SEPTEMBER 2007 VOL 15 NO 8

NSC

NEW STEEL CONSTRUCTION

www.new-steel-construction.com

Rigid design for Corus ADC
New bridge links Dublin Airport
Student design awards
Morecambe revitalised

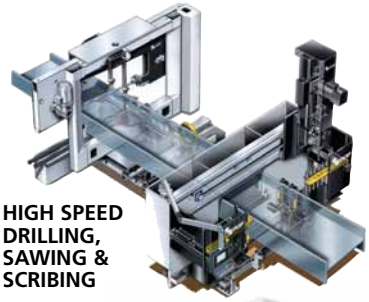
Dream Team

FICEP is world beating team of automated steel cutting, scribing, high speed drilling, sawing, punching, notching, lifting, folding and shot blasting machinery - use them as stand-alone machines or integrate them into a complete, software controlled production line

FICEP have over 100 machines for the processing of steel which can be used as stand-alone machines or integrated into a fully automated, high speed production line using state-of-the-art CAM software. These CNC machines now incorporate FICEP's unique patented*, automated scribing system, a feature which offers substantial savings in time and labour costs.
When this is combined with industry leading CNC machines and automation software, the productivity increases and reductions in production costs that are achievable are unprecedented within the structural and steel fabrication industry sector.

* Patent pending

steel projects
AUTOMATED CAM SOFTWARE



HIGH SPEED DRILLING, SAWING & SCRIBING

SHOT BLASTING

ADVANCED CNC PRESS BRAKES

DRILLING, PUNCHING, THERMAL CUTTING, MILLING & SCRIBING

MILLING, TAPPING, COUNTERSINKING & MACHINING OF THIN SHEETS

PERMANENT MAGNETIC LIFTING SYSTEM FOR PLATES, BARS & BEAMS

FICEP UK LTD

FICEP UK Ltd., 10 The Courtyards, Victoria Park, Victoria Road, Leeds LS14 2LB. Sales Tel: **+44 (0) 113 265 3921** Fax: **+44 (0) 113 265 3913**
E-mail: **info@ficep.co.uk** **www.ficep.co.uk**

CONTENTS

SEPTEMBER 2007 VOL15 NO7

Cover Image
AUTOMATED DISTRIBUTION CENTRE, SCUNTHORPE
Client: Corus
Structural engineer: Corus Northern Engineering Services
Steelwork contractor: Billington Structures
Steel Tonnage: 4,350t

EDITOR
Nick Barrett Tel: 01323 422483
nick@new-steel-construction.com
DEPUTY EDITOR
Martin Cooper Tel: 01892 538191
martin@new-steel-construction.com
CONTRIBUTING EDITOR
Ty Byrd Tel: 01892 524455
ty@barrett-byrd.com
PRODUCTION EDITOR
Andrew Pilcher Tel: 01892 524481
andrew@new-steel-construction.com
PRODUCTION ASSISTANT
Alastair Lloyd Tel: 01892 524536
alastair@barrett-byrd.com
NEWS REPORTERS
Mike Walter, Victoria Millins
ADVERTISING SALES MANAGER
Sally Devine Tel: 01474 833871
sally@new-steel-construction.com

PUBLISHED BY
The British Constructional Steelwork Association Ltd
4 Whitehall Court, Westminster, London SW1A 2ES
Telephone 020 7839 8566 **Fax** 020 7976 1634
Website www.steelconstruction.org
Email postroom@steelconstruction.org

The Steel Construction Institute
Silwood Park, Ascot, Berkshire SL5 7QN
Telephone 01344 636525 **Fax** 01344 636570
Website www.steel-sci.org
Email reception@steel-sci.com

Corus Construction and Industrial
PO Box 1, Brigg Road, Scunthorpe, North Lincolnshire DN16 1BP
Telephone 01724 404040 **Fax** 01724 404224
Website www.corusconstruction.com
Email construction@corusgroup.com

CONTRACT PUBLISHER & ADVERTISING SALES
Barrett, Byrd Associates
Linden House, Linden Close,
Tunbridge Wells, Kent TN4 8HH
Tel: 01892 524455
www.barrett-byrd.com

EDITORIAL ADVISORY BOARD
Dr D Tordoff *(Chairman)*; Mr N Barrett; Mr D G Brown, SCI; Mr M Crosby, Capita Symonds; Mr R Gordon, Mace Ltd; Mr W Gover, Consultant; Mr R Harrison, Glentworth Fabrications Ltd; Mr A Hughes, Tubelines; Mr A Palmer, Buro Happold; Mr R Steeper, Corus; Mr O Tyler, Wilkinson Eyre, Mr M Webb, Corus Group
The role of the Editorial Advisory Board is to advise on the overall style and content of the magazine.

New Steel Construction welcomes contributions on any suitable topics relating to steel construction. Publication is at the discretion of the Editor. Views expressed in this publication are not necessarily those of the BCSA, SCI, Corus or the Contract Publisher. Although care has been taken to ensure that all information contained herein is accurate with relation to either matters of fact or accepted practice at the time of publication, the BCSA, SCI, Corus and the Editor assume no responsibility for any errors or misinterpretations of such information or any loss or damage arising from or related to its use. No part of this publication may be reproduced in any form without the permission of the publishers.

CHANGES TO THE MAILING LIST
If you wish to notify us of a change:
Non Members of either the SCI or the BCSA please telephone Corus on 01709 825452
Members BCSA Telephone BCSA on 020 7839 8566
Members SCI Telephone SCI on 01344 636525

SUBSCRIPTIONS
To take out a subscription please telephone 01344 636525
Annual subscription £92.00 UK, £117.00 elsewhere.

