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NSC



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Tywi Valley Path footbridges, Carmarthenshire
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 Main contractor: Walters
 Steelwork contractor: Beaver Bridges
 Steel tonnage: 220t

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Investment commitments should be made soon



Nick Barrett
Editor-in-Chief

We have read a lot about business uncertainty in recent months, as investment in places slows to a relative crawl against a challenging background. At least the rate of decline in construction output as measured by the most recent bellwether S&P Global Purchasing Managers' Index in June has slowed. Commercial output was the best performing of the three categories - the others being housebuilding and civil engineering - but the overall direction of travel was still downwards.

But signs of life are being seen in defence and energy and anecdotally private and public sector projects are being delayed rather than scrapped. Some large projects are approaching the stage, though, where public and private sector clients will have to make their decisions to proceed or risk missing the next rising tide.

The tide will rise, of course, we are just not sure exactly when or how strongly. A new Prime Minister was approaching Downing Street as we went to press, and another big uncertainty was what his policies would mean for economic growth, productivity, taxes, inflation - pretty well everything that views have to be taken on before committing to investments.

The constructional steelwork sector is feeling the economic pinch as well, but the BCSA is confident that as far as its members are concerned the sector remains in robust health and fully committed to continue to deliver the service that clients need. Investment might be constrained elsewhere, but in this month's NSC alone we can see evidence of continued effort by the steel sector to ensure that designers will have everything to hand that they need to ensure safe, cost-effective, highly sustainable, aesthetically pleasing structures of all types.

For example, in News we read about a newly published good practice guide to fire protection called *Fire protection responsibilities in steel construction*, which is available at the BCSA website. The guidance is in line with the Building Regulations as updated by the Building Safety Act and will be invaluable in staying in line with regulatory requirements.

It follows May's release of the *Design for reuse and adaptive reuse* publication that explores the growing role of structural steel reuse and adaptive reuse in supporting circular economy goals, using real project examples and providing practical guidance.

In this issue we also see the usual varied types of structures taking advantage of steel construction's unique combination of attributes, as well as the continuing confidence of investors, including from overseas - in News we read that more than 1,400t of steelwork has been installed for the expansion and modification of the Shotton Tissue Mill facility in Deeside, North Wales. Owned by Turkish-based Eren Holding, the facility will become one of the UK's largest recycled paper manufacturing plants.

We have site reports on bridges, including two footbridges on a walking and cycling trail that breathe new life into a disused railway line in South Wales. Column-free spaces are being provided for the entertainment zone on a pier extension in Great Yarmouth. Also in Norfolk we report on a redevelopment of a college campus. Grimsby town centre is being revitalised and a steel-framed mixed-use scheme is at the heart of that.

We also see another example of why steel is the go-to material for industrial and logistics centres and other shed-type structures like data centres taking shape in Enfield, north London. Expect the rising tide that lifts all ships before too long - expect steel to be rising strongly.



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BCSA urges UK Steel Strategy reassessment at 47th National Dinner

British Constructional Steelwork Association (BCSA) President, Chris Durand, said the government needs to step back from the precipice and reassess the UK Steel Strategy quotas and tariffs, which were introduced on 1st July, in order to properly reflect current UK steel production.

Speaking at the BCSA's 47th National Dinner, held at the Armouries in Leeds, Dr Durand said: "The UK Steel Strategy contains much that is welcome, not least the recognition of steel production as an essential industry and the desire to ensure its viability in the future, but for it to succeed in this aim, it must also recognise the realities of the current UK steel market-place and the dangers of unintended consequences.

"Not all steel types can be produced

locally and there may always be a need by downstream processors and fabricators to rely on imported product. The competitiveness of UK manufacturers will be further compromised by the imposition of tariffs on these materials and the omission of fabricated steel from the proposed quotas and tariffs is a loophole that will be exploited to the detriment of UK fabricators."

Dr Durand added: "There is no point in punishing UK-based steel producers and fabricators who have no option other than to import certain raw materials. Minimal fabrication content allows raw materials to avoid tariffs, but the strategy as it stands, will increase material costs for UK-based fabricators, making the importation of fabricated



structural steelwork increasingly cost effective. Imported fabricated steelwork will not be manufactured from UK-produced material.

"The whole UK steel industry could be likened to a delicate ecosystem that is somehow managing to survive within a very harsh environment. The Steel Strategy in its current form risks upsetting this balance with the real unintended possibility of a mass extinction of UK companies."

Sherwin-Williams was the main sponsor of the BCSA National Dinner, alongside STRUMIS and Hempel. The BCSA thanked all three companies for their continued support of the event.

Following the National Dinner, the government eased its proposals by cutting tariff-free import quotas by 51% rather than the originally proposed 60%.

BCSA Chief Executive Officer Jonathan Clemens, said: "The changes show that ministers have listened to at least part of the case made by our industry.

"The additional quota headroom is a start, but it's far from the full package for which we've been campaigning.

"For construction, there have been some positive moves, but the continued failure to include fabricated steel leaves the constructional steelwork sector dangling over a precipice."

Hucknall-based steel contractor hosts local MP

Michelle Welsh, MP for the Sherwood Forest constituency in Nottinghamshire (which includes the town of Hucknall), visited local steelwork contractor Briton Fabricators to meet staff and discuss the opportunities and challenges currently facing the UK constructional steelwork sector.

During the visit, which was also attended by the British Constructional Steelwork Association (BCSA), issues currently affecting the sector, including the proposed steel tariff and quota arrangements due to come into force on 1 July, were also discussed.

Jonathan Clemens, CEO of BCSA, outlined industry concerns regarding the potential impact of the measures on

downstream steelwork companies and the wider construction supply chain. Michelle Welsh MP acknowledged the seriousness of the issue and agreed to engage further with parliamentary colleagues and discuss the matter further.

Michelle Welsh MP said: "It was a pleasure to visit Briton Fabricators and meet the team behind a business that has been contributing to major infrastructure projects across the UK for more than 50 years.

"It was valuable to hear directly about the opportunities and challenges facing the constructional steelwork industry and I look forward to continuing discussions with industry



representatives and parliamentary colleagues to ensure concerns are properly considered."

Dean Morcom, Managing Director of Briton Fabricators, added: "We were delighted to welcome Michelle, the

visit provided a valuable opportunity to discuss some of the practical and policy challenges currently affecting businesses across the steelwork sector and the wider manufacturing supply chain."

Steelwork contractor completes 10-year global digitisation drive



William Hare has moved all of its quality, safety and operations from paper-based processes to a single connected digital system, after a 10-year digitisation drive with the platform SafetyCulture.

The company estimates that since introducing the mobile-first SafetyCulture platform, it has conducted more than 180,000 inspections and saved one million sheets of paper. It has managed to standardise most processes through more than 500 templates logged on the platform.

Mike Buckley, William Hare's Quality Assurance Manager, said: "Over the years, we were producing thousands of inspections, each one requiring manual

write-up, scanning, filing and follow-up – which was inefficient and wasting so many pieces of paper."

But the bigger issue was data sat in handwritten forms, spreadsheets and filing cabinets. A lack of real-time visibility meant there was no way to spot patterns. With everything digitised, we're now far more responsive to putting corrective actions in place and preventing recurrence."

Having digital records has also

significantly improved safety, enabling William Hare's SHE teams to conduct weekly inspections, environmental inspections, pre-use equipment checks and incident reporting.

Dawn Simmonite, Safety, Health and Environmental Manager at William Hare, said: "As soon as an incident has occurred on-site, the site management completes a first response report. We get an alert and can respond straight away – it's our golden hour ticket."

Beaver Bridges unveils new Manchester production facility

Leading UK bridge design and build contractor Beaver Bridges has officially opened Forge 44, its new state-of-the-art production facility in Irlam, Manchester.

The facility is said to represent a major investment in the company's manufacturing capabilities, providing more than double the production space of its previous premises.

The company said the expanded footprint will enable it to increase throughput, improve operational efficiency, and support a growing UK and international order book, while maintaining the highest standards of quality and safety.

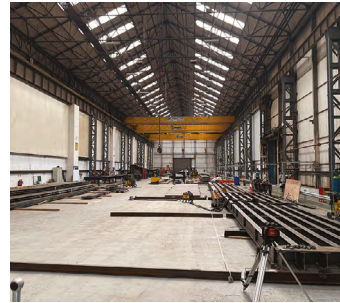
A key feature of the Irlam site is the

dedicated trial erection area, which will allow complete bridge structures to be assembled and inspected by clients prior to on-site delivery.

Located close to the UK's motorway network, the Forge 44 site will also enable the company to improve logistics and transportation efficiency.

Beaver Bridges Chief Executive Officer, Henry Beaver, said: "The opening of Forge 44 represents an exciting chapter for the company. We are investing in the future of the business and strengthening our ability to serve customers with larger, more complex projects.

"We are particularly proud to be bringing steel production back to Irlam,



an area with a rich industrial heritage. The investment not only expands our capabilities but also reinforces our commitment to UK manufacturing, skilled employment, and supporting the infrastructure projects that connect communities across the country."

New hangar takes off at Dublin Airport

A series of long-span steel rafters have been installed to construct the roof of Ryanair's new aircraft maintenance facility at Dublin Airport.

The state-of-the-art four-bay hangar will, on completion, create more than 200

skilled jobs for engineers and mechanics.

Westok has value engineered the pitched rafters from UB sections, creating lightweight, cost-effective beams, with spans ranging from 12m up to 25m.



John Callanan, Design Team Manager at ASD Westok, commented: "Tent Engineering in Dublin presented the scheme to us as they were keen to explore value engineering opportunities. We reviewed the job and are delighted to see the adoption of our suggested solution of clear-span Westok rafters and spine beams throughout the roof."

Ryanair Chief Operating Officer, Neal McMahon, said: "Our new state-of-the-art 11,140m² facility will be one of the most environmentally-friendly hangars in Europe and will facilitate the maintenance of our growing fleet as we continue to take delivery of new technology.

"This is a fantastic opportunity for both experienced and trainee engineers and mechanics to join Ryanair and work with the biggest operator of Boeing 737s in Europe."

Steel-framed Harlow school tops out

St Mark's West Essex Catholic School, in Harlow, has celebrated a major milestone in its redevelopment with a topping out ceremony, marking the completion of the highest point of construction.

The project is being delivered by Kier Construction on behalf of the Department for Education, as part of the government's Schools Rebuilding Programme. Haley Engineering is fabricating, supplying and erecting the steelwork.

On completion, pupils and staff will benefit from an 8,800m² energy-efficient

new school building, which will replace the existing facilities.

The new net-zero-in-operation school building will provide sports areas, specialist drama facilities, a food technology room, design technology and information technology classrooms, in addition to Special Educational Needs and Disabilities (SEND) provision.

John Taylor, Headteacher of St Mark's West Essex Catholic School, said: "It has been really exciting to watch the new building emerge from the ground and it is a great cause of celebration to reach this point. The new building will provide



students of St Mark's, both now and for generations to come, with an exceptional learning facility. We look forward to delivering high-quality education in this outstanding building."

NEWS IN BRIEF

The London Borough of Tower Hamlets has appointed **Guildmore Group** to lead the £68 million regeneration of St George's Leisure Centre in Shadwell, East London. The existing **leisure centre** will be demolished and replaced with a modern four-storey facility, which will include a 25m swimming pool, learner pool, splash pad, sports hall and fitness studios.

Part of the first tranche of the government's new **hospitals programme**, **Mid Cheshire Hospitals NHS Foundation Trust** has been given the green light to build a new hospital in Crewe. The approved plans also include a new cancer care centre, and a multi-storey car park with space for 1,000 vehicles.

The South Molton scheme, which is redeveloping a large area of London's Mayfair district, has celebrated the topping out of its two **office blocks**. Requiring 2,300t of structural steelwork from **Severfield**, the two eight-storey office blocks at 60 Brook Street and 56 Davies Street, comprising 6,596m² and 7,246m² respectively.

Working on behalf of Marrico and Helios Real Estate, main contractor **Caddick Construction** has officially broken ground for the 16-storey room2 **hotel development** at Lisbon Street in Leeds city centre.

The £85 million expansion of **AFC Bournemouth's** Vitality Stadium has been approved, with a phased construction programme due to start this summer. The Premier League's smallest ground, with a capacity of 11,300, will be expanded to accommodate around 20,000 spectators.

PRESIDENT'S COLUMN

The only way is up.



I would like to take this opportunity to thank everyone once again who attended the BCSA National Dinner in June for your continued support, with, of course, a special thanks to the sponsors of the event who were [Sherwin-Williams](#), [STRUMIS](#) and [Hempel](#). The feedback so far has been very positive. An extremely enjoyable evening which gives the chance to meet up with friends, colleagues and competitors alike and of course the mini opera featuring a stand-out performance by our Deputy President.

