smith and Wallwork Senior Engineer Conor O'Neill.

"Aside from the node, the only other support points between it and the main building are four pin connections at the bottom of each of the main trusses."

Elsewhere on the project, a small quantity of steelwork has been used to form bracing elements between ground and roof level of the existing structure, contributing to the stability of the new roof structure under increased load.

Meanwhile, at either end of the Stirling Building, two new ground floor pavilions are being added, with one of them incorporating a steel roof.

Summing up, SDC Builders' Board Director Dan Changer says: "We are delighted to have commenced work on the refurbishment of this important piece of 20th century architecture.

"Fundamental to our involvement is ensuring that the completed building retains the qualities of its architectural heritage while being brought up to modern building standards in terms of environmental performance and maintainability."

Dr Jessica Gardner, University Librarian and Chair of the Stirling Project board, says: "The sensitive renewal of the building that this project delivers will ensure that it remains not only a landmark of design, but a vibrant, accessible and sustainable home for world-leading scholarship and learning for the next century." ■



One of the four trusses being fabricated at TSI's Norfolk facility.



During the erection sequence, the four main trusses are temporarily supported by yellow gantries.

FACT FILE
Stirling Building, Cambridge
Main client: **University of Cambridge**
Architect: **RHP Architects**
Main contractor: **SDC Builders**
Structural engineer: **Smith and Wallwork**
Steelwork contractor: **TSI Structures**
Steel tonnage: **24t**

"Simply put, the roof structure resembles a ladder propped up against the main building."

Steel frames over ice



Among other things, the completed centre will provide bespoke facilities for Irish skaters.

FACT FILE
Dundonald International Ice Bowl
Main client: **Lisburn & Castlereagh City Council**
Architect: **AECOM**
Main contractor: **Heron Bros.**
Structural engineer: **AECOM**
Steelwork contractor: **Walter Watson**
Steel tonnage: **900t**

Steel construction is helping Northern Ireland's tourism and leisure sectors get a multi-million-pound boost with the redevelopment of the flagship Dundonald International Ice Bowl.

Located a few miles east of Belfast city centre, the Dundonald International Ice Bowl has attracted more than 500,000 visitors every year since it opened in 1986.

As the only permanently open Olympic-sized ice rink in the whole of Ireland, it provides elite skaters with the unique facilities to develop their talents, while also being the training home for the local ice hockey team, the Belfast Giants.

But after more than 35 years of service, the arena is said to be no longer fit for purpose and a new replacement facility is being built on an adjacent plot of land.

The project is being funded by a £52 million investment from Lisburn & Castlereagh City Council and a further £12.2 million from the UK Government's Ministry of Housing, Communities and Local Government (previously known as the Department for Levelling Up, Housing and Communities).

As well as a new Olympic-sized ice rink, the overall scheme will also offer numerous leisure facilities including a 24-lane bowling centre, 120-station gym, multi-use studios, community rooms and offices, as well as food and beverage outlets.

In order to create the most cost-effective, efficient and architecturally impressive design, for the project's multiple areas, a hybrid solution has been used.

The majority of the main structures are steel framed, coupled with glulam beams and columns. However, that's not all, the project also includes some substantial reinforced concrete elements.

Due to the sloping nature of the site and the differing floor levels within the facility, concrete retaining walls have been installed, mostly around the main ice rink building.

Elsewhere, the bowling centre is accommodated within a reinforced concrete box, a design that is said to negate any vibration issues from the steel-framed gym structure that sits above it.

Following on behind the installation of the retaining walls and foundations, the steel frame



The main ice rink element of the project has a flat roof, while the entrance (Hub) and gym have landmark sloping roofs.



Resembling a ski slope, the gym is topped with a steel and glulam roof.

erection commenced with the ice rink building.

Positioned to the rear of the site, furthest from the main road and access routes, the ice rink structure is separated from the remainder of the project by a movement joint and a double row of columns.

Working on behalf of main contractor Heron Bros., Northern Ireland-based Walter Watson fabricated, supplied and erected 900t of steelwork for the project. Using their own mobile cranes, the company also installed many of the glulam members.

The superstructure for the ice rink comprises steel perimeter columns that support a series of nine 40m-long fish-belly glulam roof rafters.

For the roof construction, the rafters support glulam purlins, which in turn support a trapezoidal roof deck.

With many connections between the steelwork and glulam members, coordination onsite and during the design stage (via the Revit model) was key to a successful erection programme.

Stability for the ice rink building is provided by braced bays around the perimeter of the structure, as well as bracings within the roof.

In the area where the ice rink connects into the rest of the leisure complex, some perimeter columns have been omitted and replaced with a 12m-long truss, which supports four of the roof rafters, while creating the open-plan space for the entrance.

Entry into the ice rink is from the centre's Hub, which is a large triple-height zone accommodating the main circulation routes of the complex as well as offices and the entrance foyer.

Because of the site's sloping topography, the retaining wall and movement joint that separate the ice rink from the hub, access to the former is from level one (upper ground floor).

Providing access between the Hub's three floors is a feature cantilevering steel staircase (not part of Walter Watson's main steel package).

Brought to site in three transportable sections and then fully welded together onsite, the staircase has a long-span, cranked geometry, which results in high imposed loads. To limit deflections and vibration, it is supported from hangers suspended from the roof.

Topping the Hub is one of the project's two architectural roof structures. Helping to signpost the leisure facility, a V-shaped roof structure, comprising a grillage of composite steel beams and supported by 12m-tall columns spans the Hub.

Helping to support the roof structure and create the Hub's large column-free interior, are two 25m-long trusses, positioned along the western elevation. The primary truss is at roof level, while a secondary truss is positioned at first-floor level.

Adding some architectural interest, a series of glulam trees adorn the Hub's open-plan interior. Supported both vertically and horizontally by the surrounding steel superstructure, the trees (which appear to be supporting the roof) are in fact non-load bearing elements and were installed after the main steelwork had been completed.

Adjoining the Hub along the western elevation is the aforementioned concrete-framed bowling centre (at ground floor) and the gym at upper ground level.

The gym is topped by the other stand-out roof structure. Tilted by up to 45 degrees, it resembles a ski slope and comprises a metal deck supported by steel purlins (which cantilever beyond the front façade). In turn, the purlins are supported by 11m-long curved glulam beams, which are connected to steel columns founded on the stiff reinforced roof slab of the bowling centre.

Above part of the gym and also spanned by the sloping roof, this part of the building also includes two multi-use studios at first floor level.

Next door to the gym, the remainder of the upper ground floor, above the bowling centre, will accommodate administrative offices. This area is topped with a flat steel-framed roof.

The replacement Dundonald International Ice Bowl is due to open in the summer of 2027. Heron Bros. will then begin phase two of the programme, which includes the demolition of the old facility and the construction of a new car park. ■



Conserve and rebuild

The new steel frame was erected within the retained façade.

Sustainability has come to the fore on the construction of a new mixed-use scheme, incorporating a retained façade in a sought-after central London location.

Nestled within central London's Knightsbridge Conservation Area, three adjacent sites at 30-33 Sloane Street, 2-4 Hans Crescent and the ground floor of 49 Pavilion Road are being combined to form a new central London mixed-use development.

Helping to preserve and enhance the architectural character of the area and reduce the buildings' long-term environmental impact, the project design is targeting the highest possible standards of sustainable construction, including BREEAM 'Outstanding' and NABERS UK 5 Star.

To this end, the four-storey high 1920s-built Portland stone façade of 30-33 Sloane Street (the main part of the overall scheme) is being retained and a new steel-framed structure erected behind it, which includes two additional floors to form a new six-storey building.

Matching the retained facade, one of the new floor levels will be clad in a similar stone, with the original stone balustrades being returned to the top of the building, having earlier been removed and refurbished. Meanwhile, the new uppermost floor is set-back, within a zinc-clad mansard roof.

The top floor of 30-33 Sloane Street will accommodate a rooftop restaurant with its own terrace offering views across London. Lower down, the basement, ground and first floors will have two flagship retail units, while the middle levels (floors two, three and four) will have offices.

The adjacent 2-4 Hans Crescent building, currently being used as the site office, will be returned to its original use as a residential property, while the 49 Pavilion Road element, to rear of the project, will be a new standalone coffee shop-sized unit.

"During the design stage a number of framing options were looked at. Steelwork was chosen as it offered the best balance of embodied carbon, buildability and cost, while using a column grid that aligned with the retained façade's windows,"

Click here for a video tour around the building under construction



Cellular beams, for service integration, have been used throughout the scheme.

"It's a challenging scheme, with a number of different parts, most of which is sat behind a retained façade," says Galliford Try Project Director Barry Kingscote.

"However, we've been able to successfully navigate any challenges, as we (and our subcontracting team) have a wealth of experience of this type of project."

Galliford Try, along with steelwork contractor Bourne Steel, previously completed One Great Cumberland Place, another central London scheme involving a retained façade, which was awarded a Commendation at the 2024 Structural Steel Design Awards (SSDA).

In the same year, work started on Sloane Street with the installation of a façade retention system along the two main elevations of the site.

