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ENGINEERING

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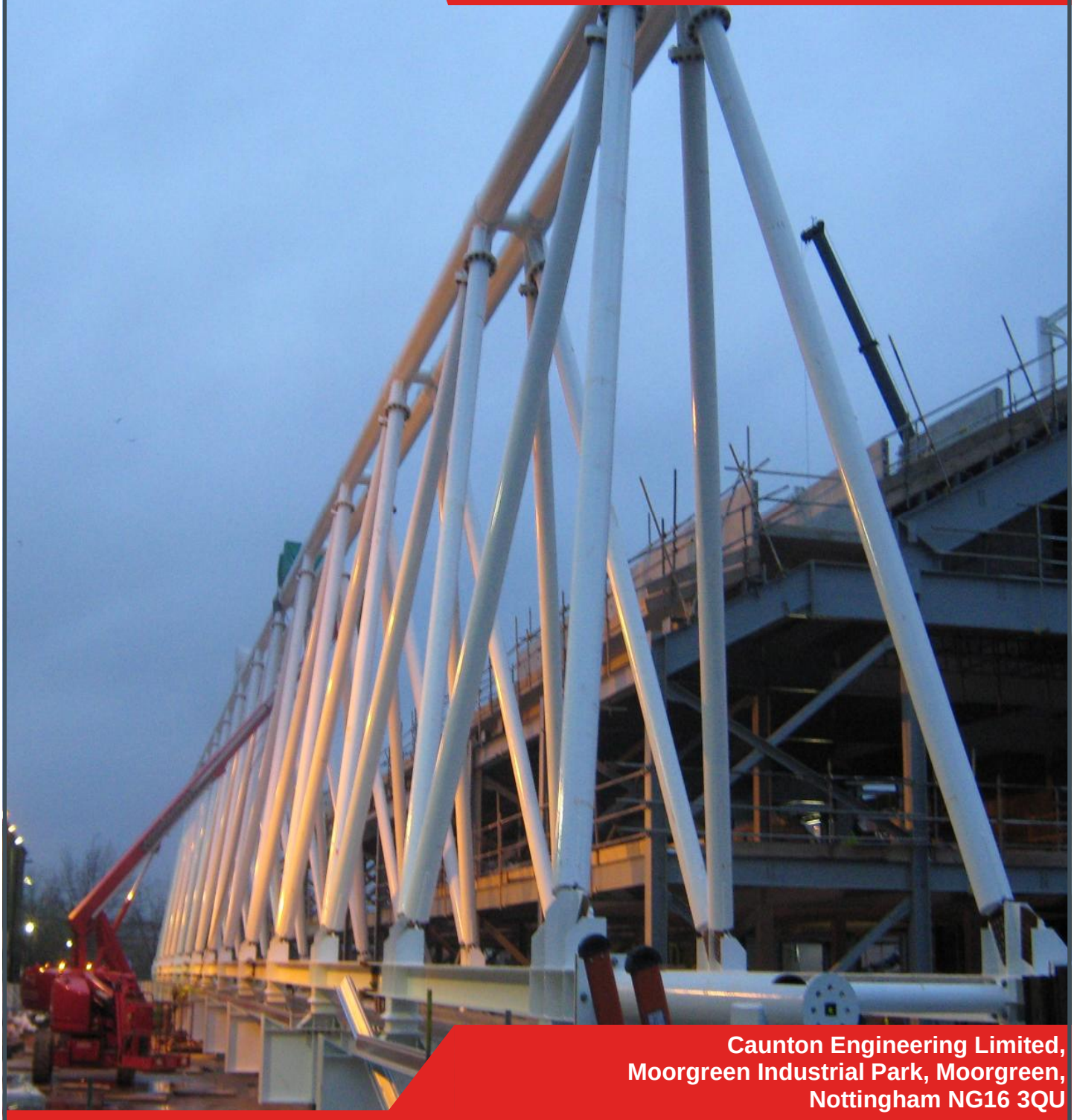
Steelwork for

Tubular Structures



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Caunton is one of the UK's leading steelwork contractors, offering a one stop construction solution. Specialising in the design, fabrication and erection of structural steelwork Caunton Engineering can give a first class service every step of the way.

