JANUARY 2024

NSC

New bridge for Greenwich

Galvanized solution for Cheltenham car park

Steel provides passport for sustainability

New landmark for Piccadilly

NEW STEEL CONSTRUCTION Volume 32 No 1 www.newsteelconstruction.com

celebrating excellence in steel

Call for entries for the 2024 Structural Steel Design Awards

The British Constructional Steelwork Association and Steel for Life have pleasure in inviting entries for the 2024 Structural Steel Design Awards.

Now in their 56th year, the Awards celebrate the excellence of the United Kingdom and the Republic of Ireland in the field of steel construction, particularly demonstrating its potential in terms of sustainability, cost-effectiveness, aesthetics and innovation. The Awards are open to steel-based structures situated in the UK or overseas that have been built by UK or Irish steelwork contractors.

Why enter?

If your project is shortlisted, your company would have the kudos of being part of a prestigious Awards scheme - one with a long history, focussed solely on steel construction and the only one where expert judges visit every shortlisted project to truly appreciate its qualities. In addition, you'll receive:

- Free publicity for you, your project and your client, both online and in the construction press.
- Free attendance at a major Awards event in central London for your project team.
- Recognition of excellence for your project, be it large or small.

How to succeed?

Plan ahead and involve the whole project team from the outset in preparing a high-quality submission, don't leave it to the last minute. Read the entry criteria and particularly the 'Submission Material' section on the entry form and provide exactly what is required, nothing more, nothing less. In addition:

- High quality photos will portray your project at its best.
- A well written, flowing description of the context, concept design, outstanding features and key construction details will allow the judges to swiftly appreciate the essence of your project.
- Broad representation from all parties at the judges' visit will demonstrate collaboration and enthusiasm.

To find out more and download an entry form visit https://www.steelconstruction.info/Structural_steel_design_awards or call Zoe Williams (BCSA) on 020 7747 8139

Closing date for entries: Friday 23rd February 2024

BCSA

STEEL for life

JANUARY 2023
Vol 32 No 1

NSC

Cover Image
Boord Street Pedestrian and Cycle Bridge, North Greenwich
Main client: Transport for London (TfL)
Architect: dRMM
Main contractor: Riverlinx CJV
Structural engineer: Arup
Steelwork contractor: Briton Fabricators
Steel tonnage: 380t

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These and other steelwork articles can be downloaded from the New Steel Construction Website at www.newsteelconstruction.com

NSC online

more than just a magazine

It's a digimag.

You can read this issue and all previous issues of NSC going back to 2005 online as digital magazines. You can read it on your computer, your tablet or your phone. And it comes with enhancements like links to further information on steelconstruction.info, and the ability to share, bookmark, print and download pages.

It's a website.

All the content of NSC is also available on our website at newsteelconstruction.com. Like the magazine, the front page is divided into sections like News, Features and Technical. Once again, it's all cross referenced with links to steelconstruction.info, and contains extra video content. And it's all fully searchable with information going back to January 2005.

Steel outlook optimistic for 2024

Nick Barrett - Editor

At this time last year, we noted that the construction industry had proven remarkably resilient in 2022, considering the headwinds it had to struggle against in the previous couple of years. The post-COVID-19 hangover, strongly rising inflation, rising interest rates, skills shortages and war in Ukraine, all conspired to peg back growth; but none of it spelled serious systemic problems for the industry.

In 2023 some of these problems remained with us and were joined with new issues like the Gaza conflict and political instability in the UK. There were some casualties among companies large and small as continuing subdued markets tested balance sheets and cash flows. Yet construction as an industry, and the steel construction sector, continued to exhibit an underlying strength that justifies optimism for 2024.

One of the big worries post-COVID-19 has been that workforces had abandoned the idea of going to the office, and that eventually all who could would work from home. There has certainly been some downscaling of property requirements by big employers in the UK's commercial districts, but there are signs that the initial surge towards home working has turned into a slower drift and has for many gone into reverse. Some major employers have told staff bluntly to get back to the office, and hybrid work involving maybe three days a week in the office is the best that many who would rather work from home exclusively can expect.

Along with a fall in demand for office space there has been a rise in demand for higher quality space, which might involve moving to new space or to freshly refurbished and upgraded spaces. Steel is well positioned to benefit from this. Owners of steel-framed buildings will always find it easier to reconfigure building layouts for changing needs.

The latest Crane Survey from Deloitte UK, which we report on in News, supports an optimistic outlook with a record number of new starts in the London office market in the six months to 30 September. Refurbishments dominated the new starts, the highest on record for the second survey in a row. Probably more encouragingly, new builds have rebounded from their post-COVID-19 low to account for over a third of the new starts.

All of which is good news. Deloitte also says there is an increasing acceptance of sustainability requirements of buildings and developers expect to reach operational net zero across their portfolios by 2040. Which is also good news, for steel construction especially, given the strong sustainability benefits of steel that have always been available at no extra cost to developers and are now boosted by the sector's commitment to net zero as spelled out in the 2050 Decarbonisation Roadmap.

It would be hard to find a project in NSC these days that doesn't have sustainability at the heart of its design and construction. That stretches from the client all through the construction teams. One thing we can expect to see more of in 2024 is the increasing use of Material Passports on projects, as on the Edenica office development featured in this issue. Material Passports will encourage the recycling and reuse of building materials. With recycling and reuse potential increasingly factored into proper whole life cost analysis, 2024 can be expected to be another year when steel's sustainability benefits make a vital contribution to the climate change battle.

British Steel unveils electric arc furnace plans

British Steel has unveiled a £1.25bn proposal to become a clean, green and sustainable business by adopting electric arc furnace (EAF) steelmaking.

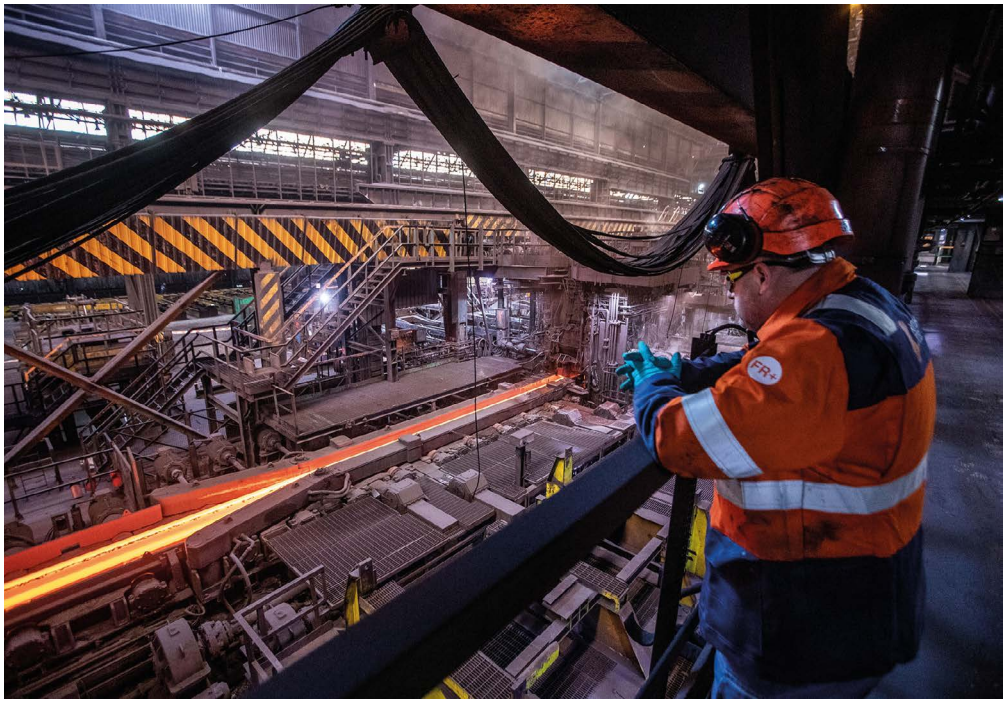
The plans, which are subject to appropriate support from the UK Government, could see British Steel install two EAFs – the first at its Scunthorpe headquarters and a second at Lackenby, Teesside.

The new furnaces could be operational by late 2025 and would replace the aging iron and steelmaking operations in Scunthorpe, which are responsible for the vast majority of the company's CO_2 emissions.

British Steel CEO and President, Xijun Cao, said: "Decarbonisation is a major challenge for our business but we are committed to manufacturing the home-made, low-embedded carbon steel the UK needs.

"Detailed studies show electrification could rapidly accelerate our journey to net zero and drive British Steel towards a sustainable future."

The proposals would mean steelmaking would return to Teesside for the first time since the Redcar Steelworks closed in 2015.



BCSA members help to create Lancaster bomber memorial

British Constructional Steelwork Association members have donated funds and fabricated steelwork towards the construction of an iconic art installation.

To be known as 'On Freedom's Wings', the landmark structure will represent a WWII Avro Lancaster bomber in flight and heading home to the former base of RAF Swinderby.

Being erected on the Lincolnshire and Nottinghamshire border, alongside the A46, the memorial will be a reminder to the area's links to Bomber Command and its wartime contribution.

The completed aircraft structure will be supported 15m above the ground on podium steelwork. The aircraft will be 26m-long, with a wingspan of 31m. It consists of a mild steel frame, partially clad in mild steel sheet.

William Hare and Tata Steel have together provided the podium steelwork, which has recently been erected. The remainder of the project is still being fabricated, but further funds and help are needed.

For more information or to make a donation, contact: *www.bombergatewaytrust.co.uk*

Stairs installed for major City of London commercial scheme

Peter Marshall Steel Stairs (a subsidiary of Billington Holdings) has worked collaboratively with main contractor, Multiplex, to design, fabricate, manufacture, and deliver two steel stairs, within the slipformed concrete cores at One Leadenhall.

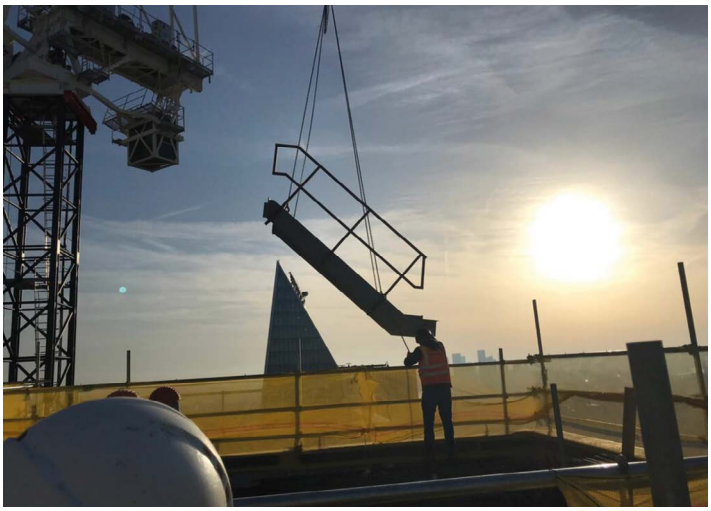
Rising to 35-storeys, One Leadenhall is the latest steel-framed addition to the City of London's cluster of high-rise commercial buildings. The structure will offer 40,000m² of office accommodation, a free public terrace at fourth floor level as well as retail space alongside its ground floor double-height entrance lobby.

According to the Peter Marshall team, the intention from the outset was that the stairs would be erected on a section-by-section basis, from within the enclosed core. These works followed on behind the concrete slipforming as it was being constructed, with the formwork continually moving upwards on a weekly basis.

Any delays were mitigated by designing a safe and innovative temporary bridge solution, which allowed access to the erection areas and enabled works to continue safely.

In total, the two stairs had a combined weight of 218t, needed more than 20,000 cut pieces and required more than 30,000 bolts.

One Leadenhall is due to complete by the end of quarter one 2025.



London office market rebounds with record level of new starts

The London office development market has yet again shown its resilience with a record number of new construction starts across the capital.

According to the latest Crane Survey by Deloitte UK, which covers the period from 1 April to 30 September, the volume of new starts – 474,000m² – was the highest seen across the seven Central London submarkets since the company began tracking them in 2005.

"As we have been forecasting for the past few surveys, new starts are dominated by refurbishments: at 306,500m², this is the highest on record, for the second survey in a row," said Siobhan Godley, Real Estate Leader, Deloitte UK.

The survey also highlighted the fact that new builds have roared back from their post-pandemic nadir in the Summer 2022 survey. This time, new builds accounted for more than a third of the volume of new starts, with two of the biggest – 2 Finsbury Avenue and 2 Aldermanbury Square – both in the City.

There is increasing acceptance and realism about sustainability requirements, with most developers now expecting to reach operational net zero across their portfolio by 2040. Developers expect that tenants will accept certain

'green lease' clauses, especially those that save them money, but may be more resistant to any attempt to 'pass-through' capital costs of upgrades.

Norfolk steelwork contractor gets local MP endorsement

Highlighting its benefits to the local economy, George Freeman, MP for Mid Norfolk has been shown around steelwork contractor H Young Structures' headquarters.

H Young Structures specialises in the design, fabrication, priming and erection of structural steelwork, while its sister company Hi-Span, are experts in cold rolled, light gauge steel products.

The companies said they work extensively to ensure that jobs and opportunities at their headquarters, benefit local people.

Barry Tipple, Commercial Director of H Young Structures, said: "We were pleased to show our local MP and his team our facilities. They showed an interest in local procurement and had knowledge of the carbon conversation involving the steelwork sector, where Green Steel (the manufacturing of steel without the use of fossil fuels) is being promoted to lower embodied carbon in new buildings."

George Freeman, MP, said: "Part of the world-class engineering cluster located on Wymondham's Ayton Road industrial estate, H Young Structures and Hi-Span are at the forefront of progress in the high-quality steelwork and precision engineering sectors.

"It was a pleasure to visit these two fantastic local companies, which provide highly skilled jobs and opportunities to dozens of local people. They are wonderful examples of Norfolk's already thriving 'Innovation Economy' and I look forward to supporting them as they continue to go from strength to strength in the months and years ahead."

Business units to provide economic boost for Teesside

A multi-million-pound development consisting of 43 business units, offering nearly 9,300m² of industrial, commercial and office space, has been announced for the Teesworks site at South Bank.

Intended to provide a location for local firms to benefit from the major developments taking place at Teesworks, the development will comprise one commercial unit of 930m², two units of 650m² and five units of 325m². There will also be a further 35 hybrid units of 148m², which will include ground floor warehouse and first floor office space.

Teesworks Chairman Chris Musgrave OBE said: "We are now making huge strides in transforming Teesworks into a location where businesses can thrive.

"We are developing this as a place where local firms can set up and grow - and companies from outside the area can also expand."

Tees Valley Mayor Ben Houchen said: "This is another example of the fantastic progress we are making to develop the site as a great location for a whole range

of businesses.

"These units will provide a modern space where new companies can set up and where established firms can expand and grow – delivering the well-paid jobs and investment our area deserves."

Construction is expected to start on the units later this year, subject to planning approval.

NEWS IN BRIEF

Taziker Industrial has announced that Neil Harrison has been appointed as CEO, supported by Jason Worrall as the Group Managing Director. These appointments follow a recent investment led by the company's original founders, Tom Taziker, Nigel Taziker and Graham Moor, who now own a majority stake in the business and have re-joined the Board of Directors

Royal London Asset Management Property (RLAMP) has received planning approval for the redevelopment of Atlantic Park - a 74,300m² all-electric, high-specification industrial and logistics development in Sefton, Liverpool. The scheme comprises seven units ranging from 3,900m² to 19,500m².