The original basement was not suitable for a modern retail unit and so the perimeter columns were underpinned, allowing the lower ground floor to be deepened once the interior of the existing building had been demolished.

Providing some similarity to the new project, the original building was also built with steelwork, which supported timber flooring. The retained façade has steel columns that extend from



Currently the site office, 2-4 Hans Crescent (left of picture) will be reinstated as a residential property.



Elevational models showing the new building with its two additional steel-framed floors.

FACT FILE
30-33 Sloane Street, London
Main client: **Cadogan**
Architect: **Studio PDP**
Main contractor: **Galliford Try**
Structural engineer: **Price & Myers**
Steelwork contractor: **Bourne Steel**
Steel tonnage: **376t**

basement to first floor; above this level it was built with masonry.

"During the design stage a number of framing options were looked at. Steelwork was chosen as it offered the best balance of embodied carbon, buildability and cost, while using a column grid that aligned with the retained façade's windows," explains Price & Myers Structural Engineer Euan Arnold.

Prior to the steel frame being erected, new piled foundations and a reinforced concrete core were installed.

Starting at basement level and based around a regular 8m × 8m column grid pattern, the steel frame wraps around the stability-giving core on four sides.

Throughout the new building, the steel frame will be left exposed as an architectural highlight. All of the connections and bolts will be on display, requiring the steelwork to be painted with a high-spec decorative finish.

Cellular beams have been used to accommodate the building services within their depth and these members will also be left on show in the completed scheme.

The beams support a composite flooring solution of metal decking with a concrete topping. Providing support to the retained facade, each of the floor slabs is connected to the retained façade via a series of angle brackets.

A steel-framed solution was also chosen for its speed of construction and the material's ability to form a lightweight frame. This second point was important as it limited the depth and amount of piled foundations required for the new build.

Using the site's tower crane for all of the lifting requirements, the steel package was completed in an 18-week programme.

"A lot of pre-planning was required because of the lightweight nature of the steel frame," says Bourne Steel Project Director Duncan Wyatt.

"With no storage areas on the site, we had to assess which parts of the steel frame would be suitable for material laydown and where we could safely position our MEWPs."

Hans Crescent and Pavilion Road are too narrow to accommodate large articulated trucks, so Bourne had to split steel loads into smaller quantities than usual and use shorter delivery wagons. This helped with the amount of steel sections being lifted onto the site, making sure the frame was never overloaded.

Adding to the project's sustainability credentials, all of the steelwork and metal decking was sourced from Electric Arc Furnace (EAF) production sites.

EAF steelwork is considered to be much greener and more efficient in terms of energy consumption for the production process, as it can utilise renewable energy from wind farms instead of carbon fuels such as oil and gas. It also makes use of recycled steel content rather than using mined raw materials.

Meanwhile, a small quantity (amounting to around 14t) of reused steel sections were also used within the frame. Obtained from Cleveland Steel & Tube, the reused members were not suitable for the exposed aesthetic of the building's main frame and so they were installed, out of view, in the back of house areas.

Another sustainable initiative involved the steel frame's temporary bracing. Used by Bourne Steel for the first time on a London project, the bracing's elements are attached to the main steel frame via detachable bracketry, allowing the bracing to be easily disassembled – once the floors are complete – and reused on other schemes.

The 30-33 Sloane Street project, which is due to complete in May 2027, is part of the wider regeneration of the area being undertaken by developer Cadogan. ■

Levelling up

A steel-framed office development in Darlington will provide a regional economic boost and act as a catalyst for further regeneration.

Supporting the government's commitment to regional growth, a five-storey office development in Darlington town centre will on completion accommodate more than 1,600 civil servants.

Located on Brunswick Street and providing a permanent home for the Darlington Economic Campus (DEC), the steel-framed building will bring together teams from six government departments, including HM Treasury.

A visible sign of investment into the North East, the campus forms part of the Government Hubs Programme, supporting economic growth across the UK through the redevelopment of brownfield sites or repurposing existing buildings to create efficient, sustainable and productive workplaces.

Simon Hulme, Director of Capital Projects at the Government Property Agency (GPA), says: "This development is a hugely significant programme for the GPA as we continue our ambition to provide great places to work for the Civil Service.

"Once complete, this building will be a modern, sustainable and digitally-enabled office space."

Fulfilling the client's wish for a design with the least amount of embodied carbon, a steel frame supporting metal decked flooring was chosen as the solution for this project.

However, not completely satisfied with the design, the project team had an opportunity to improve and rationalise it by undertaking a design optimisation process.

"Initially, the building had a central atrium and four cores, dotted around the structure," says Kier's Senior Project Manager Conor O'Keeffe.

"By combining the lift shafts, stairs, toilets and service risers into one large core, placing it in the middle of the building, instead of the atrium, we've made better use of the available floor space."

The steel frame gains its stability from the re-positioned core, by surrounding and connecting to it via cast-in plates. The frame is based around a 7.5m × 9m grid, which is said to create an optimum and efficient set of floorplates with minimal internal columns.

"The original design had secondary beams at 2.5m centres," explains Cundall Associate Stuart Mark. "We stretched the metal decking to span 3.75m, which rationalised the design even more."

Prior to the steelwork erection, the brownfield site, which had previously accommodated a tannery, light industrial units and most recently a car park, was fully remediated.

Once the ground was made ready, piled foundations, up to 27m-deep, were installed and then the core and the ground floor slab were cast.

Installing the ground floor slab early-doors,



"By combining the lift shafts, stairs, toilets and service risers into one large core, placing it in the middle of the building, instead of the atrium, we've made better use of the available floor space."



The Darlington Economic Campus will provide a significant regional employment boost.



Helping to rationalise the design, one centrally-positioned core has replaced four cores.

before the building's main frame is up is not always the way to go. But on this job, Kier decided it was a good idea, as it provides a flat and safe surface for the steel erector's MEWPs, and guards against inclement weather turning the structure's footprint into a muddy quagmire.

Using the site's two tower cranes for all lifting duties, Elland Steel Structures erected the building in four phases. Each phase saw the building erected to its full height, with columns spliced at third floor level. Once each phase was erected, the area was handed-over to the flooring subcontractor.

The composite flooring is supported on Westok cellular beams throughout the structure. As well as providing an efficient steel solution for the internal spans, the beams also accommodate the building services within their depth. Adding some architectural interest and creating an industrial-looking interior for the offices, the beams will be on show in the completed building.

James Way, ASD Westok Technical Advisory Engineer on the scheme, commented: "The Darlington job is one of a number of commercial office schemes Westok has on site at present. On this project, the Westok beams were typically 600mm deep with regularly spaced 400mm-diameter cells. Certain beams were also provided with elongated cells to facilitate the efficient passage of wider rectangular services."

The ground floor of the development is the only level that occupies the entire footprint of the structure. Beginning at first floor and extending to the full height of the building, there are two set-backs or indents within the steel frame.

Located on the north and south elevations, the indents create two small terraces at first floor level. Transfer beams (weighing 7t each) support the change in column positions to the north, while columns have been coordinated with the architectural layout to the south to avoid additional transfer structure.

Office accommodation is located on each of the four upper levels of the building, while the ground floor, which has a slightly higher floor-to-ceiling height, has the main entrance and lobby (a small double-height space), meeting rooms, plant rooms

FACT FILE
Darlington Economic Campus
Main client: **Government Property Agency**
Architect: **Ryder Architecture**
Main contractor: **Kier**
Structural engineer: **Cundall**
Steelwork contractor: **Elland Steel Structures**
Steel tonnage: **800t**



The site's two tower cranes have been used for the steel erection.

(there is more plant on the roof) and a conference facility.

Located along the north elevation of the building, the conference facility is a column-free space measuring approximately 21m × 14m. It is formed with two plate girders positioned at first floor level, which support the column lines that begin above the conference area.

The 14m-long × 1,200mm-deep girders each weigh 16t and are the heaviest steel elements on the project.

Adding some flexibility to the overall design, the conference room will feature two moveable partitions, allowing it to be subdivided into three areas, or left as one large space.

Attached to the ground floor and running the length of the southern elevation, the main entrance will benefit from a covered colonnade. Measuring 22m-long × 3.75m-deep, the covered area will be supported by a series of precast concrete clad steel columns.

The robust exterior design also extends to the building's main facades, which will be clad in precast panels (with a brick slip facing), supported from bracketry attached to the steel frame.

Summing up, Lola McEvoy, Member of Parliament for Darlington, says: "Darlington is the Number 11 of the North and the new Government Hub will be a big boost for the town. It's great to see the steelwork going in. I've been working hard to make sure this government investment benefits the town's business community, construction supply chain, and workforce, as well as brings new people to Darlington.

"This government project has benefited us already by using regional contractors, and once it's built everyone who works there will have the same terms and conditions, from building services staff to senior civil servants. Quality, reliable jobs for people in our town and several government departments located in Darlington – what's not to like!" ■



Some bespoke beams, with elongated openings, were provided by Westok.



The steel frame supports a precast cladding system.