All rights reserved ©2007. ISSN 0968-0098

NEW STEEL CONSTRUCTION
NSC
www.new-steel-construction.com

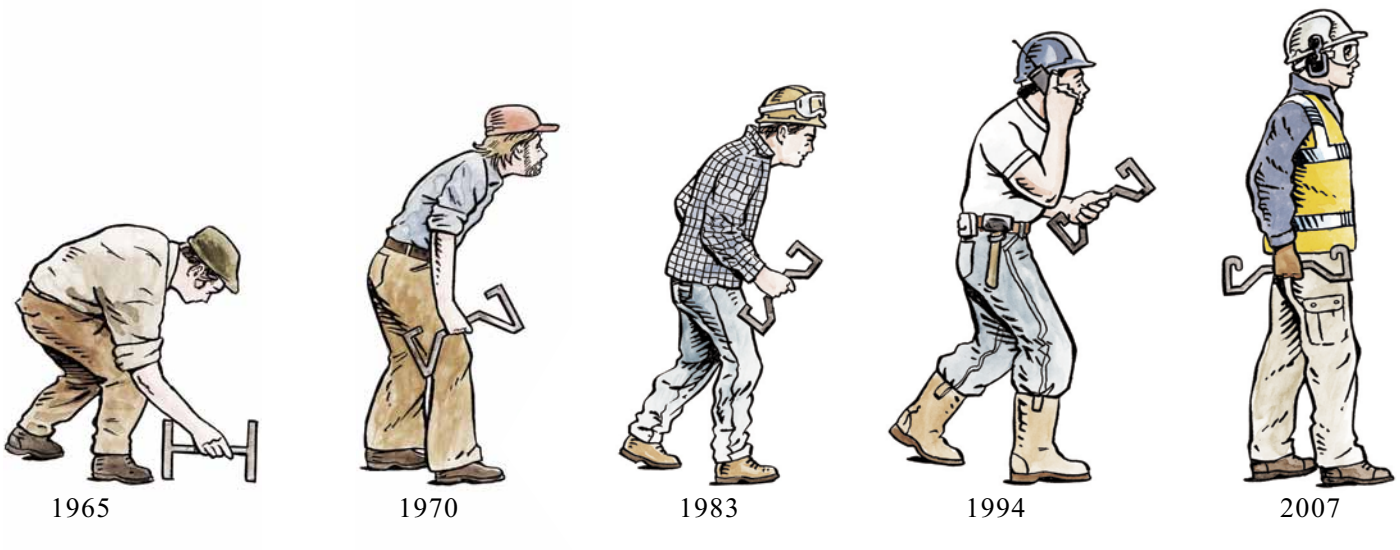
corus

BCSA **The British Constructional Steelwork Association Ltd**

SCI

MULTIBEAM

PURLIN AND RAIL SYSTEMS



MULTIBEAM EVOLVED

LIGHTER | STIFFER | STRONGER | GREENER

Make Multibeam your natural selection. Now in its 4th Generation and with 4 decades of development, our highly evolved purlin and rail system is now **lighter** for easier site handling, **stiffer** for straighter cladding lines, **stronger** for longer spans and **greener** due to reduced steel content. This means that it saves you time, lowers your costs and provides greater sustainability.

Also introducing Toolkit 5 the ideal way to design and detail the 4th Generation of Multibeam, with an increased design capacity which gives a more efficient design and an interactive link to CSC Fastrak Portal Designer.

To register and download your free copy of the Technical handbook, as well as Toolkit 5 visit **www.kingspanstructural.com** or call **01944 712000**

Kingspan®

Sustainably safe steel

Nick Barrett - Editor

One of the greatest success stories in the constructional steelwork sector has been the consistently improving safety performance over the past ten years, which means that steel construction is now demonstrably one of the safest of construction processes. As you will read in News, concerted efforts to improve safety across the sector have eliminated steelwork's high risk reputation and there were no fatalities at work during 2006.

Constructional steelwork has exceeded the safety performance demanded by the Health and Safety Executive. How has it been done? Changes in working practices have certainly helped, with erectors working mostly from the relative security of mobile access platforms, and fall arrest systems and other safety innovations widely deployed. The BCSA has produced several new health and safety guides with advice that has been taken up across the membership. A full time health and safety specialist has been appointed to advise members.

Members themselves have obviously taken on board the safety message. Several have made significant investments in developing safety equipment and procedures that have been publicised in NSC and elsewhere, and made available to all. Driving the safety message home to operatives has been a priority and regular safety related training has also had an impact on inducing a changed on site attitude to ensuring safety of operatives themselves and of others.

Time and money spent on safety improvements are fully justified in terms of preserving the welfare of people at work, and that will always remain the priority target. There are other benefits to be factored into the equation however. Pre engineering and fabrication off site means that pre planning of on site operations is easier and less likely to cause site hazards. Steelwork is standardised which leads to repetition of site tasks and greater certainty of safe practice. Trial erection is being favoured by clients for some structures, which has knock on safety benefits by establishing best methods of erection.

The safety benefits of steel are available to clients throughout a building's life; for example it is easier to safely modify steelwork during maintenance or refurbishment. When a building has to be demolished a steel frame can easily be demounted, and can be designed with that in mind. These messages will further strengthen steel's appeal to clients as they increasingly scrutinise the sustainability and safety consequences of choosing alternative construction processes. Steel will increasingly be seen as the sustainable safety solution.

Sustainability goes forward to school

As well as supporting industry wide efforts via the BCSA, several steelwork contractors have been more than ordinarily proactive in spreading the message that steel is the best construction framing material to meet the world's growing sustainability challenges. Cairnhill Structures for example is to be congratulated for its initiative (see News) in carrying sustainability messages generally into schools.

Fittingly, Cairnhill, the only Scotland based steelwork contractor yet to achieve the BCSA Sustainability Award, is bringing its specially prepared modules to schools in Coatbridge, the centre of the historic Scottish steel industry. Steel production has ceased there, but the former steelworks is to be the centre of a massive regeneration project that will revive the old industrial sites and provide employment and housing to the area.

As well as having developed these training modules for schools Cairnhill, in common with a growing number of other steelwork contractors, has started to measure its own carbon footprint with a view to reducing emissions. Those that have enthusiastically backed the industry's campaign to raise sustainability awareness are to be congratulated. Their efforts will no doubt be noted by environmentally aware clients, which will soon be, if it isn't already, all of them.