In my speech, I noted how some of our big concerns from the previous year had quietly addressed themselves or while they haven't actually gone away perhaps seemed less critical in the light of more recent events. The Building Safety Regulator has finally got to grips with its workload and planning applications are making their way through the various gateways. In particular, a number of city centre towers are progressing to the construction stage and an increasing number of data centres have hit the structural steel market over the past year. The market may not be buoyant but there are increased grounds for optimism.

Also, the government has moved to eliminate cash retentions from the construction industry which is a move that the BCSA has championed over many years. As always, the devil will be in the detail as the legislation progresses through Parliament but on the whole, this can only be regarded as positive for our members. Unfortunately, this piece of good news has almost been missed amongst the background noise created by all that has been going on in the last few months.

The looming deadline of the 1st July for the implementation of new tariffs and quotas on steel imports has, by necessity, been at the forefront of our thinking. The BCSA, alongside other trade bodies, has been lobbying the UK government to think again and with their recent announcement it is fair to say that they have at least listened in part. However, it has not been easy to get our message through and I would like to take this opportunity to thank the efforts of all our members who have contacted their local MPs directly; other members who have made representations to the select committee on trade and in particular the BCSA staff who have worked tirelessly throughout.

The announcement included additional quota headroom on both rolled sections and tubes, which will be of benefit to the majority of BCSA members. However, at present, fabricated steel imports remain tariff-free and the review period remains at 12 months which we believe is too far away. Other countries have already acted to remove the omission of fabricated steel from their quota regimes and the UK needs to learn from the experience of others and move quickly to plug this loophole. Rest assured that the BCSA will continue to make our case on both these issues.

I am now into my second year as President. It is an honour to be in this role and despite all, remain optimistic for the future. We have had much to contend with over the last few years but the members of the BCSA have demonstrated their resilience and moreover their ability to adapt to an ever-evolving marketplace. There are reasons to be cheerful and like the price of steel at the moment the only way is up!

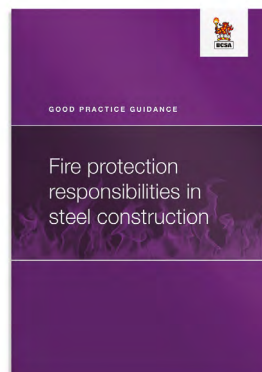
Chris Durand
BCSA President

BCSA publishes good practice guidance for fire protection

Summarising the responsibilities of relevant duty holders in terms of fire protection of a steel-framed building, the [British Constructional Steelwork Association \(BCSA\)](#) has published [Good Practice Guidance for Fire protection responsibilities in steel construction](#).

The guidance is in line with the Building Regulations, as updated by the Building Safety Act, which require that any person or organisation carrying out any building work or design must have the necessary competence (skills, knowledge, experience and behaviours or organisational capabilities) to ensure that the task is carried out in accordance with the relevant regulatory requirements.

The document's focus is on passive fire protection solutions using intumescent coating systems. It also



proposes a procurement option and establishes the relationships between the various parties. It also establishes that the design and performance requirements for the contract must come from the client and/or its designated designers, architects or fire engineer.

Their requirements will be considered by the steelwork contractor and, in turn, the intumescent coating manufacturer who will offer a coating specification in line with those design

requirements, and then the coating applicator has the responsibility for their own workmanship and quality control processes.

The guidance is available at: <https://bcsa.org.uk/resources/fabrication-technical-design/industry-specifications/>

Steel signing ceremony marks milestone for Coalville school

Main contractor GRAHAM has celebrated a significant milestone at The Castle Rock School project in Coalville, Leicestershire, with a steel signing ceremony marking the start of the new building's structural steel frame installation.

Appointed by the Department for Education (DfE) and Lionheart Educational Trust, GRAHAM's work involves the redevelopment of the existing secondary and sixth form campus.

The £37 million programme will deliver a new two-storey [school building](#), alongside the refurbishment and remodelling of a retained block, and the demolition of several outdated structures. This will create modern, high-quality [accommodation](#) for up to 1,550 pupils.

Elland Steel Structures is [fabricating](#), supplying and

[erecting](#) 260t of steelwork for the project.

Kath Kelly, CEO of Lionheart Educational Trust, said: "The steel signing marks a symbolic milestone for everyone involved in this project. It represents not only the progress of a new building, but our shared commitment to investing in the future of education in Coalville."

Roma Dhameja, Associate Principal at The Castle Rock School, said: "At Castle Rock School, we are proud to provide a supportive and ambitious environment where our students thrive and achieve. This new building will build on that success, giving our young people even better facilities and opportunities to go even further."



Steel frame creates retail training centre



Forming part of the vast Unity regeneration project in South Yorkshire, the steel frame for the TJ Morris (Home Bargains) training centre is taking shape.

Working on behalf of main contractor Stainforth Construction, Nationwide Structures is [fabricating](#), supplying and [erecting](#) 215t of steelwork for the scheme.

ARC Construction Management is the site engineer, responsible for ensuring the frame is plumb, lined and levelled in accordance with [NSSS tolerance](#).

The centre measures 53m-long x 56.6m-wide and reaches a maximum height of 9.5m. The majority of the building consists of a clear-span [portal frame](#), with a first-floor office area positioned at one end.

Located close to Doncaster and within easy reach of the M18/M180 motorway corridor, Unity is said to be one of the largest regeneration and infrastructure projects in the UK.

Steel frame rises at Rochdale education campus

Replacing an existing building, the £39 million four-storey structure at Hopwood Hall College's Rochdale campus is taking shape.

The **steel-framed** facility will elevate the College's educational offering by bringing higher education provision to Rochdale for the first time alongside further education.

The **new building** will incorporate

cutting-edge **sustainable** technologies, including photovoltaics, air source heat pumps and a hybrid ventilation strategy to harness **renewable power** and offset energy used on site.

Working on behalf of main contractor Willmott Dixon, Leach Structural Steelwork is fabricating, supplying and erecting the steelwork.

Julia Heap OBE, Principal and CEO at Hopwood Hall College, said: "We're thrilled to be working alongside Willmott Dixon as we develop a brand-new block at our Rochdale campus.

"This building will be a hub for learners of all ages, ensuring they're able to thrive through expert training delivered in the heart of Rochdale."



Major City of London mixed-use scheme gets the green light

The City of London Corporation's Planning Applications Sub-Committee has approved plans for

the redevelopment of 1 Silk Street, delivering a part-16 and part-20-storey, **mixed-use office-led** scheme alongside

improvements to the public spaces next to the Barbican.

The scheme will replace the existing 1980s office building with a high-quality, best-in-class and **sustainable** development, providing approximately 86,000m² of Grade A office space, alongside new cultural, **retail** and community spaces.

The public realm improvements will include a new public plaza opposite the Barbican Centre entrance and improved pedestrian connections through the site.

Sustainability is central to the approved plans, with a substantial proportion of the existing structure retained to reduce **embodied carbon** alongside ambitious environmental performance targets, urban greening

and improved biodiversity, contributing to the City Corporation's wider net zero and climate resilience ambitions, with its fully funded Climate Action Strategy.

Tom Sleight, Chairman of the City of London Corporation Planning and Transportation Committee, said: "The scheme that was approved by the committee was a stronger one than the early proposals, shaped by a long period of pre-application work and consultation with residents and statutory consultees.

"The daylight impact on Barbican homes and the way the building meets the street were both reworked along the way. What it now delivers is a much needed, high-quality workspace, with the retention of much of the existing structure rather than demolition."



Brent Cross data centre campus set for major expansion

Pure Data Centres has appointed Glencar as main contractor for the delivery of the next phase of its Brent Cross campus in North London.

The new **facility**, known as LON1B2, builds on the existing 20MW Building 1, which is already operational.

Glencar's scope of works includes piling and foundations, the **structural frame** and **connections** to the existing building.

The scheme will be delivered within a live operational campus, meaning logistics and the sequencing of works will be crucial to the overall programme.

A standout feature of the new building will be a living wall installation, spanning approximately 7,400m² of the **façade**. Said to be one of the largest green walls in the world, it will incorporate more than 750,000 plants, supporting biodiversity and improving air quality.

Pure Data Centres' Executive Chairman, Gary Wojtaszek said:

"The data centre industry faces a critical challenge: building the digital infrastructure the world needs in a way that also takes care of local communities and the environment. We are delighted to be working with Glencar, whose approach to delivery and **sustainability** aligns with our ambitions for this project."



Diary

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



Tue 15, Thu 17, Mon 21, Thu 24, Fri 25 Sept 2026
Steel Building Design to EC3
Online course

As the experts in steel design, the SCI have prepared this course as an overview of the Eurocode provisions for steel building design. The course focuses on orthodox construction, covering the primary design issues for practising engineers. The course follows the process of determining actions, considering combinations of actions, frame analysis and the assessment of second-order effects. The course will then demonstrate how the resistance of members is calculated.



Wed 16 Sept 2026
Snow Loads to Generation 2 Eurocodes
Webinar

There are very significant changes arriving with the introduction of BS EN 1990-1-3:2025 in March 2028. Snow redistributed into drifts in valleys and behind parapets will no longer be an accidental case, but a persistent case subject to the usual partial factors. Redistributed snow is in addition to the uniform snow, impacting both primary and secondary steelwork. This webinar will serve as an introduction to these important changes.



Tue 13 & Thu 15 Sept 2026
Designing in Stainless Steel
Online course

This 4-hour course will equip engineers with the skills necessary to design structural stainless steel in accordance with European design practice, with some changes in the Second Generation edition of EN 1993-1-4:2025 highlighted. The differences in properties and behaviour compared to carbon steel will be highlighted. Each delegate will be given a PDF copy of 'Design Manual for Structural Stainless Steel (P413)'.

Steel frames enlarge Deeside production facility



More than 1,400t of steelwork has been installed for the expansion and modification of the Shotton Tissue Mill facility in Deeside, North Wales.

Owned by Turkish-based Eren Holding, the [facility](#) will become one of the UK's largest recycled paper manufacturing plants, producing containerboard packaging and tissue paper products.

Working on behalf of main contractor Stellar UK and architect/engineer Prokon Muhendislik, Severfield fabricated, supplied and erected the project's steelwork.

Severfield's work included the refurbishment of the site's main tissue mill building, a [steel-framed](#) structure originally built in 1988 that measures 210m-long x 28m-wide. The roof and [cladding](#) were removed, and the existing steelwork was strengthened (an operation that required extensive on-site [welding](#)). Steelwork extensions were then connected to the top of each column, raising the height of the building by 3m, before the new roof was installed.

A total of 420m of crane beams and rails were removed, refurbished and then reinstated inside the enlarged building, alongside alterations and

strengthening works to an existing [mezzanine](#).

Adjacent to the construction site, other parts of the facility remained operational and so the entire steelwork package was delivered in a 'live' environment, requiring a considerable amount of logistical and forward-planning.

The project was also delivered through a phased [construction programme](#), with the main building divided into multiple work areas and sub-phases to support the client's requirement to install key machinery during ongoing construction activities.

During the [erection](#) of the tissue mill, two bays of roof [purlins](#) and [bracing](#) were intentionally left incomplete, alongside an early phased handover of sections of crane beams. This allowed access for a specialist heavy lifting operation to install a large-scale production machine, used to manufacture the primary tissue reels before conversion into finished products.

Elsewhere on the site, a new bale handling building, which links into the tissue mill, was erected, and three new metal decked [floors](#) were added to an office and workshop building. The latter also included

strengthening works and the installation of hot-rolled secondary steelwork for the new cladding system.

A new steel-propped portal-framed reel store building, (measuring 108m-long x 31m-wide) was erected. Abutting an existing roll store building, both structures now share a new steel canopy, formed with 21m-long rafters and erected along one gable end.

The steelwork erection was completed during a 16-month programme and required the use of a single 350t-capacity [mobile crane](#) working alongside mobile [tower cranes](#).

Summing up, Severfield Senior Project Manager Andy Bramley, said: "As there was an international project team, we had to work closely with the main contractor and design team to coordinate technical information, resolve detailing issues and maintain programme progression throughout the works.

"This was a challenging and complex project, which was helped by the invaluable experience and tenacity of our Senior Site Manager, Scott Brownley, who delayed his retirement by several months in order to complete a job, which was his swansong to the steel industry."

Work set to start on £28 million Huddersfield Bus Station upgrade

Designed to improve local transport, the West Yorkshire Combined Authority in partnership with Kirklees Council, has appointed Willmott Dixon Construction to revamp Huddersfield Bus Station.

The upgraded station will become part of the Weaver Network, West Yorkshire's new integrated transport system, bringing together buses, trains, walking, wheeling, cycling and a future mass transit network under a single brand.

Inside the redesigned bus station, passengers will benefit from real-time bus and rail information screens to support connecting journeys, improved security measures and upgraded accessible toilet facilities.

The redevelopment will also include a new entrance canopy, solar panels, a green roof, upgraded retail frontages, new cycle parking and improvements to public spaces surrounding the station.

Construction is expected to be completed in spring 2028.