Cast-in plates: connecting steel to concrete

At the Darlington Economic Campus, cast-in plates connect the steel frame to the concrete core. It is a common detail, but one that sits on the boundary between two materials, two specifications and usually two designers. Liam Dougherty of the SCI explains what to consider.

A cast-in plate is a steel plate embedded in the face of a concrete wall, with shear studs and reinforcing bars welded to its rear face. The studs transfer the vertical reaction from the supported beam into the concrete in shear, while the reinforcement resists tension arising from connection eccentricity or a robustness tie force. The beam is commonly connected via a fin plate, welded on site to the cast-in plate after the concrete has been cast and its position surveyed.

The fin plate itself is no different from a standard simple connection to a steel column; what changes is the support, which is now a plate anchored into concrete rather than a column flange. Standard simple connections assume that vertical shear and the robustness tie force act in separate load cases. Where the floor slab continues to the core wall, tie forces can preferably be transferred through the slab reinforcement into the core. This distributes the force rather than concentrating it at an individual beam connection, making the required tying resistance easier to develop.

Connections subjected to simultaneous shear and axial force require particular care, as they fall outside the standard simple-connection model. Alternative detailing and a specific design assessment may be needed to ensure the connection transfers the combined forces into the core.

Construction tolerances are another key consideration. Cast-in plates may deviate from their intended positions, while wall inclination can increase the resulting misalignment. Plates should therefore be surveyed once the concrete has been cast, and fin plates detailed to suit their as-built positions. The connection must accommodate the resulting eccentricity and allow sufficient clearance for beam rotation.

Design responsibility is typically divided at the face of the concrete wall. The structural engineer establishes the design forces and tolerances and checks the wall for effects including punching shear and bearing. The steelwork contractor typically designs the fin plate connection in accordance with the agreed design principles. Both parties must coordinate their assumptions to ensure the complete connection performs as intended.

Standard fin plate details are given in SCI P358, Joints in Steel Construction: Simple Joints to Eurocode 3. SCI P416, The Design of Cast-in Plates, complements this guidance by covering the cast-in plate, its shear studs and reinforcement, and the supporting concrete wall. It also provides a design model, a step-by-step procedure and a worked example. ■

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Make sure your Steelwork Contractor is RQSC approved



Image courtesy of William Hare Limited

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Victorian icon reimagined

The latest in our occasional series of revisits to completed projects takes Martin Cooper back to Olympia, the 140-year-old west London landmark which has reopened as a cultural neighbourhood.

Originally opened in 1886, Olympia was the capital's first great exhibition centre, pre-dating its great rival Earls Court by nearly 50 years.

It was synonymous with public spectacle, having hosted everything from international trade fairs to Vivienne Westwood's first runway show, and legendary concerts by Pink Floyd and Jimi Hendrix.

But like many Victorian public buildings, it was in need of a makeover, in order to bring it up-to-date and fit for the 21st Century. To this end, a major redevelopment programme has been undertaken, reimagining the site and bringing new life into the vast 14-acre plot.

This year, following extensive construction work involving 20,000t of structural steelwork, the majority of Olympia has reopened (with the exception of the British Airways Theatre, the largest new permanent London theatre in almost 50 years, which is due to open its doors in 2027). The site is now a new cultural district for west London and forms a hub for the creative industries in art, music and entertainment.

Visitors can enjoy the British Airways ARC; a 3,800-capacity live entertainment venue and possibly stay in one of two new hotels, a Hyatt Regency and a citizenM.

Nearby, the scheme also includes 51,096m² of office space, aimed primarily at creative industries, as well as 900m² of free rehearsal space for local charities.

The masterplan, led by principal design architects Heatherwick Studio and SPPARC, was carried out in and around Olympia's main exhibition halls – Grand Hall and National Hall – which remained open throughout the works.

A third hall – Empire Hall – was demolished, making room for some of the extensive new facilities that have been added to the site.

The centrepiece of the Olympia masterplan is the Emberton Walk rooftop garden, which sits between the two remaining exhibition spaces and infills the footprint of the demolished hall.

It is spanned by a curved canopy structure that rises at second-storey level above the halls, introducing nearly 1,000m² of new public space.

Inspired by the original design of Sir Henry Edward Coe, the canopy is formed of five curved structural steel arches. Each arch spans 22m, supporting a transparent roof of 520 pleated glass panels that reference the façade of the Grand Hall.

Visible from the main thoroughfare (Hammersmith Road), the canopy fans outwards above a large public staircase and escalators, creating



Spanned with steel arches, Emberton Walk sits above historic and retained exhibition spaces.



The opening event at the British Airways Arc venue was a concert by Self Esteem.

a clear visual gateway that draws visitors into the site.

From its mezzanine level, visitors can eat and drink at an array of restaurants and bars, while experiencing entirely new views across the cast iron and glass barrel-vaulted roofs that have defined Olympia's skyline for many years.

Thomas Heatherwick, Founder and Design Director of Heatherwick Studio, says: "Olympia has held a strange place in the hearts of Londoners, sitting at the centre of the city, hosting so many unusual events, yet simultaneously closed off to most of us.

"Our work over the past nine years has been about opening it up so anyone can enjoy it, whether they are going to a play, a music concert, an exhibition, or simply wandering around."

The reimagined Olympia is said to be part of London's everyday life again with new build elements complementing the retained Victorian structures.

Eliot Postma, Partner and Group Leader at Heatherwick Studio points out: "We've turned an inward-looking venue into something much more connected and human. Somewhere culture and community can thrive."

The right choice

"Steelwork sits at the heart of the new Olympia development and is expressed across three of its main plots," explains Carlos Parraga-Botero, Senior Associate at Heatherwick Studio and Project Leader of Olympia.

"In the public realm, lightweight trusses carry Emberton Walk above the listed halls, while the steel arches of the canopy frame the entrance.

"The office tower (One Olympia) is set out on a 9m column grid, keeping the large-span exhibition spaces below unobstructed. Cellular beams integrate the structural and MEP zones, maximising floor-to-floor heights throughout, while at either end, the 13-storey building cantilevers approximately 9m, hung from the floors above, giving the sense that the tower floats above the historic buildings.

"And finally, the British Airways Theatre is a steel structure that performs its own structural gymnastics. It transitions from open-plan conference and exhibition space at the lower levels, through a five-storey state-of-the-art theatre, to three storeys of office space spanning over the auditorium. The three zones are kept as separated structures divided by acoustic and fire barriers." ■

Site visit

New Steel Construction (*NSC*) initially visited the Olympia project at the height of the building works in January 2023. (see: https://www.newsteelconstruction.com/wp/olympia-gets-future-proofed/)

Robert Bird Group Director Nick Cole, told NSC: "It's all about maximising the available space. Even taking into account the demolition of one hall, space is at a premium and we had to build many of the new facilities at second floor level, sitting above existing buildings."

Building above and around listed and historic structures required plenty of careful planning, logistics and detailing.

Emberton Walk and its canopy are supported on a series of plunge columns that have been threaded through the retained halls.

The plunge columns support a series of high-level trusses that form the platform for the roof garden, allowing it to float above the historic structures.

The trusses are 30m-long x 2m-deep and had to be installed in between numerous items of rooftop plant and air handling equipment.

"In order to assist in their transportation and complete their installation efficiently, each truss was brought to site in three pieces and spliced together once they were in their final position," explained BHC Project Manager Bobby McCormick.

A similar configuration of steel trusses, supported on plunge columns, supports one of the site's hotels.

Summing up, the design team say, steelwork's numerous attributes, such as its erectability, speed of construction and the ease with which it can form long spans meant it was the obvious choice for this project. ■

FACT FILE

Olympia, London
Main client: **Yoo Capital & Deutsche Finance International**
Executive architect: **Adamson Associates**
Principal design architects: **Heatherwick Studio and SPPARC**
Main contractor: **Laing O'Rourke**
Structural engineer: **Robert Bird Group**
Steelwork contractor: **BHC**
Steel tonnage: **20,000t**

Beyond assumptions – why structural engineers should specify critical temperatures

Max Cooper of the SCI discusses the specification of fire protection for structural steelwork and argues that while greater collaboration between all parties is required, it is the structural engineer who is best placed to produce the information needed to allow others to provide a precise, cost-effective and safe specification.

The specification of fire protection for structural steelwork is, in many cases, not done well. On a typical steel-framed building, the structural engineer designs the frame and specifies the elements that are to be protected for a given fire resistance period. What that protection is, most commonly an an intumescent coating that expands when heated to form an insulating char (Figure 1), and more importantly, the required specification (i.e. coating product and thickness), is left to others. Those "others" may be a specialist fire protection contractor or a coating manufacturer's technical department. Whatever the specifics of the arrangement, the structural engineer's involvement in fire protection often ends with a few notes on the general arrangement drawings.



Figure 1: Cross-section of a steel section following a fire test, showing the expanded insulating char formed by an intumescent coating

This arrangement is understandable and has worked, after a fashion, for many years. But the result is a fire protection specification that is frequently overly conservative and costly, and in certain circumstances may be inadequate.