Developer **Mission Street** has received planning approval for a 6,000m² life sciences space in the Cambridge Southern Cluster. Main contractor 8Build has been appointed to oversee the construction of the project, which is expected to start in the coming months.

Highlighting its strength in the sport and leisure sector, **ISG** has been appointed as main contractor for two leisure centres. A new £24M leisure facility will replace the original Sharley Park Leisure Centre in Clay Cross, Derbyshire, while in Durham, the Louisa Centre is set for an extensive overhaul and upgrade.

Morgan Sindall has been named as the main contractor for three new schools in Greater Manchester. The contract consists of Star Radcliffe Academy in Bury, Pear Tree Academy in Cheadle Hulme and Dixons Newall Green Academy in Wythenshawe.

Muse Developments has announced that the first phase of its Birkenhead town centre regeneration scheme is now complete, after two energy-efficient (Grade A, BREEAM 'Excellent') office buildings were handed over to Wirral Council from Wirral Growth Company. Leach Structural Steelwork fabricated, supplied and erected 1,100t of steelwork for the two buildings.

PRESIDENT'S COLUMN

Until global steel production from lower-carbon technology matches global demand, it is now becoming widely understood that specifying your steelwork supply from 100% scrap-based Electric Arc Furnace (EAF) production in preference to traditional Blast Oxygen Furnace (BOF) production actually makes no difference to global carbon emissions, and that there are smarter ways of reducing global carbon emission such as using less material or considering refurbishment in place of new build.

Of course, we still need to discourage the continued mass production of BOF steelwork and continue developing alternative technologies such as carbon-capture and green hydrogen. Nevertheless, following on from my October column, the UK can now clearly state that we are doing our bit, and we are certainly heading in the right direction.

Following the recent industry announcements, we now know that within the next few years the combined UK production of steel products using EAF technology will be around 7.5 million tonnes per annum. The credit for this must be given not only to British Steel and Tata Steel, but to other UK-based EAF producers such as Liberty Steel, Celsa, Outokumpu and Sheffield Forgemasters.

And, given that each year the UK generates over 11 million tonnes of scrap steel, simple maths tells us that if we choose to, we can become self-sufficient in feeding our own UK-based EAFs, and therefore reduce some of the reliance on steel imports. Of course, in order to ensure certainty of supply the UK will need to continue with a balanced UK/European supply chain, but this is an acceptable situation and will help to maintain healthy commercial competition across the variety of steel construction products.

So, if the uncertainty for reuse, recovery and recycling of UK steel can be reduced or even removed, is it time to refresh the methods by which we currently calculate the value of carbon emissions for steel buildings?

The current guidance for calculating the carbon value for constructional steelwork is provided by a combination of CEN standards (European Committee for Standardisation) and national guidance from the likes of RICS (Royal Institution of Chartered Surveyors) and the IStructE (Institution of Structural Engineers). These standards mandate the calculation and reporting of future benefits such as reuse or recycling, but clear guidance for including these benefits within a building's total carbon assessment is needed since many diverse views exist and some EU states permit different approaches to the carbon calculation.

Progress is already being made to create 'material passports' to make it easier to reuse steel components at the end of the building's life, and an international sustainability group (ISCG) is being formed to re-evaluate and prepare carbon comparisons for all structural materials given the advanced technologies that are being pioneered around the globe.

I have always believed that owing to its full life-cycle credentials, steelwork remains the structural material of choice, and these latest developments will help to secure that belief.

On a separate note, and on behalf of the BCSA, I want to convey our best wishes and express our sincere gratitude to Mr Chris Dolling who retired at the end of 2023. Chris joined the BCSA from Tata Steel in 2015 as Marketing & Technical Development Manager, a role which included the management of the *NSC* magazine and the *SteelConstruction.info* website.

I'm sure you will all join me in wishing Chris a long and happy retirement.

Steelwork contractor gets MP's approval for local job opportunities

Doncaster North MP Ed Miliband praised Skanska's (Cementation Fabrications) commitment to offering opportunities to local people, during a visit to its piling and steelwork fabrication facility in Bentley.

Mr Miliband, who also serves as the shadow secretary of state for energy security and net zero, visited the company to find out about its operations and projects.

Founded over 100 years' ago, the fabrication facility employs a multi-skilled workforce of mechanical and civil engineers. They are experts in production design, fabrication, welding, electrical engineering, hydraulics and Computer Numerical Control (CNC) machining.

Using state-of-the-art equipment, they can manufacture small and intricate components for their piling rigs, as well as bespoke structural items, up to 40m in length, for temporary or permanent works.

Mr Miliband, said: "I'm incredibly proud to have this company in my constituency; it's obviously a really good company to work for and it's doing really important work for our country in all kinds of different ways.

"Skanska provides fantastic employment opportunities for local people; brilliant apprenticeships, including female apprentices. I was incredibly impressed by what I saw on my visit."

Landmark steel-framed entertainment venue opens

Manchester's new landmark cultural venue, Aviva Studios, the permanent home of Factory International, has officially opened its doors.

Designed by the Office for Metropolitan Architecture (OMA), Aviva Studios is a global destination for arts, music and culture located at the heart of the new St John's neighbourhood in Manchester, a city centre hub for creativity and digital innovation.

The design of the 13,400m² building is based around large, open, flexible spaces (the Hall and Warehouse are the largest spaces) that can be reconfigured to meet the needs of the performance and artwork created in the building.

Structural steelwork, much of it left exposed within the building, has played integral role in the construction of the project. A series of large interlinked steel trusses, supported by mega columns create the open spaces.

The 21m-high Warehouse can be divided by a moveable, full-height acoustic wall. Both the Hall and Warehouse have been designed to work together, with the proscenium capable of opening fully into the Warehouse, allowing the stage to run deeper into the building.

Other spaces in the building include a pair of purpose-built truck lifts, foyers serving both the Hall and Warehouse, back-of-house towers and a main social space framed by eight Grade II-listed railway arches with a direct link to the Science and Industry Museum.

Working on behalf of main contractor Laing O'Rourke, William Hare fabricated, supplied and erected 4,900t of structural steelwork for the project.

Steel-framed offices aid Blackpool regeneration

Structural steelwork erection is nearing completion on a £100M, 19,500m², highly sustainable office building in Blackpool town centre, which will become a new regional home for the Civil Service.

Working on behalf of the local council, developer Muse and main contractor Vinci Building, Leach Structural Steelwork is fabricating, supplying and erecting the project's steelwork.

More than 3,000 public servants will relocate to the seven-storey building, when it completes, which is scheduled to be in the first quarter of 2025.

Aiming to achieve a BREEAM 'Outstanding' rating, the offices will bring new people to the town, boosting trade for local businesses, retailers, restaurants, cafes and leisure facilities, alongside a wealth of new job opportunities.

Steel-framed control towers heading to Africa

Norfolk-based steelwork contractor TSI Structures has been contracted to supply a number of air traffic control rooms to a standard modular specification.

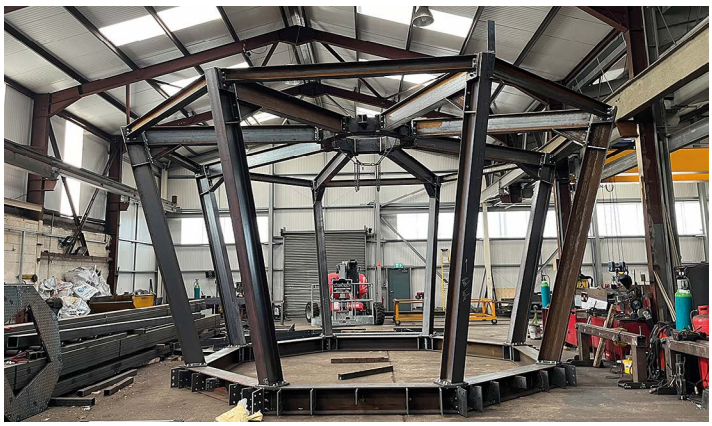
Designed by TEX ATC, the MV8 series consists of an octagonal steel framework, which is assembled onsite and bolted to a control tower structure.

The steel frame has a ring beam that supports eight corner columns, roof beams and a central aperture.

The aperture is used to gain access to an upper walkway and roof, via a retractable ladder. The roof is supported on a series of triangular decking frames, also supplied by TSI.

Each of the control room modules, which are destined for West Africa, are trial erected by TSI, a process that allows the client to carry out its own quality check. The units are then disassembled and sent for galvanizing, before being delivered to TEX ATC.

TEX ATC provide a complete package for the control room modules, including the glazing and cladding. All of the components are then shipped overseas in containers and assembled onsite.



Contracts signed for major Leeds logistics scheme

Glencar has been awarded a contract by Pan-European logistics and industrial developer Baytree Logistics Developments to construct two industrial units of 7,087m² and 13,515m² in Leeds.

The development to be known as Baytree Leeds is located within the Stourton Industrial area, approximately 3 miles southeast of Leeds city centre and is being constructed speculatively. It will feature a best-in-class specification, built to a BREEAM 'Outstanding' rating, EPC A and WELL ready standards.

Glencar CEO Eddie McGillycuddy, said: "Baytree are at the absolute vanguard of cutting-edge sustainable development, creating technology-enabled buildings designed with flexibility for future change and with the health and wellbeing of building users firmly in mind. As such, Glencar are delighted to be working in partnership again to bring forward this impressive scheme."

Construction is expected to begin this month (November) and take 37 weeks to develop with the buildings ready for occupation by July 2024.

College automotive centre driven with steel

Work is underway on the steel-framed £8.1M City of Wolverhampton College Advanced Technology and Automotive Centre, which forms part of the City Learning Quarter.

Working on behalf of main contractor Speller Metcalfe, Adstone Construction has fabricated, supplied and erected 140t of steelwork for the project.

Due to be completed in July 2024, the centre will secure hundreds of jobs in the local economy and create learning opportunities for thousands of students, specialising in engineering and automotive studies.

The building will have facilities for new electric, hybrid and traditional vehicles, as well as fabrication, manufacturing, welding, CAD and robotics.

City of Wolverhampton Council Leader, Councillor Stephen Simkins, said: "The City Learning Quarter remains a key priority for the city, and it is great to see the progress being made with construction of the Centre.

"We are working hard with City of Wolverhampton College to ensure we not only deliver a vibrant education hub where we improve the city's learning, apprenticeship and employment offers, but also that we retain our best talent, rather than losing people to different parts of the region."

Diary

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

Tuesday 9 January 2024
Connection Stiffness
Webinar, SCI/BSCA Members only
Common UK practice has been to use intuition and experience to assess the stiffness of a connection – nominally pinned or nominally rigid. Previous satisfactory experience is one approach permitted in the Eurocode, but calculation processes are presented and software often has the facility to calculate connection stiffness. The webinar will look at the principles, the calculations and some software to draw comparisons.

Tue 23, Wed 24 January 2024
Straight to the Point: Steel Design using the Blue Book
Online course
This four hour course contains minimum theory and maximum hands-on member design – focusing on straight to the point practical design using the Eurocode Blue Book. The course is aimed at designers of orthodox structures where the resistance tables are the preferred way of selecting members.

Wednesday 21 February 2024
Design of Stability Systems for Light Steel Framing
Webinar, Free to all
This webinar will give an overview of the design for stability of light steel-framed buildings, which is the subject of a soon to be released new SCI publication P437. Light steel framing can be used for the construction of buildings over 10 storeys with vertical stability provided by X-braced wall panels, integral bracing or diaphragm action of sheathing boards. The design for stability of these buildings is presented to the EN standards and considers horizontal loading, including Equivalent Horizontal Forces (EHF), structural analysis of stability systems, and proposed test regimes.

Steel walkway will allow visitor access to restored Hull light vessel

Being fabricated and installed by AJ Engineering & Construction Services (AJE), a new walkway will allow visitors to access the historic Spurn Light Vessel in Hull.

Following a 14-month restoration project, the lightship is currently docked at a temporary berth in Hull Marina.

It is being restored as part of the Hull Maritime project, and the vessel will return to use as a floating museum once a new dock has been completed.

The project is being delivered by Hull City Council and funded by the National Lottery Heritage Fund. AJE has been contracted by main contractor Spencer Group.

AJE Project Manager Kevin Smith said: "Our part in this development is relatively small, but the whole regeneration scheme is massive, so it's great to be involved one way or another. It has huge historical significance in Hull's maritime history and is a fascinating project."

Work to start imminently on Reading weather forecast centre

Mace has been appointed as main contractor by the Government Property Agency through the Crown Commercial Service framework (CCS) for the European Centre for Medium-Range Weather Forecasts (ECMWF).

Mace will lead on the procurement of the design for the ECMWF new headquarters, located adjacent to Reading University's Department of Meteorology, on the Whiteknights campus.

Designed to be an industry leading net zero carbon building, the development is targeting a BREEAM 'Excellent' rating and will be low carbon during construction and when operational.

Once complete, the new HQ will house a research institute as well as 24/7 operational services, producing and disseminating numerical weather prediction to its member states. The new designs feature cross-disciplinary workspaces, a conference centre, council chamber, interactive weather room and central atrium.

Green light for Bedfordshire film studio complex

Central Bedfordshire Council has given the go-ahead for a new film studio complex at a former clay brick quarry near Stewartby.

According to architects Scott Brownrigg, the scheme will build on the UK's reputation as a destination for world-class filmmaking, as Home of Production (HOP) will be the first facility designed by producers, for producers – incorporating state-of-the-art facilities.

The new-build scheme will redevelop a 143-acre brownfield site to provide over 160,000m² of flexible indoor and outdoor studio space and associated facilities, set within a tranquil waterside environment.

While staying onsite in self-contained suites, crews will be able to enjoy a drink or bite to eat at one of the permanent bars, restaurants or cafes that will line the central piazza, exercise in the gym, or watch a film premier at the waterside hospitality suite.

A medical centre, childcare facilities and faith rooms will support wellbeing, and disabled access, throughout the masterplan, will encourage equality of opportunity.

Overall, the project will involve the construction of 11 studio buildings and workshops.