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 became 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



The Register of
Qualified Steelwork
Contractor
Buildings



Reducing material costs, lead time and carbon

Reused steel was used to create Bristol Zoo's new African Forest habitat.

Founding Steel for Life sponsor Cleveland Steel & Tubes says one of the best options for reducing embodied carbon in steel construction is the supply of repurposed steelwork.

Family-owned since 1975, Cleveland Steel & Tubes (CST) is a market leader in the supply of repurposed steel tubes from its 100-acre facility in North Yorkshire that now holds 100,000t of on-site stock.

"The recent changes in steel import tariffs and quotas have highlighted the huge importance of the role of the stockholder right now," says CST Sales Director David Rodgers.

"We have material here, customs cleared, and immediately available to our customers. So, in spite of the general market uncertainty around material availability, our huge stocks of repurposed steel allow us to continue to deliver low-carbon alternatives on time and on budget."

Repurposing surplus steel stock has the triple advantage of reducing material costs, reducing material lead time, and ever more critically – helps to reduce embodied carbon. Life Cycle Analysis research demonstrates that repurposing surplus steel has the potential to save 94% carbon when compared to material produced to order.

The British Constructional Steelwork Association (BCSA) highlights material reuse in its roadmap to net zero, while BS EN 15804 [8] now mandates the reporting of Module D carbon emissions. Module D benefits are calculated based on the avoided impacts of primary production. By repurposing surplus steel into a project's design, clients are reducing their project's embodied carbon and contributing to the circular economy.

More and more clients, contractors and fabricators are now paying closer attention to

the environmental impact of their projects. Consequently, many BCSA members are reaping the environmental and cost benefits of repurposing surplus steel in their projects.

"Over the last 12 to 18 months, we have seen an exponential rise in the number of enquiries from clients seeking repurposed steel for their construction projects," continues Mr Rodgers.

CST recently completed a marquee project with Bristol Zoo, where 95.5t of reused steel has been incorporated into the newly developed African Forest habitat.

The project secured steel from CST early in their design process, giving the engineering team confidence in availability and allowing the design to be adjusted accordingly.

Ultimately, the project has successfully delivered complex environments for the animals, while at the same time dramatically reducing the carbon footprint of the build programme.

It is estimated that Bristol Zoo saved in the region of 140 tonnes of carbon emissions by creating a habitat that supports conservation in every sense of the word.

"CST is constantly working to advance and educate the marketplace about steel reuse. We are invited to present reuse seminars, join panel discussions, welcome site visits on a weekly, almost daily basis now," says Managing Director Roy Fishwick.

Capitalising on its growing position as a market leader, CST has also just released its Homeowners Guide for Steel Reuse. The free booklet provides

a practical guide on how to specify reused steel, how to ensure it complies with relevant building regulations, and even offers advice on logistics.

"We want to support all levels of steel reuse," explains Mr Fishwick.

While supporting existing members of the steelwork sector with practical, ready-to-use guidance, the company is also looking to the future by supporting further research.

CST continues to work with the University of Bath, fully funding an industry focussed PhD titled *Enabling Steel Reuse in the UK*.

It has supported the research and publication of a Steel Reuse Protocol "SCI P427"; founded on the principle that with appropriate determination of material characteristics and tolerances, refabricated and reclaimed steelwork can be fabricated and CE marked in accordance with BS EN 1090.

It is clear that in an ever-changing world, pressure on business around carbon emissions is not going to diminish. Steel reuse is a demonstrably achievable mechanism to allow clients to demonstrate a level of carbon consciousness and CST, as a proud Steel for Life sponsor, will continue to support that mechanism across all levels. ■

**Cleveland Steel
& Tubes is a
Gold sponsor of
Steel for Life**



Become a
responsible
structural
steelwork
coatings
professional



The BCSA's Responsible Coatings Professionals training course has been developed to improve industry standards of the specification, application and testing of protective and intumescent coatings for structural steelwork.

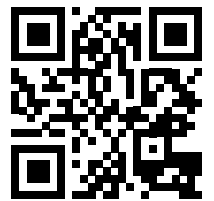
The short course provides attendees access to unrivalled training facilities, highly experienced industry professionals delivering the course, and hands-on practical experience to support the theory.

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Castings provide the answer

Structural steel castings allow designers to create highly complex three-dimensional geometries that are difficult to produce using conventional fabrication methods.

As steel designs become ever more complex and exposed architectural metalwork is the preferred choice on many projects, traditional fabrication methods invariably cannot create the desired structural elements.

Complex geometries such as nodes with multi-member connections are often unachievable with conventional fabrication. Those that are require many hours of skilled workmanship, making the process extremely laborious and costly.

The answer to this problem and one that can easily simplify fabrication is the use of steel castings. They can replace the need for complex welding, simplify the cutting process, and provide precision and accuracy that is unachievable in conventional fabrication methods.

Another benefit for designers and steelwork contractors alike is the fact that castings can be designed to offer material savings over the conventional fabricated alternative.

Working closely with the chosen casting supplier, the casting design can allow embodied carbon savings to be achieved by directing material to where it is most needed within a steel element, while removing it from areas where it is less needed.

Where there is an option of either a fabricated or cast node, the latter can be approximately one-third of the weight, creating a considerable



Castings are ideal for producing nodes that would be challenging and time-consuming to fabricate.

material, embodied carbon, and cost saving.

The steel casting can achieve enhanced strength and stiffness, as well as isotropic material

properties, ideal for arduously loaded connections, where complex stress states may arise.

Many designers may think structural steel castings are too expensive and their project's budget would not allow the expense. However, when a number of identical castings are required, by using standardisation – where just one geometric pattern is needed – the repetitive process results in an economy of scale.

“Castings can also improve onsite installation and delivery timelines,” says Cast Connex UK Director Jennifer Pazdon.

“Steel castings can simplify both fabrication and installation by reducing the amount of complex welding and allowing the use of pinned or hidden bolted connections. The overall time and labour savings add increased value when comparing steel castings to traditionally fabricated connections.

Jennifer Pazdon adds: “By using steel castings, structure and architecture can become one. We can celebrate the structure as part of the architectural expression. That said, approximately half of our largest projects are those where the castings are not architecturally exposed and instead add value by addressing challenging fabrication and arduous load conditions.”

Creating seamless and architecturally expressive connections, ideal for projects where the steelwork will be left fully-exposed, Cast Connex produces a number of standardised off-the-shelf castings. They include pin connections for both steel and

Western Concourse, King's Cross Station, London

A series of bespoke node castings were an essential element within the centrepiece structure of the £550 million redevelopment of King's Cross Station.

Completed in 2012, the new Western Concourse has a roof that rises to a height of 20m and spans 150m. Requiring 1,200t of steel, the roof is a diagrid shell, spanning between a central funnel and 16 equally spaced perimeter tree columns, each carrying a horizontal load of approximately 600t.

The funnel and tree columns are formed with steel structural hollow sections, with a mix of circular and rectangular hollow sections forming the majority of the diagrid roof.

The 4.5m-tall tree columns are elliptical in section and taper upwards towards multiplanar 1.5t node castings, which connect the branches to the trunks. ■



Examples of standardised castings

CAST CONNEX®
Timber End
Connectors



Tension system at
Cannon Place,
London



Tie rod

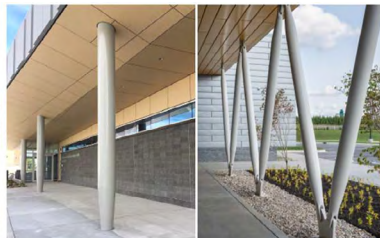


Fork ends pin connections for steel and timber, tapered ends, tie rods and cable connectors, field bolted splices.

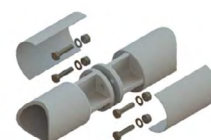
CAST CONNEX®
Universal Pin
Connector™ at a CHS
brace member and
with cast stainless
steel cable fork ends
in the foreground in
the Whitney Museum in
New York, NY



CAST CONNEX®
Architectural
Taper™ at a CHS
column end (left)
CAST CONNEX®
Universal Pin
Connector™ +
Architectural
Taper™ at CHS
member ends (right)



CAST CONNEX®
Diablo Bolted Splice™



timber structural members, tapered ends and bolted splices (see box above).

A question that arises regularly is: do steel castings have a similar strength to standard steelwork?

The answer is yes, as various cast steel alloys are available with a similar weldability, strength and ductility to standard steel grades. There are even cast steel grades with [corrosion resistance](#), similar to stainless steel grades.

Another important consideration when

deciding on what steel castings a project design may require, is lead times. For custom designed castings, 28-weeks from receipt of approved shop drawings to first delivery is normal.

For standardised castings, which are stocked and available off-the-shelf, the lead time is noticeably shorter, as eight to 12 weeks should be expected.

It is recommended to engage in early discussions with a qualified casting designer or supplier, who will provide support in specifying the performance requirements and geometric

information the project may need.

For more information, see: <https://youtu.be/3fUfXYxME78?si=v-zRQxXUdupOfiWl>

And, Fundamentals of cast steel connections: <https://www.castconnex.com/learn/resources/webinars-and-talks/session-1-fundamentals-of-cast-steel-connections>

And SCI P441: *Structural Steel Castings*, which is available as a free PDF download for all SCI members through SteelBiz, and can be found at www.steel-sci.com. ■

A244 Walton Bridge, Walton-on-Thames, Surrey

Complementing the structure's contemporary aesthetics, the use of off-the-shelf steel castings helped a river crossing in Surrey become a local landmark.

A slim, sleek, arched steel structure, the Walton Bridge was completed in 2013 and was the first new [vehicle crossing](#) of the River Thames since the Queen Elizabeth II bridge at Dartford opened in 1991.

Located between Chertsey Bridge and Hampton Court Bridge, both of which are Grade II listed structures unlikely ever to get planning permission to increase their capacities, a signature structure with a long-term capacity provision was essential.

A steel composite [thrust arch](#), one that transfers its loads partially into a horizontal thrust restrained by the abutments, was chosen by Surrey County Council as the best and most economical way to achieve these goals.

The road deck, which accommodates two lanes for traffic and separate pathways for pedestrians and cyclists, is suspended from the arches using Anker Schroeder M100 high-strength structural tie rods, which are connected using standardised cast steel (off-the-shelf) connectors.

The castings were selected for their sleek transition from solid round steel to the deck connection plates. They also allowed the tie rods to be free to rotate transversely, top to bottom, with easily formed pinned joints. ■



Click
here to see
a video of the
project

Excellent warehouses

Mezzanine offices
are a feature of each
warehouse unit.

Helping to satisfy the increasing demand for modern industrial and logistics space in the capital, a state-of-the-art development is quickly taking shape in Enfield.

Proving once again that a steel framing solution is the quickest and most efficient method for the construction of warehouses, a project in Enfield, North London, which started onsite in February, this year is due to complete during the first quarter of 2027.

Fronting the A10 Great Cambridge Road, Progress Park is a prominent Grade A rated development that will offer industrial/logistics space for a diverse mix of occupiers.

Only 12 miles from Central London, the site also

boasts good connectivity to the wider South East of England with its convenient access to the M25 motorway and North Circular Road.

Being built by BDB Design Build, working on behalf of Parkdale Investments, the project comprises two large steel [portal-framed structures](#) that can be subdivided into five individual [warehouse](#) units.

The scheme has been designed with a strong emphasis on [sustainability](#) and [operational efficiency](#). Aiming to achieve [BREEAM 'Excellent'](#)

and EPC A ratings, the two buildings will have rooftop solar panels, hybrid inverters and air source heat pumps, high power supplies (500kVA – 1.3MVA) as well as access to EV charging points.

The project is also making use of high-quality, sustainable construction materials, including 400t of structural steelwork.

Attributes such as [cost-effectiveness](#), [adaptability](#) and its contribution to the circular economy through reuse and recycling are all factors that continue to be valued by developers, contractors, designers and building users alike, making steelwork the go-to material for warehouse projects.

Steelwork's ability to create clear spans, with few or no internal [columns](#), is another important criteria for warehouses. The long spans allow occupiers plenty of flexibility to arrange their racking or other equipment without the hindrance of columns getting in the way.

Steelwork's flexibility also extends to the building's configuration, as partition walls can be removed, allowing occupiers to combine units in order to make larger warehouse spaces.

Work on the site initially involved the demolition of the plot's existing buildings. Once the land was clear, reinforced concrete foundations, engineered specifically to accommodate the 50kN/m² floor loadings of the two warehouse structures, were installed. Other infrastructure work included the installation of attenuation tanks and rainwater harvesting systems.



Each completed unit
will have its own service
yard.

FACT FILE**Progress Park, Enfield**Main client: **Parkdale Investments**Architect: **Jefferson Sheard Architects**Main contractor: **BDB Design Build**

Structural engineer:

Pinnacle Consulting EngineersSteelwork contractor: **Nationwide Structures**Steel tonnage: **400t**

Once the foundations and the base plates were completed, steelwork build and design contractor Nationwide Structures was able to begin the erection package.

