
BCSA
STEEL
for life
STRUCTURAL STEEL
THE MATERIAL ADVANTAGE

BCSA | STEEL for life

Structural steel is fundamental to modern construction

From skyscrapers and bridges to power plants and stadia, steel provides the framework for much of our urban infrastructure, enabling the creation of resilient structures with innovative designs.

Compared to other construction materials, steel has a wealth of benefits, which enables rapid construction, see a quicker return on investment, a number of options for sustainable, lower carbon design, excellent health and safety practices and much more.

Developed by Steel for Life and the British Constructional Steelwork Association (BCSA), this guide can be used to align client expectations with the capabilities of steel construction and promote the benefits of appointing Registered Qualified Steelwork Contractors (RQSC) holders to deliver projects.

WHY CHOOSE ANYTHING ELSE?

STEEL *for life*

Why choose steel?

- Steel is the only construction material that is 100% recyclable.
- Steel frames are more readily adapted and reconfigured to avoid new build, thus significantly reducing cost, carbon and programme.
- Offsite fabrication and modularisation create a smarter and safer construction site.

RQSC

Why choose a Registered Qualified Steelwork Contractor?

- RQSC accreditation guarantees quality, capability and commercial stability.
- It demonstrates a holistic project approach and real-time coordination with other sub-trades using state-of-the-art BIM technology.
- It secures specialist value engineering proposals.
- RQSC companies ensure strong ESG credentials.

REQUIREMENT | **ADAPTABILITY**

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- The extensive nature of steel designs enables short or long-span solutions which can be easily adapted to meet the changing needs of the occupants.
- Retrofitting with steel is an effective way to expand buildings, enabling vertical and horizontal extensions without the need for demolition.
- Bolted steel connections facilitate easy reconfiguration, making them ideal for temporary structures and modular buildings.
- Regular steel floor grids offer a high level of adaptability due to their modular design and ease of installation.

RQSC

Driven by a commitment to the circular economy, RQSC members have experience and knowledge in the 'design for reuse and adaptive reuse', ensuring structures can be adapted, modified or extended to prolong their operational life.

Early engagement with a RQSC company in a project of this nature is paramount.

REQUIREMENT | CONTROLLED PRECISION

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- Steel components can be manufactured offsite to exact specifications, allowing for rapid onsite assembly.
- Controlled manufacturing ensures precision-engineered components and minimal waste.
- Steel structures weigh 50% less than concrete equivalents, resulting in reduced foundation requirements and easier handling.
- Steel construction is highly compatible with Building Information Modelling (BIM) technology, ensuring precision and consistency in complex projects.

RQSC

Engaging a RQSC member ensures a coordinated approach with other trade interfaces within a transferable BIM environment that includes clash checks within the populated steelwork frame.

Controlled offsite fabrication by RQSC companies reduces errors in tolerances and design interpretations compared to the pressures of constructing on site.

REQUIREMENT | **COST-EFFECTIVENESS**

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- Steel construction has a strong and well-established supply chain that guarantees availability and a cost-effective solution.
- Offsite construction allows for accurate budgeting due to the controlled factory environment and use of standardised components.
- Structural steel doesn't rot or degrade, reducing the need for costly repairs and maintenance.
- Prefabrication reduces the need for expensive onsite labour.

RQSC

Due to their industry-specific expertise, quality-assured processes, and links to the wider supply chain, RQSC contractors are uniquely positioned to reduce project variables, increase buying power, and mitigate costly risks.

REQUIREMENT | **DESIGN FLEXIBILITY**

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- Due to its structural integrity, steel can support large glass panels with minimal framing, allowing for floor-to-ceiling windows, oversized glass doors, and other glazed features that maximise natural light.
- Unlike other materials, steel can be rolled, shaped, cut and joined in countless configurations to meet specific design requirements.
- Steel's inherent material properties enables the creation of unique, non-linear, and complex shapes.
- Steel blends seamlessly with glass and timber, allowing for creative hybrid designs.