To determine the correct thickness of intumescent coating for a given fire resistance period, the specifier needs to know three things: the section factor, the exposure condition, and the critical temperature of the element. The section factor is the ratio of the heated perimeter of the section to its cross-sectional area, defined as A_m/V in the Eurocodes (though often still referred to by its BS 5950 notation, H_p/A), and can be readily found for a given steel section size in publications such as the SCI 'Blue Book'[1]. The exposure condition, i.e. whether the element is exposed to fire on three sides (e.g. a beam supporting a concrete floor slab) or four (e.g. a column), should be fairly obvious. The critical temperature is not.

What is the critical temperature and why is it so important?

The critical temperature ($\vartheta_{a,cr}$) is the temperature at which a steel member's structural resistance, calculated using the reduced yield strength and reduced stiffness of steel at elevated temperatures, is equal to the applied design load in the fire condition. As shown in Figure 2, the effective yield strength of carbon steel begins to reduce above temperatures of 400°C, whilst its elastic stiffness starts to reduce above temperatures of 100°C. The lower the critical temperature, the greater the thickness of fire protection required to insulate the element.

There are various methods of determining the critical temperature of an element, requiring knowledge of the structural design to a greater or lesser extent. One common approach is to use the default values tabulated in the

▸26

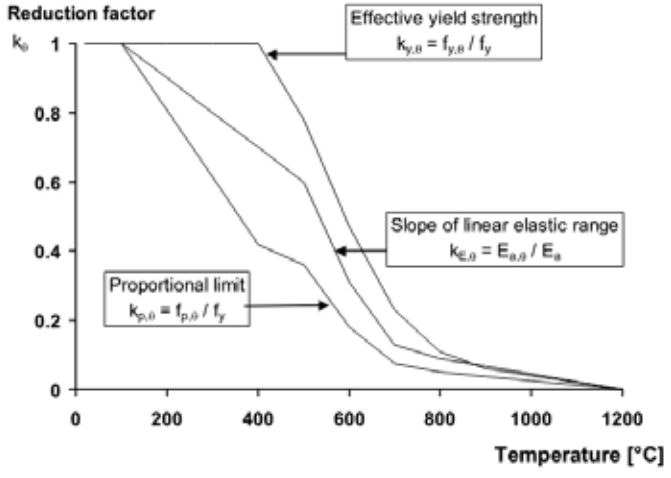


Figure 2: Reduction factors for the stress-strain relationship of carbon steel at elevated temperatures (taken from BS EN 1993-1-2:2005)

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▸24 ASFP 'Yellow Book'. Both the 5th edition[2] and the 6th edition[3] remain in circulation, so it is worth discussing the assumptions used in the development of both.

The 5th edition of the Yellow Book provides a flowchart directing the user to various tables of critical temperatures depending on how much information is available. If the type of loading is not provided, the flowchart directs the user to default critical temperatures of 500°C for columns and 550°C for beams. Where the floor occupancy category is known, Table 16 of the 5th edition provides critical temperatures for specific member types (such as composite or non-composite beams supporting floor slabs, and UC or hollow section columns) across different building uses (e.g. office or storage).

These Table 16 values rely on pre-determined values of η_{fi}, the ratio of the fire design load to the ambient ultimate limit state (ULS) design load. The ratio η_{fi} can be derived from the ratio of variable to permanent actions; common assumptions might be 1:1 for offices and 2:1 for storage. Crucially, in using Table 16 and considering only η_{fi}, the specifier is implicitly assuming that the member is 100% utilised in the ambient ULS design. While this may not be unreasonable for some column designs, it is typically highly conservative for beams, where serviceability deflection limits commonly govern ambient design and ULS strength utilisations might be closer to 70%.

The 6th edition of the Yellow Book made substantial simplifications by replacing the previous occupancy-based tables with a single table of default critical temperatures: 580°C for 3-sided beams supporting slabs, 550°C for 4-sided beams and tension members, and 500°C for compression members of any shape. These defaults are based on a single limiting degree of utilisation in the fire condition of $\mu_0 \leq 0.6$ across all scenarios, removing the need for the specifier to know the floor usage.

It should be clear that the underlying assumptions of this simplified approach bring both economic and safety compromises:

- For typical office floors where η_{fi} is around 0.6 and beams may have significant spare ambient capacity due to being deflection-governed, assuming $\mu_0 = 0.6$ is overly conservative.
- For storage occupancies, η_{fi} will be greater than 0.6. Unless a beam supporting a storage floor has sufficient reserve capacity at ambient temperature to bring μ_0 below 0.6, the 6th edition default critical temperatures are unconservative.
- Neither the 5th nor the 6th edition clarifies that their tabulated values for beams, including "4-sided beams not supporting concrete slabs" in Table 7 of the 6th edition, apply strictly to laterally restrained beams. Unrestrained beams require separate evaluation.

The UK National Annex and its pitfalls

A more precise measure of how hard an element is working in fire is its degree of utilisation, μ_0, which represents the ratio of the fire design load to the member's structural resistance at ambient temperature. In most common design cases where the loading arrangement is the same at ambient ULS and in fire, μ_0 is the product of η_{fi} and the ambient ULS strength utilisation. Where μ_0 is known, the specifier can use Table NA.1 in the UK National Annex to BS EN 1993-1-2[4]. For beams with realistic ambient utilisations, this yields a higher critical temperature than the ASFP tables, allowing a reduced thickness of fire protection.

Some caution is required when using Table NA.1 for compression members. The tabulated column temperatures assume grade S355 steel and an ambient buckling curve 'c' imperfection factor of $\alpha = 0.49$, appropriate for S355 UC sections buckling about their minor axis. For compression members with an ambient imperfection factor lower than 0.49 (such as hot-finished hollow sections, S460 UCs, or UBs), the tabulated values can be unconservative unless the designer can assume a reduced buckling length in the fire design condition as is permitted in braced multi-storey frames. Designers should refer to Advisory Desk note AD 546[5] for a full explanation of these limitations and replacement values. It should be noted that these points are also relevant to the critical temperatures provided in the ASFP tables.

Why the structural engineer is best placed to specify critical temperatures

What should now be clear is that the more design information available to the protection specifier, the more accurate and safe the specification can be.

Even the most competent fire protection specialist cannot determine this information unless it is given to them. While a specialist might have access to loading plans showing superimposed dead and imposed loads, calculating η_{fi} would still require the specialist to estimate the self-weight of the structure and floor slabs – one suspects they rarely would, and even less often be willing to take responsibility for these calculations. Unless informed by the designer, they cannot know a member's ambient ULS utilisation or its effective buckling length used in design. Without this information, they are obliged to fall back on conservative (or occasionally flawed) assumptions. Conversely, if the structural engineer calculates and states the critical temperature, it encapsulates all of these structural parameters into a single figure that the specifier can use directly.

There are also situations where the fire limit state regime bears no resemblance to the ambient ULS design. A prime example of this is a single-storey portal frame designed in accordance with SCI P313[6] for the so-called 'boundary condition', where the unprotected rafters are assumed to collapse in a fire. This induces a substantial overturning moment at the base of the protected column that far exceeds ambient ULS demands, resulting in high utilisation in the fire condition to the extent that it may even govern the column size. This will result in a very low critical temperature and a significant fire protection requirement. Who but the structural engineer of that column could possibly know this?

At the other end of the spectrum, the impact of a more precise estimate of the critical temperature on intumescent coating thickness can lead to substantial savings. Consider a protected composite beam supporting a composite slab, whose fire utilisation μ_0 varies according to the ratio of variable to permanent loads and ambient design utilisation. From Table NA.1 of the UK NA to BS EN 1993-1-2, at a utilisation of $\mu_0 = 0.65$ (corresponding to a beam at near 100% ambient utilisation) the critical temperature is 573°C. At a more typical utilisation of $\mu_0 = 0.40$ (corresponding to a beam supporting office loading with ~70% ambient utilisation), the critical temperature increases to 654°C. Between 573°C and 654°C, the required dry film thickness (DFT) of a typical intumescent coating increases by roughly a third – which might be the difference between a single coat and a two-coat system, with implications for paint volume, labour and curing time in the fabrication shop.

Joining up the dots?

It would benefit the entire sector if structural fire design were no longer treated as a separate discipline divorced from normal frame design, despite how it may be typically framed in contractual scopes. Fundamentally, fire design of steelwork is simply the verification of structural elements at elevated temperatures using modified material properties and imperfection factors, and reduced design actions – all of which are set out in BS EN 1993-1-2[7] and BS EN 1990[8]. Extensive worked examples demonstrating these checks have been published in *New Steel Construction* by the SCI's David Brown, covering restrained composite and non-composite beams[9], columns in compression[10], laterally unrestrained beams[11], and members subject to combined axial load and bending[12]. If there is any inconvenience or challenge involved, it is the iteration required to find the temperature at which the resistance exactly equals demand – though this is a task that can be readily automated in a spreadsheet or design software. Documenting the output critical temperatures is as straightforward as adding a column to a beam or column schedule.