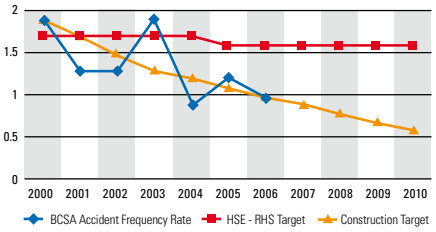
No fatalities reported for 2006

Statistical data compiled from the BCSA membership for 2006 shows that no fatal injuries were reported for the entire year.

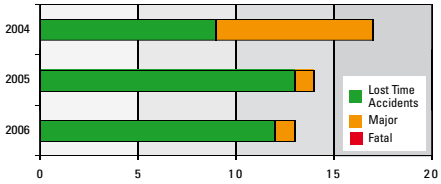
"This is very good news for the steel construction industry," said Pete Walker, BCSA Health & Safety Manager. "By achieving zero fatal injuries we have taken a positive step towards meeting the targets set by the Health & Safety Executive (HSE) and the construction industry as a whole."

The steel construction industry has also seen a significant reduction in the number of accidents resulting from a fall from height, while the number of major injuries for 2006 was also down.

Mr Walker said the Work at Height Regulations, which focussed industry attention on edge protection and greater use of safety netting, has played a significant role in reducing on site accidents. Consequently, incidents involving materials falling from height and causing injuries have been reduced by 64% since 2004.



BCSA & industry targets.



Fall from a height accidents 2004-06.

The BCSA has also used the accident frequency rate which gives the number of injuries an average steel construction industry employee can expect in a working lifetime.

"Our information shows we are achieving even fewer accidents than the construction industry target set by the HSE in 2006," said Mr Walker.

Measuring and monitoring accidents in the steel construction industry has been carried out annually by the BCSA since 2004.

Dr Derek Tordoff, BCSA Director General, said: "Our industry was once classed as high risk, but over the past ten years there has been a concerted safety improvement programme in the industry, helped with new health and safety guides developed by BCSA. The accident data being collected from our membership shows that steel construction is now one of the safest construction processes."

Management buyout at Barrett Steel Buildings

Left to right: Stephen Griffiths of Lupton Fawcett; Will Arnold of McInnes Corporate Finance; John Brennan; Sue Sharples; David Newbould and Richard Beesley.

The senior management at Barrett Steel Buildings have purchased the company for an undisclosed sum.

New majority shareholders John Brennan and Sue Sharples will act as joint Managing Directors with Ms Sharples retaining her responsibilities for the company's finances.

Richard Beesley, previously Design Director, replaces John Brennan as Technical Director and David Newbould remains as Contracts Director.

Richard Nicholls has been promoted to the board in the role of Production Director.

Commenting on the buyout Ms Sharples, said: "The selling shareholders, who were also directors of Barrett Steel Ltd - the national steel stockholding group - were keen to transfer the business to the current management team and we are delighted to say we have their full support."

John Brennan added: "We remain optimistic that construction activity will continue to grow, boosted by work for the 2012 Olympics."

Former major shareholder Richard Barrett becomes Non Executive Chairman of the Barrett Steel Buildings' new holding company for a period of two years to aid the smooth transition of the business to its new ownership.

The management team was advised by teams from McInnes Corporate Finance, Lupton Fawcett and PKF. The deal was financed by the Bank of Scotland.

Steel fortress of science nearing completion

More than 25,000t of steel is being used to construct the £140M ISIS Target Station 2 at the Rutherford Appleton Laboratory in Didcot, Oxfordshire.

Contained inside a steel-framed structure, which was erected by Severfield-Reeve, the scientific facility will house a proton beam which will be fired down a 140m-long tunnel to a tungsten target, which then creates neutrons to be used in experiments.

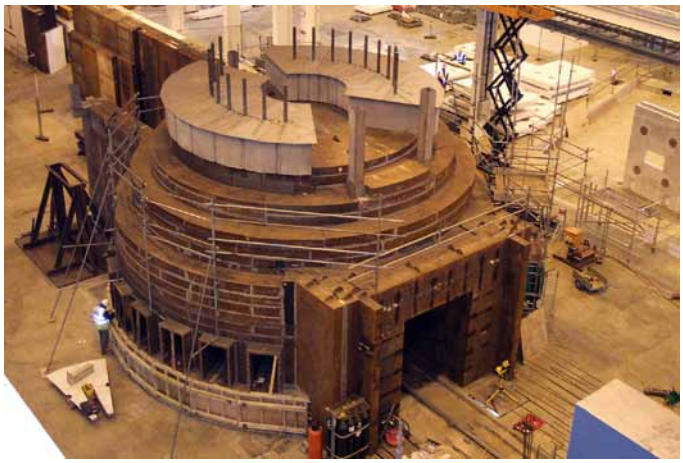
Approximately 20,500t of steel slab surrounds the beam's tunnel and the target as a protection against radiation.

The structure which houses the target is called the monolith and it is 7.5m high with a diameter of 12m. The walls are a combination of 4m thick steel encased in 1m of concrete, while below ground there is a further 1,000t of steel to shield ground water from radiation.

Jonathan Carkeet, ISIS Installation Manager, said because of the strength required in the structure, the frame has twice the amount of steel - 2,000t in total - required for a normal building.

"The ISIS building has a floor loading of 50t per square metre, this is unique and reflects the amount of steel used in the installation, particularly the monolith."

Most of the internal steel has been engineered, supplied, fabricated and installed by Corus Northern



Engineering Services (CNES). For the tunnel and monolith it has installed slabs made from low manganese, low cobalt steel in order to mitigate radiation problems.

To protect the target alone CNES has installed a complex jigsaw of steel slabs which measure 12m wide by 7m high.

Dave Gallagher, CNES Project Manager, said: "This is an enormously complicated structure.

"The pieces will fit together, like a giant 3D jigsaw so that the beam is prevented from penetrating the steel slab walls."

New Director of the SCI

Dr Graham Couchman has been appointed to succeed Dr Graham Owens as Director of the Steel Construction Institute (SCI), Martin Manning, Chairman of Council, announced on 13th August. He will join the SCI as Director-elect on 17th September and will take over as Director at the Council Meeting on 15th November.

