

OCTOBER 2025

NSC

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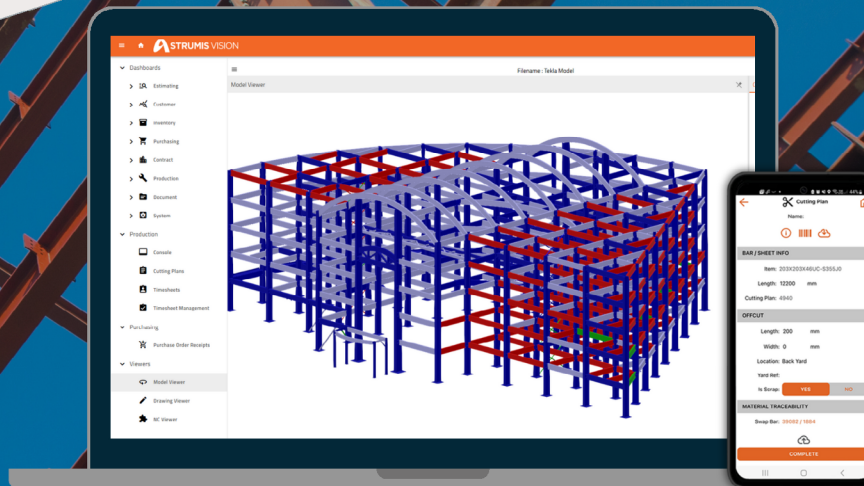
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Cover image
Haverfordwest Public Transport Interchange

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Architect: BDP
Main contractor: Kier Construction
Structural engineer: BDP
Steelwork contractor: William Haley
Steel tonnage: 620t

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**NSC IS PRODUCED BY ALIGNMENT MEDIA ON BEHALF OF
THE BRITISH CONSTRUCTIONAL STEELWORK ASSOCIATION
AND STEEL FOR LIFE IN ASSOCIATION WITH THE STEEL
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REGISTER OF QUALIFIED STEELWORK CONTRACTORS FOR BRIDGEWORKS



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Early engagement is best way to beat the inevitable rush



Nick Barrett - Editor

In the run up to the Chancellor's Autumn Statement, or Budget, on 26 November there are plenty of reasons not to be too cheerful on the economic front. Speculation about potential tax rises and the size and impact of fiscal 'black holes' abounds, all of which dampens the spirit of funders and developers as they consider whether to commit to investments. Throw confusion over what sort of planning environment we will inhabit into the mix, and it is no surprise that a mood of caution if not outright gloom has descended.

It is worth remembering that whatever happens, we have seen it all before and survived the experience. We might emerge from it a bit battered and bruised, but investment plans usually resurface before too long. Business confidence waxes and wanes - usually with good reason - but keeping your nerve in the expectation that better times will return is usually a sound strategy.

Anecdotal evidence from investment professionals does suggest that there is a lot of pent up investment money waiting for the right moment to be committed to projects. Construction industry analysts agree with this as well. For example, Noble Francis, Economics Director at the Construction Products Association, was recently quoted in the Financial Times saying there is a 'host of investors that have the finance ready but they will need certainty over the planning regime'.

We can expect movement on the planning front in due course, and delivery from government ministers on their promises to reduce the time spent waiting for approvals from the Building Safety Regulator. When the appropriate measures are taken to give developers and investors confidence, there could be quite a rush to get projects started.

This is the sort of situation when taking the advice given by steelwork contractors to engage with them early in a project will pay dividends, if listened to and acted on. Unfortunately for some, the advice is often ignored and projects can be delayed as the construction industry and its suppliers struggle to satisfy the sudden rush of demand. The fortunate clients who do listen of course, steal a lead on their rivals in getting their projects finished in good time and without the rush and delay that others will experience.

All clients of the steel construction sector - those who employ a BCSCA member from the Register of Qualified Steelwork Contractors - enjoy those benefits routinely, but they are better assured if the message to engage with their steelwork contractor early is taken on board. Time and again, the delighted clients of the sector tell NSC reporters, when they visit sites, of the timely delivery of cost effective, quality projects.

This issue of NSC highlights a wide range of steel construction projects successfully delivered, as do all of our issues. We don't reject projects that don't deliver that satisfaction, what we print is honestly what we are told on every site we report on.

The range of types of project on which satisfaction is delivered is very broad, ranging in this issue from education facilities, waste management, a public transport interchange and a new global headquarters for golf's ruling body the R&A. The geographical spread is also diverse, including Wigan, the Rhondda Valley, St Andrews and Redruth. So wherever you are or whatever your project is, avoid the inevitable rush and get in touch with your steelwork contractor as early as possible.



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Steelwork contract awarded for nuclear site's amenity building

The Sizewell C nuclear facility has awarded William Hare the contract to deliver 500t of structural steelwork, for the amenity building at its on-site accommodation campus in Suffolk.

William Hare, based in Bury, Lancashire, has extensive experience in the nuclear energy sector and has been a key delivery partner at another important project (Hinkley Point C) since 2019.

The two-storey amenity building will play a vital role in supporting Sizewell C's out-of-area workforce, who will be housed at the [accommodation](#) campus during construction of the power station.

Craig Arnold, Director, William Hare, said: "We have more than 50 years of continuous engagement in the highly specialised nuclear sector.

This experience encompasses nuclear reprocessing, new fuels complexes, civil and defence decommissioning, and research facilities."

Nigel Cann, Joint Managing Director of Sizewell C, said: "We are committed to supporting the UK steel industry as we build Sizewell C, and I'm delighted we've been able to award this contract to a company with a proven track record of delivering high-quality work in this country.

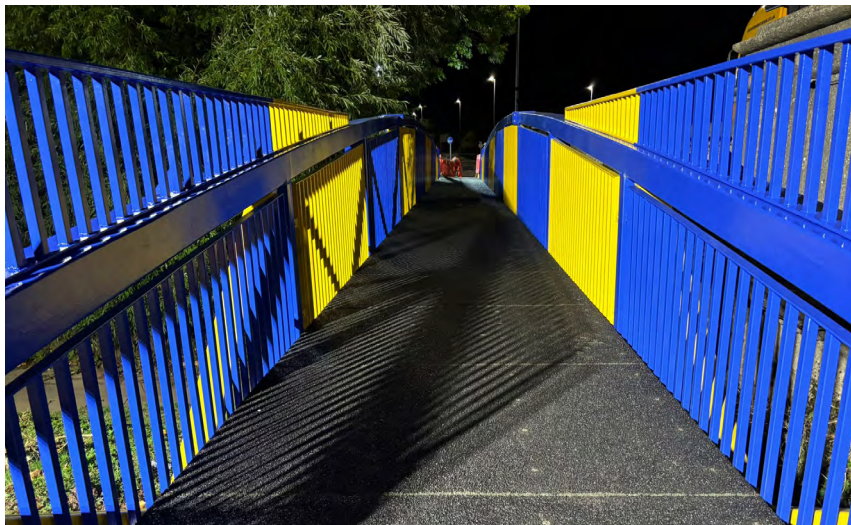
"This is also great news for the North of England, where we've already committed to investing £2.5 billion during the construction of our project. This investment will support thousands of jobs and create a skills legacy for decades to come."

Lord Vallance, Minister for Science, Innovation, Research and Nuclear, said: "Our clean power mission is not only

about strengthening our [energy security](#), but also developing British supply chains."



Reinstated Shrewsbury footbridge flies the town's colours



Spanning the Rea Brook and used as a regular route by football supporters walking to Shrewsbury Town's Croud Meadow stadium, the Meole Brace [footbridge](#) has been reinstalled.

In order to undertake a necessary refurbishment programme, the bridge was removed in June and replaced with a [temporary](#) structure.

Working on behalf of Kier Infrastructure, Shropshire Council (the client), and WSP (the project engineer), Beaver Bridges undertook structural repairs that included replacing steel [transverse](#) members along the bridge's 30m length.

Other refurbishment work consisted of installing a new timber deck, constructing terraced concrete steps on the downstream left embankment to provide safer access for inspectors, and [painting](#) the bridge in Shrewsbury Town's blue and amber colours.

During a 10-hour overnight road closure, the bridge was delivered to the site in two sections, which were spliced together and then lifted into place (as a single 14.2t structure) using a 220t-capacity mobile crane.

Mayfair commercial scheme formed with steel

Designed by Foster & Partners and being constructed by McLaren Construction, the £60 million 11-14 Grafton Street project will provide 5,400m² of floor space within its seven-storey steel frame.

Developer O&H Properties' [mixed-use](#) scheme, which is set in the heart of the capital's Mayfair district, has flexibility at its heart.

Initially, the lower ground, ground and first floor are envisioned as retail levels, with all of the upper floorplates accommodating offices.

This layout does not have to be permanent, as the building has been

designed to allow every floor to be a retail level or an office space. As retail floors are typically built to accept higher loadings, all of the floors have the appropriate higher capacity.

BHC has fabricated, supplied and erected 600t of steelwork for the project.

Based around a [regular grid](#) pattern, the steel frame's perimeter columns are spaced at 8m centres and support floor beams that span the entire 12m-long width of the building, without any additional internal support.

The project is due to complete in February 2026.



Gatwick second runway approved by Transport Secretary

Plans to build a second runway at London Gatwick Airport have been approved by Transport Secretary Heidi Alexander.

The £2.2bn privately-funded project will involve moving the current Northern Runway by 12m to allow it to be used for regular short haul flights.

Stewart Wingate, VINCI Airports Managing Director for United Kingdom, said: "After a lengthy and rigorous planning process, we welcome the Government's approval of plans to bring our Northern Runway into routine use, ahead of the expected deadline.

"This is another important gateway in the planning process for this investment, which is fully funded by our shareholders and will unlock significant growth, tourism and trade benefits for Gatwick



and the UK by creating thousands of jobs."

The project also includes a number of new buildings as well as extensions to both of the airport's North and South

Terminals.

There will also be improvements undertaken to the surrounding roads, including a new flyover across the South Terminal roundabout.

Relaunched training academy celebrates 20 years of operation



Marking 20 years of operation, Cauntun Engineering has completed the refurbishment of its training academy.

Founded to address the steel industry's skills shortages in fabrication and welding, more than 100 apprentices

have been trained at the academy.

Employees who joined the academy as apprentices now represent 22% of the company's current workforce.

The refurbishment has increased the academy's working area at the heart of

the company's factory floor, as well as providing state-of-the-art machinery reflecting the move towards more robotic and laser-based technologies.

Cauntun Engineering Chairman Simon Bingham, said: "We are passionate about recruiting apprentices and graduates, offering young people the opportunity to take the first step towards a career in the engineering and construction industries.

"The redevelopment of the Cauntun Academy is testament of our long-term commitment to training our future workforce, giving them best possible skills and experience to harness the new technological developments that are transforming our industry.

"Apprentices who joined the academy have progressed to become structural engineers, quantity surveyors and contract managers within the business – demonstrating the transformational impact of the apprenticeship programme, turning student potential into long-term professional careers."

Welsh rail upgrade on track with steel



Part of Transport for Wales electrification of the Core Valley Lines, Adey Steel has completed the delivery of overhead line equipment (OLE) to main contractor Amey.

Andrew Adey, Managing Director of Adey Steel, said: "The milestone reflects months of meticulous engineering, fabrication, and logistical coordination, executed to the highest standards by the company's dedicated team.

"We are proud to have played a key role in this important rail project, and look

forward to continuing our partnership with rail industry leaders, bringing our expertise and precision engineering to deliver tangible value."

Overall, the scheme involves electrifying approximately 170km of railway track, on lines that serve Aberdare, Merthyr Tydfil, Rhymney and Treherbert.

Once complete, the upgraded Core Valley Lines will become part of the South Wales Metro network.