Using up to two 50t-capacity mobile cranes, the company's erectors initially installed the building containing Units 2 and 3.

This is the largest of the two structures and measures 99m-long × 60m-wide, reaching a maximum height of 10m. The twin-span warehouse has a centrally-positioned partition wall, which divides the structure into two units. Each has its own service yard, loading bays and car parking positioned at either end of the building.

Both warehouse units have their own adaptable mezzanine office floor, compositely formed with steel beams supporting metal decking and a concrete topping. The office floor is accessed via precast stairs and/or a precast lift shaft, which were installed during the steel erection programme.

The larger building's twin spans are formed with a series of rafters, which were assembled on the ground into complete 30m-long sections, before being lifted into place.

The second structure (Unit One) measures 60m-long × 48.5m-wide. It has three spans (two × 17m-wide and one 23m-wide) and has been initially designed to accommodate three separate units, each with its own loading doors and mezzanine office level.

However, as previously mentioned, steelwork offers the project's design the utmost flexibility, and this unit, like its larger neighbour, can be reconfigured into one or two larger units if required.

Once again, this unit's three spans are also formed with spliced rafters, which were also bolted together onsite, before being installed.

Summing up, BDB Design Build Contracts Manager James Foster, says: "We are proud to be working on behalf of Parkdale Investments for the construction of new logistics units, on a key site that sits in a prime location on the A10 corridor heading into north London.

"The scheme comprises large portal frame buildings, with upper mezzanine floors that can provide flexible spaces. The steelwork is a key element to this as the two portal frame designs allow the units to be subdivided to accommodate the market requirements.

"Nationwide Structures has worked efficiently to ensure that the fabrication and erection of the steel frames has progressed quickly to ensure that the project programme has been streamlined, so the units were constructed as quickly as possible, in order to maintain the agreed overall timeline."

Progress Park is due to complete in early 2027. ■

"The scheme comprises large portal frame buildings, with upper mezzanine floors that can provide flexible spaces. The steelwork is a key element to this as the two portal frame designs allow the units to be sub divided to accommodate the market requirements."



Steel was chosen as clear column-free spaces are required.



Up to two mobile cranes are being used on the project.



The two-span structure was the first warehouse to be erected.

Trail blazing bridges

Beaver Bridges has supplied two steel footbridges that form an essential element of a new walking and cycling trail built on a former railway line in South Wales.

Traversing 21km of Carmarthenshire countryside, the Tywi Valley Path provides a walking and cycling route that encourages sustainable travel and tourism in South Wales.

Following the route of a former railway line that closed in 1963, the recently opened path connects Carmarthen and Llandeilo, allowing people to enjoy unhindered views of the countryside, wildlife and local landmarks.

The scheme was delivered through a £16.7 million investment from the UK Government, alongside funding and support from Carmarthenshire County Council and regional contractors.

Cllr Edward Thomas, Cabinet Member for Transport, Waste and Infrastructure Services, says: “The Tywi Valley Path is a project that brings together active travel, tourism, and sustainability.

“By connecting with the Heart of Wales railway line, which stops at Ffairfach and Llandeilo, and encouraging walking, cycling, and wheeling, it gives people more choice in how they travel while opening up the beauty of the valley for everyone to enjoy.”

Two **steel footbridges**, spanning the Tywi and Cothi rivers respectively, form an important element of the scheme between Cwmgwili and Ffairfach. Both structures are located within a 4km-long section, which was delivered by main contractor Walters with subcontractor Beaver Bridges **fabricating** and installing the steelwork for the bridges.

The first of the two bridges to be installed was the 57m-long × 4m-wide Tywi Footbridge. Fabricated and delivered in three pieces, the bridge structure is formed with hollow section steelwork with UB cross members, diagonal angle bracing, steel metal decking and **steel parapets**.

Once onsite, the three bridge sections were temporarily supported on blocks, which allowed them to be bolted together and facilitated the installation of additional underside **bracings**.

Prior to the bridge elements arriving onsite, the project team had already completed the foundations for both the bridge and its approach ramps.

Supported on 10 steel columns, the two steel-framed ramps are each 50m-long × 4m-wide and were delivered to site in seven pre-assembled sections.

Given the sensitivity of the working environment, main contractor Walters worked closely with Natural Resources Wales (NRW) throughout the planning process, particularly when designing the temporary works. This included the crane pad which was installed on one bank of the river and within a floodplain. It required extensive environmental assessment, flood risk planning, and strict compliance to ensure a safe and sustainable

construction programme.

Positioned on the pad, a 350t-capacity crawler crane lifted the complete bridge into place.

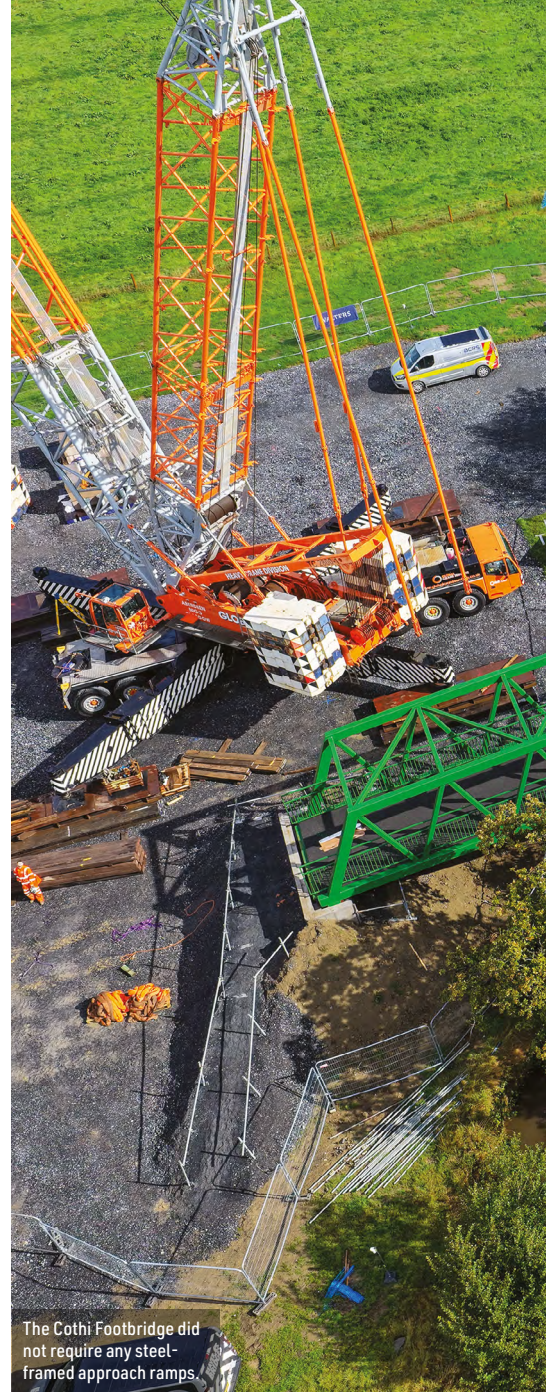
The slightly longer Cothi Footbridge (measuring 67m-long × 4m-wide), which does not require approach ramps, was fabricated, delivered, assembled and lifted into position in a similar procedure to the Tywi structure.

Commenting on the completed scheme, a spokesperson for Walters says: “By working transparently with the Council, NRW, landowners, and local stakeholders, we developed safe and efficient solutions for complex lifting operations and floodplain constraints.”

Beaver Bridges Global Development Director Richard Hinckley, adds: “The project was delivered under challenging weather conditions, requiring close coordination between site teams, lifting operatives and logistics management.

“Despite these constraints, all works were completed safely and in accordance with programme requirements.”

Summing up, Councillor Hazel Evans, Cabinet Member for Regeneration, Leisure, Culture and Tourism, says: “The opening of these new sections marks an exciting step forward for the Tywi Valley Path. This project not only connects communities but also showcases the beauty, history, and culture of the Tywi Valley. With two new bridges now in place and more sections opening this year, we are well on our way to creating a world-class walking, cycling and wheeling route for residents and visitors alike.” ■



The Cothi Footbridge did not require any steel-framed approach ramps.



The fully-assembled Tywi Footbridge is lifted into place.



"By connecting with the Heart of Wales railway line, which stops at Ffairfach and Llandeilo, and encouraging walking, cycling, and wheeling, it gives people more choice in how they travel while opening up the beauty of the valley for everyone to enjoy."

FACT FILE

Tywi Valley Path footbridges, Carmarthenshire

Main client: Carmarthenshire County Council

Main contractor: Walters

Steelwork contractor: Beaver Bridges

Steel tonnage: 220t

All about the truss

The two Tywi Valley Path footbridges use Warren trusses with hollow section members to achieve spans of 57m and 67m. Max Cooper of the SCI discusses what makes the trusses, and the Warren configuration in particular, well suited to footbridges.

Footbridges carry modest loads relative to highway or railway bridges, but they may still require long clear spans where stiffness and self-weight become the governing design considerations. The [truss](#) addresses both of these issues; it carries load primarily as axial forces in its members, making efficient use of material, and it allows span-to-depth ratios that would be impractical with solid webbed cross sections. Where spans exceed about 25m to 30m, trusses and [box girders](#) are typically the only viable all-steel options, and the truss has the advantage of a lighter, more open appearance.

The Warren truss form, as used in the Tywi Valley Path footbridges, is used to describe a truss where the top and bottom chords are linked with diagonals only (i.e. no vertical members). It is a particularly structurally efficient arrangement,

providing a direct load path between the point of load application and the supports – for further information see Reference 1.

At spans of the length seen on the Tywi Valley Path, through-truss construction is the natural choice, where the top chords are braced together above head height to provide direct lateral restraint to the compression chord and to carry wind loads back to the supports. At shorter spans, however, designers may wish to consider half-through construction, where the truss depth is less than the overhead clearance needed for pedestrians and no top bracing is provided. In this case, lateral stability of the top compression chord relies on U-frame action, where each cross-member at deck level acts together with the adjacent truss members to form a discrete lateral restraint.

Structural hollow sections (both CHS and RHS) are common choices for truss footbridges. The bottom chord is typically an RHS, chosen for its flat faces, which simplify connections to deck cross-members and floor plate. CIDECT Design Guides 1 and 3 provide guidance on the design of welded hollow section joints.

Finally, the designer must consider the dynamic response of the structure. Natural frequencies should be checked against the comfort criteria in NA to BS EN 1991-2 and PD 6688-2. Although trusses are inherently stiffer than plate girders of comparable span, a formal dynamic assessment is generally required for spans exceeding 30m. ■

1. William F. Baker, L. L. B. (2015). *Structural Innovation: Combining Classic Theories with New Technologies*.

FACT FILE

Wellington Pier extension, Great Yarmouth

Main client: Family Amusements

Architect: McLean Architectural

Main contractor: Regal House

Steelwork contractor: TSI Structures

Steel tonnage: 175t



That's entertainment

Structural steelwork has provided a cost-effective and quick construction programme for an extension to Great Yarmouth's Wellington Pier.

Major investments are planned in Great Yarmouth, as the East Anglian seaside town readies itself for a multi-million-pound makeover.

The local council has big plans to regenerate large areas of the town including the port, which has declined in recent times with the demise of the fishing industry.

Planned [housing](#), [retail](#) and [leisure](#) developments could all provide the town with a significant economic boost.

Along the seafront, known as the Golden Mile, some investments have already reinvigorated Great Yarmouth's traditional tourist industry. The Marina Centre (see NSC July 2021), which includes a swimming pool, aqua play area with flumes, a gym and a sports hall, opened in 2022, while work to

restore the famous Victorian Winter Gardens is due to kick off imminently.

Also on the seafront, Wellington Pier, which is another 19th-Century landmark, is undergoing a large-scale modification.

Over the years, the structure has seen a number of changes, including its end-of-pier theatre being converted into a bowling alley and the front section (along Marine Parade) redeveloped into a large amusement arcade.

The latter is now being expanded to almost double in size with a steel-framed extension being built on land formerly occupied by an outdoor roller-skating rink.

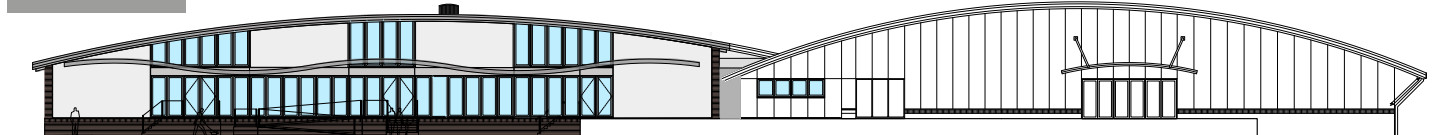
Working on behalf of Regal House, the steelwork programme is being delivered on a design and build contract by TSI Structures.

"We have worked with Regal House on other pier projects at Felixstowe and Clacton," says TSI Structures' Director Andy Cullum. "They aren't straightforward jobs to design, but our relationship has made them enjoyable and rewarding to complete."