Better credentials, better contracts, better working

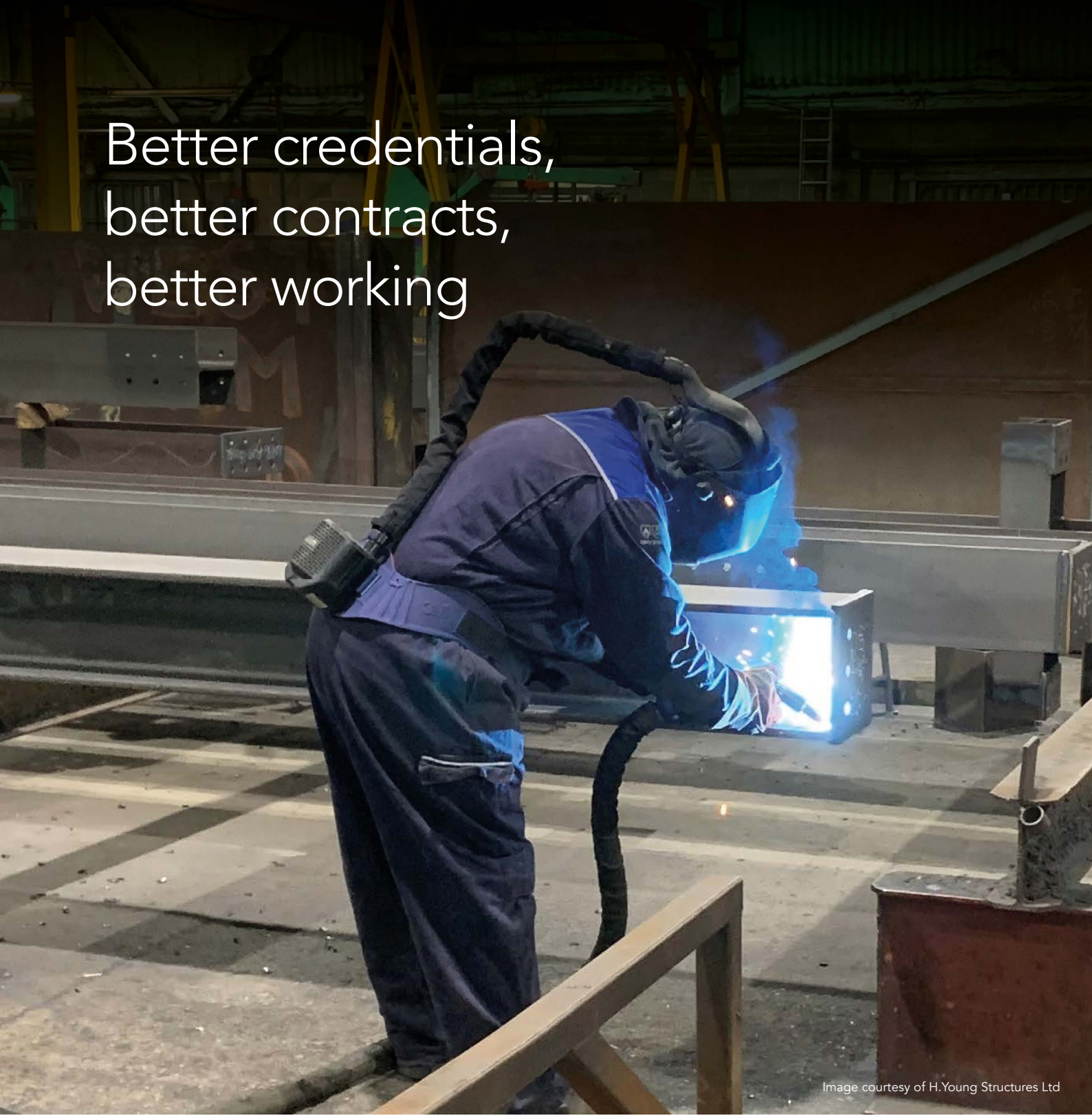


Image courtesy of H.Young Structures Ltd

Better internal operating systems help in winning more business

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Transport hub expansion in the frame

A fully galvanized steel frame has created the desired architectural and durable design for a multi-storey car park serving a transport hub in Cheltenham.

Four precast cores accommodate the MSCP's lifts and stairs.

Sustainable transportation is set to get a significant boost in Cheltenham, as work has begun on expanding and improving the town's Arle Court Transport Hub.

The existing park and ride facilities, which are located close to the M5 motorway, are being expanded by Gloucestershire County Council to offer additional bus services and better connections to local sustainable transport, such as walking and cycling routes.

The agreed contract price for works being undertaken by main contractor Kier is just over £26M, which is being funded by the UK Government's Housing Infrastructure Fund, administered by Homes England and the council.

The works will provide a range of new and improved facilities. These include: a covered waiting area with seating; real-time information screens and an information desk; an indoor waiting area with the opportunity for a refreshments facility; electric vehicle charge points; and toilets, including a dedicated Changing Places toilet.

Gloucestershire County Council Cabinet Member for Environment and Planning, Councillor David Gray, said: "Work is progressing well on the Arle Court Transport Hub scheme, thanks to an efficient and considered construction approach from our main contractor Kier and their sub-contractors. We look forward to providing further updates on the timely delivery of this important scheme as construction continues."

FACT FILE
Arle Court Transport Hub MSCP, Cheltenham
Main client: **Gloucestershire County Council**
Architect: **BDP**
Main contractor: **Kier Construction**
Structural engineer: **BDP**
Steelwork contractor: **Billington Structures**
Steel tonnage: **1,200t**

Curved sections were used to form the access and exit ramp.

Visualisation of the completed MSCP with its distinctive cladding system.

Single storey structures will accommodate a waiting area and a cycle storage unit.

"Composite flooring is a much faster method of construction than the alternative precast flooring solution."

Central to the Arle Court Transport Hub scheme is a multi-storey car park (MSCP), which will almost double the available parking spaces at the site to nearly 1,000.

Measuring 48m-wide × 146m-long, the steel-framed MSCP has four parking levels, including ground floor, and has been designed with perimeter columns spaced at 7.5m centres, while internally there are three 16m-wide spans.

Main contractor Kier started onsite in early 2023 and preliminary works included the installation of foundations and drainage. The former supports the structural frame and allowed the steelwork erection programme to commence, while the latter helped to provide a clean site, without puddles and muddy conditions.

The good ground conditions provided solid and stable crane locations, laydown areas for materials and a firm surface for the erection team's MEWPs, which in turn helped the steelwork programme remain on schedule.

The car park's four precast cores were also installed prior to the steelwork erection. Accommodating lifts and stairs, they offer no stability to the steel frame, as this is provided by cross bracing, which is located throughout the structure.

Forming the three upper levels, steel beams support metal decking and a concrete topping for a composite flooring solution.

"This is a much faster method of construction than the alternative precast flooring solution," explains Billington Structures' Site Manager Andrew James. "Once we've erected the steelwork and lifted the metal decking packs into place, the flooring installation team are able to follow-on and start work straight behind us."

Using two mobile cranes – a 90t-capacity unit and a 50t-capacity unit – Billington Structures divided the main structure into three phases for the erection programme.

The initial phase saw the company erect the middle portion of the car park, either side of which there are two expansion joints, requiring a double-column configuration.

Once this phase was completed, both ends of the structure were then completed. Each end of the car park features rounded corners, formed with faceted members at one end, and curved sections at the other.

The area with the curved sections accommodates the ramp, which links each floor. The ramp is 6m-wide and will be divided in two, accommodating both an up and a down direction route.

Erecting the car park to its full height in each phase, the car park features 13m-high columns throughout.

Creating some future flexibility into the scheme, the foundations, as well as the columns, have been designed for a larger car park. There is sufficient capacity for another two or three floors to be added to the structure, by connecting another steel column to each of the existing members.

Using a steel-framed solution for the project has also created an architectural highlight, as the steel beams and columns will be left exposed in the completed project. Because the frame is exposed, all of the steelwork is galvanized, for weather protection.

The galvanizing was undertaken by Wedge Galvanizing at its Worksop facility, which has the largest hot-dip galvanizing tank in the UK, able to accommodate 16m-long beams.

Once the main MSCP steelwork was erected, a fourth phase of erection was undertaken. This involved erecting two single-storey structures, which are connected to the main car park and will accommodate the new waiting area and an adjoining cycle storage space.

The entire MSCP will be clad with a system of powder-coated metallic vertical fins, which are said to have been designed to give the impression of texture and movement. The perimeter steel members, which will be visible through the fins, were delivered to site with pre-drilled holes, to facilitate the cladding installation.

More information about the scheme can be found at: www.gloucestershire.gov.uk/ACTH ■

Vital Greenwich link installed

Crossing the Blackwall Tunnel Approach Road, a new steel footbridge forms a vital, as well as the only, means of pedestrian access between the two halves of the North Greenwich peninsula.

Forming part of the wider Silvertown Tunnel project (see box), which will deliver London's first new road tunnel under the River Thames in more than 30 years, a replacement steel footbridge has been installed.

Spanning the busy A102 Blackwall Tunnel Southern Approach Roads, the Boord Street Pedestrian and Cycle Bridge is positioned 40m south of an existing 1960s-built concrete bridge, which was recently demolished.

As well as providing an important role in connecting walking and cycling routes across the Greenwich Peninsula, the new bridge is also needed as the road layout of the A102 is changing.

The new layout will be needed as the road will lead to, and serve, the southern portal of the new Silvertown Tunnel, as well as maintaining its existing route to the Blackwall Tunnel.

The overall scheme, including the new bridge, is being delivered by Riverlinx, a construction joint venture (CJV) between BAM Nuttall, Ferrovial Construction and SK ecoplant.

Working on behalf of the CJV, Briton Fabricators has fabricated, supplied and erected the bridge.

Founded on CFA piled foundations, the 57m-long main span of the bridge is formed by a pair of Warren trusses with 200mm × 200mm × 12.5mm SHS diagonal members that connect the top and bottom chords of each truss.

Supporting the 4.5m-wide deck and spanning between the bottom chords of the two Warren trusses is a series of cross member deck transoms, which are 200mm × 200mm × 8mm SHS sections, while the top chords of the trusses are braced by the same sized SHS members spaced at 4m intervals. Stainless steel bird deterrent wiring is positioned across these top booms.

Providing a fully accessible bridge, the structure is designed to modern standards and incorporates lighting embedded within the main span's parapet posts. Briton Fabricators also supplied and installed stainless steel mesh cladding to the sides of the bridge and its access ramps and stairs.

The choice of stainless steel mesh was made as this product will prevent anti-social behaviour and allow inspection and cleaning of the steel structure.

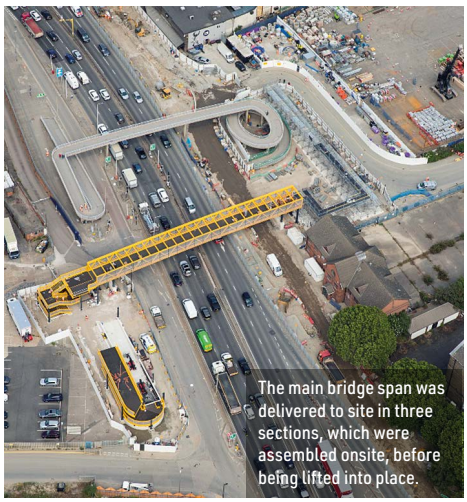
According to architects dRMM, the lighting design has been developed to provide appropriate functional lighting, while enhancing the form, texture and tone of the bridge and associated ramps, stairs and public realm.

Lighting is used to represent the direction of travel of users as they traverse the footbridge, using diffuse lines of light to create a varied but complementary and cohesive design which strengthens the structural form of the bridge.

The lighting will aid users at night, but during daylight hours, people will be able to fully observe the project's steelwork, which has been painted yellow as this colour is said to be uplifting and welcoming.

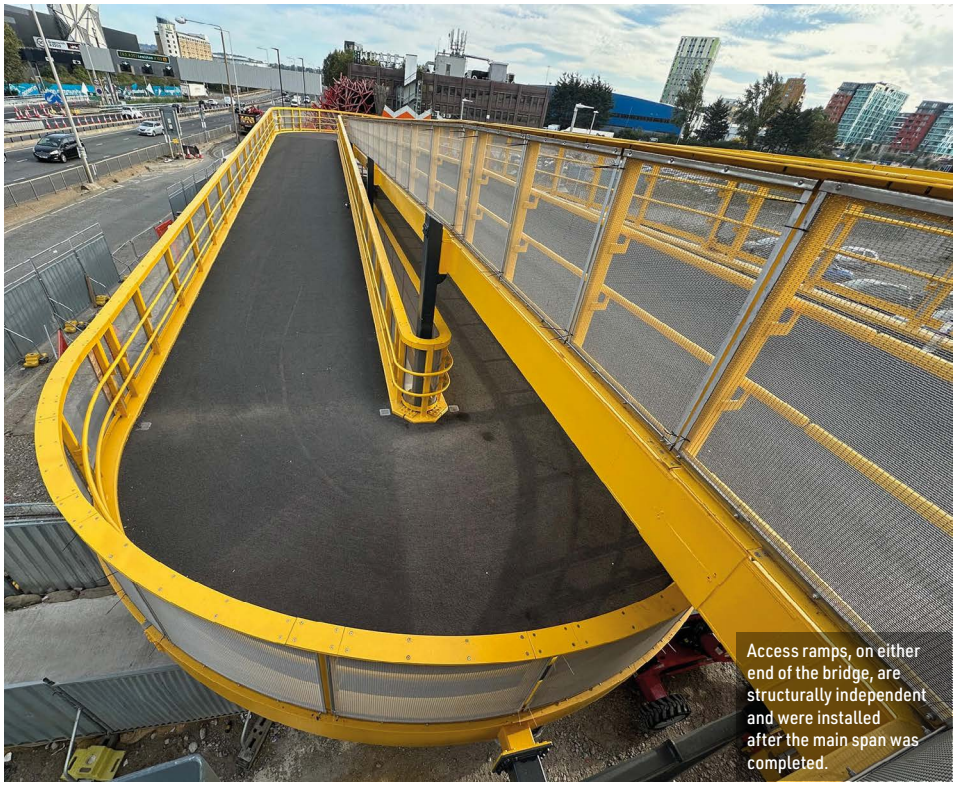
A steel structure was chosen as it enabled the bridge to be prefabricated offsite, which minimised disruption to the busy A102.

Replacing an older bridge, the new and longer structure will span the widened A102.



The main bridge span was delivered to site in three sections, which were assembled onsite, before being lifted into place.

FACT FILE
Boord Street Pedestrian and Cycle Bridge, North Greenwich
Main Client: **Transport for London (TfL)**
Architect: **dRMM**
Main contractor: **Riverlinx CJV**
Structural engineer: **Arup**
Steelwork contractor: **Briton Fabricators**
Steel tonnage: **380t**



Access ramps, on either end of the bridge, are structurally independent and were installed after the main span was completed.

In design terms, the selection of a steel through truss solution provided a structure capable of spanning 57m, while minimising the structural depth below footway level. This, in turn, minimised the length of the approach ramps required at each end of the bridge and the land area required for those ramps and stairs.

The bridge's main span was fabricated at Briton's Nottingham facility as a complete section. It was then painted and a non-slip surfacing was applied, before it was cut into three pieces, bolted connections formed and then delivered to site.

Once the three pieces were onsite, they were re-assembled into a complete section and lifted into the final position using a single 800t-capacity mobile crane. This procedure was undertaken over a weekend closure of the Blackwall tunnel.

With the main span in place, the ramps and stairs on either side of the bridge, which are structurally independent, were erected over the following weeks. In total, 314 linear metres of steel-framed ramps have been installed. ■

Silvertown Tunnel

Following a similar route to the alignment of the IFS Cloud cable car, the Silvertown Tunnel project has been designed to ease congestion around the adjacent and existing Blackwall Tunnel.

Tunnelling work for the 1.4km-long twin-bore tunnel has recently been completed, using just one tunnel boring machine (TBM), with a diameter of approximately 12m.

Helen Wright, Head of the Silvertown Tunnel programme for TfL, said: "The completion of tunnelling works on the Silvertown Tunnel is a massive milestone, and to complete it in under a year shows the hard work and close collaboration of everyone working on the project.

"Engineers are working around the clock to deliver this project with minimal impact to those living, working and visiting the local area and we remain committed to delivering a project that supports growth in the local area and provides new public transport connections across the river."