NEWS IN BRIEF

Working on behalf of developer Richardson Barberry, **Caddick Construction** has started work on a DPD distribution centre near Newton Aycliffe, County Durham. The 19,200m² warehouse is located next to Junction 59 of the A1 (M) and is aiming to achieve a BREEAM 'Excellent' rating.

Gravesham Borough Council has appointed **Willmott Dixon** to lead the pre-construction phase for the new £43 million Cascades Leisure Centre in Gravesend. The centre will include a 25m pool, a 17m learner pool, an aqua play and water flume area, along with a spectator viewing area. There will also be a six-court sports hall, a multi-level soft play zone, party and community rooms and a café.

Ashe Construction has been awarded a multi-million-pound contract to construct a new SEND school in Potters Bar, Hertfordshire. The local council is working in partnership with the Agora Trust to deliver Journeys Academy, which will provide 60 new special school places for primary aged pupils with complex communication and autism needs.

Working on behalf of The Oxford Trust, **Beard Construction** has started work on a £7 million expansion of the Wood Centre for Innovation in Headington. Known as the Aspen Building, the 1,600m² BREEAM 'Excellent' facility will provide high quality laboratory and office space over two floors and will also feature a STEM resources room.

Birmingham City Council has granted planning permission for **Aston Villa's** North Stand expansion scheme, which will add 6,000 seats to the Villa Park capacity. Work is expected to complete in the second half of 2027, ahead of the stadium hosting matches at the UEFA Euro 2028 championships.

Kier Construction has started work on a new landmark development comprising 11 high-quality logistics and trade counter units in the heart of Bognor Regis's commercial enterprise zone. The scheme will deliver a total of 62,481m² of industrial space, with the units ranging in size from 1,036m² to 16,100m².

PRESIDENT'S COLUMN

Mom's apple pie tomorrow?



Before the summer break, BCSA members were reporting improved optimism for the future, but unfortunately, the latest round of Regional Meetings have featured a widespread dip in confidence. Members are reporting a quiet summer, difficult trading conditions and little sign of growth in the immediate future. The total market for structural steel is likely to be circa 800,000t for 2025, which is the lowest figure since 2009, but is forecast to grow again in 2026. However, it was predicted that 2025 would be a growth year but instead we appear to be in a prolonged period of stagnation with the continual prospect of "jam tomorrow". With so much now dependent on UK Government spending and client confidence, attention is now focussed on the Autumn Statement.

Members are experiencing difficulties with repeat pricing, programme slippage and a general reluctance to commit to projects. There are undoubtedly fears in some sectors regarding changing technology and potential obsolescence, but there is also economic uncertainty due to the effects of one budget and the potential implications of the next. Continual speculation regarding likely tax rises coming down the line does not help anyone to plan for the future.

At previous BCSA AGMs, Roger Martin-Fagg has provided interesting insights into how the economy really works and whether Government policy has much overall impact. At the time, the Bank of England was trying to lower inflation by using its traditional method of increasing interest rates. This was likened to "trying to pull a brick along the ground with a rubber band"; nothing happens for ages and then you're whacked in the side of the face. This prompted a question from the floor as to whether there was a more effective way of slowing an economy and the response was to "simply raise taxes".

The tax rises from the last budget could already be providing a practical demonstration of this theory and we now have the danger that any additional tax rises will only further hinder growth. Another complication is that by increasing business costs, the tax rises themselves could be inflationary and many of our members are also voicing concerns regarding other cost pressures, such as the likely impact of future rises to the national minimum wage with a knock-on impact on all other pay grades.

Government investment in infrastructure will hopefully improve the mood with an eventual increased demand for structural steelwork and there have been several welcome strategy announcements. Potential growth areas include defence, airport expansion, electrification of the economy and the move to greener industry including the development of EAF steel production within the UK, but these are all in the longer term. Our members are primarily concerned with the immediate future and how to bridge their gaps in production. As an industry we account for over 100,000 jobs, use over half of all UK produced steel and operate nationally. Constructional steelwork is not only vital for building the future Britain, but creates real value today.

The recent US Presidential visit will hopefully unlock some valuable investment in the UK, particularly through the development of Data Centres and Small Modular Reactors. As always, it will take time for this money to filter through, but it does at least improve the outlook in the short to medium term. Unfortunately, for our steel producers, tariffs remain in place, but these are lower than others in the world and hopefully there is at least some certainty for the industry going forward.

The upcoming budget is causing concern to all in our industry with the fear that increases in taxation will only further hurt economic growth. There is a genuine need for greater economic activity in the short to medium term and the recent US investment announcements are very welcome but let's hope that they are not just a case of "Mom's apple pie tomorrow".

Chris Durand
BCSA President

New home for Severfield Modular Solutions

Severfield **Modular Solutions** is moving 13 miles from its current site in Sherburn, North Yorkshire to the Malton Enterprise Park.

Said to be one of the most significant commercial property deals in the county during the past 12 months, work has begun on the hi-spec 24,300m² building, which will be ready for occupation in early 2026.

Sean Harrison, the Founder and Managing Director of Harrison Developments (the developer and operator of Malton Enterprise Park), said: "This is a game-changing deal for us and moves our park to the next level."

"We were first approached by North Yorkshire Council's economic development team in November last year. It was clear that the Modular Solutions division of Severfield might have to leave the county if suitable premises couldn't be found for its expansion. We had prime land



available on our park and so we were able to help."

David Pout, Business Unit Director of Severfield Modular Solutions, said, "The growth and potential we see in the sectors we serve are huge; therefore, having the right facilities to deliver the highest standards for our clients is crucial. At Severfield, we pride ourselves on having an industry-leading workforce, and I look forward to seeing our colleagues thrive in this new working environment."

Councillor Mark Crane, North Yorkshire Council's Executive Member for Open to Business, said: "One of our team's strengths is helping to match vacant business space with companies looking to expand their current North Yorkshire operations or set up here for the first time. This helps to protect and create jobs and stimulates economic growth."

Construction team appointed for UK's first urban wellbeing resort

Sir Robert McAlpine has been appointed as construction manager for Therme Manchester, the UK's first urban **wellbeing** resort.

Located at TraffordCity, the resort will combine botanical gardens, immersive art and the largest indoor thermal pool complex in Europe.

There will also be more than 25 water slides, the largest sauna area in the UK, multiple steam rooms, and a wave pool for children and families.

The appointment of Sir Robert McAlpine follows the announcement of a strategic joint venture between Therme Group and CVC, one of the world's leading private markets investment firms. The new



development venture, named Therme Horizon, is valued at over £1 billion.

Professor David Russell, CEO of Therme UK, said: "We are delighted to appoint Sir Robert McAlpine to manage the construction for Therme Manchester. Their unrivalled expertise in delivering large scale, complex projects, along with their commitment to excellence, community and sustainability, makes them the ideal team to bring Therme Manchester to life."

"We look forward to working together to deliver a project that will have a lasting positive impact on Greater Manchester and beyond."

Paisley river crossing given the green light

Farrans has been appointed to deliver a wide-ranging transport project, which includes a new road **bridge** across Paisley Harbour, connecting Paisley town centre with the Advanced Manufacturing Innovation District Scotland (AMIDS) and Glasgow Airport.

Renfrewshire Council's AMIDS South project has received £38.7 million from the UK Government's Levelling Up Fund, with the Council committing a further £18.8 million.

Alongside the bridge, the scheme includes a network of roads, cycling and walking links from the town centre train station and bus interchange to AMIDS, Glasgow Airport and Inchinnan.

Renfrewshire Council Leader Iain Nicolson said: "This is one of the most significant developments in

Renfrewshire's recent history. The project will provide infrastructure to better connect communities to education and employment opportunities, and improve the offer to organisations looking to locate here with enhanced access to the airport and the fourth-busiest train station in Scotland."

Construction planning is underway and the full project is expected to be complete and open in 2028.



Cardiff indoor arena gets final go ahead

Cardiff Council and a consortium comprising Live Nation and Robertson Property have announced financial close on their plans for the city's 16,500 capacity [indoor arena](#).

McLaren Construction has been named as main contractor for the project, which will provide a major entertainment boost for Cardiff.

Designed for music, the arena will create over 1,000 jobs and, once open, attract more than one million visitors to the Cardiff Bay area annually.

Business and Trade Secretary Jonathan Reynolds said: "Our creative industries are world-leading, and this is another clear vote of confidence in our economy and the UK's position as a global creative superpower."

Cardiff Council Leader Councillor Huw Thomas, added: "This arena will transform Cardiff's visitor economy in a way nothing has since the Millennium Stadium opened in 1999.

"It's not just about the bricks and mortar; it's about underpinning and



enhancing our city's status as a vibrant, dynamic destination for music and culture."

The arena is scheduled to open by the end of 2028.

Contractor named for Essex distribution park

Glencar has been appointed as the main contractor for Panattoni Park Braintree, a new logistics development in Essex.

An extension to Horizon 120 Business Park, the scheme involves the construction of a single, high-specification [warehouse](#) comprising 52,400m² of storage space and 3,850m² of Grade A office accommodation.

Designed with a clear internal height of 12.5m to haunch, the facility will be delivered to Category A fit-out standard and is set to achieve both [EPC A+](#) and [BREEAM](#) 'Excellent' ratings.



Ethan Greene, Development Manager at Panattoni added: "This scheme represents another important

development in our strategy to deliver Grade A sustainable logistics facilities in supply-constrained areas.

"We're pleased to be partnering with Glencar on this project, a contractor that shares our values around sustainability, quality, and execution. We look forward to seeing the scheme come forward."

The project's key sustainability features include the use of Electric Arc Furnace (EAF) steel to reduce [embodied carbon](#) and the installation of Photovoltaic (PV) solar panels, EV charging points and low-energy lighting systems.

The project is expected to be complete by April 2026.

Former ITV Studios site set to provide creative industries boost

Developer Mitsubishi Estate has broken ground at its site on London's South Bank, in a major boost for the UK's creative industries sector.

Known as Vista, the £800 million project will provide 182,880m² of new [commercial](#) and [cultural spaces](#), including 12,100m² of affordable workspace that is tailored to Lambeth's emerging creative sector with new high-end offices, cultural venues, studios, gallery and presentation spaces.

The former ITV Studio site will also feature a cultural hub that will provide discounted rents for qualifying tenants, encouraging local businesses to start and grow.

Minister for Investment Jason Stockwood said: "This investment is a huge vote of confidence in the UK, as well as a major boost for our thriving creative industries, which we're determined to make the best in the world.

"Mitsubishi Estate's investment will

empower the creative community in Lambeth and encourage businesses to grow, creating jobs and opportunities that will ultimately put more money in people's pockets."

Senior Executive Officer of Mitsubishi Estate Masanori Iwase said: "Vista marks the beginning of a new chapter for London's South Bank – one that honours the site's cultural legacy while delivering a modern, sustainable and inclusive workplace."



Diary

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For BCSA events, visit: <https://bcsa.org.uk/events/>



Tue 21 Oct 2025 Buckling analysis Webinar

This webinar aims to provide a fundamental understanding of buckling analysis, illustrating how it can be applied in everyday engineering practice.

Building Regulations to the resistance of beams and columns at elevated temperatures. It will cover only the so-called simple calculation models (which are complicated enough!), involving the calculation of reduced design loads, the time-temperature curve and modified material properties. An introduction to the protection of members with web openings and the special rules for portal frames in boundary conditions will also be presented.



Wed 5 Nov 2025 Integral Steel Bridges Webinar - Free to all

With their significant whole-life cost savings and minimal maintenance requirements, integral bridges have become a default choice for a large proportion of modern highway structures in the UK. Published earlier this year by the SCI and the Steel Bridge Group, Integral Steel Bridges (P450) presents an up-to-date overview of integral bridge design principles based on the experience of designers and constructors actively involved in their construction.