We are a family owned company, established in 1969 and we have since proven to be a progressive pioneer of fully automated manufacture, information technology and innovation.

Our Nottingham based production facility employs some of the most up to date computer numerically controlled machinery within our 110,000 sq foot plant on a 42 acre site.

Leicester Tigers New North Stand Stadium

Caunton's most challenging tubular fabrication opportunity incorporating a 110 metre span King Truss

The Leicester Tigers North Stand contract gave Caunton one of their most challenging tubular fabrication opportunities. The seating area steelwork incorporated traditional stand steelwork, fabricated from hot rolled open sections of course. But the most challenging fabrication came with the 110 metre span King Truss which supports the roof. The truss itself was 12 metres deep and comprises twin 506 CHS tubes for the top boom and twin 305 x 305UC bottom boom members, with 219 and 323 internal bracings.

The assembly of the girder was relatively "piece small" because of the obvious delivery constraints. All top boom nodal connections were transitional-butt-welded –see the illustration. The tubes had to be stiffened at the nodes by means of 25mm folded plate, as shown in the photograph.

The bottom boom connection and the top boom splices were all connected using High Strength Friction Grip bolts. The photograph shows the trial erection exercise of a typical 22 metre section weighing 9.5te in Caunton's car park.
The girder was cambered to take out dead weight deflection.

The fabrication of the tubes utilised a laser tube profiler thereby ensuring maximum accuracy. The truss is supported by two 23 metre high pylons also fabricated from 506 CHS tube. These were however delivered each in "one piece" to the site.

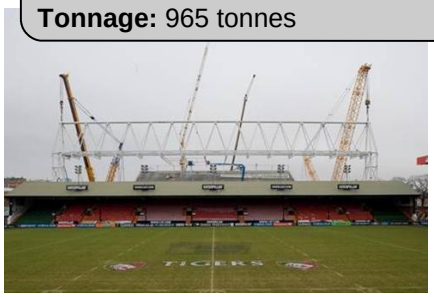
The truss was painted using a two coat system with the traditional 200 micron twin pack epoxy as base coat and a robust 50 micron "Resistex" coat applied subsequently.

Erection of the King Truss was achieved in a single day. Two 1000te cranes were employed.

The club started work on the North Stand as soon as the 07/08 season finished, with work on the entire project expected to take 10 years to complete. Designs drawn up by AFL Architects also include a three star hotel, a 450-space-multi-storey car park and educational building for people with multiple learning disabilities on behalf of the adjacent

Leicester College. The club's proposal for the transformation of its Welford Road ground will increase capacity from 17,500 to 30,000, making it the largest dedicated club rugby union stadium in the UK. It is also the second largest single tier stand in the country – only a smidgeon smaller than The Kop at Liverpool. It is to be one of only two club grounds to be used for the 2015 Rugby World Cup competition to be held in England.

Main Contractor: Galliford Try
Engineer: URS Corporation
Architect: AFL Architects
Tonnage: 965 tonnes



Manchester Transport Interchange

A 100m long 8m high by 6m width boomerang shaped structure supported by six feature columns

Caunton supplied and erected structural steelwork for what is increasingly becoming a new Manchester landmark – the new Transport Interchange. Client GMPTE and architect Jefferson Sheard worked closely to realise their aspirations of producing a state-of-the-art Interchange which is clad with an innovative system of glass and profiled steel fins.

Very visible and most impressive is the steelwork for the aerofoil canopy. This 8m high x 6m wide x 100m long boomerang-shaped structure is supported by six feature columns. The frame incorporates the fin supporting steelwork for the glass-topped roof – fabricated from CHS and RHS sections plus stainless steel tie rods. Caunton have been working alongside contractor Costain Construction and engineer Faber Maunsell to create what will be a lasting and striking feature complimenting Manchester's renowned transport system.

Main Contractor: Costain Construction
Engineer: Faber Maunsell
Architect: Jefferson Sheard
Tonnage: 350 tonnes

CAST Technium, University of Bangor

Two-storey building commencing at first floor level to provide framing for a distinctive

Main Contractor: Galliford Try
Engineer: Ove Arup & Partners
Architect: TACP
Tonnage: 200 tonnes

Caunton Engineering supplied the structural steelwork for the University of Bangor's state-of-the-art research facility, titled "the CAST Technium" (Centre for Advanced Software Technology), located in North Wales.