Juan Angel Martinez, Project Director at Riverlinx CJV said: "This is such an important milestone for the Silvertown Tunnel construction and I would like to congratulate everyone involved in delivering it. The technical expertise, focus and collaboration of this team have enabled us to safely complete the main tunnel drive to programme. Riverlinx is now focusing on the next stages of construction to successfully deliver this vital piece of infrastructure for London."

Structural steelwork is playing an important role in the tunnel works. A total of 247 CHS props, ranging in length from 9m to 41.5m, are being supplied by Severfield to support the 600m of access ramps at both ends of the tunnel. Overall, the company is supplying 4,000t of steelwork for the project, including 600t of waler beams.

The Silvertown Tunnel is expected to be completed in 2025. ■

Steel opens up factory project

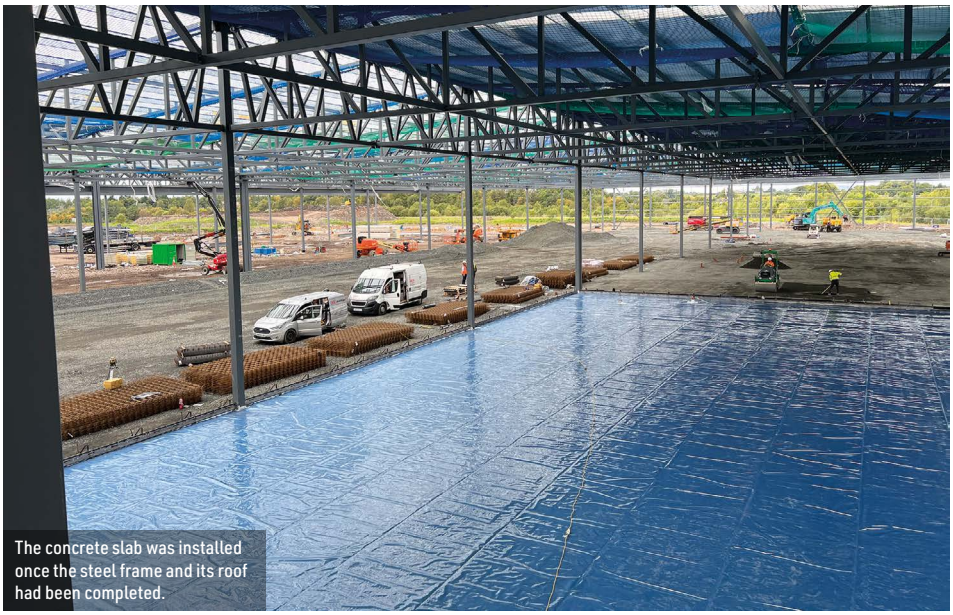
Rising up on the site of a former steelworks, a state-of-the-art steel-framed factory will secure the Scottish future of a company crucial to the whisky industry.

Without bottles we probably wouldn't have a drinks industry and without closures (bottle tops), we wouldn't be able to open or close these containers.

One of the world's largest manufacturers of these indispensable items is Italian-based Guala Closures, who make a huge and important contribution to Scotland's economy by producing bottle pouring mechanisms for whisky distillers including Diageo, Chivas, Edrington and Wm Grants.

Currently, the company has three sites in Scotland, but this is set to change as these operations are to be merged at a new centrally-located factory at Gartcosh, Lanarkshire.

The investment is said to confirm Guala Closures Group's commitment to developing one of its largest markets and underlines their determination to support customers, employees, suppliers and the Scottish economy.



The concrete slab was installed once the steel frame and its roof had been completed.

The project seems to be giving an unintentional nod to Scotland's industrial heritage, as the new factory is located on the site of a former steelworks, which closed down more than 30 years ago and is now the site of the Gartcosh Business Interchange.

With the help of a £3.3M grant from Scottish Enterprise, Guala Closures has bought a 15-acre plot at the business park, on which it is building the 20,438m² factory.

It will be one of the company's largest and will allow it to increase capacity, boost productivity, provide room for future growth and investment and create their own research and development lab space.

Construction on the brownfield site began in late 2022 with preliminary works including a ground stabilisation programme. In preparation for the steel frame erection, vibro columns and pad foundations were also installed.

Working on behalf of main contractor Luddon Construction, Walter Watson erected the structural steelwork for the project in a 10-week programme.

During the construction process, the building has been divided into 13 sections, which allows other trades to immediately start their work once the

FACT FILE
Guala Closures factory, Gartcosh
Main client: **Guala Closures**
Architect: **Convery Prenty Shields Architects**
Main contractor: **Luddon Construction**
Structural engineer: **Grossart Associates**
Steelwork contractor: **Walter Watson**
Steel tonnage: **1,290t**

Steel trusses provide the factory with its required open-plan areas.

steelwork has been erected in each part.

Working in a sequential manner, the cladding and roofing contractors have been following-on behind the steel erectors. Once each section of the building is watertight, the ground floor slab is then installed.

The large steel frame, which measure 180m-long × 120m-wide, has perimeter columns spaced at 7.5m centres. These columns, which are 300 × 300 SHS sections, support a series of trusses that forms the five-span manufacturing area of the factory.

"The project was always going to be a steel structure because of the required large open spans, but there was a design discussion about whether to go for a portal frame or use trusses," explains Grossart Associates Managing Director Hector Munro.

"In the end, trusses were the favoured choice as they create the spans, while also providing the support for internal cranes and space for services within their depth."

On one side of the building, there are two

"The project was always going to be a steel structure because of the required large open spans, but there was a design discussion about whether to go for a portal frame or use trusses."

Visualisation of the completed facility.

30m-wide spans, while the other has three 20m-wide spans. These spans are all formed by a series of correspondingly long trusses, which are 3.3m-deep at the apex, thereby creating the pitched profile of the factory's roof.

Creating some extra column-free space, all of the internal columns are arranged in a hit-and-miss configuration and are thereby spaced at 15m centres.

Two of the 20m-wide spans accommodate overhead gantry cranes, which run along 500mm-deep beams, supported from the bottom chord of the trusses.

Having three spans on this side of the building will add some extra stability to the frame in order to accommodate the loadings imposed by crane movements. Elsewhere, the steel frame gains its stability from bracing, located in the roof and in the perimeter walls.

For ease of transport, the 30m-long trusses were fabricated and delivered to site in two pieces, while the shorter 20m-long trusses were manufactured and supplied as complete sections.

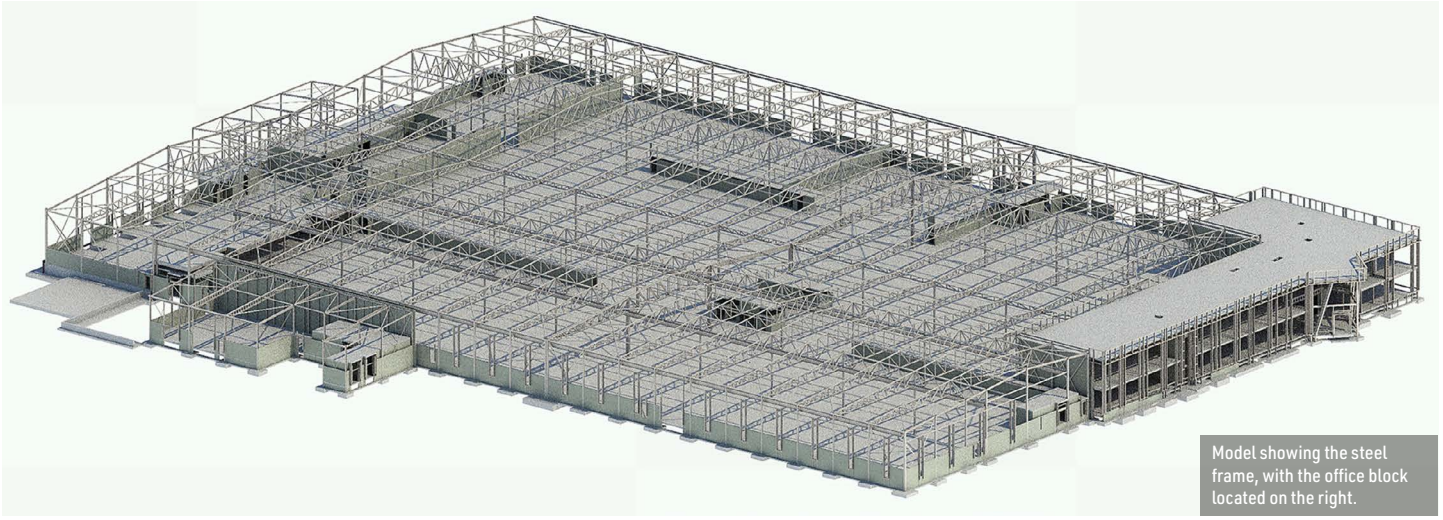
"All of the trusses were transported to site in a vertical position to eliminate the need for wide load procedures," explains Walter Watson Generel Manager Structural Division Trevor Irvine. "This method also allowed the trusses to be erected directly from the trailers, thereby reducing handling and possible damage onsite."

As well as the main manufacturing part of the factory, the project also includes a two-storey office block. The integrated L-shaped office is positioned at one end of the building and will also contain the main entrance. It has been compositely constructed, using steel beams that support metal decking and a concrete topping to form the first floor and the roof.

Summing up, Jane Martin, Managing Director of Innovation & Investment at Scottish Enterprise, said: "The whisky industry continues to be of real importance to Scotland's economy and worldwide heritage. Guala Closures' confidence in investing here shows that it is a crucial sector and one that we in Scottish Enterprise are proud to continue to support.

"This inward investment has been possible as a result of the work and investment by Scottish Enterprise and partners to develop Gartcosh Interchange into an international class business and industry destination."

The Gartcosh factory is due to complete in August 2024. ■



Model showing the steel frame, with the office block located on the right.

Raking columns form a column-free zone for the main entrance.

Passport to a circular economy

Featuring a number of sustainable credentials, the 12-storey Edenica office development is the first City of London scheme to use Materials Passports, digital data sets of used materials and components that allow products to be reused in the future.

FACT FILE
Edenica, 100 Fetter Lane, London
Main client: **BauMont Real Estate Capital, YardNine**
Architect: **Fletcher Priest Architects**
Main contractor: **Mace**
Structural engineer: **Waterman Structures**
Steelwork contractor: **Bourne Steel**
Steel tonnage: **1,100t**

Sustainability and the desire to integrate the project into the circular economy has taken centre stage for the design and construction of the steel-framed Edenica office development at 100 Fetter Lane in the City of London.

Alongside a number of initiatives, the scheme for BauMont Real Estate Capital and YardNine has embraced a pioneering and new concept known as Materials Passports.

Being used for the first time on a project in the Square Mile, Materials Passports are digital data sets, which describe characteristics of materials and components in products and systems, giving them value for present use, recovery and future use. In this way, a project, such as Edenica, can be designed as a storage bank where materials are held for future reuse.

"It's setting a new precedent for London," explains Mace Senior Project Manager Romain Dennison. "This digital asset stores each and every one of the project module's weight, dimension and component characteristic in a BIM database, which creates a robust platform for material circularity, so they can be reused if and when the structure is refurbished or demolished."

Adding to this project's sustainability credentials, it is also targeting the highest environmental standards of BREEAM 'Outstanding', as well as WiredScore, SmartScore and WELL certifications.

Mace started onsite in December 2022, inheriting a plot where the demolition contractor had already removed the previous six-storey concrete-framed office building.

Preliminary works included deepening the existing basement and installing piled foundations to support the new steel-framed structure.

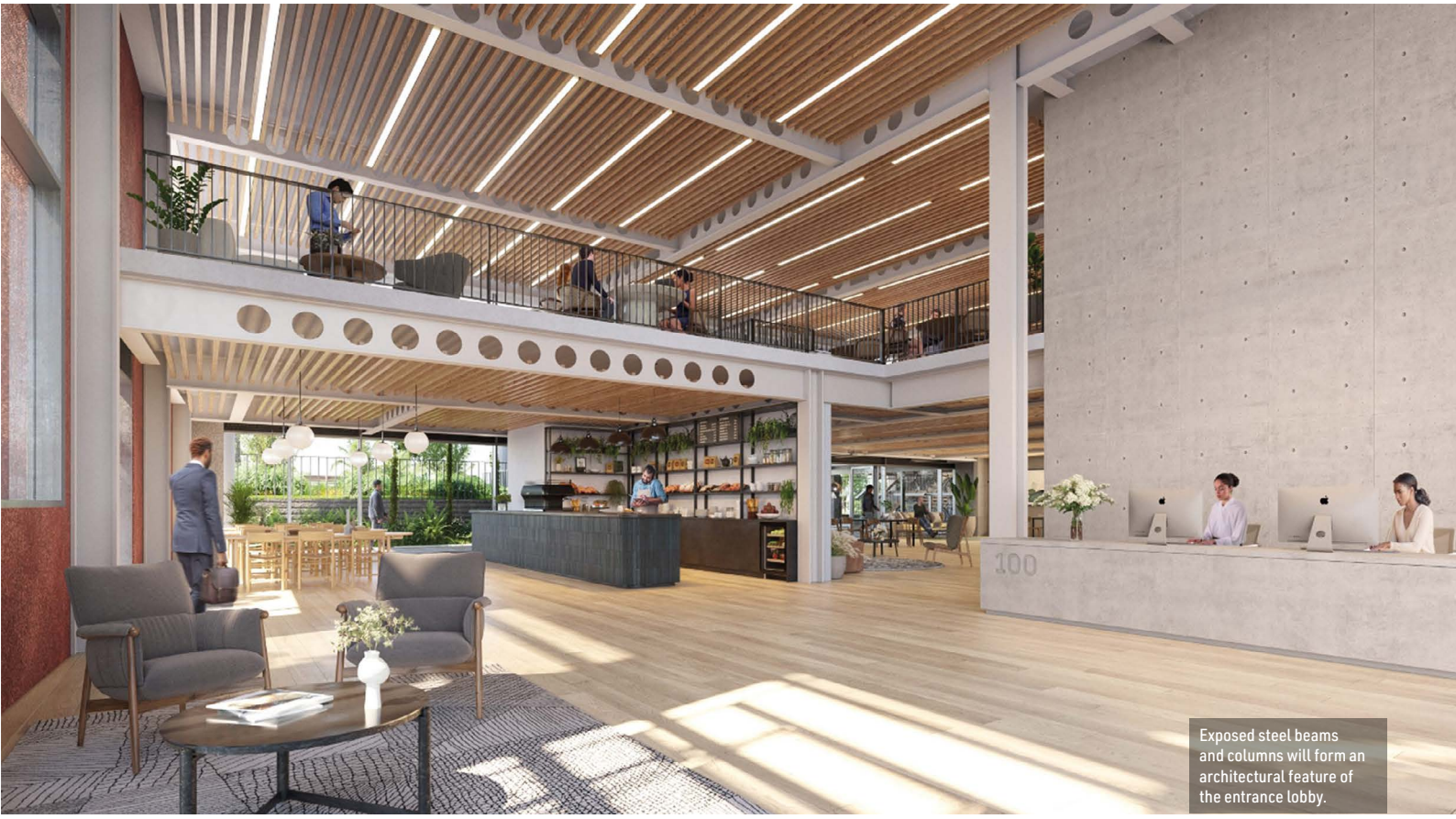
The steel frame starts in the basement, with a series of columns founded on the subterranean level's slab. The columns, delivered to site as single-storey high members, were installed early in the programme.