Tue 28 & Thu 30 Oct 2025 Fire Resistant Design of Steel Structures Online course

This short course will cover the essentials of structural fire design of steelwork, from the

Practical completion achieved at 1 Broadgate

Sir Robert McAlpine and British Land have achieved practical completion on the 1 Broadgate office scheme in the City of London, delivering the project ahead of programme and on budget.

Offering 56,500m² of premium office, retail, leisure and dining space, the 14-storey development is on target to achieve BREEAM 'Outstanding', WELL Platinum and NABERS 5-star certification.

From concept to completion, sustainability remained central, with low-carbon materials sourced across the supply chain and construction waste minimised in alignment with the UK Net Zero Carbon Buildings Standard and British Land's ESG strategy.

William Hare fabricated, supplied

and erected 7,000t of steelwork for the project, with around 1,500t sourced from Electric Arc Furnace production facilities.

David Lockyer, Head of Development at British Land, said: "We are delighted to reach this significant milestone with 1 Broadgate, delivering another best-in-class office development into a supply-constrained market, where demand for premium office space remains exceptionally high.

"Achieving a 96% pre-let for the office spaces is testament to the quality and appeal of the area, as well as the significant investment we've made in the Broadgate campus. We look forward to welcoming our customers and seeing the building come to life."



GLP's largest UK speculative development is up and ready

Main contractor Winvic Construction has completed a 70,699m² warehouse for GLP at Magna Park in Lutterworth.

Known as MPN 761, the steel-framed

warehouse features six 30m-wide spans, has an 18m clear height to haunch and includes a three-storey office and two transport hubs.



Located within the Midlands' 'Golden Triangle' next to the M1, M6 and M69 motorways, Magna Park is one of Europe's premier logistics hubs, home to over 30 businesses and nearly 10,000 employees.

Completed in 41 weeks, the building was designed and constructed to high sustainability standards, achieving a BREEAM 'Outstanding' rating and an EPC A+.

It is the second building at Magna Park to have achieved these credentials, and the fourth facility built for GLP to have reached this target.

Danny Nelson, Managing Director of

Industrial, Distribution and Logistics at Winvic, said: "The completion of MPN 761 marks a significant milestone for Winvic, not only as our first project with GLP but also as the scheme that took us beyond 100 million sq ft of industrial space constructed.

"Collaborating with GLP on their largest UK speculative development to date and their 50th building at Magna Park has been a privilege, and we're proud to have been appointed due to our best-in-class industrial expertise."

Cauntun Engineering fabricated, supplied and installed 2,470t of steelwork for the project.

Heathrow Airport set for logistics expansion

Heathrow Airport has appointed McLaren Construction to build more than 9,000m² of logistics space as part of the redevelopment of its Eastern Business Park.

The project consists of four warehouse buildings, each split into eight individual units.

Aiming to achieve a BREEAM 'Excellent' rating, the scheme is one of 14 'spotlight projects' exploring new approaches to using lower carbon materials.

Aside from footings and drainage, all of the elements will be manufactured offsite. The largest elements are the continuous roof panels which are 16m-long, including edge trims, gutters and solar array.

The steel frames will be preassembled in a factory, stripped

down for transport and erected on site. Flat roof sections will consist of cross-laminated timber panels brought to site completed and to size.

McLaren Construction Managing Director for Industrial and Logistics David Gavin, said: "Heathrow's status as a major hub creates opportunities not only in cargo handling but also for the many support services and businesses needed to meet the airport's essential operational needs.

"These new Grade A warehouses represent a major transformation from the site's post-war buildings. Their sustainable design highlights how far industrial development has moved on, and they now form an integral part of the airport's infrastructure."

The scheme is due to be complete by summer 2026.



Image: ComFlor® 80 Closed Ends, Luton Airport

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Cornish waste and recycling solution



A solitary chimney has been preserved as a reminder of the site's copper mining past.

Structural steelwork has proven to be the ideal framing solution for the Hallenbeagle Waste Management Facility, one of the largest ongoing construction projects in the West Country.

Designed to increase Cornwall's recycling rate and enhance the recently introduced household waste collection service, the steel-framed Hallenbeagle Waste Management Facility in Redruth is quickly taking shape.

Supporting Cornwall Council's net zero carbon aspirations, the completed facility will be capable of processing up to 140,000t of locally sourced waste every year.

SUEZ Recycling and Recovery UK's PFI General Manager for Cornwall and Devon, Mark Hillson, says: "The development of this facility will provide vital waste management and processing services for residents of Cornwall for generations to come."

Councillor Loic Rich, Cabinet Member with responsibility for Environment and Climate Change at Cornwall Council, said: "Since introducing our new food waste, rubbish and recycling collections, our recycling rate has already increased to around 53%.

"The new waste management facility at Hallenbeagle will enable us to sort more recyclable

materials before they are sent off for processing, in order to start a new lease of life."

The overall scheme includes a single enclosed building that houses three separate zones: Refuse Transfer Station (RTS) where collection trucks will deliver waste; a materials recycling facility (MRF) where everything is sorted and processed; and the covered baler store where the paper, card, plastics and cans are baled.

The 8.264m² building measures 167m-long × 14m-high and consists of three separate, but interlinked steel **portal frames** (one for each zone) that have spans of 42m, 44m and 52m-wide respectively.

"The required speed of construction and the long clear **internal spans**, needed for the facility's processing areas, meant structural steelwork was the only viable framing solution for this scheme," explains Kier Construction Operations Manager Jeff Houghton.

As well as the main building, the 27,000m² site will also have covered storage for baled recyclable materials, an **office block** and parking for a fleet of waste collection trucks.

Located on a business park on the outskirts of the town, the site was once occupied by the Victorian-era Hallenbeagle copper mine. Due to its industrial past, the site initially underwent a remediation package, which lasted approximately eight months, before the build programme was able to kick-off.

Prior to the steelwork for the main processing building being erected, its concrete substructure and foundations were installed. The former consists of a series of push walls that surround the building and help subdivide it into the three zones.

The walls are up to 6m-tall in some areas and

along the perimeter they are positioned inside the line of the steel frame's columns.

Preventing any material from slipping between the walls and the structural frame, much of the building's interior features a series of metal sheets, known as greedy boards. Requiring approximately 50t of steelwork, the boards are connected to the columns and overlap the perimeter concrete walls.

Meanwhile, supporting the steel columns, a series of large pad foundations, measuring up to 4m² and each requiring some 16m³ of concrete were also installed.

The perimeter columns are all full-height 14m-tall sections, while there are also two rows of internal columns, which are 8m-high and sat on top of concrete walls.

Structurally independent from the concrete substructure, the steelwork gains the majority of its stability from the portalisation of the three frames. However, because of the length of the structure, there are two rows of **braced bays** either side of the two internal divisions that provide additional rigidity.

For the **erection process**, steelwork contractor Billington Structures began with the installation of the covered baler store. This is the narrowest of the three portals and the area where the processed materials, having been sorted and compacted, are made ready for collection and delivery to the final destination (usually an energy-from-waste plant).

The second area to be erected was the 52m-wide MRF, the zone that will house Hallenbeagle's processing equipment, followed by the RTS (where the collected waste arrives).

Spanning between the perimeter columns and creating the required open-plan areas, the roof structures for each of the three portals consist of

Click here to watch a video

A solitary chimney has been preserved as a reminder of the site's copper mining past.

"The required speed of construction and the long clear internal span, needed for the facility's processing areas meant structural steelwork was the only viable framing solution for this scheme."



The steel-framed facility is 167m in length.

a series of **spliced** rafters, brought to site in two pieces.

Using two **mobile cranes**, performing a dual lift, the sections for each span were individually lifted into place, with the central splice connection was made while they were still being held in position.

A lot of planning had to go into the positioning of the cranes, prior to the steel erection programme getting underway. A railway line runs along one of the site's boundaries, and no material lifts could be undertaken near this important piece of infrastructure.

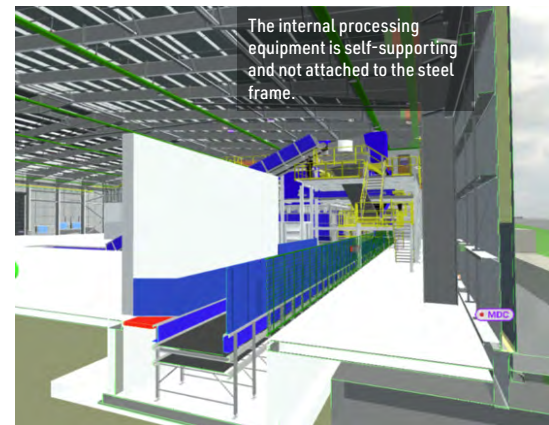
Billington Structures Project Manager Jodi Bath, says: "Being part of the Hallenbeagle project was an exciting opportunity.

"This facility is not just about waste disposal, but also about contributing to a sustainable future for Cornwall, which aligns with our own ESG objectives. We were proud to play a role in a development that will significantly improve recycling capacity in the region."

Following on behind the steel erection team, the cladding contractor was already making the installed areas watertight, which in turn allowed the internal concrete floor slab to be cast.

Once all of these packages have been completed, the processing equipment will be installed inside the building as part of the final fit-out.

The Hallenbeagle Waste Management Facility is due to be operational in early 2026. ■



The internal processing equipment is self-supporting and not attached to the steel frame.



Care and attention has been required to ensure the cranes do not make any lifts near or over the adjacent railway line.

FACT FILE

Hallenbeagle Waste Management Facility, Redruth

Main client: SUEZ Recycling and Recovery UK

Architect: Grainge Architects

Main contractor: Kier Construction

Structural engineer: Airey & Coles

Steelwork contractor: Billington Structures

Steel tonnage: 680t



The steel frame reaches a maximum height of 14m-tall.

Education needs steel

FACT FILE

**Clydach ALN school,
Tonypandy, South Wales**

Main client: Rhondda Cynon

Taf County Borough Council

Architect: Atkins

Main contractor:

Morgan Sindall Construction

Structural engineer: Cambria

Steelwork contractor:

Snashall Steel Fabrications

Steel tonnage: 300t

Steelwork offers the educational sector a fast and efficient framing solution, as a school currently under construction in the Rhondda Valley illustrates.

Structural steelwork has proven to be the most efficient framing solution for the new Clydach Additional Learning Needs (ALN) school in Tonypandy, South Wales.

Its speed of construction, coupled with the ease and efficient way that steelwork can create the

required [internal spans](#), has been beneficial to both the project's design and build programme.

Being delivered by main contractor Morgan Sindall Construction, the project was awarded through the Sewscap 3 Framework, with funding from the Welsh Government (through its Sustainable Communities for Learning

Programme) and Rhondda Cynon Taf County Borough Council.

The two-storey steel-framed school, which will cater for pupils aged three to 19, will include 23 classrooms, a main hall, wellbeing centre, canteen, various multi-use spaces and a hydrotherapy pool.

Being built on land previously occupied by



The majority of the steel frame is arranged around two rows of classrooms, divided by a centrally-positioned corridor.



As part of its steel package, SSF also installed edge protection to the main frame.

"During the design stage, we looked at a number of framing solutions, but steelwork offered the best solution to form the necessary spans."



Working around the site's concrete and groundworks, the steelwork was erected in two phases.

council offices, work on the scheme began in April 2025.

"The demolition of the existing building had already been completed when we took possession of the site, so our initial work included some site clearance and grouting up three old mine shafts that cross beneath the project's footprint," explains Morgan Sindall's Project Manager Dafydd Morris.

"The steelwork erection package started later in the summer and has had to be undertaken in two phases, in order to work around the groundworks."

As well as installing reinforced concrete strip foundations to support the steel columns, the groundworks has also included forming two concrete substructures to accommodate the hydrotherapy pool and an adjacent trampoline pit.