The new build is a stand-alone structure, gaining its stability from strategically placed bracing. It will link into the adjoining arcade building and is topped with a curved roof that replicates the design of its neighbour.

The roof structure is formed with long-span cellular Westok sections. Two of the beams, measuring 966mm-deep, span the full 49m width of the frame, while two others (885mm-deep) span 33m, in order to connect to internal columns that form a [mezzanine level](#).

East Elevation - rear





The steel-framed extension will link into the existing pier structure.

John Callanan, Design Team Manager at ASD Westok, comments: "These clear spans are ideal for curved Westok roof beams. As soon as we were approached and reviewed the scheme, it was clear that Westok rafters offered the ideal solution."

As well as forming the roof, the beams also create the required column-free space for the entertainment zone. The requirement for minimal internal columns was one of the main reasons the project team chose a steel-framed option, along with the fact that the material offers a quick construction programme.

Steelwork is also fabricated offsite in a controlled environment, which improves installation precision and reduces the number of workers needed onsite.

Because of their length and to make them transportable, the roof beams were delivered to site



Curved cellular beams form the roof and provide the extension with its column-free space.

"These clear spans are ideal for curved Westok roof beams. As soon as we were approached and reviewed the scheme, it was clear that Westok rafters offered the ideal solution."

in sections – three pieces for the longer rafters and two for the shorter 33m-long members. They were spliced together on the ground and then lifted into position using a single mobile crane.

Prior to installing the steel superstructure, main contractor Regal House had prepared the ground, by ripping up the existing concrete slab, excavating a partial basement level and installing the piled foundations.

The piles are up to 10m deep and support the extension's columns, which are typically arranged in a 6m grid pattern. The perimeter columns, which connect to the roof, are up to 7.9m tall, while internally the columns are up to 2m tall and support a raised ground floor formed from a steel grillage of 457mm-deep beams installed at 3m centres.

Designed to mitigate the risk of flooding, the raised floor will allow a seamless link with the existing building and also creates an undercroft beneath 50% of the ground floor. This area, accessed via a secondary street entrance and ramp, will be used for back-of-house storage and staff car parking.

The floors are formed with steel beams supporting metal decking and a concrete topping. The beams were designed non-compositely to avoid the need for shear studs that would have required unpainted top flanges.

Up to 12m-deep, the mezzanine extends in an L-shape around the rear of the structure. Its roof is formed with shallower rafters than the

entertainment zone's Westoks, which allow enough headroom for the upper level.

A robust 15m-long × 1.4m-deep truss, positioned towards the rear of the building, supports the mezzanine's floor beams and ensures there are no internal columns intruding into the floor space below.

On the front and rear elevations there will be a board and render system that is normally supported by an SFS system. On this scheme, horizontal rails at 2.5m centres and vertical rails at 600mm centres have been used to mimic an SFS system.

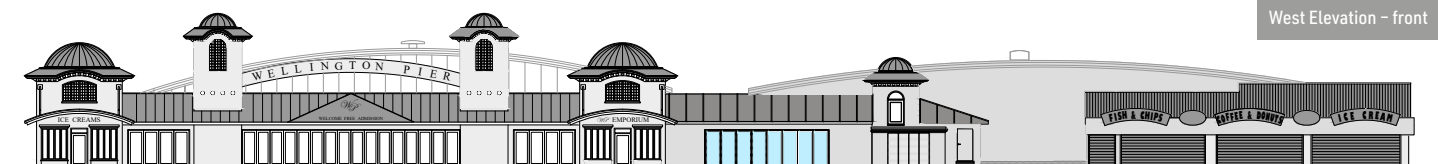
The majority of the steel superstructure was installed during a first phase of work, with a portion abutting Marine Parade due to be completed in September.

The second phase was necessary as an important substation, located within the site's footprint, had to be relocated, before this part of the steel frame was erected.

Creating the entertainment space's main entrance, the second phase of steelwork includes two 12m-long trusses, that support the roof and create a further open-plan column-free area.

Next to the main entrance, the steel frame includes a braced box measuring 2.7m-wide × 2.7m-deep and 7m-tall. At a later stage in the construction package, a prefabricated tower – with the same design as the rest of the pier's frontage – will be connected on to the top of the box.

The Wellington Pier extension is due to be complete before Easter 2027. ■



West Elevation - front



The construction programme is taking place in and around the existing college.

East coast education boost

In our second feature from Great Yarmouth, Kier has followed its own design guidelines for educational buildings and used a steel-framed solution with precast flooring for the redevelopment of a college campus.

One of 16 colleges across England selected to benefit from the government's £1.6 billion Further Education Capital Transformative Fund, East Coast College's Great Yarmouth Campus is in the midst of a wide-ranging redevelopment.

Being delivered by Kier Construction on behalf of the Department for Education (DfE), the redevelopment will transform the Great Yarmouth Campus into a cutting-edge [learning environment](#).

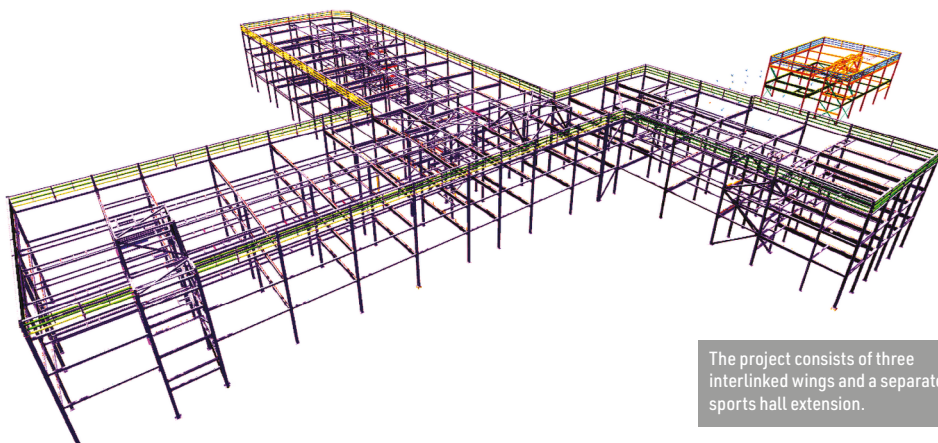
The new campus will feature a [mock hospital ward](#), digital and media suites, a professional hair and beauty salon, a fully equipped gym and sports centre, a lecture theatre, and a training kitchen and restaurant that replicate real industry settings.

Chris Lilley, Regional Director of Kier Construction Eastern & Midlands, says: "This

landmark project will create a modern, flexible learning environment, offering high-quality teaching facilities that will empower students to reach their full potential, while also delivering lasting benefits for the local community."

Being built on land which was previously used as the college's car park, the new build consists of three interlinked three-storey teaching blocks. Also on the site, an existing sports hall has been refurbished and a new building, accommodating ground floor changing facilities and a first-floor gym, has been attached to one gable end.

The new gym and sports facilities are scheduled to open to students and the wider community this Autumn, while the full redevelopment remains on track for completion ahead of the college welcoming students into the new campus from Summer 2027.



The project consists of three interlinked wings and a separate sports hall extension.



Each of the steel-framed college wings is three-storeys tall.

Once the college has decamped into its new facilities, Kier will remain onsite to demolish the majority of the existing buildings and then create a new car park and landscaped areas.

Kier has considerable experience in the education sector and helping the company and its team achieve the most cost-effective solutions, which minimise energy costs while remaining compliant with current legislation, it makes use of its own school design platform.

The platform has evolved over the last couple of decades and its set of design guidelines, standardised design strategies and detailing incorporates lessons learned from delivering education projects while also complying with the DfE's output specifications.

Following the school design guidelines, the project team at East Coast College has used a steel-framed solution that supports [precast flooring](#) planks throughout the new buildings.

"Precast flooring has the benefit of speed of construction, while the underside of the planks is left exposed to provide thermal mass and aid with the passive natural ventilation strategy within the project," says Kier Senior Site Manager Sam Sadler.

FACT FILE**East Coast College, Great Yarmouth**

Main client: Department for Education

Architect: LSI Architects

Main contractor: Kier Construction

Structural engineer: Kier Design

Steelwork contractor: H Young Structures

Steel tonnage: 575t

"Precast flooring has the benefit of speed of construction, while the underside of the planks is left exposed to provide thermal mass and aid with the passive natural ventilation strategy within the project,"



This design also has [sustainability](#) at its heart, as it has been proven that by utilising thermal mass, running costs, such as the use of air-conditioning, can be significantly reduced. By leaving the floor's precast soffits exposed within the completed school, it allows hot air to be absorbed and stored during the heat of the day and then released overnight.

By using a steel-framed option, the project has benefited from the material's speed of construction, helped by the fact that it is fabricated offsite, thereby reducing site waste and transportation needs.

Adding to the project's sustainability credentials, steelwork contractor H Young Structures has sourced 65% of the project's steel tonnage from [Electric Arc Furnace \(EAF\)](#) plants.

EAF steelwork is considered to be much greener and more efficient in terms of energy consumption for the production process, as it can utilise renewable energy from wind farms instead of carbon fuels such as oil and gas.

The project started onsite in May 2025. Preliminary works included the installation of piled foundations in preparation for the steel

frame erection to commence.

The team used a combination of CFA piles close to the boundary with the existing college building (as these cause less vibration) and concrete driven piles elsewhere. Because of the poor coastal ground conditions, the piles are up to 22m-deep.

The new changing room and gym extension that links into the existing sports hall, was some of the first steelwork to be installed onsite. Creating the required column-free space for the gym, a 13m-long beam was installed within this structure's first floor. Weighing more than 2.5t, it was one of the heaviest steel elements on the entire job.

Predominantly using a single 120t-capacity mobile crane, the erection team installed the main three teaching blocks in a sequential manner, starting at the furthest point from the main goods entrance and then working their way out.

The teaching blocks have been designed with a regular grid pattern for each floor, with perimeter columns spaced at 5m centres and internal spans of up to 7.8m. Every floor has two rows of rooms, separated by a central corridor.

Stability for each steel block is derived from

bracings, which are strategically located in and around stairwells and gable ends, in order to avoid windows and doorways.

Coordination between various trades is always key to a successful project completion. This job was no different as the steel erection team had to work closely with the precast installers. The flooring planks are up to 7.4m-long and in order to allow their installation, some steel beams were initially omitted from the frame, creating openings for the precast units to be lifted into position.

The openings were temporarily propped while the precast flooring was installed, but once complete, the omitted steel beams were lifted into place and the temporary props removed.

In order to further help with the installation of the flooring and avoid any onsite welding, the steel frame's beams were supplied with a total of 9,584 studs pre-welded during the fabrication process.

Summing up, Paul Padda, Principal and Chief Executive at East Coast College, says: "The new campus will provide an inspiring, modern environment where learners can develop the skills, confidence, and ambition to thrive in rapidly evolving industries." ■

Town centre freshened up with steel

Big changes are progressing in Grimsby town centre as a mixed-use scheme, featuring a five-screen cinema, is set to breathe new life into an existing shopping centre.

Construction work is advancing on the extension and redevelopment of Grimsby's Freshney Place shopping centre, a project that will create a blend of leisure, retail and community spaces to revitalise the town centre.

Intended to boost local footfall, stimulate inward investment and support the port town's long-term economic and social renewal, the scheme is being led by North East Lincolnshire Council (NELC) and Queensberry, supported by £44.28 million of Government funding.

Just a short distance from the docks, which was once said to be the busiest fishing port in the world, hosting more than 400 trawlers, the £50 million Freshney Place redevelopment is the cornerstone of the council's regeneration vision.

Damien Jaines-White, Assistant Director for Regeneration at North East Lincolnshire Council, says: "As part of the realisation of our town centre masterplan, this major investment is bringing exciting leisure opportunities to Grimsby town centre. Several pre-lets have been agreed including Parkway Cinema, Nando's and Starbucks and,

alongside other developments, is providing a once in a generation positive change to the shape and feel of the town centre."

Paul Sargent, Founder of Queensberry, Development Manager and Asset Manager for Freshney Place, adds: "This project is as much about rebuilding confidence in Grimsby as it is about creating a new urban space for the community.

"By creating a modern, mixed-use town centre that blends [housing](#), [shopping](#), [leisure](#), and essential services like [healthcare](#) and [education](#), we're meeting real community needs while encouraging inward investment. The redevelopment of Freshney Place will be a catalyst for lasting change not just physically, but emotionally and economically."

Main contractor GMI Construction started work onsite last year, delivering an enabling package that involved the demolition of an existing steel-framed market hall.

Once the demolition was complete, the plot created space for the new steel-framed elements of the scheme. This consists of a row of three steel-braced frames, which are structurally-independent and separated by two movement joints.

The frames will house a five-screen cinema, a leisure space (the use of which is yet to be finalised) and retail units.