"They form part of the basement structure and we installed them during an early visit to site," says Bourne Steel Project Manager Theodoros Pitrakkos.

"Once in place, they were encased in concrete and the ground floor slab was cast around the top of them, leaving a small section protruding above the floor, in readiness for the main steel erection to begin."

Prior to the main steelwork erection programme getting underway, the main stability-giving jump-formed concrete core was also begun. The core is offset, positioned on the eastern Fetter Lane elevation, which allows the internal floorplates to be opened-up and maximised.

Above ground floor, the structure consists of steel beams and columns supporting a series of 4.5m x 1.8m precast floor planks. This solution



Exposed steel beams and columns will form an architectural feature of the entrance lobby.

was chosen as the design incorporates an exposed soffit and the planks have the desired smooth high-quality architectural finish to their undersides.

The exposed nature of the project extends to the majority of the internal steelwork as well as the building's services and the core, which will also be left exposed within the main reception area.

Complementing the exposed aesthetically-pleasing look to the building's interior, the column's steel-to-steel connections are made with countersunk bolts, providing a flush finish, while the majority of the steel frame is having a decorative paint finish applied onsite.

Another important consideration, and reason for choosing a steel frame was the need for a lightweight solution as the project's footprint sits directly above a live and operational Thames Water sewer. A similar sized concrete-framed structure may well have proven to be too heavy for the site.

The steel columns are predominantly based around a regular grid pattern, one that is dictated by the terrace set-backs at the upper levels, although there are clear spans of up to 11m in some areas.

Creating the main entrance, which is on the corner of Fetter Lane and Bream's Buildings thoroughfare, a clear column-free space has been formed by doing away with the corner column line below level five.

At the underside of this level, the corner member is replaced by two raking sections that splay inwards towards the adjacent bays, framing the entrance to the building and leaving a clear space for the main entrance.

From level five upwards, Edenica features a number of set-backs that accommodate outdoor terraces, mostly on the southern and eastern elevations. They will be planted with greenery and offer tenants plenty of welcoming breakout spaces.

Having terrace set-backs means the structure reduces in size towards the upper levels, presenting a less formidable block in an area of the City that, in contrast to the well-known eastern cluster, does not have many buildings above 15-storeys high.

"In order to maximise the number of floors within the structure, the transfer beams that support the terraces needed to be as slim as possible," explains Waterman Structures Director Julian Traxler.

"Consequently, the slim transfer beams need to be supported by internal columns, which has been another factor in determining the project's steel grid pattern."

According to Bourne Steel, the transfer beams represent the heaviest individual members in the steel frame erection programme, with the uppermost section, supporting a terrace at level 12, weighing 10.9t.

Using the site's two tower cranes, the steel erection is being coordinated around other onsite trades, which earlier in the programme included the installation of the core. While the jump-forming was ongoing, Bourne, who supplied embedment plates, progressively welded stubs to the plates to ▸20

Steel erection proceeds adjacent to the project's offset core.

▸19 accept the frame's beams.

As well as erecting the steelwork, Bourne has also installed the precast planks. To coordinate both installation processes, the steel frame is being erected two floors at a time. With five separate zones, two fed by one crane and three supplied by the other tower, the erection proceeds in a sequential manner, working around the site in a clockwise direction.

Once steel is erected in each zone, the precast plank installation is able to follow-on behind. In this way, once the steel erection has completed one full circuit of the five zones, the next two-floor stage of the build programme has a completed floor area on which to work off and position MEWPs on.

A temporary propping system is employed to support each phase of the precast plank installation. The props ensure the flooring units are aligned, which is vital for the exposed and aesthetic finish, and remain in place during the pouring of the concrete topping that completes the 150mm-thick flooring solution.

"Coordination between the project's different trades and logistical planning are key on this project," sums up Mr Dennison. "It's a very tight and confined site, bounded on two sides by busy streets, on which we have been able to accommodate our pit lanes, that feed our cranes with materials, keeping the job on schedule."

Edenica is due to complete by the end of 2024. ■

Terraces provide outdoor spaces for the upper floors.

Building material passports

Michael Sansom of the BCSA explains how structural steel material passports can be used to facilitate the growing demand for reusing reclaimed steelwork.

Current interest in reusing reclaimed structural steel demonstrates why we need to think more about the future of our buildings, particularly when they reach their 'end-of-life'. If we had thought more about designing for deconstruction and documenting and archiving product information in the past, then we would have more reclaimed steel available today and we would know its properties and provenance, eliminating the need for costly sampling and testing prior to reuse.

A material passport is a digital document or dataset listing all relevant properties of a product. They are seen as central to facilitate a more circular economy by ensuring that resources are retained and circulated for as long as possible and at their highest value, mainly today via recycling and reuse.

Material passports can be at the material, product or building level. Buildings contain thousands of different materials and products and therefore consistency of data fields, product classification and nomenclature is important, as is the ability to manage large datasets.

The scope and content of material passports are, to some extent, product-specific however, the following types of information are most relevant to structural steelwork material passports:

- Design-related – product classification, geometry, types of connection
- Manufacturing-related – manufacturer, production date and location, product standards, mill test certificate, warranties, environmental product declarations
- Construction-related – contractor information, data carriers, coating and welding information.

Waterman Structures have developed a standardised approach to material passports, in partnership with the EU CIRCuIT project, which defines the scope of materials passports in great detail.

Of course, structural steelwork is well-placed to deliver circular buildings. Already virtually 100% recycled, structural steel is today 'closed-loop' but the opportunity to reuse reclaimed steelwork offers further environmental benefits.

Structural steelwork is produced and fabricated to harmonised product standards ensuring quality and consistency. Physical and chemical material properties are provided via test certificates and integrated design and fabrication software capture and transfer relevant material properties and information (and any subsequent processing, such as painting or welding) during the construction workflows. Full traceability is captured during the fabrication and erection process and made available to the construction client at project completion in the form of an as-built structural model.

Recognising this potential and the ease with which a database of all new steel structures could be developed, SCI produced a prototype, cloud-based portal in 2020 for collating all relevant properties of new fabricated steelwork provided by BCSA members, i.e. product-level material passports. This data was provided, in IFC (Industry Foundation Class) standardised format and securely stored in an SCI database. When a steel frame is scheduled for deconstruction in the future, the building is 'flagged' in the database and all structural member properties made available via a public website so that they can be efficiently reused. Unfortunately, this prototype was not commercialised but maybe now it is time. ■

TEDDS MODULES

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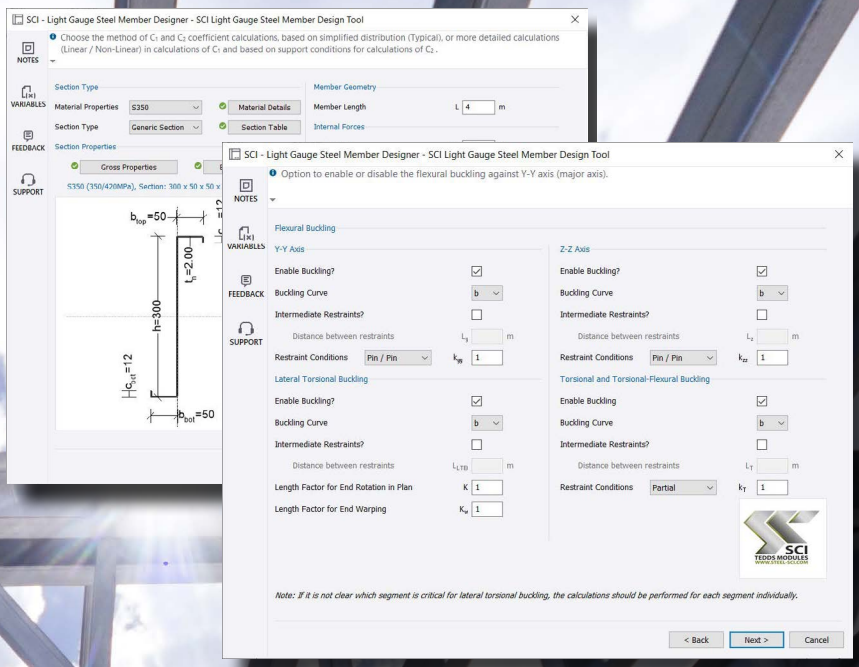

SCI Tedds Modules
Light Gauge Steel Member Designer

SCI has released the next module in our range of specialist **SCI Tedds modules**. This, and other modules in the range, complement and extend the capability of the widely recognised Tekla Tedds software.

SCI is uniquely placed to produce such tools with over **30 years of experience** in providing information and global expertise to the construction sector.

This new Module: **SCI — Light Gauge Steel Member Designer** is available now and is based on the provisions of BS EN 1993-1-3 for the design of cold-formed members and sheeting along with BS EN 1993-1-1 and their associated UK National Annexes. There is a wide range of geometries for generic light gauge steel sections supported within the built-in database including plain C-shapes (tracks), lipped C-sections (studs), lipped Z-sections (purlins).

The module processes the data provided by the user in order to perform all the required member strength checks (ULS) to Eurocode 3, including combined shear force, axial compression and bending moment, torsional flexural buckling and lateral torsional buckling.

This module makes it quick and easy to apply this new procedure and will have **credibility** with checking authorities and warranty providers due to its SCI provenance.

The SCI is committed to helping the steel construction industry meet design, manufacture, installation and commercial objectives.

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+44 (0)1344 636525
teddsmodules@steel-sci.com

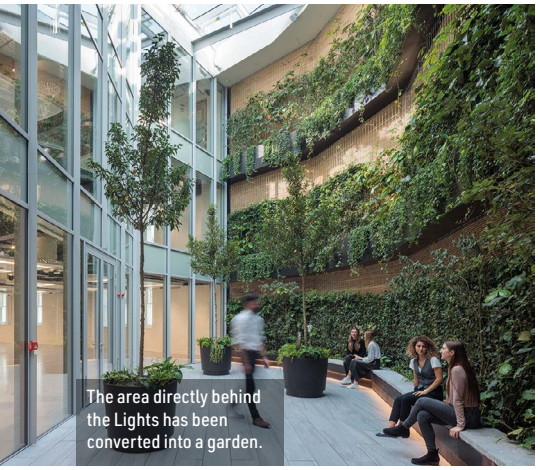
FACT FILE
Lucent at 1 Sherwood Street, London
Main client: **Landsec**
Architect: **Fletcher Priest Architects**
Main contractor: **Wates**
Structural engineer: **Waterman Structures**
Steelwork contractor: **Severfield**
Steel tonnage: **1,500t**

Mixed-use scheme lights up Piccadilly

Sat behind London's most famous billboard, a new steel-framed seven-storey development has reimagined a previously under-used site.

Seen by millions of people every year, the Piccadilly lights have been one of London's most iconic landmarks since the early 1900s.

Over the years, the giant illuminated hoarding has hosted art installations, advertising campaigns and messages from the royal family, while in 2017 it was transformed to support a new digital screen, said to be Europe's largest.



The area directly behind the Lights has been converted into a garden.

Directly behind the Lights, on a large island site, bounded by four streets, a large-scale redevelopment has recently been completed.

The entire block, which previously consisted of 13 disparate buildings, is now occupied by a seven-storey steel-framed mixed-use development designed by Fletcher Priest Architects and known as Lucent.

Within the scheme, there is Grade A office space, retail units, and seven apartments. Topping the scheme, a rooftop restaurant opens up stunning views of the capital.

Fletcher Priest Architects Associate Partner Joe Sweeney, says: "Landmark is an overused word in London, but the Piccadilly Lights are unquestionably world-renowned and one of the most high-profile we've worked on.

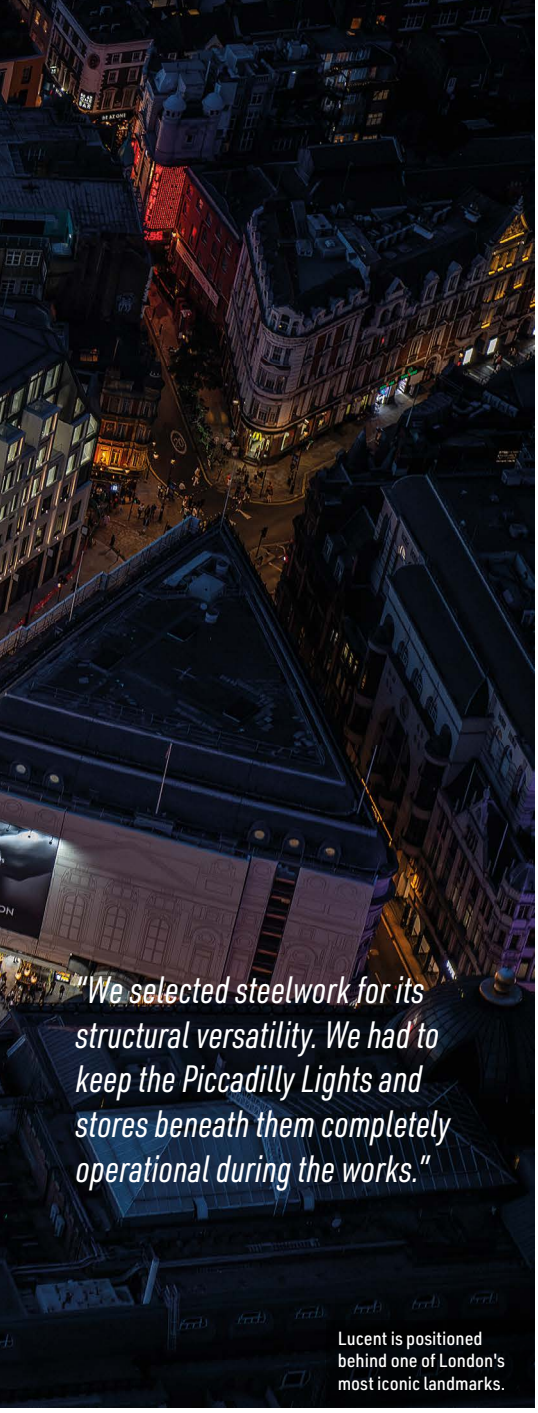
"We thrive on opportunities to unpick and rethink complicated sites such as this and, after a decade of hard work, we believe the outcome is something the whole project team should be proud of. An anonymous, underutilized collection of buildings has been transformed into a huge, unified space in the heart of London that both occupiers and the public can now access and enjoy."

The exterior of this complex, historic site has been celebrated and protected, with new façades designed to echo nearby styles and certain elements, including listed buildings, carefully dismantled and restored. In this way, the new building fits seamlessly into its surroundings.

Two large retained elements are also incorporated into Lucent. One is the structure supporting the Piccadilly Lights digital screen and the other is a two-storey store incorporating a Boots unit.

The shop is a large concrete-framed element, fronting Piccadilly Circus. The new scheme's lower levels form a horseshoe shape around the Boots unit, while above third floor, the development spans over it.

"We selected steelwork for its structural versatility. We had to keep the Piccadilly Lights and stores beneath them completely operational during the works. This was no easy feat, as we dismantled everything else and excavated a three-storey basement in possibly one of the busiest areas in the country," adds Mr Sweeney.



"We selected steelwork for its structural versatility. We had to keep the Piccadilly Lights and stores beneath them completely operational during the works."