Working on different parts of the site, the substructures were formed at the same time as the first phase of the steelwork programme was erected, by Snashall Steel Fabrications (SSF).

Once the initial phase of steelwork was installed, SSF moved offsite for a couple of weeks, returning to complete the entire steel frame with a second phase of the erection package, after the concrete works had been finished.

Incorporating three precast lift and stair cores, the steelwork has been designed as a braced frame, with the cross bracings primarily located within partition walls.



The completed school will be set within a tranquil wooded environment.



A metal decked composite solution has been used to form the first floor and roof.

The first phase of steelwork erection consisted of installing a two-storey teaching block at the western end of the building. Like the majority of the school, this part of the scheme is based around a regular 9m x 8m column grid pattern, with both floors consisting of two rows of classes, separated by a central corridor.

"The grid allows for the slightly larger classrooms, ALN schools generally require," says Cambria Project Engineer James Burgon.

"During the design stage, we looked at a number of framing solutions, but steelwork offered the best solution to form the necessary spans."

The first floor and roof of the school have been compositely formed with steel beams supporting metal decking and a concrete topping. This method was chosen (instead of the precast plank alternative) as it is considered to be easier and quicker to install.

As a shallow and cost-effective construction method was required, and allowing for some large ductwork (the school is mechanically ventilated), the building services have been designed to run beneath the floor beams in the school corridors.

To help support the service runs as they enter each classroom, an extra row of columns has been designed and installed. These steel sections also form an area for a break-out space and toilet.

Phase two of the steel erection also included further classrooms as well as the main hall and

pool, which are two areas where the column grid is expanded to accommodate longer internal spans.

The main hall is a double height space with a series of 12m-long roof beams forming the column-free space. Next door, the pool is accommodated in a single-storey hall featuring an 11m-long internal span. The roof of the pool area supports a secure outdoor terrace, to be used as a teaching space and break-out area.

For both erection phases, SSF used a single 60t-capacity mobile crane to install the steelwork and precast cores. All of the steel sections were delivered to site fully painted and only needed minimal onsite touch-ups, after being erected.

As well as constructing the school building, which will be predominantly brick-clad, the Morgan Sindall team will also build a 79-space car park with EV charging points, a drop-off/pick-up area adjacent to the main entrance, and covered bicycle storage.

The school has been designed to be net zero in operation, and conforms to Rhondda Cynon Taf County Borough Council and the Welsh Government's climate change commitments.

Helping the project meet its green aspirations, the completed school will have an array of roof-mounted photovoltaic panels and a sustainable drainage system.

The Clydach ALN school is due to complete in late 2026. ■



College in the frame

Early engagement between the main contractor and the steelwork fabricator has resulted in a fast and trouble-free erection programme for Wigan & Leigh College's new teaching facility.

Wigan town centre is currently a hive of construction activity with a number of steel-framed schemes having recently kicked off.

The town is getting a new steel-framed covered [market hall](#) (the first part of a large-scale scheme that includes a cinema, bowling alley and a hotel), while nearby [Wigan & Leigh College](#) is redeveloping its Parsons Walk campus.

The £48.8 million net zero in operation redevelopment includes the construction of a steel-framed college building, followed by a later phase that will see an adjacent seven-storey building demolished and replaced with a [car park](#).

Procured using the Department for Education (DfE) construction framework, the project is aiming to achieve a 40% biodiversity net gain, with [sustainability](#) features including extensive soft landscaping, [photovoltaic \(PV\) solar panels](#), [harnessing renewable energy](#) and offsetting all energy used on site.

Anna Dawe, Principal and Chief Executive at Wigan & Leigh College, says: "This is an exciting time for the college as we look to strengthen our future work and learning practices, while responding to the climate crisis and preparing for a net zero economy.

"We believe the campus redevelopment will inspire and equip students for the seamless transition into the world of work."

The new three-storey college building is a U-shaped structure, with the two outer wings

positioned either side of a landscaped courtyard. Over its four levels, the building will accommodate seminar rooms, IT suites, laboratories, as well as a new restaurant, florist and salon.

The entire project is being carried out in a 'live' environment, as the surrounding college campus buildings are in use. This means main contractor Willmott Dixon is endeavouring to limit any construction noise that may disturb students and staff.

Work on the project began in 2024, with main contractor Willmott Dixon making space for the new development by demolishing an existing School of Arts building.

While the demolition was being undertaken, the project team engaged the services of steelwork contractor Leach Structural Steelwork. Working on the design that project engineers Roscoe Consulting had completed, Leach was able to order the material, design the connections, [fabricate](#) all of the steelwork and prime it ahead of schedule.

"By the time the steelwork was required onsite, we had everything ready and any potential snags had been sorted," explains Leach's Estimating & Preconstruction Director, Karl Hunter.

"This early engagement resulted in a faster [erection](#) programme, which we completed three weeks ahead of schedule."

After the demolition had been completed and before any steelwork could be installed, the site had to be made ready.

This involved creating a flat plateau for the new building, on the previously sloping site. An earthworks programme was required, followed by the construction of a retaining wall to enable a cut and fill operation.

Working around existing foundations from the previous structure, new piles and ground beams were installed, in preparation for the steel frame erection package.

The steel frame is designed around a regular 7.5m x 7.5m column grid. The four floors have two rows of teaching spaces, stacked on top of each other and arranged either side of a central corridor.

This repetitive design is a common feature for educational projects, with many, if not all, following the same design principles. It provides the desired teaching environment and spaces, while offering a frame which is quick to erect.

Using two [mobile cranes](#), the steelwork package also included the installation of the project's precast elements, which included four stair [cores](#) and a double lift shaft.

The cores and lift shaft were lifted into place early in the programme, as the steel frame wraps around them. The precast structures are independent from the main frame, and do not provide any stability, as this is derived from [bracing](#), which has been strategically located throughout the building.

"The frame's stability-giving bracing is positioned around the stair cores, within partitions and along some perimeter walls," explains Roscoe

FACT FILE

Wigan & Leigh College

Main client: Department for Education

Architect: Bond Bryan

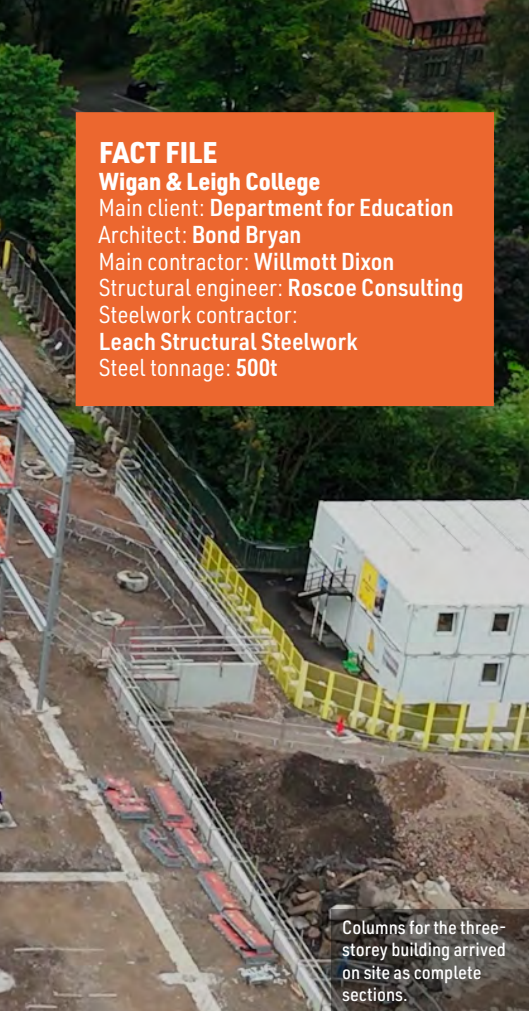
Main contractor: Willmott Dixon

Structural engineer: Roscoe Consulting

Steelwork contractor:

Leach Structural Steelwork

Steel tonnage: 500t



Columns for the three-storey building arrived on site as complete sections.

Consulting Project Engineer Thomas Grayston. "While the **diaphragm action** of the floors distributes the lateral forces into the stability system."

The internal cross bracing is **fabricated** from flat channels, while along the building's perimeter it has been made from box sections. This design aids the latter construction programme, as the Steel Framing System (SFS), which helps form the walls, is supported on the box sections.

Another element of the steel package was the installation of approximately 11,000m² of precast flooring planks. Supported by steel beams, the 200mm-thick planks, along with a 75mm concrete topping, form each of the upper floors.

During the erection programme, the cranes typically used were an 80t and 90t-capacity unit. However, in order to gain some extra reach a 150t-capacity crane was also used.

Some of the precast elements weighed up to 6t each, while the heaviest steel sections were the 2.5t columns.

Forming the building's overall height, the columns consist of two members, spliced at the underside of the second floor. Connected to the columns, the floor beams are generally 254UB sections in the corridors (shallow sections are used as the main services run beneath the beams) and deeper members within the teaching spaces.

On the first and second floors, around 1,500m of edge protection has been installed along with the steelwork. However, none was needed on the roof as Leach has designed and fabricated the parapet steel to act as a permanent safety system.

The Wigan & Leigh College teaching block is due to be complete and fitted out in 2026. ■



Most of the steel frame has been erected by two mobile cranes.



The completed building is arranged around a partially enclosed courtyard.



"By the time the steelwork was required onsite, we had everything ready and any potential snags had been sorted."

To form two plateaus, on the previously sloping site, a concrete retaining wall has been installed.

FACT FILE

Haverfordwest Public Transport Interchange

Main client: Pembrokeshire County Council

Architect: BDP

Main contractor: Kier Construction

Structural engineer: BDP

Steelwork contractor: William Haley

Steel tonnage: 620t



Just the ticket

Structural steelwork has provided the framing solution for the Haverfordwest Public Transport Interchange, which includes a bus station and multi-storey car park.

It's all change in the county town of Haverfordwest, as the local authority Pembrokeshire County Council has a number of redevelopment schemes underway that will improve the visitor experience, increase footfall and upgrade transportation links.

Central to its regeneration plans is the £13.9 million Haverfordwest Public Transport Interchange, which will provide a more convenient way to arrive and depart from the town for residents and visitors alike.

The scheme forms part of the South West Wales Metro project and will provide a modern and innovative transport hub, integrating all modes of transportation.

Located on a plot previously occupied by a multi-storey car park, the new steel-framed facility will accommodate a ground floor six-bay bus and coach station, with a waiting hall, office and retail units, alongside 280 car parking spaces (mostly on the two upper decks).

Work on the project began in November 2024, with the early works including the installation of CFA piles, which are up to 13m deep.

A clash detection programme was undertaken prior to this work being carried out, as the previous structure's piles remain in the ground and the new foundations had to be designed and installed around them.

The new piles and ground beams support the steel superstructure, which measures 120m-long x 40m-wide and is 15m-high. Because of the length of the building, a movement joint across the middle of the structure has been included to reduce the effects of thermal shrinkage and expansion.

Commenting on the choice of a steel-framed option, Kier Construction Project Manager Dean Williams says, the material was chosen for its speed of construction, and because it can easily form the long internal spans required for the interchange.

To this end, the steel frame is designed around a 16.7m x 7.5m grid pattern, with three rows of internal columns, located in the middle of the structure. This provides the building with enough internal space for the bus station and the car park, while creating a stiff central zone accommodating

two lift cores and ancillary areas.

A series of 46 pre-cambered beams support the structure's metal decking and concrete topping that form a composite flooring solution for the two upper levels. In conjunction with the beam's cambered design, the decks slope towards the building's centreline to aid drainage.

Measuring 16m in length, the beams had to be transported to site individually on extendable trailers. They also included over 25,000 shop-welded shear studs, which required William Haley to reconfigure its factory in Somerset, in order to complete this quantity of fabrication work.

The majority of the steel frame gains its stability from bracing, along with the composite metal decked slabs acting as a diaphragm.