Graham Couchman has twenty three years experience in design, construction and research in steel and composite structures in the UK and Europe. He is a fluent French speaker. He already has close associations with the SCI, having previously worked there from 1995 to 2004. He has spent the last three years as a Divisional Director at BRE.

In making the announcement, Martin Manning, Chairman of SCI Council, said: "We are very pleased to have found such an able new man to lead the SCI as it continues to serve steel construction in a fast changing world". Graham Owens, the retiring Director, said: "I am immensely proud of the achievements and the international reputation for excellence that the SCI has gained in the first twenty two years of its existence. I am confident that Graham will build on this foundation very effectively.

Graham Couchman said: "I look forward to the opportunity to help steel construction meet its future challenges, in particular the need to provide still better client value and greater sustainability in steel construction, both in the UK and overseas. My time at BRE has enabled me to develop knowledge and relationships that will help SCI take a more holistic approach to construction through both formal and informal partnerships. I am very excited at the prospect."

Left to right: Graham Couchman, Graham Owens.

New national annex drafted by SCI

National Annex to EN 1993-1-3, the section of Eurocode 3 that deals with cold formed members and sheeting, is currently being drafted by SCI.

The work, which received funding from Corus Strip Products (UK), was the result of extensive background research and an in-depth comparison between the Eurocode and the British Standards that it will replace.

Dr Martin Heywood, Manager of Construction Technology at SCI, said: "The drafting process began with an inaugural meeting of the industry steering group in May, at which the focus of the forthcoming technical work was agreed."

Also at the meeting a timetable of publication was agreed and it is hoped a first draft will be complete this month (September), to allow publication early in 2008.

"This is good news for both specifiers and manufacturers of light gauge steel sections and building systems, as the National Annex will include several essential provisions for UK practice," said Dr Heywood.

The Annex will include an expanded list of allowable steel grades and conversion factors to allow the use of existing structural test results.

Dr Heywood added: "The importance of the document is reflected in the enthusiastic support from the industry, including offers of financial support, for which SCI is naturally grateful."

Safety first for new school

Conder Structures is currently erecting more than 600t of structural steelwork for the £20M PFI financed Portland Community Comprehensive school.

Located in the Nottinghamshire town of Worksop, the school is E-shaped in plan, with the three arms typically 102m long x 20m wide, while the connected main building measures 97m x 17m.

The structure is predominantly two levels high and will include 112 classrooms, a 36m x 16m assembly hall, an 18m x 32m sports hall and a multi-purpose gymnasium.

During construction Conder has also supplied and installed more than 1,620m of its edge-protection system.

Jason Hensman, Conder Managing Director, said: "Our edge protection, supplied in conjunction with SGB, is the preferred solution for these low rise, extended structures and will be in place for 20 weeks of this project before the building is made weather tight."

The project is on schedule for handover to the school authorities on 26 November 2007.

AROUND THE PRESS

Construction News
12 July 2007
Barrett pushes the positives for steel domination
From an interview with Richard Barrett, Managing Director of Barrett Steel Buildings – The sustainability agenda is a particular favourite of mine. Steel has a hugely positive sustainability message to tell. Structural steel can be reused or recycled without any loss of performance.

Building
20 July 2007
Ohio silver
Akron's classical brick art museum has been spectacularly extended with a glazed entrance hall, rectangular gallery and a (steel) roof resembling three aircraft wings.

The Structural Engineer
17 July 2007
Winter garden roof challenge
Because of the complex grid pattern and the number of curvatures in the roof structure's form, all of the 1623 nodes are a different size, and likewise all of the 5000 steel members.

Contract Journal
25 July 2007
Aesthetics and sustainability boost steel
Steel remains the leading choice even when direct costs are considered. Once speed of erection, flexibility, predictability of project completion and all the sustainability benefits are factored in, it is no surprise that steel is achieving record market shares.

Contract Journal
25 July 2007
Steel distribution goes high-tech
To allow this high-tech, computer-aided stacking equipment to operate correctly, an extremely rigid structure had to be guaranteed. As well as a maximum 17,000t of stock within the steel structure, an infinite array of possible load combinations had to be taken into account.

Steel's sustainability message goes to school

Cairnhill Structures has become one of the first UK contractors to actively take the increasingly important message of environmental sustainability into schools.

Coatbridge-based steelwork contractor Cairnhill has developed some bespoke sustainability modules which explain the vital connections between industry and the finite resources of the natural world.

The educational resource which contains training packs designed to engender greater understanding of sustainability, is being introduced at St Patrick's School in Coatbridge, a historic steel-producing area, and could be rolled out in other schools in the region.

Jack Sanderson, Cairnhill's Managing Director, said: "Sustainability is the way forward for the industry. It not only makes good business sense, but it helps to preserve scarce resources for future generations."

"As a company which is committed to our community and our environment, we are delighted to be able to take part in this schools initiative and look forward to contributing to the understanding of sustainability."

Cairnhill has set itself, and met, stringent sustainability targets over the past two years, resulting in it becoming the only structural steel works in Scotland to receive the BCSA's Sustainability Award.

Converted house scoops Hot Dip Galvanizing Award

The redevelopment of 52 Huntington Street, London N1, known as the Zinc House, was the winner of the 15th annual Hot Dip Galvanizing Awards, held recently in London.

The project took a typical Victorian house and converted it into a modern family home with an additional floor and a dramatic new street façade in milk glass, zinc and galvanized steel.

Designed by Heat Architects, the judging panel said the project makes a dramatic statement in an otherwise undistinguished street of post war houses.

Four projects received Highly Commended Awards: Princess Park Stadium, Dartford; Pinions Barn, Buckinghamshire; Craw Road, Paisley and Benyon Wharf, Hoxton.

Retail options get a boost in Edinburgh

One of the largest retail developments to be constructed in Edinburgh in the past ten years is under way close to Murrayfield, Scotland's national Rugby Union stadium.

Atlas Ward Structures, working on behalf of main contractor Bowmer & Kirkland and developer Forrest Developments, is fabricating, supplying and erecting 600t of structural steelwork for a Sainsbury's superstore and adjacent non-food retail units on the city's Westfield Road.