So why has this not been done in the past? Structural engineers are understandably reluctant to take on responsibility and additional work for scope they have not historically been paid to deliver, and unless the scope is explicitly requested then this is unlikely to change. There can also be caution around how fire-related calculations are covered by PI insurance – some insurers have historically excluded this work from their policies. Until critical temperatures are required and costed for as a standard Stage 4 deliverable from the structural engineer, those who include them voluntarily may feel at a commercial disadvantage.

Within the UK steel construction sector, there is already a clear demonstration of what can be achieved when structural design and fire protection are integrated. Suppliers of fabricated and cellular beams routinely redesign floor beams to optimise steel weight, and because they supply the intumescent coating as part of their package, they have a direct commercial incentive to calculate accurate critical temperatures. Furthermore, where the

lightest possible steel section might demand a high DFT, they can evaluate whether a marginal increase in flange or web thickness reduces the coating thickness enough to provide a lower overall cost. This trade-off between steel tonnage and fire protection is only apparent because the party performing the structural design is also specifying and pricing the fire protection.

For the wider steel frame industry, this demonstrates the efficiencies possible when parties pull together. When the structural engineer, steelwork contractor and fire protection specialist operate in isolation and fail to communicate basic utilisation data, the resulting specification will rarely be optimal – and in certain cases may even be unconservative. The design processes are fully documented and well within the capabilities of any structural engineer. What is needed now is a willingness from engineers to include critical temperatures as a standard deliverable, and an understanding from clients and main contractors that the additional fee for this input will be recouped (and likely many times over) through more efficient fire protection specifications. ■

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AD 562:
Snow load on roofs of multi-span portal frame buildings

SCI has recently received queries about the snow loading arrangements to be considered for multi-span portal frame buildings. The purpose of this AD Note is to clarify the snow loading arrangements for multi-span portal frame buildings.

The relevant provisions in BS EN 1991-1-3:2003 are Clause 5.3.4, which gives guidance on snow loads for multi-span roofs, and the UK National Annex, which specifies the design situations to be considered in the UK.

Clause NA.2.2 of the UK National Annex states that the design situations to be considered in the UK are those given in Case B2 of Table A.1. For the drifted persistent/transient design situation [2] in Case B2 of Table A.1, it notes that this applies except to roof shapes covered by Annex B.

Clause NA.2.20 of the UK National Annex states that Annex B is to be used in place of the drift load arrangement given in Clause 5.3.4(3) of BS EN 1991-1-3:2003.

Clause NA.2.5 further states that drift loads determined using the guidance given in Annex B are to be treated as accidental actions.

For multi-span portal frame roofs, only the persistent/transient undrifted snow load in accordance with Clause 5.3.4 and the accidental drifted snow load in accordance with Annex B should be considered. The drifted persistent/transient design situation identified in Case B2 of Table A.1 should not be considered. These design situations and load arrangements are shown in Figure 1.

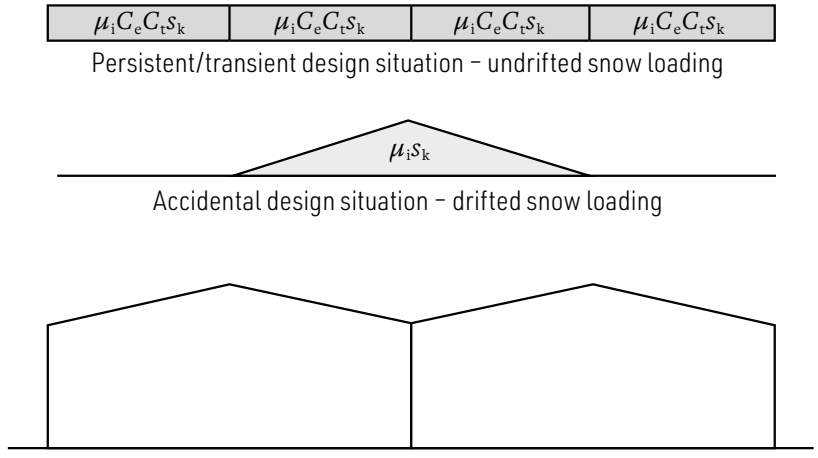


Figure 1: Design situations and load arrangements for a multi-span portal frame roof

The treatment of snow loading changes considerably in the second-generation Eurocode, BS EN 1991-1-3:2025. In particular, the redistributed snow load arrangements, referred to as unbalanced snow loads in the second-generation Eurocode, differ from those currently considered as accidental drifted snow loads and become normal persistent design situations.

Contact: **Liam Dougherty**
Telephone: **01344 636555**
Email: **advisory@steel-sci.com**

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New Headquarters for Hong Kong Bank

For Hong Kong and Shanghai Banking Corporation

AWARD

Architects:
Foster Associates
Structural Engineers:
Ove Arup and Partners
Steelwork Contractors:
British Steel Corporation
Dorman Long Joint Venture

The Hong Kong and Shanghai Banking Corporation's new headquarters building is one of the tallest examples of a suspension structure office tower in the world. It has been designed from first principles, using the most advanced computer aided techniques, and with the benefit of exhaustive testing.

Standing 180m above ground, with four basement levels, it contains 47 floors In all, totalling 100,000m^2. The bank's unique structural system gives it a completely open floor plan. At ground floor level the public plaza which passes beneath the tower Is interrupted by just eight steel masts that carry the entire weight of the superstructure down to bedrock.

Each mast, fabricated in the United Kingdom, and shipped piece by piece to Hong Kong for assembly, is made up of clusters of four circular tube steel columns, linked together by rectangular haunched beams at storey height intervals of 3.9m. These links have the effect of turning the masts into vertical Vierendeel structures of considerable stiffness. At the base of the building, each column has a diameter of 1400mm, with a wall thickness up to 100mm; at the top of the tower the diameter Is 800mm and the wall thickness is 25mm.

The building forms a rectangle in plan, approximately 54m x 70m, which is divided by two rows of four masts creating three bays running east to west. Vertically, the structure is divided into five zones by double height suspension trusses, supported by the masts, and spanning 33.6m east to west, with a further 10.8m overhang beyond the masts at either end. Every floor, made from insitu concrete and supported by a steel secondary structure, is suspended from one of these trusses by tubular steel hangers which are connected to the central nodes of each truss, and by two more rows of hangers attached to each outer node.

North-south stability for the structure is provided by two storey deep x-shaped braces spanning between each suspension truss. In the banking hall atrium extra braces, three stories deep, are provided.

The basement structure is built within 1m thick perimeter diaphragm wall which extends 25m-35m down to bedrock, and has been grouted at its base to make it as watertight as possible.

Each of the four columns that make up a mast is founded on a separate reinforced concrete shaft which extends down and into solid granite, with a maximum loadbearing stress of 5000kN/m^2. The foundations have been designed to take an increase in floor area of 30 per cent in the building.

To meet the Bank's requirements for a structure with a minimum lifespan of 50 years, the steelwork was given a specially formulated anti-corrosion treatment. By using a sprayed mixture of polymer modified cement, sand and stainless steel fibre, it was possible to achieve a thickness for the protection layer of just 12mm, compared with the 50mm needed for a conventional cement and sand barrier. It was the first time that this technique, made necessary by space and weight saving considerations, had been applied to a building.

Fire protection for the masts and trusses is provided by a ceramic fibre blanket, fixed to a stainless steel mesh wrapped around each member. All primary and secondary steelwork is two hour fire rated.

Calculations for the stability of the main structure were followed by the testing to destruction of key steelwork components on a test rig in England.

Windloading, In an area which regularly experiences typhoons, was of particular importance to the structural design. It was necessary to obtain exact information on wind behaviour to predict the size and nature of any conceivable combination of wind loads. For this purpose the University of Western Ontario carried out wind tunnel tests utilising a 1:500 scale proximity model including all structures, present and projected, around the new building, and another model at 1:2500 scale analysing wind regimes throughout the territory. It was the most exhaustive set of wind tunnel tests ever undertaken for a building. Based on this data, the structure has been calculated to deflect to a maximum of 300mm under the statutory equivalent static windload.

The building was designed to be constructed quickly, and to the highest quality standards. Many of the components were prefabricated under factory conditions in Europe, America and Japan, minimising difficult-to-control site operations. Local floor services are contained in 139 prefabricated modules. These contain air conditioning, electrical plant, and toilets: the modules were totally fitted out, down to the mirrors and soap dishes, before they left the assembly line.

Judges' Comments:
It Is a wonderful building, made for the Pacific Age. The concept, with a sequence of vertical village clusters, is the first major reinterpretation of the high rise building since the turn of the Century ... and structural steelwork is there!

Originally published in
STEEL CONSTRUCTION
November 1986







RQSC | The Register of Qualified Steelwork Contractors Scheme **Buildings**

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The Register of Qualified Steelwork Contractors Scheme for Buildings (RQSC – Buildings) is open to any Steelwork Contractor who has a fabrication facility within the UK or European Union.