The exception is the portalised vehicular ramp that serves the upper car park levels and is positioned at the northern of the building.

Formed with a series of bespoke curved beams, the ramp was a challenging part of the frame and one of the first elements, along with the adjacent main core, to be erected.

"The ramp had to be installed between columns, where stiffeners were present, making the erection sequence quite complex," explains William Haley Trainee Project Manager Scarlett Salt.

"Throughout the ramp installation work, we had an experienced site engineer working with us, to ensure the frame remained within erection tolerances."



The project had to provide space for the town's new footbridge to be welded and assembled (under a white canopy at the top of the picture).

The decision to erect the ramp and northern part of the structure first was a client decision and not one that the construction team would have necessarily chosen themselves.

Installing the steelwork from the southern end and finishing with the ramp would have been an easier **build sequence**, due to the site's access routes.

"Part of our site had to be handed-over to another contractor, so it could assemble a new **footbridge**," explains Mr Williams. "Spanning the nearby River Cleddau, the bridge replaces an older structure and will improve access from the Interchange to the castle."

"The crane and ballast used for its lifting and installation required even more space and meant we had to leave a portion of the steel frame unfinished, and for logistical and stability reasons, this had to be at the southern end of the structure."

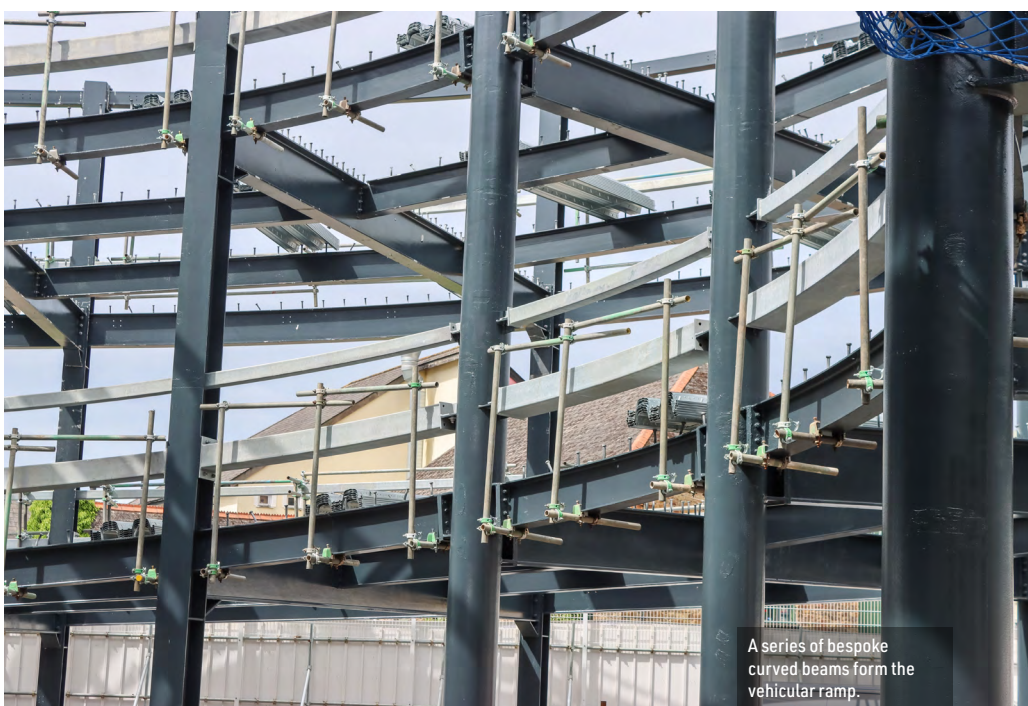
A few weeks after the bridge was installed and its associated crane had been disassembled, William Haley was able to return to site to complete the steel frame, during a two-week second phase.

The majority of the steel frame was installed using a single 60t-capacity **mobile crane**. However, a 22.5m-long truss, weighing 15t that forms a column-free bus parking area along the eastern elevation, required the team to bring a 90t-capacity crane to site.

► 20



Steelwork has provided the scheme with its required internal spans.



A series of bespoke curved beams form the vehicular ramp.



Yellow temporary bracing was installed with the steel frame, and then removed once the floors had been completed to provide the necessary stability.

►19 The **truss** was brought to site in sections, which were bolted together on the ground, before being lifted into place.

Adding to the project's **sustainable** credentials, the top level of the **car park** includes a lightweight steel roof structure, spanning the spine of the building and supporting an array of photovoltaic panels.

Attached to the completed steel frame, the building's envelope consists of aluminium fins, rainscreen panels and stone cladding, chosen to

match the local surroundings.

Externally, the overall scheme includes highway access improvements, a revised taxi rank, while adjacent to the ramp, a new public realm will be created.

Summing up, Councillor Paul Miller, Deputy Leader of Pembrokeshire County Council, says: 'It's great to see the transport interchange beginning to take shape, which is an important part of the wider Haverfordwest Masterplan.

"The steel structure is an incredible piece of

engineering - that when complete - will deliver a much-needed, modern transport hub for the local community, improving connectivity and accessibility for residents and visitors alike.

"This significant regeneration scheme will be transformational for local people, offering improved access to bus, taxi and cycling facilities with excellent connectivity to the riverside, shopping centre and railway."

Haverfordwest Public Transport Interchange is due to open in June 2026. ■



The Interchange will improve transport connections for Haverfordwest residents and tourists visiting the town's Norman castle.

Beams with a camber

Haverfordwest Public Transport Interchange makes use of long-span composite steel beams which have been pre-cambered. Max Cooper of the SCI offers some thoughts on use of pre-camber in composite construction.

Pre-camber refers to the vertical curvature induced in a steel beam during fabrication, prior to delivery to site. Its purpose is to counteract the deflection of the steel beam under construction stage loads, primarily the weight of the wet concrete.

By offsetting this initial deflection, a properly cambered beam helps to ensure a more level finished floor, which can be helpful in meeting serviceability limit state criteria. This may permit the use of a lighter steel section than would otherwise have been possible. Pre-cambering can also be beneficial during the construction stage as it reduces the risk of concrete 'ponding', where excessive sagging of the beam can lead to an increased volume of concrete being poured at midspan, and with it a higher than anticipated dead load.

The amount of camber specified is typically ~80% of the calculated pre-composite dead load deflection. When specifying the amount of camber,

designers should consider how the real-life span and end conditions of the beam vary from the analysis assumptions and adjust the camber accordingly. Specifying significantly higher cambers should be avoided, as fabrication tolerances or lower-than-expected beam deflections could result in an over-cambered beam, creating a permanent high point in the floor or a thinner-than-expected composite slab. It is important to note that camber is rarely intended to counteract deflection from superimposed dead loads; these loads are resisted by the composite section after the concrete has cured which will be far stiffer than the steel beam alone. Once calculated, the required mid-span camber must be clearly stated on the structural drawings.

Camber is most beneficial for long-span secondary beams where construction stage deflections are significant. A practical minimum specified camber of 20mm is often adopted, as smaller amounts offer limited benefit and can be difficult to achieve reliably

through the cold-bending process.

It is also important to identify members where camber should not be used. Beams that directly support cladding, masonry, or other façade systems should not typically be cambered. This ensures a straight, level, and predictable datum for the attachment of façade elements, which often have tight installation tolerances. It is also recommended that camber is omitted from primary beams, as the use of camber for both primary and secondary beams can make fit-up more difficult.

Tolerances for cambered beams are governed by the National Structural Steelwork Specification for Building Construction (NSSS), which in turn references BS EN 1090-2. For a beam of span L , the specified tolerances are:

Negative tolerance: $-\Delta$ is the greater of $L/1000$ or 4mm.

Positive tolerance: $+\Delta$ is the greater of $L/500$ or 6mm. ■

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Steel tees off at St Andrews

Structural steelwork has provided an aesthetic and economic solution for the design and construction of The R&A's global headquarters.

Recognised as the home of golf, the Fife coastal town of St Andrews is said to have been a venue for the sport since medieval times.

Although the monarchy banned golf a few times, as young men were being distracted from archery practice, by the early 1500s the church had given the townspeople the right to play on its large tracts of land.

Skip forward to the 19th Century and golf's popularity had blossomed to such a degree that many of the town's inhabitants made a living from the sport, as players, caddies, and club and ball makers.

Today, the town has no less than seven golf courses, with the most famous, known as the Old

Course, regularly playing host to The Open, golf's original championship.

The town is also the home of the world famous Royal and Ancient Golf Club, which played a huge role in the development of golf.

The club previously oversaw the worldwide governance of golf (outside of the USA and Mexico), but in 2004 a new organisation, known as The R&A, took on this role as well as organising The Open, the AIG Women's Open and a series of prestigious amateur championships.

The R&A is currently building a new global headquarters, which will enable the organisation to consolidate the majority of its staff from five existing locations into a modern, [sustainable](#) and distinctive working environment.

The R&A Chief Executive Mark Darbon, says: "We are creating an environment that will reflect the role, work and heritage of The R&A and provide a collaborative space for employees and visitors to enjoy."

"The building signals our commitment to the town of St Andrews and will place a focus on wellbeing and sustainability. We want it to be known throughout the world as a distinctive destination for our affiliates and partners, effectively the hub of our global work to ensure golf is thriving 50 years from now."

Being built at St Andrews West, a large [mixed-use](#) development on the outskirts of the town, the HQ is a four-storey, state-of-the-art, steel-framed structure aiming to achieve BREEAM 'Excellent'.

A steel-framed design was chosen for its ease of construction and the flexibility the material provides. The building's overall shape on plan is a parallelogram, with two sides of the structure featuring curved elevations.

These [façades](#) have been formed with a series of traditional [beam](#) sections that were sent to a specialist steel [bending](#) facility, where they were

FACT FILE**R&A Global Headquarters, St Andrews**

Main client: The R&A

Architect: Wellwood Leslie Architects

Main contractor: McLaughlin & Harvey

Structural engineer: Goodson Associates

Steelwork contractor: Hescott Engineering

Steel tonnage: 400t



The HQ will feature three floors of offices and a basement car park.

fabricated to the required curvature.

Using any other framing solution for this distinctive shape would have been far more time-consuming.

The material is also aiding the architectural desire for a modern-looking design, with internal beams and columns left exposed in the completed building. The on-show aesthetic of the project also extends to the building services, which are accommodated within bespoke openings that have been cut into the floor beam's depth.

Prior to the steel frame being erected, one of the first tasks for main contractor McLaughlin & Harvey, was the excavation of approximately 10,000m³ of soil to form the basement.

Up to 4m deep and extending beyond the building's footprint, the excavated area accommodates the HQ's basement (which will contain car parking) as well as a surrounding external car park and an access ramp.

Once the building's piled foundations (which are up to 18m-deep) and a precast lift shaft had been installed, the excavated area provided enough space

"The column grid arrangement, which is economic as it requires no transfer structures, suits both the basement car park and the upper floors."



The completed building will be set in a landscaped setting.

for steelwork contractor Hescott Engineering to position its 60t-capacity mobile crane. During an eight-week programme, the crane erected the entire 400t steel frame.

Based around a regular grid pattern that creates internal spans of up to 12m-long, the frame includes a series of spliced columns that form the 15m-high structure. Some of the column sections weigh up to 3t each and were the heaviest lifts of the steel package.

"The column grid arrangement, which is economic as it requires no transfer structures, suits both the basement car park and the upper floors," explains Goodson Associates Project Engineer Alastair Slessor.

The ground, first and second floors have a composite design, with steel beams supporting a metal deck and a concrete topping.

Those arriving by car or bike will enter the building via the basement car park, where a lift will provide access to the main lobby. Visitors or staff arriving on foot, will use the main ground floor entrance.