The predominantly two-storey development will offer approximately 32,000m^2 of floorspace, while outside there will be 350 car parking spaces.

Neil Hall, Atlas Ward Project Manager, said: "The job required long spans and architectural roof steelwork.

"As a feature element we've used SHS lattice work trusses instead of traditional rafters, as they will be visible once the project is completed, some of them are up to 26m long."

The majority of the retail development will be clad in a feature load-bearing material called Tremo which required Atlas Ward to undertake additional fabrication to the columns.

"These steel members are more complex than we would normally use due to the quantity of welded angle plates required to support this cladding," explained Mr Hall.

Steel erection for the project was completed in August and the scheme is set to open in November.

BCSA advises membership on column splices

A number of BCSA members have noted that some CDM coordinators have been asking for column splices to be placed at waist height, or approximately 1,200mm above floor level, to assist with the manual handling of pneumatic wrenches and other equipment.

However, placing the splice towards the middle of the column will result in additional buckling forces which must be taken in to account at the design stage.

Dr David Moore, BCSA Director of Engineering, said: "The standard splice connection details given in the publication *'Joints in Steel Construction - Simple Connections'* can only be used where a splice is located no more than 500mm above floor level.

"It should also be noted that these standard details are only applicable where manufacturing procedures are such that full contact in the bearing is achieved at the splice."

Dr Moore also advised that if a splice is located further up the column, moment due to strut action needs to be considered and the designer must therefore revert to the design procedures given in *'Joints in Steel Construction - Moment Connection.'*

Advisory Desk note AD 243 'Splices within Unrestricted Length' gives further information on the design of unrestrained column splices.

Intelligent solution wins at a canter

In order to improve spectator sight lines at Ascot Racecourse the steppings have been re-profiled by Intelligent Engineering using Sandwich Plate System (SPS) terraces.

Michael Kennedy, CEO of Intelligent Engineering, said this is the first use of SPS terraces in the UK. "This is a major step in the commercialisation of the product in the construction market."

More than 3,200m^2 of SPS was used on the project of which 2,600m^2 was continuous standing terracing in 10.5m spans supported on steel rakers. The lightweight of the terracing allowed them to be built on top of existing structure without the need for any removal.

Mr Kennedy said the SPS units are a steel elastomer composite developed for structural engineering and 75% lighter than traditional concrete terraces.

Skanska to build new City landmark

Work has begun on The Walbrook building, a new office and retail development in the City of London. When complete, the building will provide a gross area of 55,000m^2 of lettable floor space.

Working on behalf of property and development company Minerva, Skanska has begun demolishing existing structures on the 1.6 acre site, which boasts a 50m-long frontage on Cannon Street, one of the City's main arteries. More than 5,000t of structural steelwork will be erected next year and the building is scheduled for completion in late 2009.

NEWS IN BRIEF

Cooper and Turner has become the UK's first manufacturer to gain CE approval for BS EN 14399 for high strength structural bolting assemblies for pre-loading. The European standard takes effect on 1 October and from this date all products in the UK must meet the regulations requirements.

Metsec was a finalist in the Employer of the Year Award 2007 at the recently held Apprenticeship Awards. Held annually by the Learning and Skills Council, the Awards are in their fourth year, and recognise and reward employers using apprenticeships to tackle skills shortages.

Lindapter has expanded its range of steelwork clamps for connecting structural steel sections in frictional load configurations, with a high performance M24 bolt version. The new bolt will securely connect channel, angle and I-beam secondary steelwork without drilling or welding, which reduces construction time and costs. A pair of M24 Type AF bolts is guaranteed to handle large frictional loads of up to 35 kN SWL (safe working load, with a 5:1 factor of safety).

The **BCSA** has organised a Design Appreciation Course for Technicians at the Cedar Court Hotel, Huddersfield on 22 October. The fee is £150 + VAT for members and £180 + VAT to non BCSA members. Also, on 27 November, the BCSA is running a Steelwork Contractor Designer Course at the same venue for the same fee. To book a place contact email: david.moore@steelconstruction.org

Bob Harrison has stepped down as Managing Director of **Glentworth Fabrications** and has been replaced by Brian Mosey and Martin Hignell who are now joint Managing Directors. Mr Harrison remains Chairman of the Glentworth Group.

Construction Act consultation

A second consultation on the review of the 'Construction Act' (Part II of the Housing Grants, Construction and Regeneration Act 1996) was launched at the end of June by the Department for Business Enterprise and Regulatory Reform (BERR), formerly the Department of Trade and Industry.

This is the latest development in the long running saga that started with the Budget in March 2004. Marion Rich, BCSA Director of Legal and Contractual Affairs, explained: "At the government's request, industry produced two reports on the reforms required to the adjudication and payment provisions of the Construction Act. Government consulted on initial proposals back in 2005 and has now produced firmer proposals. The consultation ends on 17 September and the industry has been told that there is no scope for extensions to this deadline."

Mrs Rich said BERR's proposals are sadly much reduced from those initially suggested by the industry.

"The good news is that government has listened to the industry and is proposing to abolish the necessity for construction contracts to be fully in writing for the Construction Act to apply at all," she said. "It has, however, rowed back on its previous promises to get rid of the abusive practice whereby the referring party has to pay all the parties' costs of the adjudication, no matter what the outcome. It is now proposing to allow agreements to this effect to stand, provided they are made after the appointment of the adjudicator."

BERR has accepted that there is a problem to be addressed regarding payments, but its proposals are complex and seem set to retain the current anomalous situation whereby the paying party decides how much is to be paid to the party who has done the work. Mrs Rich said: "This is contrary to the universal practice of other industries."

The consultation document can be found on BERR's website at *www.dti.gov.uk/consultations/39924.html*

Complex steelwork will require two phase approach

Work has commenced on the £7.8M Market Gates Shopping Centre project in Great Yarmouth.

Main contractor ISG Jackson is enlarging an existing shopping complex with a new four-storey 6,000m² steel-framed extension. This will be constructed over a bus station terminus and a three lane main road.