REQUIREMENT | LOW EMBODIED CARBON

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- Steel reuse is ten times less carbon-intensive than recycling as it avoids the energy-intensive process of remelting.
- Tailored steel components and project specific value engineering can reduce the embodied carbon of steel structures by optimising material usage to match structural demands.
- The longevity of steel structures means that reuse and recycling occurs less frequently, and is therefore the optimum way of reducing carbon.
- Insulation solutions can be readily integrated into steel frames, reducing the reliance on energy-intensive heating and cooling systems.

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The BCSA and RQSC members are committed to the UK Structural Steelwork: 2050 Decarbonisation Roadmap, targeting net-zero carbon for the constructional steelwork sector by 2050.

Using blended design approaches (not just EAF steel to meet targets) and reuse principles, can assist in designing out carbon in projects.

REQUIREMENT | RETURN ON INVESTMENT

- Steel-framed buildings offer long-term cost savings due to their durability and minimal maintenance requirements.
- Steel structures can be erected up to 20% faster than concrete equivalents, allowing for earlier project completion, handover and occupation.
- Long-span construction maximises letting potential by enabling the creation of flexible spaces that facilitate changes in use.

RQSC holders are independently audited to ensure they have the skills, technical expertise, and financial stability required for steelwork construction. In addition they provide annual project references which are verified to ensure they can prove their claims in real-world situations.

This reduces the risk of project delays and failures, providing a direct cost-saving ROI.

REQUIREMENT | QUALIFIED AND COMPETITIVE TENDER LIST

- The BCSA administers the RQSC, a vetted directory of steelwork contractors in the UK and Ireland. It serves as a pre-qualification tool that clients can use to select qualified companies for tender lists.
- RQSC holders undergo annual assessments by third party auditors to ensure their capability, competency, financial stability, and compliance with the Building Safety Act 2022.
- By ensuring all holders meet the same high standards, the RQSC facilitates fair and competitive tendering.

With almost 100 companies across buildings and bridgeworks, the RQSC ensures a comprehensive and qualified tender list.

REQUIREMENT | SAFETY AND COMPLIANCE

- Steel doesn't burn or release harmful gases at elevated temperatures, making it a valuable material in fire-resistant construction.
- Prefabrication reduces the need for workers to perform hazardous tasks and negates the need to perform hot-works on-site.
- Steel structures are designed and constructed according to strict codes and standards.

RQSC

Constructional steel projects are in safe hands with RQSC companies, as they are required to adhere to high standards of safety, quality, and compliance through mandatory certification schemes, rigorous assessments, and industry-leading technical guidance.

REQUIREMENT | STRENGTH AND DURABILITY

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- Steel can withstand heavy loads and repeated stress cycles, making it ideal for load-bearing structures like bridges and railways.
- Steel members can be configured to provide a level of structural robustness that's not easily achievable with other materials.
- Steel structures can last for decades due to the material's inherent strength, durability, and resistance to environmental threats.

REQUIREMENT | **SUSTAINABILITY**

- Steel can be recycled indefinitely without losing quality, making it both a 'circular' material and a sustainable choice for construction.
- The UK has an established infrastructure for steel recycling, boasting a 99% recovery rate for structural steelwork and 96% for steel construction products.
- The momentum towards cleaner steel production, such as electric arc furnaces and carbon capture initiatives is further accelerating the transition to zero-carbon steel solutions.
- By minimising the need to transport heavy machinery and materials to and from site, prefabrication reduces transportation-related emissions.

RQSC

The BCSA's Steel Construction Sustainability Charter (SCSC) commits member companies to a comprehensive framework of environmentally sound, socially responsible, and economically viable practices, making them a reliable choice for eco-friendly projects.

STEEL FOR LIFE | SPONSORS

Steel for Life's key objective is to promote the advantages of steel as a construction material, and the features that make steel the framing material of choice for a wide range of buildings, bridges and other structures.

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Steel for Life and The British Constructional Steelwork Association

4 Whitehall Court, Westminster, London SW1A 2ES
T +44 (0) 207 839 8566
E postroom@bcsa.org.uk
W www.bcsa.org.uk