Lucent is positioned behind one of London's most iconic landmarks.

All of the steelwork was erected by the onsite tower cranes.

A large 36m-long rooftop truss spans over the project's retained elements.

Including Boots, the layout for Lucent consists of retail elements at basement, ground and first floor, and office spaces generally starting at second floor and extending up to seventh.

The two retained structures presented two considerable challenges for the design and construction team, as Severfield Project Associate Director Nick Scott explains: "We had to carefully erect steelwork over the existing Boots store and thread steel beams around the Lights, without damaging them or requiring them to be shut down."

The structure supporting the digital screen was temporarily propped during the demolition and construction works. Once Lucent was completed, the props were removed and the screen now gains its lateral stability from being connected to the new steel-framed structure.

Interestingly, the space behind the screen, has provided the scheme with space for a light garden, extending from third to fifth floor. Described as a tranquil space just metres from one of the busiest throughfares in London, the covered space is naturally ventilated by opening skylights and features a living wall as well as a mature tree.

The light garden is just one of a series of outdoor spaces throughout the building, designed to support the wellbeing of tenants, as well as improve the environment and biodiversity of the area. A total of 22 terraces and gardens across the building include a variety of planting, with more than 600 plants from 38 different species.

While the screen structure relies on the new build for its stability, the retained Boots structure supplies some support to the new elements of the project.

The design team had access to the original design drawings, which revealed there was some spare capacity in the concrete structure.

"The areas of the third and fourth floor office levels, which span over Boots, are founded on the retained building," explains Waterman Structures Director Andrew Sherlock.

"However, in order to not overload the retained store structure, our solution for the remaining upper levels was to suspend them via UC sections, acting as hangars, from a large roof level truss."

The truss is 36m-long x 3.5m-deep, positioned at seventh floor and integrated between the rooftop restaurant and a plant deck.

Throughout the development, the new steel-framed structure is designed around a standardised grid pattern, with internal spans of up to 12m, providing the office floorplates with the desired open-plan environment.

The workspace has been designed to the highest standards and can be considered one of the healthiest in the country, with a target rating of WELL Core Gold. Committed to sustainability, the building is also targeting a BREEAM 'Outstanding' rating.

A composite flooring solution has been used with steel beams supporting metal decking and concrete topping. The beams are all cellular sections that accommodate the building's services within their depth. The services and much of the steelwork are left exposed within the development as an architectural feature.

Summing up, Marcus Geddes, Managing Director for Workplace at Landsec says: "Businesses are focused on finding innovative spaces that best serve the needs of their people, meaning that modern office space in prime locations will continue to outperform other markets. The leasing momentum we've seen at Lucent is testament to this.

"Access to amenity is fast becoming one of the biggest drivers in leasing decisions, with businesses looking for spaces that can attract and retain the best talent. The combination of office space, retail and an unparalleled restaurants and leisure onsite make Lucent a new destination in its own right." ■

Reaching for the asymptote – what is an optimal design?

Greatly simplifying the complex subject of structural design, one would imagine that an optimally designed element, or structure, would achieve unity factors of 1.0 for all verifications using the minimum amount of material. That may be true if embodied energy is our only concern, and we consider material use as a metric for 'carbon'. It probably isn't true if we are concerned with cost, as there are many reasons why a lower cost solution might well use more material to achieve the same, or better, resistance. Organisations such as SCI have been preaching that 'lowest weight is not lowest cost' for three decades.

Using some examples from the very topical subject of performance in fire, in this article Graham Couchman of SCI will illustrate how different definitions of optimal could lead to very different solutions. The purpose of the article is to encourage designers, and indeed those who procure and construct buildings, to understand what they want and be open to different approaches.

Introduction

Guidance on how to design for more sustainable construction is due for publication by SCI in early 2024 [1]. Its production acknowledges that for the first time in a generation, designers are now having to consider metrics other than (initial) financial cost when striving for an optimal solution. Having spent a career with the mantra of 'lowest weight is not lowest cost' it requires a serious change in mindset. This change of mindset will also require clients to change their approach of choosing the designer proposing the lowest fees, as lowest design fees will rarely lead to the lowest cost solution. The latter point has been well demonstrated by work undertaken at the University of Cambridge in recent years [2], showing how much steel is wasted as a result of reducing design time. Having to consider different definitions of optimum certainly complicates things. Is a 'great' design one that costs the least to build, one that costs the least to design (some aspects of which are what we have traditionally got as a result of how contracts are organised), one that uses least material, one that will be adaptable in the future, or reuseable, and so the list goes on. The examples below, both of which relate to design for the fire limit state, illustrate design choices that could be made, and should be informed by the definition of 'optimal'. One is obvious, the other is more subtle.

Composite slabs – is all that concrete needed?

Composite slabs are designed considering three very different scenarios:

- The ability of the decking to support its self-weight, the wet weight of concrete, the self-weight of any mesh, and construction imposed loads,
- The ability of the composite slab, comprising in-situ concrete with mesh and/or fibres and steel decking acting as external reinforcement, to support normal state loads,
- The ability of the composite slab, with resistance reduced due to elevated temperatures, to support reduced loads at the fire limit state.

For the first two scenarios both resistance and stiffness of the decking and slab respectively must be adequate. Stiffness is not explicitly considered for fire design. In over 80% of cases the first of the scenarios above, the construction stage, governs. This indicative figure is for the UK market, despite our common practice of thru-deck welding of the shear studs, which facilitates making the decking sheets continuous and therefore undergoing significantly reduced deflections compared to simply supported sheets. When the ability of the decking to support construction dead and imposed loads limits the spans that can be achieved, it is clear there is not point in say adding depth to the slab in order to increase the composite resistance. Indeed that would be counterproductive as it would add to the wet weight of concrete. Table 1 distinguishes the spans that can be achieved for each design condition for a typical slab with the attributes below:

- 150 mm total depth (composite stage assumes, as is almost universally done in the UK, that the slab is discontinuous at both ends despite the physical reality)
- 60 mm trapezoidal decking, 0.9 mm gauge (assumed continuous at one end)
- REI 60 minutes (concrete assumed to be continuous at both ends)

Consideration	Maximum span (m)	Governing verification
Construction	3.17	Deflection[1]
Normal composite	4.91	Moment resistance
Fire (composite)	4.06	Moment resistance

[1] It is worth noting that whilst deflections are considered an SLS check, deflections of decking at the construction stage may increase the depth of slab and have 'ultimate' consequences.

Table 1 – Spans that can be achieved for the construction, normal composite and fire stages for a typical slab

However, it is worth considering why the design of an element such as a composite slab is so often governed by the construction stage. Developments in decking profiles over the past 25 years have been driven by a desire to reduce the volume, and therefore wet weight, of concrete. The difference in the volume of the voids formed in a slab with either nominal 50 mm re-entrant decking or nominal 60 mm trapezoidal decking is immediately clear when the decking geometries are considered (Figure 1). However, to achieve adequate performance in fire requires a certain depth of concrete. Requirements for acoustic attenuation may also dictate the depth (mass) of the slab. In fire the depth is needed to ensure that the unexposed upper surface of a slab with a fire below stays below a certain temperature (to satisfy the insulation criterion in Approved Document B[3]). In some situations, such as short spans with low imposed loads at the final stage, a more optimal solution might use less concrete, and other means of assuring fire and acoustic performance.

▸26

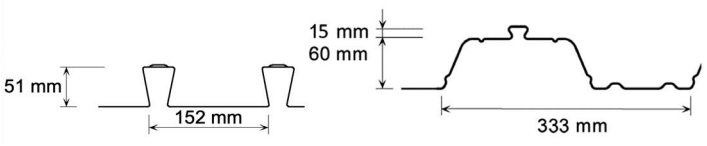


Figure 1 – Cross-sections of a nominal 50 mm re-entrant deck and a nominal 60 mm trapezoidal deck

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▸24 Depending on what metric defines optimal, this could be through the provision of extra layers rather than just increasing the thickness of concrete. So the real condition governing design in numerous cases is actually fire, but this is not transparent as it manifests itself in software etc as a 'minimum' acceptable slab depth that then impacts construction stage design.

Composite beams – what performance is important?

When considering the fire protection of a composite beam, the cross-section is typically broken down into elements. BS EN 1994-1-2 Clause 4.3.4.2[4] gives rules for un-encased downstand beams and notes how the section should be divided into parts (flanges, web, slab), assuming no heat transfer between them (Figure 2). Various sub clauses identify how to calculate the increase in temperature of a given part, as a function of time. Having established the temperature of each part for the required time period (the temperature varies, amongst other things, with the ratio of surface area to volume of the part), the amount of fire protection can then be determined. Clause 4.3.4.2.2 (9) considers the issue of transverse decking laid on the beam, and recognises that when voids thus form above the steel beam top flange, only part of which is then in direct contact with the slab, their 'size' can affect the flange temperature. The code assumes that more than 85% direct contact between beam and slab is as good as total contact, providing protection to the upper surface of the flange, whereas less than 85% leaves the flange 'exposed' (unless the voids are filled with appropriate material). Software from proprietary beam manufacturers recognises this, and uses an approach whereby temperatures in the top flange are 'adjusted' to allow for more than 15% voids. These higher temperatures must be addressed by using increased fire protection.

Table 2 is reproduced from SCI's recently updated publication P300[5] and presents simplified rules for achieving the required level of fire protection when voids are unfilled, for different fire resistance periods. It shows that for 90 minutes a considerable increase in protection may be required. This could have significant and not obvious consequences on cost/programme if it resulted in a need for an additional coat of offsite intumescent, because of the requirements for drying time.

However, as noted the procedure described above is based on considering each part of the composite cross-section in isolation, and ignores the fact that some parts are more important than others. The upper steel flange of a composite beam is rarely important, post-construction stage, because the concrete slab carries most if not all of the compression. This is why composite beams often have asymmetric steel flanges. Moreover, when there are large web openings the design of the beam is likely to be governed by web-post buckling, not compression flange (steel and/or concrete) resistance. So why waste fire protection material to ensure a level of performance of a cross-section part that is not needed? The answer is ease of design, sometimes combined with a lack of understanding.

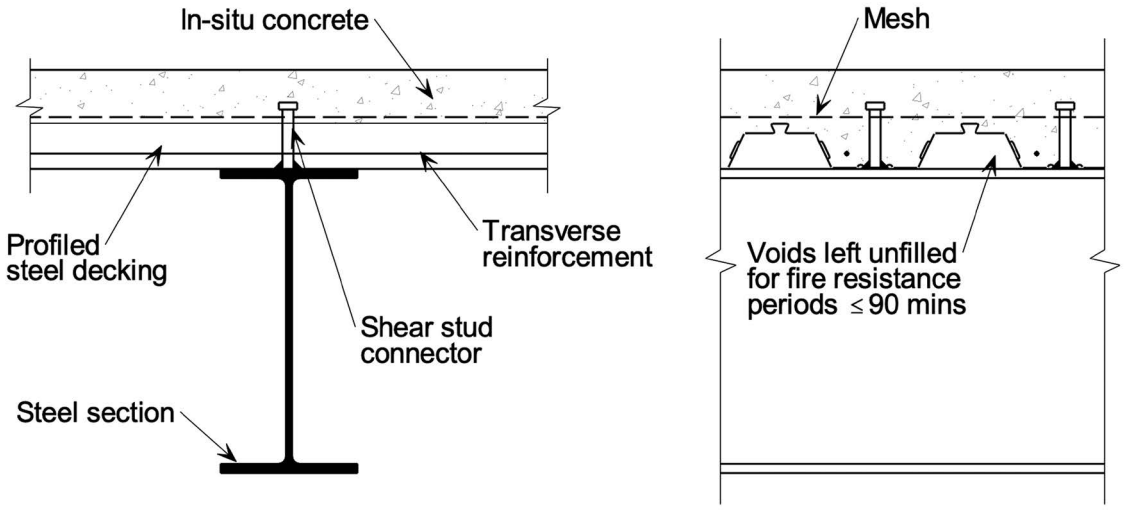

Figure 2 – Typical composite beam cross-section and elevation

Trapezoidal deck				
Beam type	Fire protection on beam	Fire resistance		
		Up to 60	90	Over 90
Composite	Insulating sprays and boards (assessed at 550°C)	No increase in thickness	Increase thickness by 10 % or assess thickness using *A/V* increased by 15%*	Fill voids
	Intumescent coatings (assessed at 620°C)	Increase thickness by 20% or assess thickness using *A/V* increased by 30%*	Increase thickness by 30% or assess thickness using *A/V* increased by 50%	Fill voids
Non composite	All types	Fill voids		
Dovetail deck				
Beam type	Fire protection on beam	Fire resistance		
		Up to 60	90	Over 90
Any	All types	Voids may be left unfilled for all periods of fire resistance		

* The least onerous option may be used (*A/V*=heated surface area per unit volume of the steel section)

Table 2 – Recommendations for fire protection of voids between decking and beam

When sufficient fire protection is used, it ensures that ambient temperature design will govern, so elevated temperature structural design is not explicitly needed. This is achieved when the reduction in resistance with temperature is less than the reduction in load factors when fire is considered. However, even without explicit design at elevated temperatures, it might be possible to produce a more efficient design for the scenario described above. The presence of higher temperatures in the upper steel flange, sufficiently high for fire design to govern, could be modelled in an ambient design by using a smaller upper flange, rather than reduced material strength, to represent a loss in resistance. If this smaller beam still worked then the higher temperatures at the fire limit state would not be a problem, and some of the fire protection could be 'saved' to provide a more optimal design. This conclusion is based on the assumption that any reduction in shear connection resistance with temperature would not be relevant This assumption is not unreasonable given the reduction factors for studs and associated concrete given in BS EN 1994-1-2 Cause 4.3.4.2.5.

Conclusions

The design, construction, use and ultimately removal of a building at end of life are each in themselves complicated, and taken together that complexity increases due to the interactions between these different phases. It then becomes extremely difficult to identify what is an optimal design. Traditionally optimisation has considered the simple metrics of design fees, and more significantly construction cost. More recently whole life (financial) cost, and 'carbon cost', have come into consideration. This is therefore an interesting time for designers, who will be able to use their skills and experience to come up with solutions that are more broadly optimal. ■

References

1. Design recommendations for sustainable steel construction (P449), The Steel Construction Institute (to be published)
2. Moynihan M. C. and Allwood J. M. Utilization of structural steel in buildings. Proceedings of the Royal Society. August 2014
3. Approved Document B: Fire safety. The Building Regulations 2010. UK Government, 2022
4. BS EN 1994-1-2:2005 Eurocode 4. Design of composite steel and concrete structures. General rules. Structural fire design. BSI
5. Composite Slabs and Beams using Steel Decking: Good Practice for Design and Construction (P300, Third Edition), The Steel Construction Institute. 2023

AD 519:
Equivalent horizontal forces and combinations of actions

Recent questions to SCI's Advisory Desk have shown that some designers are unclear whether equivalent horizontal forces (EHFs) should be applied to a structural frame in serviceability and accidental load combinations.

EHFs are intended to allow for frame imperfections such as a lack of verticality (the frame is out of plumb), which is a geometrical imperfection as described in BS EN 1993-1-1:2005 clauses 5.3.1 and 5.3.2. A lack of verticality of the structural frame produces lateral effects, since the vertical loads are eccentric to the base positions. Frame imperfections lead to increased design forces in a stability bracing system, or increased sway moments in a continuous frame. EHFs must be included in all ultimate limit state verifications, unless the condition discussed below is satisfied.