Ian Burchnall, Contracts Manager for steelwork contractor D.A Green & Sons, said to minimise potential disruption to the public the steel will be erected in two main phases.

"We will initially start erecting in October, for an eight week period, and complete the first phase over one lane of the road. Then once this road has been reinstated we'll complete the steelwork over the other two lanes during a second phase beginning in February next year."

This second phase will require D.A Green to work alternate day and night shifts to minimise traffic disruption.

Approximately 700t of structural steelwork will be erected, with some of the largest members - 20m-long plate girders weighing 20t each - spanning roads.

"The challenging site conditions demand a robust and highly detailed programme of works. Allied to a restricted and busy site, we are working above a road and need to deliver a phased project to meet the specific requirements of retailers," said Chris Harrall, Director of ISG Jackson's Commercial Division.

Severfield-Rowen buys into Irish market

Action Merchants (AML), the holding company of Northern Ireland-based constructional steelwork firm Fisher Engineering has been acquired by Severfield-Rowen.

A total consideration of approximately £90M has been agreed upon, of which £36.6M will be satisfied by the issue of 1,750,000 new shares, with the balance in cash.

Peter Levine, Severfield-Rowen Chairman, commented: "With its strong client base, robust order book and focus on good quality business, Fisher is an excellent fit."

The Fisher acquisition will extend Severfield-Rowen's leading market position in the UK as well as giving it a stronger presence in the growing Irish steel construction market.

"We have known Severfield for many years as a respected competitor and now look forward to working with them going forward," said Fisher's Joint Managing Directors, Ian Cochrane and Ernie Fisher.

In a separate deal, Severfield-Rowen has also agreed to acquire Dalton Airfield Estate which owns the long leasehold title to the Group's headquarters and the freehold title to a little over half of Severfield-Reeve Structures' fabrication facility.

Northern Rock banks on steel

A new office development for high street banking organisation Northern Rock is under construction on a new business park being developed by the City of Sunderland Council.

The steel-framed four-storey building is located on the Rainton Bridge South Business Park and will consist of 40,000m² of floorspace.

Caunton Engineering, working on behalf of main contractor Bowmer & Kirkland, will fabricate, supply and erect more than 1,100t of structural steelwork for the project.

CELLULAR BEAMS - MINIMISING RESOURCES, MAXIMISING BUILDING EFFICIENCY

* *A designer's guide to the benefits of selecting a circular ductwork system can be downloaded in a PDF format from Westok's website. Type* **Lindab** *into the Search facility , click on* **Go**, *then click on the first link,* **Lindab - Ductwork Turns Full Circle** *to download the file.*

Minimise raw materials

Cellular Beams use 25-50% less steel than plain beams, minimising raw material usage and transport loads.

Maximise structural efficiency

Cellular Beams facilitate the use of circular ducting which is up to three times more energy efficient than rectangular ducting. **Download a PDF from Westok's website for more details.***

Maximise lifetime flexibility

The most important factor in the longevity of multi-storey buildings is the flexibility of layout for future tenants. Cellular floor beams produce column-free, long span floors at the same overall cost as the short spans of the 1980s. Today's clear span structures will not be demolished due to lack of flexibility.

Visit **www.westok.co.uk** to request:

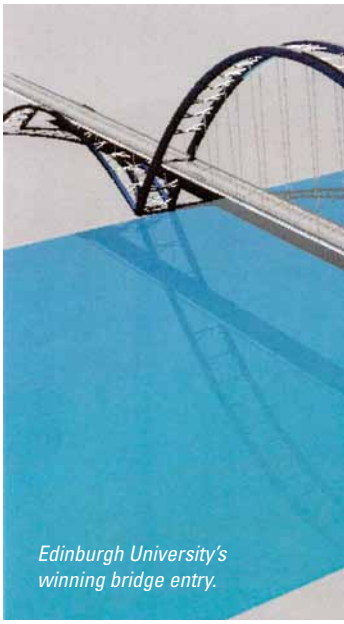
- **Engineers Design Guide**
- **CPD Seminar**
- **Design Meeting**

CELLULAR BEAMS - EFFICIENCY AND ECONOMY

Westok Limited, Horbury Junction Industrial Estate, Horbury Junction, Wakefield, West Yorkshire WF4 5ER
Tel: 01924 264121 Fax: 01924 280030 Email: info@westok.co.uk

www.westok.co.uk

South Bank University's winning structures entry.



Edinburgh University's winning bridge entry.

Corus Undergraduate Design Awards

This year's competition required students to either design a lifeboat launching station or a twin-track railway bridge over a major river.

STRUCTURES: Pictured left to right with students: Alistair Hughes (Chair of Structures judging panel), Dr Stephen Vary (Southbank University) and far right Colin Smart (Corus)

BRIDGES: Pictured with winning students left to right: Chairman of Bridges judges Barry Mawson, Dr Tim Stafford (University of Edinburgh) and far right Chris Dolling (Corus)

The winners of this year's Corus Undergraduate Design Awards, which was held at Arsenal FC's Emirates Stadium in London on 13 July, were London South Bank University and the University of Edinburgh.

The national awards were divided into two categories. The first - Structural Steelwork - challenged students to design a lifeboat launching station, while the second category - Steel Bridge Design - required them to come up with a solution for a twin-track railway bridge crossing a major river.

For the Structural Steelwork category the outline brief instructed students that at a very substantial financial bequest, the RNLI is to construct a new slipway launched lifeboat station. The client demands a departure from traditional appearance and the structure is to be located in an area of outstanding natural beauty. The functional requirements for housing, launching and recovery of the lifeboat had to be met.

The brief for the Steel Bridge Design category stipulated that as part of the new infrastructure required for the 2012 Olympic Games, a new light railway is planned. Entrants have been retained as a consultant to carry out the feasibility study for a new bridge and the client seeks a cost-effective and elegant structure.