The ground floor will also accommodate a canteen, kitchen and meeting rooms, while the two uppermost floors will predominantly contain office space.

Each of these three floors wrap around a centrally positioned atrium that will allow natural light into the heart of the building. The atrium is topped with

rooflights supported by a series of 13m-long glulam beams. Either side of the atrium, the building's roof will support a plant deck and an array of photovoltaic panels.

In addition to the rooflights, the perimeter of building will also allow plenty of daylight into the office spaces, as there are windows in nearly all of the structural bays.

The abundance of glazing has had an effect on the steel design, as locations for stability-giving bracings are limited.

"To avoid having cross bracings that would clash with windows, the perimeter and atrium beams have been designed as moment frames, which provide the steel frame's stability," explains McLaughlin & Harvey's Project Manager Craig Robertson.

"This design has meant that some of the steel section sizes are larger than a frame of this type would ordinarily need."

As well as constructing the main headquarters building, McLaughlin & Harvey's remit also includes an extensive landscaping package to the surrounding plot.

Much of the material from the project's excavation will be used on the site to form a dune landscape, creating an environment that resembles a links golf course.

The R&A Global Headquarters, which will be a landmark structure within the St Andrews West masterplan, is due to complete in Summer 2026. ■



The upper floors are wrapped around a central atrium.

Floors with heavy loading – what are the implications?

In this article, Dr Graham Couchman considers the implications of high levels of loading, and how they can change expected failure modes and the design rules that should be applied. As usual, his focus is on composite floors, recognising their commercial significance to the UK steel construction sector.

Introduction

More-and-more clients are requiring their buildings to be designed for heavy imposed floor loads. A recent enquiry aimed at our Advisory Desk concerned a uniformly distributed load (UDL) of 22 kN/m²! We are also seeing many cases where there are heavy point loads (PL), often numerous and sometimes at close centres. Although in some cases these onerous loads are specified simply because the client wants to keep their options open to avoid delays while the real loads are determined, sometimes it seems the loads are realistic.

Heavy uniform loading

Many floors are designed for an unfactored UDL of 5 kN/m². In terms of what a typical floor will experience that is already pretty high, 2.5 kN/m² is recommended by the British Council for Offices, resulting in wasted money and wasted material. But for some types of building even 5 kN/m² is not enough, and that means that design rules and failure modes may change from what is normally used and expected. Some examples of things that may change are considered below.

Composite slabs

Design of the vast majority of composite slabs is governed by the ability of the decking to support the wet weight of concrete (and coincident construction stage imposed loads). The weight of concrete usually results from the need for a certain depth in order to satisfy the fire insulation criterion for the finished slab. Propping the decking to help it support the wet concrete is not normally considered because of the detrimental process implications of propping. However, with heavy final stage imposed loading the composite slab design may become more critical than the construction stage decking design, either at normal temperature or for the fire condition. The latter is likely to be particularly critical – decking losing almost all its resistance in fire is why, having ignored any end continuity for normal temperature design, we nevertheless take it into account in fire because the slab needs all the help it can get. Some sagging resistance comes from the very weakened deck, with a good lever arm, plus the more performant upper mesh with a small lever arm. The mesh is more performant because it is at a much lower temperature, being insulated by the concrete, so retains reasonable strength.

Even with the reduced level of loading that is associated with the fire limit state, this combination of sagging and hogging moment resistances may not be enough, particularly under high imposed load. In such cases, and

in cases where there is no end continuity, therefore no hogging resistance, an obvious solution would be to place reinforcement bars in the decking troughs. These bars provide additional tensile resistance in span, with a good lever arm and relatively good strength as they are insulated by surrounding concrete. It is worth adding that some software may not allow bars and decking to be combined when determining tensile reinforcement and thereby sagging resistance. The so-called ‘mesh and deck’ method, which has a justification for the deck contribution that is based on tests, does not allow bars to act also.

Composite beams

Many composite beams are designed using the rules given in SCI publication P405 *Minimum degree of shear connection rules for UK construction to Eurocode 4*¹, which very significantly reduce the required minimum degree of shear connection compared to BS EN 1994-1-1². This reduction makes many designs that would not be possible – you simply cannot fit enough shear studs on the beam when you have transverse decking with ribs at a given pitch – very efficient. P405 rules are adopted in most composite beam software used in the UK.

The reason why we have minimum degree of connection rules is to ensure that the combined stiffness of the studs on a beam is enough to prevent the slip at the beam ends, where it is a maximum, exceeding the stud's slip capacity. Slip capacity is typically taken as either 6mm, for studs in solid slabs, with parallel decking, or transverse re-entrant decking, or 10mm for transverse trapezoidal decking. This is therefore a strength check used to verify a stiffness requirement, and is not transparent.

The minimum degree of connection rules in P405 differentiate between levels of imposed loading. For normal cases the factored imposed UDL shall not exceed 9 kN/m². When loading is not just UDL, as an alternative this limit can be satisfied by limiting the moment due to factored imposed loading to 70% of the moment due to factored total loading. More onerous rules are given to cover factored imposed loading up to 12 kN/m², which is defined in P405 as ‘heavy loading’.

As an example, for a 16m span symmetric beam with transverse trapezoidal decking (studs have a slip capacity of 10mm), in S355 and assuming the beam is fully utilised in bending, the minimum degree of connection is:

- Normal loading 43%
- Heavy loading 91%

The reason for this differentiation in the level of imposed loading can be understood by considering the background to the rules. Numerical analyses were undertaken by SCI, using ANSYS to model composite beams with springs representing appropriately defined load-slip characteristics for the shear studs – initial stiffness, resistance, slip capacity (Figure 2, over page). For a given beam the number of studs was increased until the end slip no longer exceeded the slip capacity, then that number of studs was defined as a degree of shear connection. By analysing multiple beams, and considering different slip capacities for studs it was possible to define new degree of shear connection rules as a function of span, steel strength, slip capacity etc. An additional variable for unpropped beams was the relative level of imposed load.

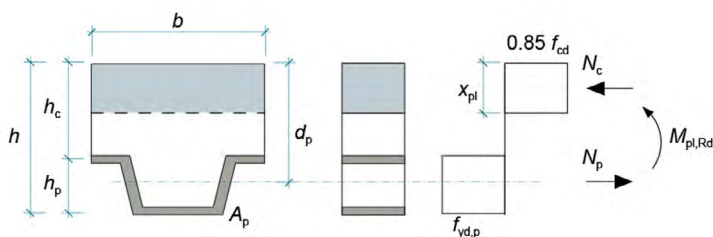


Figure 1: Stress blocks and lever arms for a composite slab cross-section (no bars in troughs so the only tensile reinforcement is the decking). Notation as per BS EN 1994-1-1



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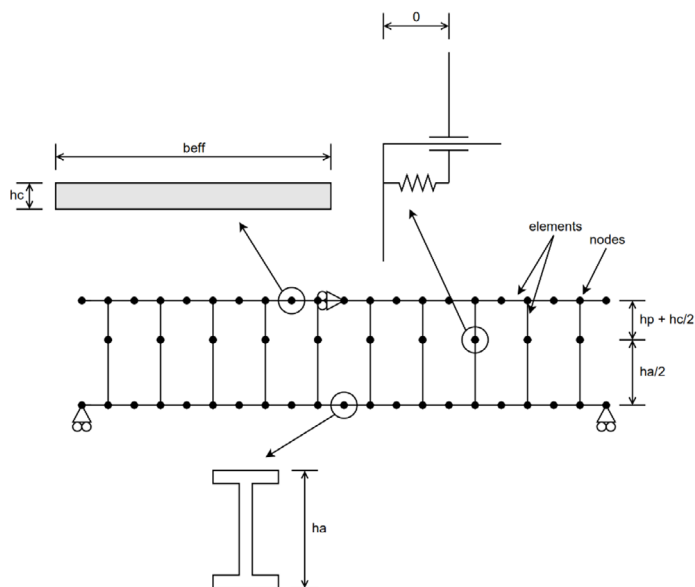


Figure 2: Schematic of ANSYS model of a composite beam (the upper line of nodes and elements represents the slab, the lower level the beam, with springs representing stud behaviour)

Two phenomena differentiate how an unpropped beam behaves compared to a propped beam. Phenomenon 1 is that, self-weight has no impact on the shear studs – the fluid concrete merely ‘runs’ around them. Only the imposed loads result in forces applied to the studs, transferred via the now hard concrete, as the beam deflects. The relative level of dead to imposed loads, as well as the total load, is therefore important as it affects how much the studs will slip, so it can be readily seen how relative load levels will affect the minimum degree of connection that is needed. A complication, which is why numerical analysis is needed to model beams, is Phenomenon 2. The [steel beam](#) experiences higher strains under self-weight when unpropped compared to the same section when propped, because a composite beam typically has over twice the stiffness of the steel beam it is based on. The lower stiffness of the (bare steel) beam in an unpropped situation results in greater deflection and curvature, which means the extreme fibres get closer to their elastic limit under self-weight. When imposed loading is subsequently applied to the composite beam some of the steel then goes beyond its elastic limit (i.e. loses stiffness) ‘sooner’, deflections are greater as is end slip. This partly counters the lower slip due to Phenomenon 1.

The example numbers given above – 43% versus 91% – show how sensitive the required minimum degree is to the level of imposed loading. It is therefore very important that the P405 rules are not used out of scope, as they would be with a factored imposed load over 12 kN/m^2 (unfactored in excess of say 8 kN/m^2).

BS EN 1994-1-1 gives rules for minimum degree of connection in 6.6.1.2. They do not distinguish between propped and unpropped construction, which means that the ratio of dead to imposed load is irrelevant (they cover the worst case where all loads are assumed to have an impact on the shear studs –

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i.e. propped construction). These rules may therefore be used for any level of imposed load, although care should always be taken when applying codified rules to very unusual situations as the rules may be based on tests and/or experience that were not representative of the situation actually being designed. Note this does not mean that the stud resistances from BS EN 1994-1-1 may also be used – they have been shown by test to be inaccurate and indeed unconservative when there are two studs per trough.

Unlike its predecessor, [Generation 2 EN 1994-1-1](#)³, 8.6.3.3 does distinguish between propped and unpropped construction by using a variable k_{up} to adjust the minimum degree of shear connection that is required. This variable has a value of 1.0 for propped, and can drop to 0.85 at its extreme for unpropped. There is no mention of the relative level of dead to imposed loading, but as the benefit of unpropped is limited to only a 15% reduction in minimum degree, getting it right is a much less significant problem than when P405 rules are used.

Heavy and numerous point loads

The subject of heavy and/or numerous point loads has been covered in several recent articles and AD Notes from SCI. Heavy PLs place onerous requirements on a slab in terms of the transverse bending they cause, and the ability of what may be a relatively narrow strip of slab to support them^{4,5}. Loads near a support, for example caused by a MEWP, tend to push the slab's vertical shear resistance to the limit. Local punching through the slab, which is normally never critical, may also be a concern.

Because composite slabs are designed as one-way spanning, the biggest danger with numerous PLs may be that a designer does not appreciate all the loading that will be present on the 1m wide strip being designed⁶. A PL placed

near centre span may well mobilise a strip of slab that is greater than 1m wide, and if it is sufficiently close (transversely) to another PL they could interact and both need to be considered when determining the input loads. The designer should take care to consider loads near to, not just centred on the line of, the strip being designed.

Conclusions

Experienced designers can often judge whether a design output feels right or not, based on their past experience. For example, anyone familiar with composite slab design will know that the ability of the steel decking to support the wet weight of concrete governs slab design most of the time. However, self-evidently when faced with an unusual situation past experience loses some of its value. In this article we have considered how the current demands from numerous clients to considered heavier floor loads than have been typical, and multiple point loads on some floors, can affect key aspects of composite floor design.