Serviceability load cases are intended to determine the effects of variable actions on the users of a building and on brittle finishes. EHFs do not have to be included in serviceability load combinations.

Accidental combinations of actions are an ultimate limit state verification and therefore the EHFs should be included.

EHF do not need to be included in ultimate limit state verifications when the externally applied lateral loads are relatively high compared to the vertical loads. As noted in BS EN 1993-1-1 clause 5.3.2 (4), EHFs need not be included when:

$H_{Ed} \geq 0.15\ V_{Ed}$

where:

H_{Ed} is the design value of the horizontal loads,

V_{Ed} is the design value of the vertical loads.

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Telephone: **01344 636555**
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New and revised codes and standards

From BSI Updates November and December 2023

BS EN PUBLICATIONS

BS EN 1990:2023
Eurocode. Basis of structural and geotechnical design
supersedes BS EN 1990:2002+A1:2005 and BS EN 1997-1:2004+A1:2013, which remain current

BS EN ISO 6507-1:2023
Metallic materials. Vickers hardness test. Test method
supersedes BS EN ISO 6507-1:2018

BS EN ISO 14919:2023
Thermal spraying. Wires, rods and cords for flame and arc spraying. Classification and technical supply conditions
supersedes BS EN ISO 14919:2015

BS IMPLEMENTATIONS

BS ISO 630-6:2023
Structural steels. Technical delivery conditions for seismic-proof improved structural steels for building
no current standard is superseded

BS ISO 4990:2023
Steel castings. General technical delivery requirements
supersedes BS ISO 4990:2015

BS ISO 9477:2023
High-strength cast steels for general engineering and structural purposes
supersedes BS ISO 9477:2015

CORRIGENDA TO BRITISH STANDARDS

BS EN ISO 25980:2023
Health and safety in welding and allied processes. Transparent welding curtains, strips and screens for arc welding processes
Corrigendum, November 2023

BRITISH STANDARDS REVIEWED AND CONFIRMED

BS EN ISO 898-1:2013
Mechanical properties of fasteners made of carbon steel and alloy steel. Bolts, screws and studs with specified property classes. Coarse thread and fine pitch thread

BS EN ISO 6507-2:2018
Metallic materials. Vickers hardness test. Verification and calibration of testing machines

BS EN ISO 6507-4:2018
Metallic materials. Vickers hardness test. Tables of hardness values

BS EN ISO 9692-1:2013
Welding and allied processes. Types of joint preparation. Manual metal arc welding, gas-shielded metal arc welding, gas welding, TIG welding and beam welding of steels

NEW WORK STARTED

EN ISO 148-1
Metallic materials. Charpy pendulum impact test. Test method
will supersede BS EN ISO 148-1:2016

EN ISO 2063-2
Thermal spraying. Zinc, aluminium and their alloys. Execution of corrosion protection systems
will supersede BS EN ISO 2063-2:2017

EN ISO 6892-2
Metallic materials. Tensile testing. Method of test at elevated temperature
will supersede BS EN ISO 6892-2:2018

EN ISO 9013:2017/A1
Thermal cutting. Classification of thermal cuts. Geometrical product specification and quality tolerances
will supersede BS EN ISO 9013:2017

EN ISO 14001:2015/A1
Environmental management systems. Requirements with guidance for use
will supersede None

EN ISO 14918
Thermal spraying. Qualification testing of thermal sprayers
will supersede BS EN ISO 14918:2018

ISO 4354
Wind actions on structures
will supersede None

DRAFT BRITISH STANDARDS FOR PUBLIC COMMENT – ADOPTIONS

23/30466771 DC
BS EN 18001 Curtain walling. Environmental Product Declarations. Product category rules for curtain walling
Comments for the above document were required by 21 November, 2023

23/30477421 DC
BS ISO 16733-1 Fire safety engineering. Selection of design fire scenarios and design fires. Selection of design fire scenarios
Comments for the above document were required by 4 December, 2023

23/30445352 DC
BS EN ISO 6506-1 Metallic materials. Brinell hardness test. Test method
Comments for the above document were required by 16 December, 2023

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STEEL for life

FOOTBRIDGES

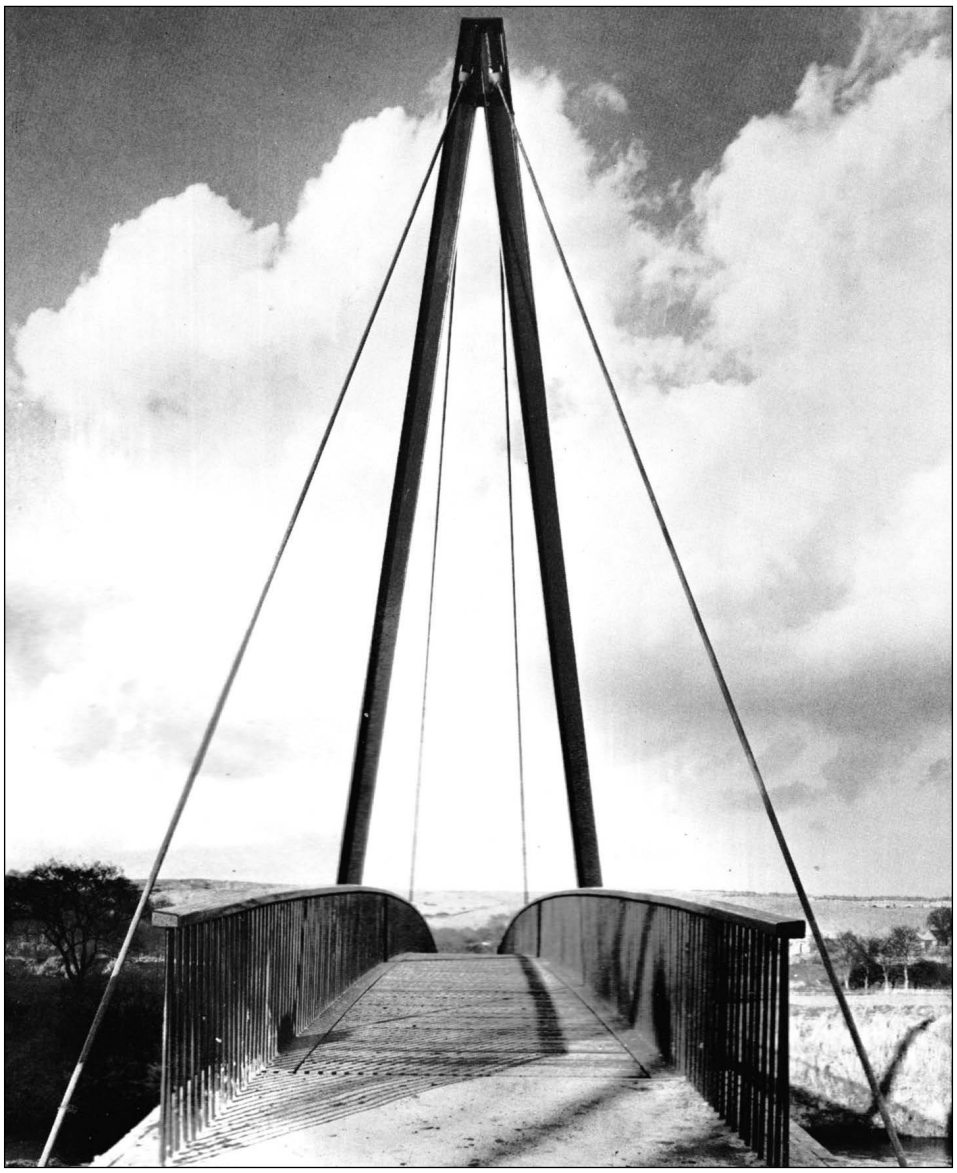
FROM

Building with Steel

August 1973

In the days when early Renaissance artists were required mainly to paint altar pieces they carried out many of their experiments in the small predella panels which were not so restricted in treatment by the clerics as the main pictures above. Perhaps it is stretching the analogy too far to suggest that footbridge designers have similar freedom from restrictions bound as they are to follow the dictates of BS and CP. Nevertheless the examples featured in these pages do exhibit a freedom from the conventional approach that is often pleasing in its results and sometimes appears a little more adventurous than is found in most larger structures.

But it would be wrong to suggest that all footbridge design is unconventional or that it should be. Clearly each structural solution is developed from the conditions laid down in the brief and often the most important of these is cost. When this is so a conventional approach is often the most easily justified and in any case might well be the most appropriate when measured against the other criteria. With our growing concern for the environment we are becoming much more conscious of the design and placing of all man-made objects and it is evident from these pages that well designed steel footbridges can often enhance rather than detract from their surroundings.

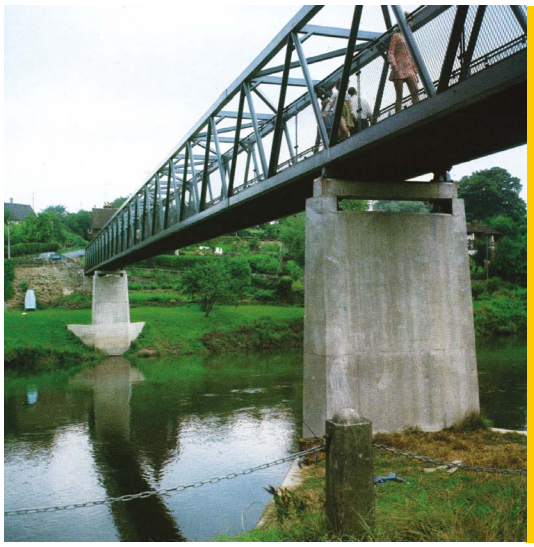


Maiden Castle

Durham

A one-mile journey has been eliminated by this new 188ft span bridge linking the playing fields and changing facilities at Maiden Castle Sports Hall. Although primarily for pedestrians, vehicles and maintenance equipment can cross the bridge. The cable-stayed structure is asymmetrical supported from an A frame on the Maiden Castle side as the opposite bank could not carry heavy erection equipment. Protective bunds about 40ft from the banks necessitated a longer span than the river required. Ample clearance has been provided for severe flood conditions. Steel was chosen for economy and ease of construction.

Owners: University of Durham
Engineers: Ove Arup & Partners
Steelwork Contractors: Robert Frazer & Sons Ltd



Arley. Worcestershire

over River Severn

This 270ft long continuous bridge is constructed from structural hollow sections with a mild steel plate deck. The centre span is 154ft and the side spans are each 57ft 6in while the width is 6ft. It has been designed for crowd loading and prior to opening was subjected to a test from tractors carrying sand. The structure is painted in two shades of green to blend with the natural beauty of this delightful stretch of the Severn between Bewdley and Bridgnorth.

Client and Engineers: Worcestershire County Council (W.R. Thompson, FICE, F Inst HE, County Surveyor and Bridgemaster)
Contractor: Worcestershire County Council

Leicester

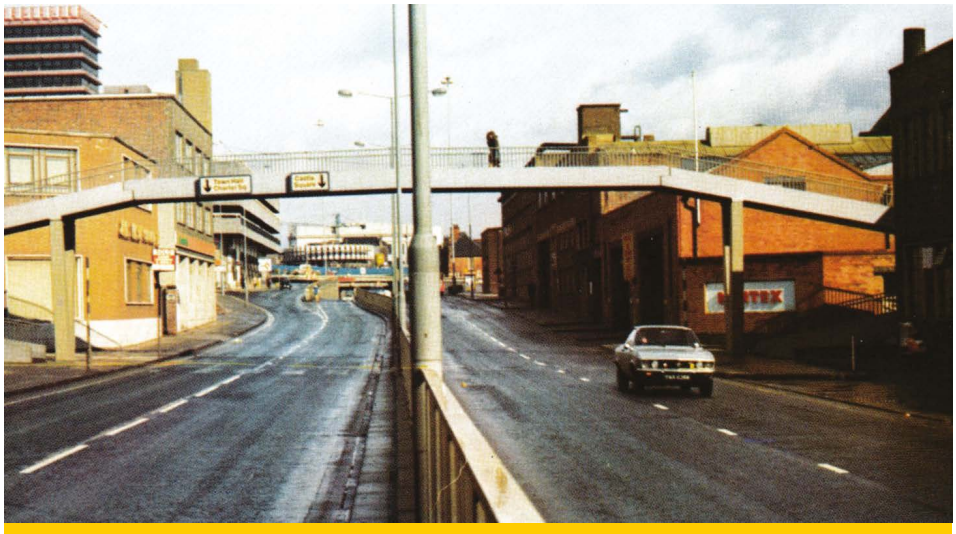
Over Charles Street

This bridge links a large city centre shopping and entertainment complex at Haymarket, Leicester to an important access area by crossing busy Charles Street which has dual 3-lane carriageways. The brief from the city engineer laid great emphasis on aesthetics. For slimness and lightness steelwork was selected and of the alternatives Vierendeel girder was favoured. The girders are 2·75m deep and 22·6m long and are stabilized with roof and floor diaphragms. The girders are made of high-yield steel rectangular hollow sections. Erection took place during one Sunday during which Charles Street was closed. The floor deck consists of a troughed steel sheet which was laid as soon as possible to enable concreting and finishing to take place over the opened road. Access to and from the bridge is by escalators at one end while at the city centre the level matches the bridge deck.

Client: City of Leicester

Engineers: Kenchington, Little & Partners (Nottingham office) under the direction of W. R. Shirrefs, the City Engineer

Steelwork: Richards Structural Steel Company Ltd



Sheffield

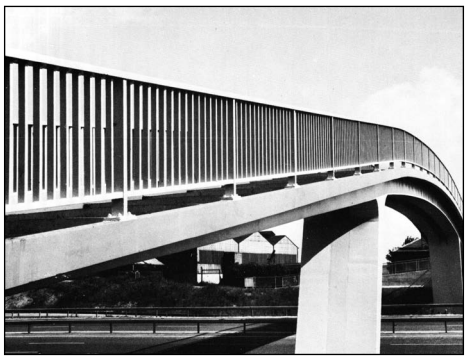
Over Eyre Street

Part of the Eyre Street improvement programme, this bridge consists of two welded box girders 2ft 1in wide x 6ft apart with a ¼in thick steel plate stepped deck stiffened by 2½ x 1 ½in RHS at 4ft 6in centres. The structure was made in five sections each of 7 tons and delivered to site complete including hand railing. A DOE paint system was used and Dunlop Gripdeck compound was applied to the deck before delivery. Traffic in Eyre Street was stopped only for a short period early one Sunday morning when the centre span was positioned.

Owner: City of Sheffield

Engineer: A. Threapleton, C Eng MICE, MI Mun E, City Engineer and Surveyor

Steelwork Contractor: Harry Peers & Co. Ltd



Westbury Place

Leeds. Over the M1

The footbridge spans the central carriageway of the M1 extension and the lower level slip roads at both sides. Several schemes in both steel and concrete were tried. Headroom considerations gave a final shape of curved central span and sloping side spans. Steel was chosen because it was suited to the slender shape required and the erection and construction procedures would minimize interference with construction traffic beneath.