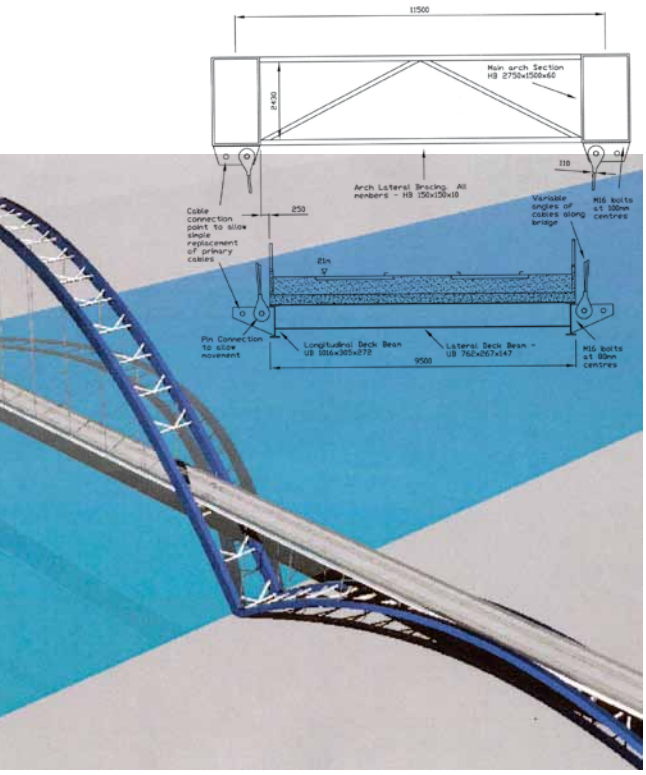
"The two design briefs gave students enough scope to show their creative side and we certainly were not disappointed."

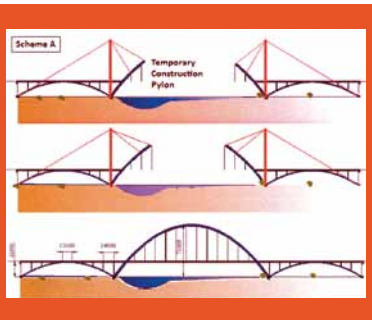
More than 40 teams entered the competition, reflecting the work of students from 16 UK universities.

Martin Reynolds, David Searle, Tony Denby and Tim Myoe Oe from London South Bank University took the first prize in the Structural Steelwork category, while Jonathan Narro, Rebecca Churnside, Gregor Sleigh, Charley Philips, Ruaridh Mackay from the University of Edinburgh won the Steel Bridge design category.

Second and third prizes were also awarded in each category, with winners sharing a total prize fund of £5,000.

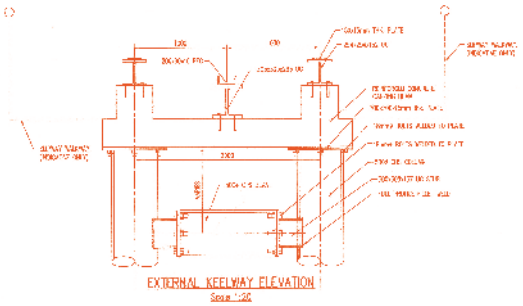
David Brown, Steel Construction Institute (SCI) Deputy Director and an Undergraduate Design Awards judging panel member, said: "This years competi-

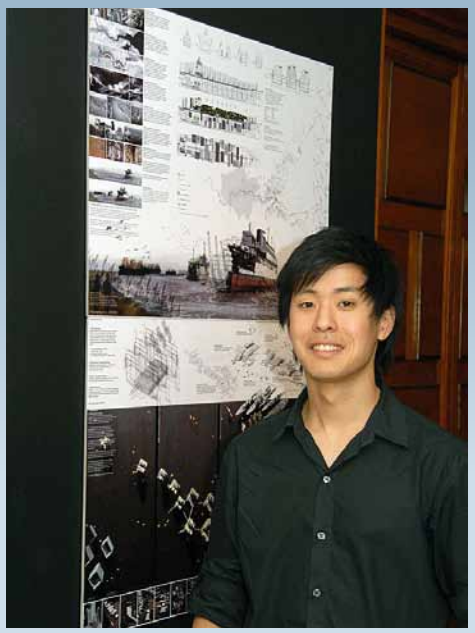




tion received an unprecedented level of interest and the judges were impressed by the general high standard of entries. The two design briefs gave students enough scope to show their creative side and we certainly were not disappointed. All of the successful teams demonstrated their design skills in an innovative and effective way - painting a positive picture for the future of structural engineering."

Alan Todd, Corus Construction Services and Development General Manager was also impressed with this year's entries and added: "Corus is committed to fostering and developing the engineering talent of the future. The Undergraduate Design Awards were created to reward excellence, allow undergraduates to receive recognition outside of the education sector and also help them develop the skills needed in the professional arena. We are proud that the competition is now in its 19th year and look forward to supporting more students in the future."





Anthony Lau with his winning entry.

Winners of architectural awards announced

At a ceremony held at London's Royal Institute of British Architects (RIBA) on 12 July, Anthony Lau, a student from Bartlett School of Architecture collected the first prize at this year's Corus Architectural Student Awards (CASA) with his creative solution demonstrating how steel homes can be used within a changing environment.

Climate change and its effect on rising sea levels was this year's competition theme. Students were tasked with designing a creative housing solution, using steel, which will benefit a community living in an area either threatened by unpredictable water levels or permanently on water.

Second prize was awarded to a team from the Warsaw University of Technology in Poland, with joint third prize going to four other undergraduate teams and individuals. Winners share a total prize fund of £5,000 and their entries will be on display at RIBA, alongside an exhibition of other work.

Brian Avery, Design Director of Avery Associates and a CASA judging panel member, commented: "The standard of entries was exceptional. All of the winners showed not only a huge commitment to the challenge of climate change, but also a quality of architectural thought and presentation that was truly inspirational."

The Warsaw University of Technology's team.

Meanwhile, Steve Thompson, Senior Architect at Corus and fellow CASA judging panel member, added: "The CASA awards is a celebration of excellence in architecture, rewarding talent and encouraging debate on the global issues that will undoubtedly affect the way that we design. Corus strongly believes in supporting the next generation of architects and this competition is part of a portfolio of initiatives that will give UK and international students the encouragement they need."