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- **E** Large span portals (over 30m)
- **F** Medium/small span portals (up to 30m) and low rise buildings (up to 4 storeys)
- **G** Medium rise buildings (from 5 to 15 storeys)
- **H** Large span trusswork (over 20m)
- **J** Tubular steelwork where tubular construction forms a major part of the structure
- **K** Towers and masts
- **L** Architectural steelwork for staircases, balconies, canopies etc
- **M** Frames for machinery, supports for plant and conveyors
- **N** Large grandstands and stadia (over 5000 persons)
- **Q** Specialist fabrication services (eg bending, cellular/castellated beams, plate girders)
- **R** Refurbishment
- **S** Lighter fabrications including fire escapes, ladders and catwalks

FPC Factory Production Control certification to BS EN 1090-1
1 – Execution Class 1 2 – Execution Class 2
3 – Execution Class 3 4 – Execution Class 4

BIM BIM Level 2 assessed

QM Quality management certification to ISO 9001

SCM Steel Construction Sustainability Charter
● = Gold ● = Silver, ● = Bronze, ● = Certificate

Notes
(1) Contracts which are primarily steelwork but which may include associated works. The steelwork contract value for which a company is pre-qualified under the Scheme is intended to give guidance on the size of steelwork contract that can be undertaken; where a project lasts longer than a year, the value is the proportion of the steelwork contract to be undertaken within a 12 month period.

Where an asterisk (*) appears against any company's classification number, this indicates that the assets required for this classification level are those of the parent company.

BCSA steelwork contractor member	Tel	C	D	E	F	G	H	J	K	L	M	N	Q	R	S	QM	FPC	BIM	SCM	Guide Contract Value (1)
A C Bacon Engineering Ltd	01953 850611			●	●	●	●			●	●			●	●	✔	2			Up to £6,500,000
Adey Steel Ltd	01509 556677			●	●	●	●	●	●	●	●		●		●	✔	3		●	Up to £5,000,000
Adstone Construction Ltd	01905 794561			●	●	●	●	●								✔	2	✔	●	Up to £3,400,000
AJ Engineering & Construction Services Ltd	01309 671919			●	●		●		●	●	●			●	●	✔	4		●	Up to £3,400,000
Angle Ring Company Ltd	0121 557 7241												●			✔	4			Up to £1,200,000
Arminhall Engineering Ltd	01799 524510	●			●	●		●		●	●			●	●	✔	2		●	Up to £2,400,000
Arromax Structures Ltd	01623 747466			●	●	●	●	●	●	●	●				●		2			Up to £1,200,000
ASD Westok Ltd	0113 205 5270	●	●	●	●	●	●			●	●	●	●		●	✔	4		●	Up to £6,500,000
ASME Engineering Ltd	020 8966 7150	●		●	●	●		●	●	●	●		●	●	●	✔	4		●	Up to £6,500,000
Atlasco Constructional Engineers Ltd	01782 564711			●	●	●	●			●	●			●	●	✔	2			Up to £1,200,000
BD Structures Ltd	01942 817770			●	●	●	●				●	●		●	●	✔	3	✔	●	Up to £2,400,000
Barnshaw Section Benders Ltd	0121 557 8261												●			✔	4			Up to £1,200,000
BHC Ltd	01555 840006	●	●	●	●	●	●	●	●	●	●	●		●	●	✔	4	✔	●	Above £10,000,000
Billington Structures Ltd	01226 340666		●	●	●	●	●	●		●		●	●	●		✔	4	✔	●	Above £10,000,000
Bourne Group Ltd	01202 746666		●	●	●	●	●	●	●	●	●	●	●	●	●	✔	4	✔	●	Above £10,000,000
Briton Fabricators Ltd	0115 963 2901	●		●	●	●	●	●	●	●	●		●	●	●	✔	4		●	Up to £10,000,000
Cairnhill Structures Ltd	01236 449393	●			●	●	●	●	●						●	✔	4		●	Up to £6,500,000
Caunton Engineering Ltd	01773 531111	●	●	●	●	●	●	●		●	●	●		●	●	✔	4	✔	●	Above £10,000,000
Cementation Fabrications	0300 105 0135	●	●	●	●	●	●	●	●	●	●	●	●	●	●	✔	3		●	Up to £10,000,000
CMF Ltd	020 8844 0940		●	●	●	●	●	●		●	●				●	✔	4			Up to £6,500,000
Coventry Construction Ltd	024 7646 4484	●	●	●	●	●	●	●	●	●	●		●	●	●	✔	4			Up to £2,400,000
D H Structures Ltd	01785 246269			●	●		●				●						2			Up to £600,000
Duggan Steel	00 353 29 70072		●	●	●	●	●	●			●					✔	4			Above £10,000,000
D Hughes Welding & Fabrication Ltd	01248 421104				●	●	●	●	●	●	●		●	●	●	✔	4			Up to £600,000
ECS Engineering Services Ltd	01773 860001	●		●	●	●	●	●	●	●	●			●	●	✔	4		●	Up to £3,400,000
Elland Steel Structures Ltd	01422 380262		●	●	●	●	●	●	●	●	●	●		●	●	✔	4	✔	●	Up to £10,000,000
Embrace Steel Group Ltd	01748 810598	●	●	●	●	●	●			●	●	●	●	●	●	✔	4			Up to £10,000,000
EvadX Ltd	01745 336413		●	●	●	●	●	●		●	●	●			●	✔	3		●	Up to £2,400,000
Four-Tees Engineers Ltd	01489 885899	●		●	●		●	●	●	●	●		●	●	●	✔	3		●	Up to £3,400,000
Fullpen Fabrications Ltd	0203 6335586	●		●	●	●	●			●	●				●		3			Up to £500,000
BCSA steelwork contractor member	**Tel**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**Q**	**R**	**S**	**QM**	**FPC**	**BIM**	**SCM**	Guide Contract Value (1)

BCSA steelwork contractor member	Tel	C	D	E	F	G	H	J	K	L	M	N	Q	R	S	QM	FPC	BIM	SCM	Guide Contract Value (1)
G & L Environmental Ltd	01634 252288									●	●			●	●	✔	3			Up to £500,000
G.R. Carr (Essex) Ltd	01286 535501	●		●	●			●			●			●	●	✔	4			Up to £2,400,000
Gorge Fabrications Ltd	0121 522 5770				●	●	●	●		●	●			●	●	✔	3			Up to £1,200,000
H Young Structures Ltd	01953 601881			●	●	●	●	●			●			●	●	✔	4	✔	●	Up to £5,000,000
Had Fab Ltd	01875 611711	●			●		●	●	●	●	●		●	●	●	✔	4			Above £10,000,000
HBE Services Ltd	01525 854110				●	●				●				●	●	✔	3			Up to £1,200,000
Hescott Engineering Company Ltd	01324 556610			●	●	●	●	●		●					●	✔	2			Up to £3,400,000
Hillcrest Structural Steel Ltd	023 8064 1373			●	●	●	●	●		●	●			●	●	✔	3		●	Up to £3,400,000*
Intersteels Ltd	01322 337766	●			●	●	●	●	●				●	●	●	✔	3	✔		Up to £5,000,000
Jamestown Manufacturing Ltd	00 353 45 434 288		●	●	●	●	●	●	●	●		●	●			✔	4			Up to £10,000,000
Kiernan Structural Steel Ltd	00 353 43 334 1445		●	●	●	●	●	●		●	●	●	●	●	●	✔	4	✔	●	Above £10,000,000
Kilnbridge Structures Limited	02075 111888	●		●	●	●	●	●	●	●	●		●	●	●	✔	4		●	Up to £6,500,000*
Leach Structural Steelwork Ltd	01995 642000			●	●	●	●	●			●					✔	3		●	Up to £6,500,000
Legge Steel (Fabrications) Ltd	01592 205320			●	●					●	●			●	●		2			Up to £600,000
Littleton Steel Ltd	01934 311670			●	●	●	●	●		●	●			●	●	✔	3			Up to £1,200,000
Loaninghill Fabrication Company Ltd	01506 858466				●			●	●	●	●			●	●		3			Up to £600,000
M Hasson & Sons Ltd	028 2957 1281			●	●	●	●	●	●	●	●			●	●	✔	4		●	Up to £1,400,000
M.J. Patch Engineering Ltd	01275472279				●					●	●			●	●	✔	3			Up to £2,400,000
M&S Engineering Ltd	01461 40111				●		●		●	●	●		●		●	✔	3			Up to £2,400,000
Mackay Steelwork & Cladding Ltd	01862 843910			●	●		●			●	●			●	●	✔	4		●	Up to £2,400,000
Malci Constructions Ltd	0148 479 4029				●					●			●	●		✔	2			Up to £500,000
Midland Structures Limited	01384 411201			●	●	●	●	●	●	●	●		●	●	●	✔	3			Up to £5,000,000
Murphy International Ltd	00 353 45 431384	●		●	●	●	●	●	●	●	●			●	●	✔	4		●	Up to £6,500,000
Nationwide Structures Ltd	01924365883			●	●	●	●				●			●		✔	4			Up to £10,000,000
Newbridge Engineering Ltd	01429 866722	●	●	●	●	●	●	●			●	●				✔	4		●	Up to £2,400,000
North Lincs Structures	01724 855512			●	●					●					●	✔	2			Up to £600,000
Painter Brothers Ltd	01432 374400				●				●	●	●			●	●		3			Up to £5,000,000*
Peter Marshall (Steel Stairs) Ltd	0113 307 6730				●	●				●	●				●	✔	3			Up to £2,400,000*
PMS Fabrications Ltd	01228 599090			●	●	●	●		●	●	●			●	●		3			Up to £3,400,000
REIDsteel	01202 483333			●	●	●	●	●	●	●	●	●	●		●	✔	4		●	Above £10,000,000
SAH Luton Ltd	01582 805741			●	●	●				●				●	●		2			Up to £600,000
Severfield plc	01845 577896	●	●	●	●	●	●	●	●	●	●	●	●	●	●	✔	4	✔	●	Above £10,000,000
Shaun Hodgson Engineering Ltd	01553 766499	●		●	●		●			●	●			●	●	✔	3			Up to £1,200,000
Shipley Structures Ltd	01400 251480		●	●	●	●	●		●	●	●			●	●	✔	3			Up to £2,400,000
Snashall Steel Fabrications Co Ltd	01300 345588			●	●	●	●	●			●			●	●	✔	3	✔	●	Up to £3,400,000
Southern Fabrications (Sussex) Ltd	01243 649000				●	●				●	●			●	●	✔	2			Up to £1,200,000
Stage One Creative Services Ltd	01423 358001				●		●	●	●	●	●		●			✔	2			Up to £6,500,000
Steel & Roofing Systems	00 353 56 444 1855	●		●	●	●	●	●	●	●	●	●		●	●	✔	4			Up to £10,000.000
TSI Structures Ltd	01603 720031			●	●	●	●	●			●			●			2	✔		Up to £3,400,000
W I G Engineering Ltd	01869 320515				●					●	●			●	●	✔	2		●	Up to £600,000
Walter Watson Ltd	028 4377 8711			●	●	●	●	●		●		●				✔	4		●	Above £10,000,000
Westbury Park Engineering Ltd	01373 825500	●		●	●	●	●	●	●	●	●				●	✔	4		●	Up to £1,200,000
William Haley Engineering Ltd	01278 760591			●	●	●	●				●		●			✔	4			Up to £6,500,000
William Hare Ltd	0161 609 0000	●	●	●	●	●	●	●	●	●	●	●	●	●	●	✔	4	✔	●	Above £10,000,000