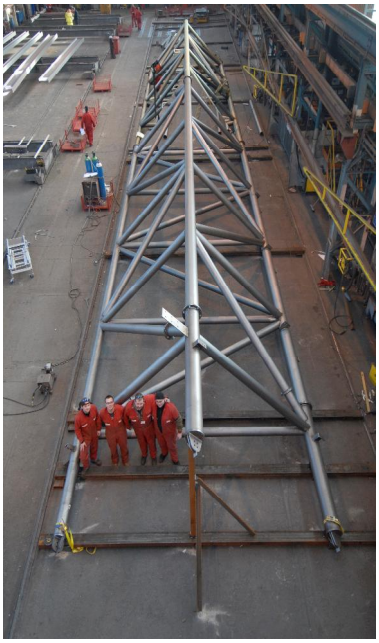
The structural steelwork for this two-storey building commences in fact at first floor level, in order to provide the framing for the most distinctive curtain walling scheme designed by architect TACP of Wrexham. It is anticipated that the function of the building may change from time to time, so steel's flexibility and versatility could well prove to be a further benefit to the client's requirements in the future.

Contractor Galliford Try secured the project through a two stage tender process. This permitted Caunton to contribute to the detailed buildability planning process at an early stage. Engineer for this exciting and distinctive research building was the Ove Arup Partnership.

Caunton in fact were to supply nearly 200te of high quality structural steelwork plus the distinctive and specialist external walkways, balustrading, staircases & canopies that help to make the building so attractive.

The Wine Society, Stevenage

Incorporating a 22te girder fabricated in three major sections



Caunton added a most prestigious name to its client list. The Wine Society no less. The Society has 85,000 active customers and growing. Hence the need for a warehouse extension, which Caunton are supplying on a design-and-build basis to main contractor Morgan Ashurst.

Until 1965 The Wine Society was based in London, but then moved 25 miles to a large freehold site in the main industrial area of Stevenage, a new town minutes away from the A1 Motorway. Here it combines offices for its planning, purchasing and marketing teams with a substantial warehouse complex, which has been progressively expanded to take account of steady growth.

Prestige clients such as The Wine Society demand quality fabrications – and the 46m space frame built at Caunton's Works is no exception. This girder weighing 22te and photographed here in the Caunton assembly shop, was fabricated in three major sections and erected, and then conjoined in the air, utilising three crawler cranes.

The girder rests in its final position (in section) as a right angle triangle with the hypotenuse supporting translucent sheeting for illuminating the wine warehouse below. Another suitable and eco-friendly feature of this major storage facility is the use of hempcrete walls, whose porosity helps to maintain the necessity humidity for successful wine storage.

Client: The Wine Society
Main Contractor: Morgan Ashurst
Engineer: MLM Building Control
Architect: Vincent and Gorbing
Tonnage: 270te

Middlesex University, Hendon

Featuring tubular steel columns coated with intumescent paint off-site

Caunton Engineering completed the structural steelwork for a new Learning Resources Centre for Middlesex University in Hendon. The sophisticated design by architect BPR Architects and engineer Bridges Pound focussed on modern sustainability techniques, and featured tubular steel columns coated with intumescent paint off-site. Caunton's tubular fabrication facility has recently been augmented with a modern CNC tube-profiler, which was to improve handling and accelerate fabrication speeds. Caunton's own directly employed erection team were to maintain extra vigilance when handling the fire protected members. They also erected the pre-cast floors and staircases. The project incorporated over 500te of structural steelwork. Fitzpatrick Contractors were main contractors on this most important and high profile improvement to facilities within the education sector.

Main Contractor: Fitzpatrick Contractors
Engineer: Bridges Pound
Architect: BPR Architects
Tonnage: 500 tonnes

This is a fine example of Caunton fabricating tubular sections.

INVESTORS IN PEOPLE

Sustainability in Steel Construction

BCSA

CERTIFICATION SCHEME TWI CL ISO 3834

SCCS UKAS ENVIRONMENTAL MANAGEMENT 021

SCCS UKAS QUALITY MANAGEMENT 021

Nottinghamshire COMPANY of the YEAR award Winner 2008