The curved central portion was kept a constant depth due to the structural requirements at the centre of the span and over the legs, whilst the side spans were varied in depth. Inclined tapered legs were adopted to shorten the centre span whilst maintaining adequate lateral clearance at ground level. The fully welded structure of twin box section minimizes torsional problems on the 10ft wide structure and also gives a neat and easily maintained form to the bridge.

Stepped ramps on the wings minimize the length and the RHS welded to the edge of the deck plate conceal the steps in the ramps and the stiffeners to the underside of the cantilevered deck plate; they also serve as a base to the parapet. Sliding bearings are incorporated at the abutments to allow for temperature movement with pinned bearings under the main portal legs.

Owners: Leeds CBC

Engineer: A. E. Naylor, M Eng, C Eng, City Engineer and Surveyor, Leeds Steelwork Contractors: Downings (Barnsley) Ltd

Glascote

Near Tamworth

The bridge is 16ft wide and has both cycle track and pedestrian walkway. Constructed of RHS, the bridge is 120ft long overall with a clear span of 70ft at road level. The central portal frames made from 18 x 10 x ½in Grade 43C RHS were site welded, and the side beams are 18 x 14 x ½in Grade 50C RHS. It is surmounted by three lines of RHS handraillng which has 2 x 2in posts, 5 x 2in horizontals and 1 x 1 in infill.

Client: Borough of Tamworth

Designed by: J. A. Maudsley, CBE, ARIBA, Dip TP, AMTPI, Architect to the City of Birmingham in association with A. Shaw, MI Mun E, the Borough Engineer and Surveyor Tamworth

Consulting Engineers: Leonard Laing & Partners, Birmingham, R. A. Lycett (Construction Engineers) Limited, Tamworth

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- **D** High rise buildings (offices etc over 15 storeys)
- **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 £5,000,000
Adey Steel Ltd	01509 556677	●		●	●	●	●	●	●	●	●			●	●	✔	3		●	Up to £3,400,000
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
ASME Engineering Ltd	020 8966 7150			●	●	●		●	●	●	●		●	●	●	✔	4		●	Up to £5,000,000
Atlasco Constructional Engineers Ltd	01782 564711			●	●	●	●			●	●			●	●	✔	2			Up to £1,200,000
B D Structures Ltd	01942 817770			●	●	●	●				●	●		●	●	✔	2	✔	●	Up to £2,400,000
Ballykine Structural Engineers Ltd	028 9756 2560			●	●	●	●	●				●				✔	4	✔	●	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 £1,200,000
D H Structures Ltd	01785 246269			●	●		●				●						2			Up to £400,000
D Hughes Welding & Fabrication Ltd	01248 421104				●	●	●	●	●	●	●		●	●	●	✔	4			Up to £1,200,000
Duggan Steel	00 353 29 70072	●	●	●	●	●	●	●	●		●				●	✔	4			Up to £10,000,000
ECS Engineering Services Ltd	01773 860001	●		●	●	●	●	●	●	●	●			●	●	✔	4		●	Up to £5,000,000
Elland Steel Structures Ltd	01422 380262		●	●	●	●	●	●	●	●	●	●		●	●	✔	4	✔	●	Up to £10,000,000
EvadX Ltd	01745 336413		●	●	●	●	●	●		●	●	●			●	✔	3		●	Up to £3,400,000
Four Bay Structures Ltd	01603 758141			●	●	●	●	●		●	●			●	●		2			Up to £1,200,000
Four-Tees Engineers Ltd	01489 885899	●		●	●		●	●	●	●	●		●	●	●	✔	3		●	Up to £2,400,000
Gorge Fabrications Ltd	0121 522 5770				●	●	●	●		●				●	●	✔	3			Up to £1,200,000
G.R. Carr (Essex) Ltd	01286 535501	●		●	●			●			●			●	●	✔	4			Up to £1,200,000
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)
H Young Structures Ltd	01953 601881			●	●	●	●	●			●			●	●	✔	4	✔	●	Up to £5,000,000
Had Fab Ltd	01875 611711				●		●	●	●	●	●			●	●	✔	4			Up to £6,500,000
HBE Services Ltd	01525 854110				●	●				●				●	●	✔	2			Up to £800,000
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
Kloeckner Metals UK Westok	0113 205 5270												●			✔	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 Fabrications Ltd	01506 858466				●				●	●	●			●	●		3			Up to £400,000
M Hasson & Sons Ltd	028 2957 1281			●	●	●	●	●	●	●	●			●	●	✔	4		●	Up to £1,400,000
M&S Engineering Ltd	01461 40111				●				●	●	●				●	✔	3			Up to £2,400,000
Mackay Steelwork & Cladding Ltd	01862 843910			●	●		●			●	●			●	●	✔	4			Up to £2,400,000
Maldon Marine Ltd	01621 859000				●				●	●	●			●	●	✔	3			Up to £600,000
Murphy International Ltd	00 353 45 431384	●		●	●	●	●	●	●	●	●			●	●	✔	4			Up to £6,500,000
Newbridge Engineering Ltd	01429 866722	●	●	●	●	●	●	●			●	●				✔	4		●	Up to £2,400,000
North Lincs Structures	01724 855512			●	●					●	●				●		2			Up to £600,000
Nusteel Structures Ltd	01303 268112						●	●	●	●				●		✔	4		●	Up to £6,000,000
Peter Marshall (Steel Stairs) Ltd	0113 307 6730				●	●				●	●				●	✔	3			Up to £2,400,000*
PMS Fabrications Ltd	01228 599090			●	●	●	●		●	●	●			●	●		3			Up to £2,400,000
REIDsteel	01202 483333			●	●	●	●		●			●			●	✔	4		●	Up to £10,000,000
SAH Luton Ltd	01582 805741			●	●	●				●	●			●	●		2			Up to £600,000
S H Structures Ltd	01977 681931	●		●	●	●	●	●	●	●	●	●	●	●	●	✔	4	✔	●	Up to £5,000,000
SDM Fabrication Ltd	01354 660895	●	●	●	●	●	●			●	●			●	●	✔	4			Up to £3,400,000
Severfield plc	01845 577896	●	●	●	●	●	●	●	●	●	●	●	●	●	●	✔	4	✔	●	Above £10,000,000
Shaun Hodgson Engineering Ltd	01553 766499	●			●		●			●	●			●	●	✔	3			Up to £800,000
Shipley Structures Ltd	01400 251480			●	●	●	●		●	●	●			●	●	✔	3			Up to £2,400,000
Snashall Steel Fabrications Co Ltd	01300 345588			●	●	●	●	●			●				●		2	✔		Up to £3,400,000
Southern Fabrications (Sussex) Ltd	01243 649000				●	●				●	●			●	●	✔	2			Up to £1,200,000
Stage One	01423 358001				●		●	●	●	●					●	✔	2			Up to £6,500,000
Steel & Roofing Systems	00 353 56 444 1855	●		●	●	●	●				●	●		●	●	✔	4			Up to £10,000,000
Taziker Industrial Ltd	01204 468080	●		●	●		●	●		●	●		●	●	●	✔	3		●	Above £10,000,000
TSI Structures Ltd	01603 720031			●	●	●	●	●			●			●			2	✔		Up to £2,000,000
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 £2,400,000
William Hare Ltd	0161 609 0000	●	●	●	●	●	●	●	●	●	●	●	●	●	●	✔	4	✔	●	Above £10,000,000
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)

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

Steelwork contractors for bridgeworks

BCSA

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 Ancilliary 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
Beaver Bridges Ltd	01204 668773	●		●	●	●	●	●	●	●	●	●	✓	4					Up to £3,000,000
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
Cementation Fabrications	0300 105 0135	●	●	●	●	●	●	●	●	●	●	●	✓	3			✓	●	Up to £10,000,000
D Hughes Welding & Fabrication Ltd	01248 421104	●		●		●			●	●	●	●	✓	4			✓		Up to £1,200,000
ECS Engineering Services Ltd	01773 860001	●		●	●	●	●		●			●	✓	4				●	Up to £5,000,000
Four-Tees Engineers Ltd	01489 885899	●	●	●	●	●	●		●	●	●	●	✓	3			✓	●	Up to £2,400,000
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
M&S Engineering Ltd	01461 40111	●		●		●	●	●		●	●	●	✓	3					Up to £2,400,000
M Hasson & Sons Ltd	028 2957 1281	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓	●	Up to £1,400,000
Millar Callaghan Engineering Services Ltd	01294 217711	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓		Up to £1,400,000
Murphy International Ltd	00 353 45 431384	●	●	●	●	●	●			●	●	●	✓	4			✓		Up to £6,500,000
Nusteel Structures Ltd	01303 268112	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Up to £6,000,000
REIDsteel	01202 483333	●			●	●	●		●			●	✓	4				●	Up to £10,000,000
S H Structures Ltd	01977 681931	●	●	●	●	●	●	●	●	●	●	●	✓	4	✓		✓	●	Up to £5,000,000
Severfield plc	01204 699999	●	●	●	●	●	●	●	●	●	●	●	✓	4	✓	✓	✓	●	Above £10,000,000
Taziker Industrial Ltd	01204 468080	●	●	●	●	●	●	●	●	●	●	●	✓	3		✓	✓	●	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
AmcoGiffen	01226 243413	●	●	●	●	●	●		●	●	●	●	✓	4					Up to £1,200,000
Carver Engineering Services Ltd	01302 751900	●		●	●	●	●		●	●	●	●	✓	4			✓		Up to £5,000,000
Centregreat Engineering Ltd	029 2046 5683	●		●	●	●	●	●	●	●	●	●	✓	4					Up to £3,400,000
Cimolai SpA	01223 836299	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Above £10,000,000
CTS Bridges Ltd	01484 606416	●	●	●	●	●	●	●	●		●	●	✓	4			✓		Up to £600,000
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	00 31 180 540 540	●	●	●	●	●	●	●	●	●	●	●	✓	4					Above £10,000,000*
HS Carlsteel Engineering Ltd	020 8312 1879			●						●	●	●	✓	3			✓		Up to £1,200,000
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
North View Engineering Solutions Ltd	01325 464558											●	✓	3					Up to £1,200,000
Shaw Manufacturing Ltd	01642 210716			●						●	●	●	✓	4			✓		Up to £1,200,000
Smulders Projects UK Ltd	0191 295 8700	●	●	●	●	●	●	●	●	●	●	●	✓	4					Above £10,000,000
Total Steelwork & Fabrication Ltd	01925 234320	●		●		●				●	●	●	✓	4			✓		Up to £5,000,000
Victor Buyck Steel Construction	00 32 9 376 2211	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Above £10,000,000

BCSA

Corporate Members

Corporate 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
Bonham and Brook North Ltd	020 3523 9125
Gene Mathers	0115 974 7831
Griffiths & Armour	0151 236 5656
Highways England Company Ltd	0300 123 5000

Company name	Tel
Keiths Welding Limited	07791 432 078
MMCEngineer Ltd	01423 855939
Paul Hulme Engineering Ltd	07801 216858
Sandberg LLP	020 7565 7000

Company name	Tel
Solent Commercial Management Limited	07852 309104
Structural & Weld Testing Services Ltd	01795 420264
SUM ADR Ltd	07960 775772

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

Structural components

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Albion Sections Ltd	0121 553 1877	✓	M	4			
BW Industries Ltd	01262 400088	✓	M	3			
Cellbeam Ltd	01937 840600	✓	M	4	20		
Composite Profiles UK Ltd	01202 659237		D/I				
Construction Metal Forming Ltd	01495 761080	✓	M	3			
Daver Steels Ltd	0114 261 1999	✓	M	3			
ES Steel	0161 511 8386	✓	N/A				
Farrat Isolevel	0161 924 1600	✓	N/A				
Hadley Industries Plc	0121 555 1342	✓	M	4		●	
Hi-Span Ltd	01953 603081	✓	M	4		●	
Kingspan Structural Products	01944 712000	✓	M	4		●	
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				
Tata Steel - ComFlor	01244 892199	✓	M	4			
voestalpine Metsec plc	**0121 601 6000**	✓	**M**	4		●	**Gold**

Computer 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**				**Silver**
StruMIS Ltd	01332 545800		N/A				
Trimble UK Limited	0113 887 9790		N/A				

Steel producers

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
British Steel Ltd	01724 404040	✓	M		3B		
Tata Steel - Tubes	01536 402121	✓	M		3B		

Manufacturing equipment

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Behringer Ltd	01296 668259		N/A				
Cutmaster Machines (UK) Ltd	**07799 740191**		**N/A**				**Silver**
Ficep (UK) Ltd	**01924 223530**		**N/A**				**Silver**
Kaltenbach Ltd	01234 213201		N/A				
Lincoln Electric (UK) Ltd	0114 287 2401	✓	N/A				
Peddinghaus Corporation UK Ltd	01952 200377		N/A				

Membership services

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Deconstruct UK Ltd	02035 799397	✓	N/A				
Keltbray Holdings Ltd	0207 643 1000	✓	N/A				

Protective systems

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Forward Protective Coatings Ltd	01623 748323	✓	N/A				
Hempel UK Ltd	**01633 874024**	✓	**N/A**				**Silver**
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**				**Silver**
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**				**Gold**

Safety systems

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
easi-edge Ltd	01777 870901	✓	N/A				
TRAD Hire & Sales Ltd	01614 304666	✓	N/A				

Steel stockholders

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
AJN Steelstock Ltd	01638 555500	✓	M	4			
Arcelor Mittal Distribution - Scunthorpe	**01724 810810**	✓	**D/I**	**4**	**3B**		**Headline**
Barrett Steel Services Limited	**01274 682281**	✓	**M**	**4**	**3B**		**Headline**
British Steel Distribution	01642 405040	✓	D/I	4	3B		
Cleveland Steel & Tubes Ltd	**01845 577789**	✓	**M**	**3**	**3B**		**Gold**
Dent Steel Services (Yorkshire) Ltd	01274 607070	✓	M	4	3B		
Dillinger Hutte U.K. Limited	01724 231176	✓	D/I	4		●	
Duggan Profiles & Steel Service Centre Ltd	00 353 567722485	✓	M	4			
European Metal Recycling Ltd	01925 715400	✓	N/A				
Kloeckner Metals UK	0113 254 0711	✓	D/I	4	3B	●	
Murray Plate Group Ltd	0161 866 0266	✓	D/I	4	3B		
NationalTube Stockholders Ltd	**01845 577440**	✓	**D/I**	**4**	**3B**		**Gold**
Rainham Steel Co Ltd	01708 522311	✓	D/I	4	3B		
The Alternative Steel Co Ltd	01942 826677	✓	D/I				

Structural fasteners

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
BAPP Group Ltd	01226 383824	✓	M		3		
Cooper & Turner Ltd	0114 256 0057	✓	M		3		
Lindapter International	01274 521444	✓	M				

Welding equipment and consumables

Company name	Tel	QM	CA	FPC	NHSS	SCM	SfL
Air Products PLC	01270 614167		N/A				

BCSA

Make sure your Steelwork Contractor is RQSC approved

Image courtesy of William Hare Limited

Specify an approved company from the Register of Qualified Steelwork Contractors for Buildings, to ensure your project meets the Building Safety Act requirements. As of October 3rd 2023 it will become mandatory in the NSSS 7th edition, 1st Revision that all Steelwork Contractors are RQSC approved.

Tel: 020 7839 8566
Email: postroom@bcsa.org.uk
Web: www.bcsa.org.uk/buildings-directory

RQSC

The Register of Qualified Steelwork Contractor **Buildings**