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Steel decking and composite slab span types

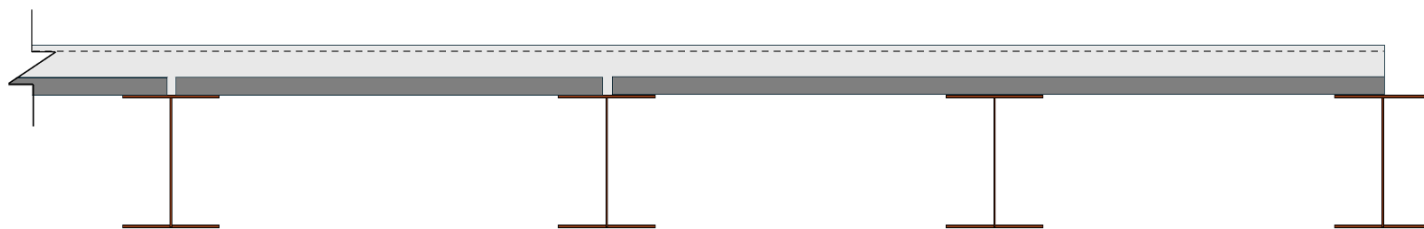


Figure 1: Different steel decking and composite slab span types

Design software, or load-span information, provided by [floor decking](#) manufacturers will normally be used to verify the steel decking and composite slab, as its performance during construction and after completion is complex and certain design parameters are best determined from tests. It is not normally necessary for designers to understand the design methodology in detail, although the principles should be well understood. It's particularly important that the spanning conditions of the decking and the spanning conditions of the composite slab, the two of which may well be different, that are used in the design reflect what will be built on-site. The purpose of this AD note is to explain the different span types of the decking and spanning conditions of composite slabs, and how they affect the design of the steel decking during construction and composite slab after completion respectively.

Decking span types**Single-span decking**

This arrangement consists of a single steel deck that spans between two supports with no continuity over either support.

Double-span decking

This arrangement consists of a single steel deck that spans over three supports comprising two bays, with continuity over the internal support.

Multi-span decking

This arrangement consists of a single steel deck that spans over four or more supports comprising three or more bays.

Slab span types**Single**

In this condition, the reinforced concrete is not continuous over either support.

End

In this condition, the reinforced concrete is continuous over one support.

Internal

In this condition, the reinforced concrete is continuous over both supports.

Construction stage

The construction stage concerns the design of the decking. Only the decking span type is relevant at this stage. The reaction forces, shear forces, bending moments and deflections are calculated by determining the critical load case for the applied actions considering the appropriate span type. Multiple load cases may need to be considered for ultimate limit state and the [serviceability limit](#) state, positioning imposed loads to maximise bending, shear, or the combination of the two. The number of cases will depend on the span type.

Normal stage

The normal stage concerns the design of the [composite](#) slab. For the ultimate limit state, composite slabs are usually designed as single span simply supported members, with no account taken of any hogging resistance resulting from reinforced concrete that is continuous over the supports. This is the case whether there is physical continuity or not, and has nothing to do with the span type of the decking during construction.

When determining the deflection of a composite slab for the serviceability limit state, when the slab is either 'end' or 'internal' the continuity at one or both ends respectively may be taken into account by using an average of the cracked and uncracked second moments of its area. For single spans the uncracked value may be used.

Fire stage

This stage concerns the design of the composite slab. Unlike the normal stage design, any physical continuity of the slab over internal supports is taken into account.

For single spans, which have no end continuity at either side, only the sagging moment resistance is considered. In such cases a bar will be needed in the troughs to ensure the sagging resistance is adequate. Design on this basis is sometimes called the Bar Method.

For end spans, which have continuity at one end, the sagging resistance is enhanced by allowing for hogging moment resistance at that end. The addition of hogging resistance means that the sagging resistance may be adequate even without bars in troughs. Design on this basis is sometimes called the Mesh and Deck Method.

For internal spans, which have end continuity at both ends, the sagging and hogging resistances are combined to determine total moment resistance

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New and revised codes and standards

From BSI Updates September 2025

CORRIGENDA TO BRITISH STANDARDS**BS EN 17549-2:2023 (CD-ROM)**

Building information modelling. Information structure based on EN ISO 16739 1 to exchange data templates and data sheets for construction objects. Configurable construction objects and requirements.

BS EN PUBLICATIONS**BS EN IEC 60974-4:2025**

Arc welding equipment. Periodic inspection and testing.

BS EN ISO 11125-5:2025

Preparation of steel substrates before application of paints and related products. Test methods for metallic blast-cleaning abrasives. Determination of percentage defective particles and of microstructure. *supersedes* BS EN ISO 11125-5:2018

BS EN ISO 11126-1:2025

Preparation of steel substrates before application of paints and related products. Specifications for non-metallic blast-cleaning abrasives. General introduction and classification. *supersedes* BS EN ISO 11126-1:2018

NEW WORK STARTED**EN 1998-1-1:2024/A1**

Eurocode 8. Design of structures for earthquake resistance. General rules and seismic action.

EN 1998-2:2025/A1

Eurocode 8. Design of structures for earthquake resistance. Bridges.

EN 1998-5:2024/A1

Eurocode 8. Design of structures for earthquake resistance. Geotechnical aspects, foundations, retaining and underground structures.

NATOEN 1991-1-1

Actions on structures. Specific weight of materials, self-weight of construction works and imposed loads for buildings.

NATOEN 1993-1-2

UK National Annex to Eurocode 3. Design of steel structures. Structural fire design.

NATOEN1993-1-10

Eurocode 3: Design of steel structures. Material toughness and through-thickness properties.

CEN EUROPEAN STANDARDS**EN ISO 377:2017/A1:2025**

Steel and steel products. Location and preparation of samples and test pieces for mechanical testing. (ISO 377:2017/A1:2025).

EN ISO 11125-5:2025

Preparation of steel substrates before application of paints and related products. Test methods for metallic blast-cleaning abrasives. Determination of percentage defective particles and of microstructure (ISO 11125-5:2025).

EN ISO 11126-1:2025

Preparation of steel substrates before application of paints and related products. Specifications for non-metallic blast-cleaning abrasives. General introduction and classification (ISO 11126-1:2025).

CENELEC PUBLICATIONS**EN IEC 60974-4:2025**

Arc welding equipment. Periodic inspection and testing.

ISO PUBLICATIONS**ISO 377:2017/A1:2025**

Steel and steel products. Location and preparation of samples and test pieces for mechanical testing.

ISO 8501-3:2025

Preparation of steel substrates before application of paints and related products. Visual assessment of surface cleanliness. Preparation grades of welds, edges and other areas with surface imperfections.

ISO 11124-6:2025

Preparation of steel substrates before application of paints and related products. Specifications for metallic blast-cleaning abrasives. Stainless steel (shot and irregulars).

ISO 11125-5:2025

Preparation of steel substrates before application of paints and related products. Test methods for metallic blast-cleaning abrasives. Determination of percentage defective particles and of microstructure.

ISO 11126-1:2025

Preparation of steel substrates before application of paints and related products. Specifications for non-metallic blast-cleaning abrasives. General introduction and classification.

BS IMPLEMENTATIONS**BS ISO 11124-6:2025**

Preparation of steel substrates before application of paints and related products. Specifications for metallic blast-cleaning abrasives. Stainless steel (shot and irregulars).

NEW WORK STARTED**EN 60974-7 A1**

Arc welding equipment. Torches.

BRITISH STANDARDS WITHDRAWN**BS EN ISO 11125-5:2018**

Preparation of steel substrates before application of paints and related products. Test methods for metallic blast-cleaning abrasives. Determination of percentage defective particles and of microstructure.

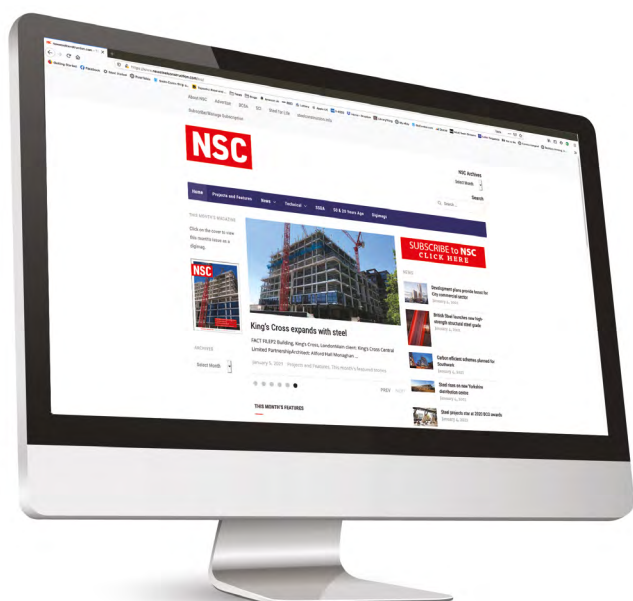
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Modern Steel Bridges

FROM
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Model of Runcorn-Widnes Bridge which, when finished, will be one of the most beautiful bridges in the world.

RUNCORN-WIDNES BRIDGE

The new Runcorn-Widnes Bridge is of the arched design and has a central span of 1,082 ft. with side spans of 250 ft. The bridge is approached by reinforced concrete viaducts on each side of the river. The bridge provides for a 33-ft. carriageway and two 6-ft. footpaths.

The foundation work consists of a large skew pier in the river on the Widnes side, a skew pier on the Runcorn side, two approach piers in Widnes and foundation work for the side spans of the arch bridge.

A large amount of property has had to be acquired in connection with the approaches and the total estimated cost of the works and property is of the order of £2,900,000.

The total weight of steel in the main bridge is approximately 5,600 tons, and includes mild steel to B.S. 15, high-tensile steel to B.S. 548, and weldable high-tensile steel to B.S. 968.

The rise of the arch is 252 ft. 6 in. above the bearings, the main arch ribs are placed at 54 ft. centres at varying depths from 35 ft. to 95 ft. approximately, the truss cords being generally 33 in. x 27 in. enclosed box section. Hangers of locked coil steel wire rope will be suspended from the arch rib to support the deck of the

bridge. The deck is constructed of welded steel cross girders and stringers with reinforced concrete deck.

A feature of the design of the bridge viaducts are the "T" shaped piers that support the reinforced concrete beams which in turn take the reinforced concrete deck.

It is anticipated that the work will be completed in the spring of 1961.

Consulting Engineers Mott, Hay & Anderson, London, S.W.1.

MAIDENHEAD BRIDGE

Maidenhead Bridge, now under construction for the Ministry of Transport, will carry the new West of Slough-West of Maidenhead motor road across the River Thames a mile and a half south of Maidenhead.

The foundations and abutments of the bridge were substantially completed in 1940, after which work was suspended. When work was resumed in 1958 the opportunity was taken by Freeman, Fox & Partners, the consulting engineers, of re-designing the superstructure to take advantage of higher working stresses and modern fabrication methods. In particular, extensive use has been made of shop-welded and site-welded high tensile steels.

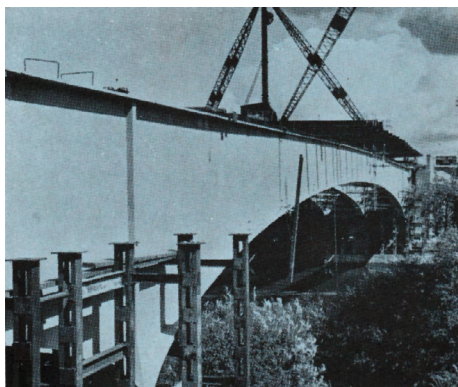
The bridge will carry two carriageways each 24 ft. wide, two 6 ft. wide cycle tracks and two footpaths each 5 ft. 6 in. wide. The carriageways have 1 ft. marginal strips along each edge and are separated by a 13 ft. wide central reservation. The cycle tracks are separated from the carriageways by 6 ft. wide verges

accommodating unclimbable fencing and guard rails. The overall width of the bridge deck is approximately 100 ft. Substantial steel parapets are provided on each side of the bridge.