On the opposite side of the site, some retail units have also been demolished, while the concrete-framed former BHS department store, which abuts the new cinema, has been partially demolished and stripped-out. The store is being refurbished into a new food and market hall, with a quantity of steelwork used to create new openings for windows and a parapet [façade](#) to support new cladding.

Completing the scheme, a landscaped public square will sit between the new-build elements and the market hall.

Because of the design requirement for wide [column-free spaces](#), which are essential for leisure centres and cinemas, a steel-framed solution for the project's new build elements was the chosen framing solution.

"The steelwork solution for the cinema and leisure areas was complex, particularly at the interface between the existing Freshney Place structure and the new-build elements," says The

"The cinema operation calls for stringent acoustic performance requirements. This drove the need for carefully considered connection detailing to minimise sound transmission. Steelwork provided the flexibility and precision needed to accommodate these demands."



The cinema block is the largest steel frame in the project.

FACT FILE

Freshney Place redevelopment, Grimsby

Main client: North East Lincolnshire

Council, Queensberry

Architect: The Harris Partnership

Main contractor: GMI Construction

Structural engineer: Adept Consulting

Steelwork contractor: Hambleton Steel

(part of Embrace Steel)

Steel tonnage: 350t



Visualisation of how the new steel-framed elements and public realm will sit within the redeveloped scheme.



A pitched roof design mimics many of the historic warehouses that are still to be seen around the town centre.

Harris Partnership Technical Director Daniel Broadhead.

"Achieving this required a high level of coordination between the design team, steelwork contractor and main contractor to ensure that the new steelwork integrated seamlessly into the retained structure. In addition, the cinema operation calls for stringent acoustic performance requirements. This drove the need for carefully considered connection detailing to minimise sound transmission. Steelwork provided the flexibility and precision needed to accommodate these demands."

Using a single 60t-capacity mobile crane, Hambleton Steel erected the entire steelwork package during a six-week programme.

Founded on piled foundations, which are up to 7m-deep, the steel frames incorporate feature pitched roofs, a design which is a nod to the town's many 19th and early 20th century warehouse buildings.

The cinema block has one 15m-wide bay with a pitched roof, which reaches a maximum height of 19m at its apex. The remainder of the 43m-wide cinema frame features a flat roof that will

accommodate a plant deck.

Inside the steel frame at first floor, the cinema has another plant deck, compositely-formed with steel beams supporting metal decking and concrete topping.

The cinema's pitched roof is formed with a series of 7.5m-long rafters (spliced at the apex), which are typically UKB305mm x 165mm x 40mm members.

The majority of the project's columns (with the heaviest being 3t) were fabricated and delivered to site in one piece, with the only exception being two members that support the cinema's pitched roof. The two 16.7m-long columns were spliced in order to make them transportable and fit onto the available delivery trailer.

All of the cinema's five screens, which will feature terraced seating, are located at ground floor level, adjacent to the complex's main entrance, which will be accessed via the new public realm.

Sat beside the cinema, the leisure block has two bays, both topped with pitched roofs. Reaching heights of 12.6m at the apex, the two bays have a combined width of 28m. Creating the desired open-plan space, which is suitable for a variety of leisure

centre activities, only one of the bays has a central row of supporting columns.

Completing the row of steel frames, a further 12.6m-high pitched roof partially tops the two-storey retail element of the scheme.

GMI Construction is due to complete its construction package in Spring 2027. A fit-out programme will then begin on all of the buildings, with the Freshney Place extension due to open later that year.

Summing up, Ed Weston, GMI's Regional Director for Yorkshire, says: "We are extremely proud to be supporting the council on the delivery of a scheme that will unlock new opportunities and create long-term and far-reaching change for the area by boosting the economy, creating jobs and creating an attractive and vibrant destination.

"With a proven track record in construction excellence, GMI is committed to maintaining the highest standards throughout every phase of this project. By working collaboratively with NELC, Queensberry and other stakeholders, we are focused on creating a destination that the community can take pride in." ■

Removal of temporary lifting attachments on bridges

Certain topics can trip up an engineer more often than others, and without doubt, fatigue is one. In this article, the SCI's Max Cooper discusses temporary lifting attachments used to install steel bridges, outlining the fatigue risks and the specific requirements for designers and fabricators.

When a structure is subject to cyclical loading, it is susceptible to fatigue. Fatigue is a phenomenon where small flaws may open up under repeated load cycles to eventually form cracks, and may result in failure despite each one of the load cycles resulting in a stress level far lower than the steel's design strength. In structural steelwork this may occur in members irrespective of whether they are in compression or tension due to the effect of high tensile residual stresses which arise from the fabrication process.

Designing for fatigue can be a source of headaches to both designers and fabricators. Factors that are often immaterial to the design of non-fatigue-susceptible structures – such as stress concentrations, stress ranges, and weld detailing – are often critical to the reliable performance of the fatigue-susceptible structure. As such, if you are designing, detailing, or fabricating a fatigue-susceptible structure, alarm bells should be ringing that there are a whole host of different requirements that you need to meet, and that seemingly small details can have an outsized impact on the fatigue performance of a much larger structural element.

One such 'minor' detail is a temporary lifting attachment point on bridge structures, which leads us to the subject of today's article: do they need to be removed?

A common request

On more than one occasion, the SCI's Advisory Desk has received correspondence from designers of composite bridge projects regarding fabricators proposing to cut down temporary lifting lugs to a short stub and grinding the top smooth, rather than completely removing the attachment and grinding flush with the parent flange. This practice is noted in Section 6.2 of the BCSA Guide for the Erection of Steel Bridges though it is important to highlight the passages "...in consultation with the Designer..." and "...using approved cutting methods" which should alert the fabricator that under no circumstances is this a decision that they should be taking alone.

Whilst complete removal will always be the preferred solution from a design point of view, achieving this on site is often a time-consuming and complex process for the contractor. In order to balance the needs of all project parties, a more holistic approach is to assess each lifting lug location and establish whether it can be left in the permanent works, needs partial removal or needs complete removal. The preferred solution should be established on a case-by-case basis, requiring dialogue between the designer and contractor.

Left in place

If a lifting lug is to be left-in-place in the permanent works without modification, this should only be permitted following acceptability of the following checks:

1) Obstructions to deck structural components

A left-in-place lifting lug will often cause obstructions to structural components needed for the deck construction, such as rebar and temporary works items. The detail should only be left-in-place provided all project parties are satisfied that there are no adverse implications with respect to obstructions.

2) Stress concentration on the top flange

A welded lifting attachment introduces a new stress concentration. It typically downgrades the fatigue Detail Category on its supporting flange to 56 (refer to BS EN 1993-1-9 Table 8.4). Unless expert fracture mechanics studies justify a higher category, the flange must be reassessed by a competent person (invariably the permanent works designer) for this significant reduction in fatigue performance. The fatigue Detail Category can also be improved by sensible detailing of the proposed lifting lug location. The designer should ensure that no part of the lug or its welds is closer than 25mm to a flange edge and that there are no lugs proposed in regions of high fatigue loading.

3) Brittle fracture and lamellar tearing implications on top flange

The attachment must be assessed by a competent person for brittle fracture implications, specifically calculating the increase in T_{RD} from the National Annex to BS EN 1993-1-10. As a worst case a plate subgrade with a higher Charpy classification can be needed if the lifting lug is placed in an area under high tension stresses in the permanent works. Additionally, if the attachment welds are large, the risk of lamellar tearing through the top flange will be increased. Lamellar tearing must be assessed by a competent person using PD 6695-1-10 Clause 3.3. As a worst case, Z35 quality plate may be needed locally in the top flange in the lifting lug location if the lifting lug creates a cruciform joint with a t_z value (as defined in PD 6695-1-10) greater than 25mm. It is considered good practice to scan the top flange plate for laminations before and after welding of the lifting attachment, in accordance with clause 5.3.4 of BS EN 1090-2.

4) Additional permanent works stresses at attachment location

A left-in-place lifting lug must be assessed to ensure that its shear stiffness within the deck does not cause cracking fatigue in its welds under fluctuating longitudinal shear loads over time. Within a composite steel girder, a left-in welded lifting attachment acts as a highly rigid shear connector providing additional shear connection to the concrete slab. This attracts additional longitudinal shear force that must be transmitted through shear stresses in the lifting attachment welds. If these longitudinal shear forces are excessive and fluctuating under traffic loads over time, there is a risk of fatigue cracking developing in the lifting lug welds, subsequently propagating into the top flange parent plate over time if left unchecked. The difficulty for the designer is that there is no codified approach to simply check the longitudinal shear force fatigue stresses picked up by a typical lifting lug detail cast into a concrete slab.

Engineering judgement, based on the susceptibility to significant longitudinal shear forces at the lifting lug's location within the overall structure, in conjunction with complex analysis of the flexibilities of the lifting lug in conjunction with the surrounding shear studs under longitudinal shear fatigue forces are usually necessary for the designer to assess this risk in the absence of codified guidelines.

5) Fabrication and inspection quality

There is often a temptation for temporary works lifting attachments to be fabricated to a lesser quality, but this is unacceptable if they are to be left in the permanent works. It is essential that the fatigue capacities of the lifting



lug welds and surrounding area are fabricated to the strength quality assumed by the designer. This is achieved by ensuring that the lifting lug plates and welds are fabricated to the same Execution Class and Quantified Service Categories (QSC) specified for the permanent works. Any more onerous QSC rating required as part of the assessment of the left-in place lifting lug must be clearly communicated by the designer to the fabricator for inclusion in the works.

6) Inspectability

The left-in-place lifting lug welds will usually not be able to be routinely inspected, being obscured by the concrete deck slab. It is recommended that the opinion of the future bridge owner is sought to establish whether they are satisfied with the potential maintenance liabilities of welded attachments that cannot be routinely inspected. The need for engineering judgement in this issue is commonplace considering the likely fatigue stresses at each lifting lug location balanced against the risks of other non-inspectable top flange welds such as shear studs and doubler plates. Either complete removal or adoption of a safe-life fatigue design philosophy for the non-inspectable welds are common client requirements in this regard.

It is the experience of the Steel Bridge Group that, whilst technically viable in certain situations, it is rare for all the above requirements to be met, thereby allowing a full-height lifting lug to be left-in-place in a bridge permanent works. Partial or complete removal is required in the vast majority of typical situations.

Partial removal

Partial removal involves cutting and grinding back the lifting lug to a nominal 25mm height above the permanent member surface.

Whilst the removal of the attachment to a small stub will typically prevent clashes with the deck rebar (discussed in item 1 above), the stub will still form a stress raising detail in a bridge structure, which needs fatigue and fracture assessment by competent persons. Where the remaining stub is shorter than the thickness of the lug, the Detail Category should be taken from BS EN 1993-1-9 Table 8.5, which varies from 56 to 36. The detail will also continue to pick up longitudinal shear forces in service. Quantifying these longitudinal shear forces is a complex task and will require the designer

to consider the shear flow along the beam and the relative stiffnesses of the concrete flange, shear studs and lug stub. Items 2, 3, 4, 5 and 6 above will need to be satisfied before being able to justify leaving the remaining stub in the permanent works.

As a stub is to be left in the permanent structure, fabricators are reminded that the resultant cut edge needs to comply with all relevant Specification requirements required for permanent works steelwork. Care is needed with the stub removal works on site as inappropriate use of flame cutting or grinding back to the flange can alter the metallurgy of the steel or introduce new stress raisers. Procedures for cutting and grinding should be controlled on-site to ensure compliant hardness values are maintained on the cut edge and that the parent material is not gouged or otherwise compromised.

Complete removal

If a partially removed lifting lug cannot be justified in the permanent works for any reason, the lug will need complete removal to justify ignoring it in the permanent works fatigue and fracture assessment. Whilst often practically difficult due to the restricted access of adjacent shear connectors, best practice is for the lug to be initially cut leaving a stub at least 3mm above the permanent member surface and for the remaining stub ground smooth using an Approved Procedure involving grinding parallel to the member axis. Any accidental damage incurred during removal needs to be appropriately repaired and the final ground surface must be checked for freedom from cracking using magnetic particle testing.

Summary

While temporary lifting attachments may seem a minor detail, they can produce a significant effect on the fatigue performance of a bridge. Any deviation from complete removal and subsequent grinding flush of the parent beam flange requires the explicit approval of the permanent works designer, supported by appropriate fatigue calculations, and fabrication and testing requirements matching those of the permanent works. In order to do this, the steelwork fabricator must provide the permanent works designer with the detail, location and proposed removal methodology for each of the lifting lugs. ■

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AD 540A:

Vertical shear resistance of composite slabs and anchorage

Revision Note

The guidance on reinforcement anchorage has been updated to align with our understanding of how the second generation of Eurocodes should be applied.