Non BCSA member	Tel	C	D	E	F	G	H	J	K	L	M	N	Q	R	S	QM	FPC	BIM	SCM	Guide Contract Value (1)
Eden Fabrications	02825 821000			●	●	●	●	●		●	●		●		●	✔	3			Up to £1,200,000
Non BCSA member	**Tel**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**Q**	**R**	**S**	**QM**	**FPC**	**BIM**	**SCM**	Guide Contract Value (1)

RQSC | The Register of Qualified Steelwork Contractors Scheme **Bridgeworks**

Steelwork contractors for bridgeworks

The Register of Qualified Steelwork Contractors Scheme for Bridgeworks (RQSC – Bridgeworks) is open to any Steelwork Contractor who has a fabrication facility within the UK or European Union.

Applicants may be registered in one or more category to undertake the fabrication and the responsibility for any design and erection of:

- **FB** Footbridges
- **CF** Complex footbridges
- **SG** Sign gantries
- **PG** Bridges made principally from plate girders
- **TW** Bridges made principally from trusswork
- **BA** Bridges with stiffened complex platework (eg in decks, box girders or arch boxes)
- **CM** Cable-supported bridges (eg cable-stayed or suspension) and other major structures (eg 100 metre span)
- **MB** Moving bridges
- **SRF** Site-based bridge refurbishment
- **FRF** Factory-based bridge refurbishment
- **AS** Ancillary structures in steel associated with bridges, footbridges or sign gantries (eg grillages, purpose-made temporary works)
- **QM** Quality management certification to ISO 9001
- **FPC** Factory Production Control certification to BS EN 1090-1
  1 – Execution Class 1 2 – Execution Class 2
  3 – Execution Class 3 4 – Execution Class 4
- **BIM** BIM Level 2 compliant
- **SCM** Steel Construction Sustainability Charter
  ● = Gold ● = Silver ● = Bronze ● = Certificate

Notes
(1) Contracts which are primarily steelwork but which may include associated works. The steelwork contract value for which a company is pre-qualified under the Scheme is intended to give guidance on the size of steelwork contract that can be undertaken; where a project lasts longer than a year, the value is the proportion of the steelwork contract to be undertaken within a 12 month period.

Where an asterisk (*) appears against any company's classification number, this indicates that the assets required for this classification level are those of the parent company.

BCSA steelwork contractor member	Tel	FB	CF	SG	PG	TW	BA	CM	MB	SRF	FRF	AS	QM	FPC	BIM	NHSS 19A	NHSS 20	SCM	Guide Contract Value (1)
Adey Steel Ltd	01509 556677	●	●	●	●	●	●			●	●	●	✓	3			✓	●	Up to £3,400,000
AJ Engineering & Construction Services Ltd	01309 671919	●		●	●	●	●	●	●	●	●	●	✓	4				●	Up to £3,400,000
ASD Westok Ltd	0113 205 5270	●		●	●							●	✓	4				●	Up to £6,500,000
Beaver Bridges Ltd	01204 668773	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓		Up to £6,500,000
BHC Ltd	01555 840006	●	●	●	●	●	●	●	●			●	✓	4	✓			●	Up to £3,400,000
Billington Structures Ltd	01226 340666	●		●	●	●	●	●	●			●	✓	4	✓	✓	✓	●	Above £10,000,000
Bourne Group Ltd	01202 746666	●		●	●	●				●		●	✓	4	✓		✓	●	Up to £10,000,000
Briton Fabricators Ltd	0115 963 2901	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓	●	Up to £10,000,000
Cairnhill Structures Ltd	01236 449393	●	●	●	●	●	●	●		●	●	●	✓	4			✓	●	Up to £6,500,000
Cementation Fabrications	0300 105 0135	●	●	●	●	●	●	●	●	●	●	●	✓	3			✓	●	Up to £10,000,000
D Hughes Welding & Fabrication Ltd	01248 421104	●		●		●			●	●	●	●	✓	4			✓		Up to £600,000
ECS Engineering Services Ltd	01773 860001	●		●	●	●	●		●			●	✓	4				●	Up to £500,000
Four-Tees Engineers Ltd	01489 885899	●	●	●	●	●	●		●	●	●	●	✓	3			✓	●	Up to £3,400,000
Fullpen Fabrications	0203 6335586	●	●	●	●	●	●					●	✓	3			✓		Up to £600,000
Jamestown Manufacturing Ltd	00 353 45 434 288	●	●	●	●	●	●					●	✓	4			✓		Up to £10,000,000
Kiernan Structural Steel Ltd	00 353 43 334 1445	●		●	●	●			●			●	✓	4	✓		✓	●	Up to £1,200,000
Kilnbridge Structures Limited	02075 111888	●	●		●	●	●		●	●	●	●	✓	4				●	Up to £6,500,000
M&S Engineering Ltd	01461 40111	●	●	●		●	●	●		●	●	●	✓	3					Up to £2,400,000
M Hasson & Sons Ltd	028 2957 1281	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓	●	Up to £2,400,000
Millar Callaghan Engineering Services Ltd	01294 217711	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓		Up to £2,400,000
Murphy International Ltd	00 353 45 431384	●	●	●	●	●	●		●	●	●	●	✓	4			✓	●	Up to £6,500,000
Nusteel Structures Ltd	01303 268112	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Up to £6,500,000
REIDsteel	01202 483333	●			●	●	●		●			●	✓	4				●	Up to £3,400,000
Severfield plc	01845 577896	●	●	●	●	●	●	●	●	●	●	●	✓	4	✓	✓	✓	●	Above £10,000,000
William Hare Ltd	0161 609 0000	●	●	●	●	●	●	●	●	●	●	●	✓	4	✓	✓	✓	●	Above £10,000,000
Non-BCSA member																			
Allerton Steel Ltd	01609 774471	●	●	●	●	●	●	●				●	✓	4	✓		✓	●	Up to £5,000,000
AMCO Giffen	01226 243413	●	●	●	●	●	●		●	●	●	●	✓	4			✓		Up to £1,200,000
Carver Engineering Services Ltd	01302 751900	●		●	●	●	●		●	●	●	●	✓	4			✓		Up to £5,000,000
Centregreat Engineering Ltd	02920 226088	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓			Up to £3,400,000
Cimolai SpA	01223 836299	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Above £10,000,000
CTS Bridges Ltd	01484 606416	●	●	●	●	●	●	●	●		●	●	✓	4			✓		Up to 1,200,000
Donyal Engineering Ltd	01207 270909	●		●						●	●	●	✓	3		✓	✓		Up to £2,400,000
Harrisons Engineering (Lancashire) Ltd	01254 823993	●	●	●	●	●	●	●	●	●	●	●	✓	3		✓	✓		Up to £3,400,000
Hollandia Infra BV	+31 (0) 180 519956	●	●	●	●	●	●	●	●	●	●	●	✓	4					Above £10,000,000
HS Carlsteel Engineering Ltd	020 8312 1879									●	●	●	✓	3			✓		Up to £2,400,000
In-Spec Manufacturing Ltd	01642 210716			●						●	●	●	✓	4		✓	✓		Up to £2,400,000
J&D Pierce Contracts Ltd	01505 683724	●	●		●	●	●	●	●			●	✓	4		✓	✓		Above £10,000,000
Kelly's Welders & Blacksmiths Ltd	01383 512 517											●	✓	2			✓		Up to £350,000
Lanarkshire Welding	01698 264271	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Up to £5,000,000
Taziker Industrial Ltd	01204 468080	●	●	●	●	●	●	●	●	●	●	●	✓	3		✓	✓	●	Above £10,000,000
Total Steelwork & Fabrication Ltd	01925 234320	●		●		●				●	●	●	✓	4			✓		Up to £1,200,000
Victor Buyck Steel Construction	00 32 9 376 2211	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Above £10,000,000

Stakeholder Members

Stakeholder Members are clients, professional offices, educational establishments etc which support the development of national specifications, quality, fabrication and erection techniques, overall industry efficiency and good practice.