The bridge has a central span of 270 ft. and two side spans, each of 38 ft. The superstructure consists of eight all-welded high-tensile steel girders, continuous over the supports and anchored at their extremities inside the abutments by means of hinged steel



The Runcorn-Widnes Bridge under construction.



The new Maidenhead Bridge



Looking up at the 270-ft. central span of Maidenhead Bridge during construction.



The new Kingsferry lifting bridge which provides for a vertical opening 95 ft. clear above high water. The existing river and road bridge is seen beside the new bridge.

tension links. The girders are interconnected by welded mild steel cross frames bolted in position using high-strength friction grip bolts. The deck consists of an 8½ in. thick reinforced concrete slab cast in situ on top of the upper flanges of the main girders and made to act in combination with them by the provision of suitable shear connectors welded at intervals along their length. The slab is continuous between abutments, expansion joints being provided at each end. The slab is waterproofed throughout by means of mastic asphalt.

Work at site recommenced in January, 1960, and is expected to be completed in December, 1960.

Consulting Engineers Freeman, Fox & Partners, London, S.W.1.

KINGSFERRY BRIDGE

The new Kingsferry Bridge is intended to replace the existing combined river and road bridge, and provides for an increased width for navigation, the old bridge allowing for only 57 ft., the new one having 90 ft. Furthermore, the new bridge provides for a 24-ft. carriageway and 6-ft. footpath, and a single line of railway, as against a single carriageway and single railway track on the old bridge.

After considering various possibilities for the new bridge this vertical lifting type was adopted. The British Transport Commission obtained powers in 1957 for carrying out the new construction work and the work was put in hand at the end of that year.

The new lifting bridge is 50 ft. wide and has been designed so as to provide for a vertical opening 95 ft. clear above high water. The lifting span and the side spans are all constructed in steelwork with reinforced concrete decking. A feature of the bridge is the reinforced concrete towers which house the counterweights, sheaves

and bridge control room. These towers rise to 130 ft. above the surrounding marshland and form a landmark which can be seen for many miles. The lifting span which rises vertically between towers weighs 465 tons and is counterweighted by four 110 ton counterweights. For services an 8 ft. 6 in. diameter tunnel connects the main pier foundations. The main piers are approached on each side by three side spans, each about 80 ft. The abutments on each side of the river are hollow reinforced concrete boxes resting throughout on concrete piles because of the very poor ground conditions adjacent to the river.

The cost of the works will be slightly over £1,000,000.

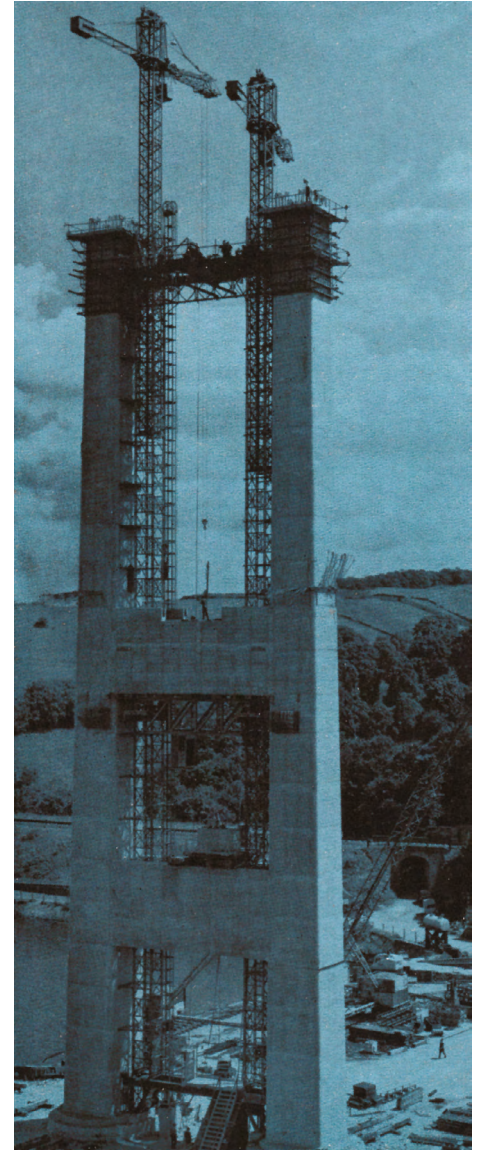
Consulting Engineers Mott, Hay & Anderson, London, S.W.1.

TAMAR BRIDGE

This bridge is of the suspension type and has a central span of 1,100 ft. and side spans of 374 ft. and provides for a carriageway 33 ft. wide, with two 6-ft. footpaths.

Approximately 1,000 tons of steel wire will be used in the main cables and suspenders and 3,000 tons of fabricated steelwork in the suspended structure.

The main river foundations are on twin caissons at each side of the river, and these have been founded on solid rock. On these piers the main towers of the bridge are being constructed and at the time of writing are almost completed. These will have a height of about 250 ft. The side towers, also of reinforced concrete, have been constructed on each side of the river, as also have anchorage tunnels which are provided to anchor the main cables of the bridge. The main cables each consist of 31 locked coil wire ropes of 2.37 in. diameter. The ropes will be entirely prefabricated and sockets



One of the main towers of the Tamar Bridge

will be attached to the ends at the works. These sockets will be connected to anchor rods at the anchorage tunnels. The 31 strands in each of these main cables will ultimately be surrounded by a protection of wire, so as to prevent seepage of water and corrosion. From these main cables hangers will be suspended which will support the stiffening . . . truss. This in turn supports the reinforced concrete deck of the bridge. Work commenced at site in July, 1959: it is planned to complete the work in the summer of 1961.

The estimated cost of the bridge is approximately £1,500,000.

Consulting Engineers Mott, Hay & Anderson, London, S.W.1.

Model of the new Tamar Bridge





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D High rise buildings (offices etc over 15 storeys)
E Large span portals (over 30m)
F Medium/small span portals (up to 30m) and low rise buildings (up to 4 storeys)
G Medium rise buildings (from 5 to 15 storeys)
H Large span trusswork (over 20m)
J Tubular steelwork where tubular construction forms a major part of the structure
K Towers and masts
L Architectural steelwork for staircases, balconies, canopies etc
M Frames for machinery, supports for plant and conveyors
- N** Large grandstands and stadia (over 5000 persons)
Q Specialist fabrication services (eg bending, cellular/castellated beams, plate girders)
R Refurbishment
S Lighter fabrications including fire escapes, ladders and catwalks
- FPC** Factory Production Control certification to BS EN 1090-1
 1 – Execution Class 1 2 – Execution Class 2
 3 – Execution Class 3 4 – Execution Class 4
- BIM** BIM Level 2 assessed
QM Quality management certification to ISO 9001
SCM Steel Construction Sustainability Charter
 ● = Gold ● = Silver, ● = Bronze, ● = Certificate

Notes

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

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

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

BCSA steelwork contractor member	Tel	C	D	E	F	G	H	J	K	L	M	N	Q	R	S	QM	FPC	BIM	SCM	Guide Contract Value (1)
G & L Environmental Ltd	01634 252288									●	●			●	●	✓	3			Up to £500,000
G.R. Carr (Essex) Ltd	01286 535501	●		●	●			●			●			●	●	✓	4			Up to £1,200,000
Gorge Fabrications Ltd	0121 522 5770				●	●	●	●		●	●			●	●	✓	3			Up to £1,200,000
H Young Structures Ltd	01953 601881			●	●	●	●	●			●			●	●	✓	4	✓	●	Up to £3,400,000
Had Fab Ltd	01875 611711	●			●		●	●	●	●	●		●	●	●	✓	4			Up to £6,500,000
HBE Services Ltd	01525 854110				●	●				●				●	●	✓	2			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*
Integrated Water Services Ltd	01282 777739									●	●			●	●	✓	2			Up to £600,000
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
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
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
SDM Fabrication Ltd	01354 660895	●	●	●	●	●	●			●	●			●	●	✓	4		●	Up to £6,500,000
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
CF Complex footbridges
SG Sign gantries
PG Bridges made principally from plate girders
TW Bridges made principally from trusswork
BA Bridges with stiffened complex platework (eg in decks, box girders or arch boxes)
CM Cable-supported bridges (eg cable-stayed or suspension) and other major structures (eg 100 metre span)
MB Moving bridges
SRF Site-based bridge refurbishment

FRF Factory-based bridge refurbishment
AS Ancillary structures in steel associated with bridges, footbridges or sign gantries (eg grillages, purpose-made temporary works)
QM Quality management certification to ISO 9001
FPC Factory Production Control certification to BS EN 1090-1
1 – Execution Class 1 2 – Execution Class 2
3 – Execution Class 3 4 – Execution Class 4
BIM BIM Level 2 compliant
SCM Steel Construction Sustainability Charter
● = Gold ● = Silver ● = Bronze ● = Certificate

Notes

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

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

BCSA steelwork contractor member	Tel	FB	CF	SG	PG	TW	BA	CM	MB	SRF	FRF	AS	QM	FPC	BIM	NHSS 19A	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 £5,000,000
BHC Ltd	01555 840006	●	●	●	●	●	●	●	●			●	✓	4	✓			●	Above £10,000,000
Billington Structures Ltd	01226 340666	●		●	●	●	●	●	●			●	✓	4	✓	✓	✓	●	Above £10,000,000
Bourne Group Ltd	01202 746666	●		●	●	●				●		●	✓	4	✓		✓	●	Above £10,000,000
Briton Fabricators Ltd	0115 963 2901	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓	●	Up to £10,000,000
Cairnhill Structures Ltd	01236 449393	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓	●	Up to £6,500,000
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 £5,000,000
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	✓		✓	●	Above £10,000,000
M&S Engineering Ltd	01461 40111	●		●		●	●	●		●	●	●	✓	3					Up to £2,400,000
M Hasson & Sons Ltd	028 2957 1281	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓	●	Up to £1,400,000
Millar Callaghan Engineering Services Ltd	01294 217711	●	●	●	●	●	●	●	●	●	●	●	✓	4			✓		Up to £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 £10,000,000
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
Eiffage Metal	07511 177815	●	●		●	●	●	●	●	●	●	●	✓	4					Above £10,000,000
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
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
Shaw Manufacturing Ltd	01642 210716			●						●	●	●	✓	4		✓	✓		Up to £2,400,000
Taziker Industrial Ltd	01204 468080	●	●	●	●	●	●	●	●	●	●	●	✓	3		✓	✓	●	Above £10,000,000
Total Steelwork & Fabrication Ltd	01925 234320	●		●		●				●	●	●	✓	4			✓		Up to £5,000,000
Victor Buyck Steel Construction	00 32 9 376 2211	●	●	●	●	●	●	●	●	●	●	●	✓	4		✓	✓	●	Above £10,000,000



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	MMC Engineer Ltd	01423 855939	Structural & Weld Testing Services Ltd	01795 420264
Highways England Company Ltd	0300 123 5000	Paul Hulme Engineering Ltd	07801 216858	SUM ADR Ltd	07960 775772
Keiths Welding Limited	07791 432 078	Sandberg LLP	020 7565 7000	Thames Welding Ltd	07912 691704
Magna Inspections Ltd	01377 229632	Solent Commercial Management Limited	07852 309104		



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 ● = Bronze ● = Silver ● = 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			
Duggan Profiles & Steel Service Centre Ltd	00 353 567722485	✓	M	4			
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 Structural Products	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				
Kellbray 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	✓					
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
AJN Steelstock Ltd	01638 555500	✓	M	4			
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				✓

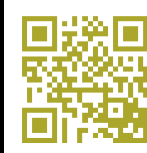


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