In the [design of composite slabs](#), the vertical shear resistance has typically not been critical. However, it is becoming more common for composite slabs to be required to support heavy concentrated loads. When these are placed close to the support the vertical shear resistance may become critical. The vertical shear resistance of a composite slab is determined in accordance with clause 9.7.5 of BS EN 1994-1-1:2004 which refers designers to clause 6.2.2 of BS EN 1992-1-1:2004. In EN 1992 the tension reinforcement that contributes to the vertical shear resistance (by affecting the assumed concrete resistance) must be sufficiently anchored beyond the cross-section considered to justify the assumed level of tensile force. Typically the provision of this level of anchorage has simply been assumed, without any explicit checking of sheeting continuity or fixity. The purpose of this AD note is to explain why this assumption, whilst clearly questionable, has been satisfactory. For future designs, more rigorous checking using the principles contained in this AD is recommended.

Generation 1 resistance

For composite slabs, the tensile reinforcement that contributes to the vertical shear resistance comprises the steel sheeting, and any reinforcing bars present in the troughs. Mesh placed high up in the slab is assumed not to be in tension and therefore ignored (the assumptions about what is in tension and what is not reflect the standard UK practice of assuming slabs are simply supported even when the concrete is continuous). The area of sheeting and bars is included in the design vertical shear resistance, $V_{Rd,c}$ via the term ρ :

$$\rho = \frac{A_{sl}}{b_w d} \leq 0.02$$

where:

A_{sl} is the area of anchored tensile reinforcement (normally calculated per metre width of slab).

b_w is the effective width at the height of the centroid of the combined tensile reinforcement (this width will comprise a number of ribs when calculated over the same total width as used to determine A_{sl}).

d is the effective depth of the section, taken as the depth from the top surface to the centroid of the tension forces.

For typical UK composite slabs with only one layer of mesh reinforcement close to the top of the slab and no bars in troughs, the area of the tensile reinforcement, A_{sl} is therefore taken as the effective area of the steel sheeting alone. To mobilise the full area of the sheeting in yielding, the anchorage length (i.e. contact area) should be large enough to generate

the required level of shear bond between the concrete and steel. This force may be supplemented by end anchorage. However, as ρ is limited to 0.02, for many composite slabs the full area of the steel sheeting is not required to generate the maximum concrete resistance. It is also worth noting that the concrete resistance is a function of the cube root of ρ , meaning it is not overly sensitive to reductions in A_{sl} .

Generation 2 treatment of vertical shear and concentrated loads

Design resistance

The design vertical shear resistance of composite slabs in the second generation of Eurocode 4, includes the contribution of the sheeting. The new rules allow some (50% is recommended, and likely to be adopted by the UK, but this is for national determination) of the shear buckling resistance of the profiled steel sheeting to be added to the concrete resistance. To achieve this level of resistance, the sheeting has to be sufficiently 'held in place' for the webs to fail in shear buckling. In the second generation of Eurocode 4, the shear buckling resistance is limited to the design value of permanent vertical shear forces applied during construction. However, we believe this to be an error and expect this to be addressed by the UK National Annex.

Treatment of loads

As well as revising the resistance model, the second generation of Eurocode 4 provides useful insight into how one should deal with uniformly distributed loads and concentrated loads placed near the support, which may be onerous in terms of providing anchorage.

Uniformly distributed loads

According to the second generation document, for a uniformly distributed load, the design vertical shear resistance of a composite slab should be checked at a cross-section at a distance d from the support. Only anchorage more than a distance d beyond the cross-section being checked may be considered as effective, i.e. only anchorage up to the edge of support may be considered for this case. This means that the minimum anchorage length provided by discontinuous sheeting may only include the sheeting bearing width. The anchorage can be increased by the sheeting fixings (sheeting nails or thru-deck welded shear studs) as well as any contribution due to the sheeting having deformed ribs (also known as 'crushed ends'). The end anchorage by deformation of the ribs at the end of the sheeting is not insignificant for re-entrant sheeting, but likely to be very limited for trapezoidal sheeting.

Concentrated loads between d and $2d$ from a support

According to the second generation Eurocode 4, for a single concentrated load located at a distance a_q

between d and $2d$ from the support, the vertical shear resistance should be verified at a cross-section d from the load (i.e. at the edge of support when the load is at d). In recognition of the fact that some of the load will pass straight into the support, the contribution of this load to the design shear force V_{Ed} may be reduced by multiplying it by $0.5a_q/d$ in accordance with clause 10.7.5(1). In this case (load at d) the anchorage of tensile reinforcement is therefore considered from the edge of support.

Concentrated loads closer than d from a support

Presumably because they will be rare (or could be avoided), Eurocode 4 makes no comment on single loads closer than a distance d from a support, although Eurocode 2 does. For a single concentrated load located less than d from the support, according to clause 8.2.1(11) of the second generation of Eurocode 2 a strut-and-tie model may be used. Such a model would require sufficient reinforcement anchorage to resist the 'tie force'. It also notes that the shear verification may be omitted, provided that:

- $\tau_{Ed} \leq 2\tau_{Rd,min}$;
- the flexural reinforcement is fully anchored at the support and at the load introduction.

where:

τ_{Ed} is the shear stress over the cross-section.

$\tau_{Rd,min}$ is the minimum shear stress resistance given by expression 8.20 of BS EN 1992-1-1:2003.

Multiple moving concentrated loads

For a series of moving concentrated loads such as [MEWPs](#), vertical shear should be verified with the closest wheel positioned at $2d$ from the support, with the vertical shear resistance verified at a cross-section d from the support. Anchorage of tensile reinforcement for this cross-section is therefore as noted above. As the spacing between wheels is larger than $2d$, a series of moving concentrated loads closer than $2d$ from the support does not need to be considered according to the National Annex for the second generation of Eurocode 2 as the shear force at the support would reduce, because of reductions permitted for concentrated loads close to a support.

Conclusion

While the anchorage provided for discontinuous sheeting may not be enough to increase the ρ term to its maximum value 0.02 (note this limit is not maintained in the second generation document), the current rules for vertical shear resistance of composite slabs ignore any vertical shear resistance of the steel sheeting. Whilst explicit calculation considering the specific details of any given case is recommended, the design vertical shear resistance of composite slabs with discontinuous sheeting is unlikely to be less than that assumed using current practice (i.e. that the sheeting is fully anchored). This is because loss in concrete resistance due to limited sheeting anchorage will be compensated by including the web crushing resistance of the steel sheeting.

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British Coal build with steel

Birtley Engineering Limited of Chesterfield were the main contractors to British Coal for the design, construction and commissioning of the coal preparation plant, and were overall contract managers for the Woolley Westside surface installation, the second of three centralised washeries in the old Barnsley area. The washery has a design capacity of up to 1800 tonnes per hour. More than 2000 tonnes of structural steelwork was used in the construction of the washery, and Edward Bidgood & Co. Ltd., of Leeds, were commissioned to design and supply the steelwork because of their experience in the supply of many other coal preparation plant structures.

The plant features a unique 3 gravity dense medium system of coal washing, with extensive raw coal homogenisation and product blending facilities. The plant is computer controlled and fully automated. The extensive variety of process plant and equipment within the washery, required considerable expertise in producing the most economical layout and it is in this aspect of construction where structural steelwork plays a very important and competitive role.

One of the largest plants of its type in the world, the Westside complex incorporates many concentrated areas of rotating and vibrating equipment positioned so as to allow natural flow of products and provide maximum maintenance accessibility. Structural steelwork proved to be the most effective medium for supporting the complexity of equipment used.

Structural steelwork offers the client the advantages of flexibility, interchangeability, ease and rapidity of erection with the reliability of a factory pre-engineered product. A further advantage is its ability to accept late changes to specification at construction stage and the adaptability to accommodate future additions and modifications.

Steel is winning with British Coal.



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September
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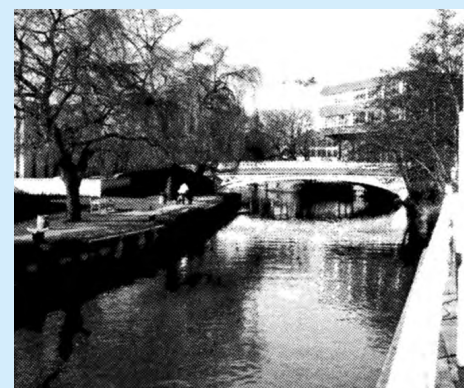
The reconstructed Town Bridge over the River Wey, Guildford



The bridge was originally constructed in 1908 to replace an earlier structure carrying the main Portsmouth Road into the Town Centre and served until 4 years ago when it was judged in need of complete re-building. The cast iron balustrading was carefully removed and stored and the stone piers were left in place while a new structure was prepared consisting of main deck beams in Weathering Steel to minimise future maintenance, and fascia girders accurately curved to match the profile of the cast iron balustrading and the existing abutments.

Steelwork fabrication and erection was undertaken by William Sharp (Structural). In a tight programme designed to minimise disruption and which included the dismantling of a "Bailey" temporary bridge over the river which had provided pedestrian access during reconstruction. Fabrication and trial assembly were all carried out in William Sharp's works at Walsall.

Beam bending was earned out by the Angle Ring Company on their new heavy beam cambering and bending line at Tipton. At the heart of this development are the ARCH-LINE bending rolls which allow much heavier cambers than traditionally associated with large universal beams.



River Bridges go steel

Originally published in **BCSA NEWS**
September 1986

Two recently awarded highway contracts show the sustained improvements in economy of steel bridges against concrete. Tenders showed that steel is cheaper even after accounting for costs of commuted maintenance. For these bridges concrete had been envisaged and the winning steel design is the Contractor's alternative proposal. Both bridges are in scenic locations requiring the approval of the Royal Fine Art Commission. Brief descriptions follow.

River Avon Bridge.

Evesham Bypass

The Bypass will be 6km long to carry the A435 road to the east of Evesham (Worcestershire). It comprises a single 12m carriageway with 1m verges and crosses the River Avon with a skew angle of 17°. Clear width between river walls is 33m. The bridge has three continuous spans of 28m, 42m and 28m with curved soffit profile. Total deck width is 15.22m. The original design comprised an insitu pre-stressed multi-cell box girder.

Tenders were returned in August 1985 and Balfour Beatty Construction asked Cass Hayward & Partners to prepare alternative steel proposals. These were submitted and accepted by the Engineer as a cheaper solution.

Twin main girders at 11.0m centres form the superstructure 2.33m deep as the piers, reducing to 1.23m at abutments and centre of the main span. They support a composite reinforced concrete deck 230mm thick via universal beam cross girders at 3.5m spacing. Bracings integral with cross girders are provided at piers with intermediate knee braces at 7.0m either side. Main girder site splices are welded.

Bottom flanges are 850mm wide with top flanges 400mm, 500mm or 600mm wide. Web stiffeners occur on inside faces only except at supports. Bearings are proprietary 'Disc' type. Piers are twin circular r.c. columns 1.35m diameter. They are supported by a spread footing combined with river wall founded in clay at approximately 5.5m below ground. Abutments are of skeletal r.c. type within the embankments with spread footings. The reduced weight of a steel bridge allowed footings to be reduced in size. The complete design conforms with B.S. 5400.

Work started on site in October 1985. Steel erection is due in Summer 1986 with bypass completion before the end of the year. Sub-contractor for steelwork is NEI Thompson Limited, Horseley Bridge. Main Contractor is Balfour Beatty Construction Limited for whom Cass Hayward & Partners of Chepstow are Consulting Engineers for the alternative design including foundations. Engineers for the Works are C.H. Dobbie & Partners who are also responsible for the independent check, and the client is the Department of Transport.

New Roding Bridge.

South Woodford to Barking Relief Road

The New Roding Bridge is part of the scheme for the A406 South Woodford to Barking Relief Road in north east London. A section of the A13 is also to be improved under Contract 4 and includes construction of the New Roding Bridge to carry eastbound traffic over Barking Creek, alongside the existing reinforced concrete Barking Bridge. Tenders were returned in September 1985 and the Contract was awarded to Balfour Beatty Construction Ltd. Pre-tender the bridge was envisaged as an insitu prestressed concrete

beam and slab structure and had seven spans. The steel alternative design was prepared by Cass Hayward & Partners on behalf of Balfour Beatty and accepted as a cheaper solution.

New Roding Bridge is 187m long with spans of 25m, 27m, 27m, 28m, 52m (over river) and 28m. It will be separated from Barking Bridge by a gap of about 2m. It is 14.1 m wide at the east end increasing to 16.3m at the west end to carry a converging slip road. The two main piers are skewed at 15° to be parallel to river flow. One is within the river whilst the other is located on the west bank. The superstructure consists of five steel plate girders continuous for the full length and supporting a composite concrete slab 230mm thick. Girder spacing varies from 2.7m to 3.5m with edge cantilever of 1.25m. Transverse bracings are provided at piers and at intermediate locations. Main girder splices are bolted. Bottom flanges are 500mm or 600mm wide flats with top flanges of 400mm width. Girders are generally 1.15m deep increased with curved soffit over the two river piers to 2.5m. Piers are of reinforced concrete leaf type with piled foundations formed in London Clay.