Company name	Tel
Griffiths & Armour	0151 236 5656
MMCEngineer Ltd	01423 855939
National Highways	0300 123 5000

Company name	Tel
Paul Hulme Engineering Ltd	07801 216858
Sandberg LLP	020 7565 7000
Solent Commercial Management Limited	07852 309104

Company name	Tel
Structural & Weld Testing Services Ltd	01795 420264
SUM ADR Ltd	07960 775772
Thames Welding Ltd	07912 691704

Industry Members

Industry Members are those principal companies involved in the direct supply to all or some Steelwork Contractor Members of components, materials or products. Industry member companies must have a registered office within the United Kingdom or Republic of Ireland.

QM Quality management certification to ISO 9001

FPC Factory Production Control certification to BS EN 1090-1
1 Execution class 1 2 Execution class 2
3 Execution class 3 4 Execution class 4

NHSS National Highway Sector Scheme

CA Conformity Assessment
UKCA and/or CE Marking compliant, where relevant:

M manufacturer (products UKCA and/or CE Marked)

D/I distributor/importer (systems comply with the CPR)

N/A CPR not applicable

SCM Steel Construction Sustainability Charter
● = Gold ● = Silver
● = Bronze ● = Certificate

SfL Steel for Life Sponsor

Steel for Life sponsors

Level	Company name	Sector	Tel	QM	CA	FPC	NHSS	SCM	Website	Email
Headline	Barrett Steel Limited	Steel producers and stockholders	01274 474314	✓	M	4	3B		https://www.barrettsteel.com	sales@barrettconstructional.com
Gold	Cleveland Steel & Tubes Ltd	Steel producers and stockholders	01845 577789	✓	M	3	3B		https://www.cleveland-steel.com	sales@cleveland-steel.com
Gold	National Tube Stockholders Ltd	Steel producers and stockholders	01845 577440	✓	D/I	4	3B		https://nationaltube.co.uk	sales@nationaltube.co.uk
Gold	voestalpine Metsec plc	Manufacturing and structural services	0121 601 6000	✓	M	4		●	https://www.metsec.com	metsec.plc@voestalpine.com
Gold	Wedge Group Galvanizing Ltd	Protective Coatings	01902 601944	✓	N/A				https://www.wedge-galv.co.uk	info@wedg-galv.co.uk
Silver	Barnshaw Section Benders	RQSC Buildings	0121 557 8261	✓	N/A	4		●	https://www.barnshaws.com	sectionbending@barnshaws.com
Silver	Behringer Ltd (Vernet Behringer)	Manufacturing and structural services	01296 668259		N/A				https://www.behringerltd.co.uk	info@behringerltd.co.uk
Silver	FICEP UK Ltd	Manufacturing and structural services	01924 223530		N/A				https://www.ficep.co.uk	info@ficep.co.uk
Silver	Hempel	Protective Coatings	01633 874024	✓	N/A				https://www.hempel.com	sales.uk@hempel.com
Silver	Joseph Ash Galvanizing	Protective Coatings	01246 854650	✓	N/A				https://www.josephash.co.uk	sales@josephash.co.uk
Silver	Sherwin Williams Ltd	Protective Coatings	01204 521771	✓	N/A				http://www.sherwin-williams.com	enquiries@sherwin.com
Silver	Voortman UK Ltd	Manufacturing and structural services	+31 (0)548 536 373		N/A				https://www.voortman.net/en	info@voortman.net

Manufacturing and Structural Services

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Albion Sections Ltd	0121 553 1877	✓	M	4			
Behringer Ltd (Vernet Behringer)	01296 668259		N/A				
Cast Connex UK Ltd	01416 806 3521	✓	M				
Cellbeam Ltd	01937 840600	✓	M	4	20		
Construction Metal Forming Ltd	01495 761080	✓	M	3			
FICEP UK Ltd	01924 223530		N/A				
Farrat Isolevel	0161 924 1600	✓	N/A				
Hadley Industries Plc	0121 555 1342	✓	M	4		●	
Hi-Span Ltd	01953 603081	✓	M	4		●	
Kaltenbach Ltd	01234 213201		N/A				
Kingspan Limited	01944 712000	✓	M	4		●	
Lincoln Electric (UK) Ltd	0114 287 2401	✓	N/A				
Peddinghaus Corporation UK Ltd	01952 200377		N/A				
Tata Steel – ComFlor	01244 892199	✓	M	4			
Voestalpine Metsec	0121 601 6000	✓	M			●	✓
Voortman UK Ltd	+31 (0)548 536 373		N/A				✓

Software

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Autodesk Ltd	01252456600		N/A				
Fabsec Ltd	01937 840641		N/A				
IDEA StatiCa UK Ltd	02035 799397		N/A				✓
StruMIS Ltd	01332 545800		N/A				
Trimble UK Limited	0113 887 9790		N/A				

Site services and installation

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Composite Profiles UK Ltd	01202 659237		D/I				
Deconstruct UK Ltd	02035 799397	✓	N/A				
Easi-Edge Ltd	01777 870901	✓	N/A				
Keltbray Holdings Ltd	0207 643 1000	✓	N/A				
MSW UK Ltd	0115 946 2316	✓	D/I				
Prodeck-Fixing Ltd	01278 780586	✓	D/I				
Structural Metal Decks Ltd	01202 718898	✓	M	4			
Stud-Deck Services Ltd	01335 390069		D/I				

Structural fasteners

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Advanced Bolting Solutions Limited	0116 251 2251	✓					
Andrews Fasteners Limited	0113 246 9992	✓	M		3		
BAPP Group Ltd	01226 383824	✓	M		3		
Cooper & Turner Ltd	0114 256 0057	✓	M		3		
Howmet Fastening Systems Ltd	01952 290011	✓	M				
Lindapter International	01274 521444	✓	M				
Tension Control Bolts Ltd	01978 661122	✓	M		3		

Steel producers and stockholders

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Arcelor Mittal Distribution - Scunthorpe	01724 810810	✓	D/I	4	3B		✓
ASD Metals UK	0113 254 0711	✓	D/I	4	3B	●	
Barrett Steel Limited	01274 474314	✓	M	4	3B		✓
British Steel Ltd	01724 404040	✓	M		3B		
Cleveland Steel & Tube Limited	01845 577789	✓	M	3	3B		✓
Daver Steels Ltd	0114 261 1999	✓	M	3	3B		
Dent Steel Services (Yorkshire) Ltd	01274 607070	✓	M	4	3B		
Murray Plate Group Ltd	0161 866 0266	✓	D/I	4	3B		
National Tube Stockholders Ltd	01845 577440	✓	D/I	4	3B		✓
Rainham Steel Co Ltd	01708 522311	✓	D/I	4	3B		
Tata Steel – Tubes	01536 402121	✓	M		3B		
The Alternative Steel Co Ltd	01942 826677	✓	D/I				

Protective coatings

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Forward Protective Coatings Ltd	01623 748323	✓	N/A				
Hempel	01633 874024	✓	N/A				✓
Highland Metals Ltd	01343 548855	✓	N/A				
International Paint Ltd	0191 469 6111	✓	N/A				
Jack Tighe Ltd	01302 880360	✓	N/A		19A	●	
Joseph Ash Galvanizing	01246 854650	✓	N/A				✓
PPG Architectural Coatings UK & Ireland	01924 354233	✓	N/A				
Sherwin-Williams UK Ltd	01204 521771	✓	N/A				✓
Vale Protective Coatings Ltd	01949 869784		N/A				
Wedge Group Galvanizing Ltd	01902 601944	✓	N/A				✓



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- Special Interest Groups



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Established more than four decades ago, SCI provides trusted research, guidance, training and technical expertise to help the construction industry use steel safely, efficiently and sustainably.



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40 Years