Work started in January 1986. Steel erection is due early in 1987 with completion by September. Subcontractor for the steel is Nusteel Structures Ltd. Main Contractor is Balfour Beatty Construction Limited, for whom Cass Hayward & Partners are Consulting Engineers for the alternative design including foundations. Engineers for the Works are Freeman Fox Limited and client is the Department of Transport. Freeman Fox Limited are responsible for the independent design check.

A.C.G Hayward, Cass Hayward & Partners



The Register of
Qualified Steelwork
Contractors Scheme
Buildings

Steelwork contractors for buildings



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

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

- C** Heavy industrial platework for plant structures, bunkers, hoppers, silos etc
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 £6,500,000
Adey Steel Ltd	01509 556677			●	●	●	●	●	●	●	●		●		●	✓	3		●	Up to £5,000,000
Adstone Construction Ltd	01905 794561			●	●	●	●	●								✓	2	✓	●	Up to £3,400,000
AJ Engineering & Construction Services Ltd	01309 671919			●	●		●		●	●	●			●	●	✓	4		●	Up to £3,400,000
Angle Ring Company Ltd	0121 557 7241												●			✓	4			Up to £1,200,000
Arminhall Engineering Ltd	01799 524510	●			●	●		●		●	●			●	●	✓	2		●	Up to £2,400,000
Arramax Structures Ltd	01623 747466			●	●	●	●	●	●	●	●				●		2			Up to £1,200,000
ASD Westok Ltd	0113 205 5270	●	●	●	●	●	●			●	●	●	●		●	✓	4		●	Up to £6,500,000
ASME Engineering Ltd	020 8966 7150	●		●	●	●		●	●	●	●		●	●	●	✓	4		●	Up to £6,500,000
Atlasco Constructional Engineers Ltd	01782 564711			●	●	●	●			●	●			●	●	✓	2			Up to £1,200,000
BD Structures Ltd	01942 817770			●	●	●	●			●	●			●	●	✓	3	✓	●	Up to £2,400,000
Barnshaw Section Benders Ltd	0121 557 8261												●			✓	4			Up to £1,200,000
BHC Ltd	01555 840006	●	●	●	●	●	●	●	●	●	●	●		●	●	✓	4	✓	●	Above £10,000,000
Billington Structures Ltd	01226 340666		●	●	●	●	●	●		●			●	●		✓	4	✓	●	Above £10,000,000
Bourne Group Ltd	01202 746666		●	●	●	●	●	●	●	●	●	●	●	●	●	✓	4	✓	●	Above £10,000,000
Briton Fabricators Ltd	0115 963 2901	●		●	●	●	●	●	●	●	●		●	●	●	✓	4		●	Up to £6,500,000
Cairnhill Structures Ltd	01236 449393	●			●	●	●	●	●						●	✓	4		●	Up to £6,500,000
Caunton Engineering Ltd	01773 531111	●	●	●	●	●	●	●		●	●	●		●	●	✓	4	✓	●	Above £10,000,000
Cementation Fabrications	0300 105 0135	●	●	●	●	●	●	●	●	●	●	●	●	●	●	✓	3		●	Up to £10,000,000
CMF Ltd	020 8844 0940				●		●	●		●	●				●	✓	4			Up to £6,500,000
Coventry Construction Ltd	024 7646 4484	●	●	●	●	●	●	●	●	●	●		●	●	●	✓	4			Up to £2,400,000
D H Structures Ltd	01785 246269			●	●		●				●						2			Up to £600,000
Duggan Steel	00 353 29 70072		●	●	●	●	●	●			●					✓	4			Above £10,000,000
D Hughes Welding & Fabrication Ltd	01248 421104				●	●	●	●	●	●	●		●	●	●	✓	4			Up to £600,000
ECS Engineering Services Ltd	01773 860001	●		●	●	●	●	●	●	●	●			●	●	✓	4		●	Up to £3,400,000
Elland Steel Structures Ltd	01422 380262		●	●	●	●	●	●	●	●	●	●		●	●	✓	4	✓	●	Up to £10,000,000
Embrace Steel Group Ltd	01748 810598	●	●	●	●	●	●			●	●	●	●	●	●	✓	4			Up to £10,000,000
EvadX Ltd	01745 336413		●	●	●	●	●	●		●	●	●			●	✓	3		●	Up to £2,400,000
Four-Tees Engineers Ltd	01489 885899	●		●	●		●	●	●	●	●		●	●	●	✓	3		●	Up to £3,400,000
Fullpen Fabrications Ltd	0203 6335586	●		●	●	●	●			●	●				●		3			Up to £500,000

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

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



The Register of
Qualified Steelwork
Contractors Scheme
Bridgeworks

Steelwork contractors for bridgeworks

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



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

FB Footbridges	FRF Factory-based bridge refurbishment
CF Complex footbridges	AS Ancillary structures in steel associated with bridges, footbridges or sign gantries (eg grillages, purpose-made temporary works)
SG Sign gantries	QM Quality management certification to ISO 9001
PG Bridges made principally from plate girders	FPC Factory Production Control certification to BS EN 1090-1
TW Bridges made principally from trusswork	1 – Execution Class 1 2 – Execution Class 2
BA Bridges with stiffened complex platingwork (eg in decks, box girders or arch boxes)	3 – Execution Class 3 4 – Execution Class 4
CM Cable-supported bridges (eg cable-stayed or suspension) and other major structures (eg 100 metre span)	BIM BIM Level 2 compliant
MB Moving bridges	SCM Steel Construction Sustainability Charter
SRF Site-based bridge refurbishment	● = 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	20	SCM	Guide Contract Value ⁽¹⁾
Adey Steel Ltd	01509 556677	●	●	●	●	●	●	●	●	●	●	●	✓	3			✓	●	Up to £3,400,000
AJ Engineering & Construction Services Ltd	01309 671919	●		●	●	●	●	●	●	●	●	●	✓	4				●	Up to £3,400,000
ASD Westok Ltd	0113 205 5270	●		●	●							●	✓	4				●	Up to £6,500,000
Beaver Bridges Ltd	01204 668773	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓		Up to £6,500,000
BHC Ltd	01555 840006	●	●	●	●	●	●	●	●			●	✓	4	✓			●	Up to £3,400,000
Billington Structures Ltd	01226 340666	●		●	●	●	●	●	●			●	✓	4	✓	✓	✓	●	Above £10,000,000
Bourne Group Ltd	01202 746666	●		●	●	●				●		●	✓	4	✓		✓	●	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 £600,000
ECS Engineering Services Ltd	01773 860001	●		●	●	●	●		●			●	✓	4				●	Up to £500,000
Four-Tees Engineers Ltd	01489 885899	●	●	●	●	●	●		●	●	●	●	✓	3			✓	●	Up to £3,400,000
Fullpen Fabrications	0203 6335586	●	●	●	●	●	●					●	✓	3			✓		Up to £600,000
Jamestown Manufacturing Ltd	00 353 45 434 288	●	●	●	●	●	●					●	✓	4			✓		Up to £10,000,000
Kiernan Structural Steel Ltd	00 353 43 334 1445	●		●	●	●			●			●	✓	4	✓		✓	●	Up to £1,200,000
Kilnbridge Structures Limited	02075 111888	●	●	●	●	●	●		●	●	●	●	✓	4				●	Up to £6,500,000
M&S Engineering Ltd	01461 40111	●				●	●	●	●	●	●	●	✓	3					Up to £2,400,000
M Hasson & Sons Ltd	028 2957 1281	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓	●	Up to £2,400,000
Millar Callaghan Engineering Services Ltd	01294 217711	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓		Up to £2,400,000
Murphy International Ltd	00 353 45 431384	●	●	●	●	●	●		●	●	●	●	✓	4			✓	●	Up to £6,500,000
Nusteel Structures Ltd	01303 268112	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Up to £6,500,000
REIDsteel	01202 483333	●		●	●	●	●		●			●	✓	4				●	Up to £3,400,000
Severfield plc	01845 577896	●	●	●	●	●	●	●	●	●	●	●	✓	4	✓	✓	✓	●	Above £10,000,000
William Hare Ltd	0161 609 0000	●	●	●	●	●	●	●	●	●	●	●	✓	4	✓	✓	✓	●	Above £10,000,000
Non-BCSA member																			
Allerton Steel Ltd	01609 774471	●	●	●	●	●	●	●				●	✓	4	✓		✓	●	Up to £5,000,000
AMCO Giffen	01226 243413	●	●	●	●	●	●		●	●	●	●	✓	4			✓		Up to £1,200,000
Carver Engineering Services Ltd	01302 751900	●		●	●	●	●		●	●	●	●	✓	4			✓		Up to £5,000,000
Centregreat Engineering Ltd	02920 226088	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓			Up to £3,400,000
Cimolai SpA	01223 836299	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Above £10,000,000
CTS Bridges Ltd	01484 606416	●	●	●	●	●	●	●	●		●	●	✓	4			✓		Up to 1,200,000
Donyal Engineering Ltd	01207 270909	●		●					●	●	●	●	✓	3		✓	✓		Up to £2,400,000
Harrisons Engineering (Lancashire) Ltd	01254 823993	●	●	●	●	●	●	●	●	●	●	●	✓	3		✓	✓		Up to £3,400,000
Hollandia Infra BV	+31 (0) 180 519956	●	●	●	●	●	●	●	●	●	●	●	✓	4					Above £10,000,000
HS Carlsteel Engineering Ltd	020 8312 1879									●	●	●	✓	3			✓		Up to £2,400,000
In-Spec Manufacturing Ltd	01642 210716			●						●	●	●	✓	4		✓	✓		Up to £2,400,000
J&D Pierce Contracts Ltd	01505 683724	●	●		●	●	●	●	●			●	✓	4		✓	✓		Above £10,000,000
Kelly's Welders & Blacksmiths Ltd	01383 512 517											●	✓	2			✓		Up to £350,000
Lanarkshire Welding	01698 264271	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Up to £5,000,000
Taziker Industrial Ltd	01204 468080	●	●	●	●	●	●	●	●	●	●	●	✓	3		✓	✓	●	Above £10,000,000
Total Steelwork & Fabrication Ltd	01925 234320	●		●		●				●	●	●	✓	4			✓		Up to £1,200,000
Victor Buyck Steel Construction	00 32 9 376 2211	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Above £10,000,000



Stakeholder Members

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

Company name	Tel	Company name	Tel	Company name	Tel
Griffiths & Armour	0151 236 5656	Paul Hulme Engineering Ltd	07801 216858	Structural & Weld Testing Services Ltd	01795 420264
MMC Engineer Ltd	01423 855939	Sandberg LLP	020 7565 7000	SUM ADR Ltd	07960 775772
National Highways	0300 123 5000	Solent Commercial Management Limited	07852 309104	Thames Welding Ltd	07912 691704



Industry Members

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

QM FPC	Quality management certification to ISO 9001 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	CA M D/I N/A	Conformity Assessment UKCA and/or CE Marking compliant, where relevant: manufacturer (products UKCA and/or CE Marked) distributor/importer (systems comply with the CPR) CPR not applicable	SCM	Steel Construction Sustainability Charter ● = Gold ● = Silver ● = Bronze ● = Certificate	SfL	Steel for Life Sponsor
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NHSS National Highway Sector Scheme

Steel for Life sponsors

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

Manufacturing and Structural Services

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

Software

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

Site services and installation

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

Structural fasteners

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

Steel producers and stockholders

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

Protective coatings

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

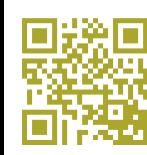


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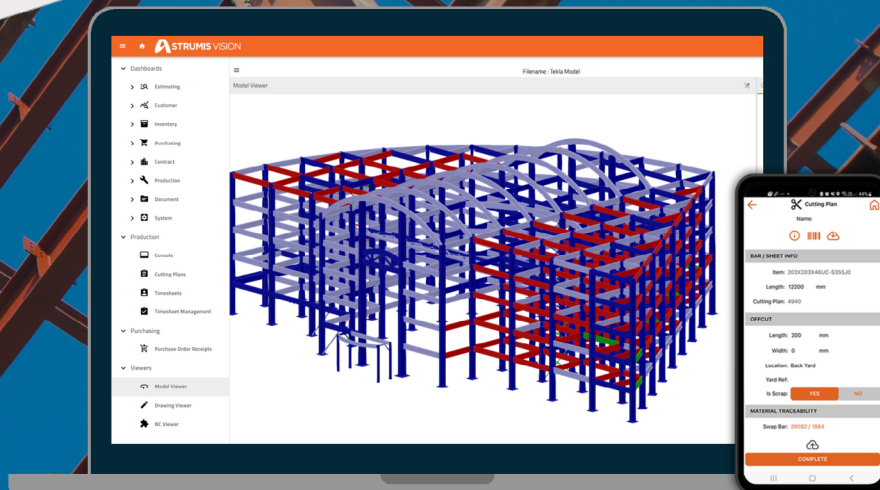
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