Retail development aids seaside regeneration

A new retail complex, on the site of an old amusement park, forms one of the initial phases of Morecambe seafront's regeneration.

FACT FILE
Morrisons Retail Park, Morecambe
Main Client: Morrisons Supermarkets
Architect: Bowman Riley
Structural engineer: BSCP
Main contractor: Ham Construction
Steelwork contractor: Bone Steel
Steel tonnage: 450t

Most residents and visitors to Morecambe will agree that the Lancashire seaside resort has seen better days. It's a long time since the pre-war heyday and today the town's promenade and surrounding environs show distinct signs of wear and tear as the once full lodging houses and tearooms are under used.

The problems facing Morecambe are by no means unique, as the advent in the 1970s of cheap overseas holidays affected all of the UK's traditional holiday destinations.

However, in the last couple of years the local authority has begun a large regeneration scheme aimed at bringing new life into the seafront area of the town. Running in conjunction with this plan is a project on the large site once occupied by Morecambe's famous Frontierland amusement park.

This plot of land on Central Drive, adjacent to the Morecambe railway station, is now partly owned by Morrisons Supermarkets and the company initially opened a large supermarket on the site in the early 1990s. Since then the amusement park has closed and Morrisons acquired a much larger piece of the land.

The supermarket covers approximately half of the company's current site and the remainder is now being built on to form the Morrisons Retail Outlet. This will comprise three large superstore units which have already been leased to three leading retailers.

Known as Units A, B and C, the former is a stand-alone store leased to JJB Sports, while Units B and C are conjoined and will be occupied by Homebase and Next respectively.

All of the structures are steel-framed buildings standing on deep piled foundations. Adrian Veitch, Construction Manager for main contractor Ham Construction, explains that the site's substrata is very unpredictable.

"Each unit has a bespoke design for the tenant."

"Once the fairground was demolished the site was surveyed and we discovered that in many areas there is sand up to 6m deep above a layer of clay, this meant piled foundations were needed."

However, prior to any piling work the previously sloping site had to be levelled and this involved a huge earthmoving operation which was conducted towards the end of 2006.

"The piling is very irregular as the sand varies in depth," adds Mr Veitch. "The survey indicated that some 12m deep piles would be needed for the

Above: Each column throughout the project rests on at least three piles.
Above right: The clients wanted column free areas with wide spans.

Above: Prior to erecting the structures a large earthmoving project was undertaken, this required 600,000m³ of overburden to be excavated.

entrance area of Unit A, while areas of Units B and C required mostly 6m deep piles."

Baxter Ireland, BSCP Director, says the project has been designed around the retail client's requirements, which predominantly revolves around open column-free areas.

"Each unit has a bespoke design for the tenant," he adds. "Although we very much have a traditional retail scheme the design incorporates a stick and beam construction with cellform members instead of a portal frame."

Mr Ireland adds that a portal frame design was looked at for the entire project but wasn't used as the tenants wanted flush walls.

"They wanted flush walls internally and externally, for their feature cladding, so we reduced the column sizes to 203 sections and this meant a stick and beam approach."

Unit A is very nearly a 50m x 50m square in plan and will also feature a mezzanine floor within its 15m maximum height.

For this structure steelwork contractor Bone Steel predominantly erected 254 x 254 x 73UC sections with 203 x 203 x 46UC's for the perimeter members.

"As it is all stick and rafter construction, the steelwork has gone up quickly and proven to be very economical ," comments Jaime Greenock, Project Manager for Bone Steel. "Morrisons, who we have done a lot of work for, prefers the speed of construction you get with steel."

Bone commenced steel erection in June and Unit A was the first part of the project. Mr Greenock says the biggest challenge was the fact that all lifting had to be done from outside of this building.

"On the ground floor Ham had already excavated a large pit which will eventually be turned into a swimming pool and we had to erect the steelwork around it," he says. "This meant using a larger capacity mobile than we'd ordinarily use, so we could get the required reach."

Above the ground floor and swimming pool Bone has erected a mezzanine level which covers the entire structure's footprint. Above this a haunched roof was erected with 15m high valley columns and 25m wide spans either side. The roof was formed with 762 x 210 x 92UB members together with CHS sections for a feature overhang which goes around all four sides of the building.

"There were some dynamic loading issues for Unit A's first floor as it will incorporate a dance studio," says Mr Ireland. "But this wasn't difficult to incorporate into the overall steel design."

Once Unit A was erected, Bone simultaneously constructed Units B and C during July. These two connected structures each measure (B) 50m x 45m and 38m x 25m (C) respectively.

"Morrisons prefers the speed of construction you get with steel."

"The two units are basically one large portal frame structure with a dividing wall," explains Mr Greenock. "The client wanted large column free spaces for these superstores, so each building has large spans with single columns down a central valley line.

Both of these structures are single storey buildings, with B featuring two 18m wide spans and C having two 12m spans. Bone erected 254 x 254 x 73 and 203 x 203 x 46 UC sections spaced at 5m intervals.

"Unit B slightly varies as it contains a small mezzanine which covers approximately 200m² in one corner," sums up Mr Greenock.

The Morrisons Retail Outlet is scheduled to open at the end of the year.

Bridging the airport link

The combined bridge and walkway was considered to be the most aesthetically pleasing design.

An eye-catching steel walkway and bridge has recently been erected at Dublin Airport as part of the on-going expansion project. Martin Cooper reports.

Dublin's international airport is currently in the midst of a large-scale transformation which includes the construction of the new 15,000m^2 Pier D that will be operational this autumn. It will provide significant extra space with 12 new boarding gates capable of handling 10 million passengers per year.

The steel-framed stand-alone pier is linked into the existing terminal by a new 350m-long combined suspension bridge and elevated walkway that curves around Dublin Airport's old terminal building. This historic building now houses the Dublin Airport Authority head office and a number of aircraft boarding gates.

The two-way elevated pedestrian link is 12m wide and will contain 8 travelators, four for each direction.

Constructing such a long structure at a busy airport presented the team with a number of unique challenges. Colin Potts, Project Leader for main contractor Laing O'Rourke, comments: "The link is both landside and airside and there is a high security fence that had to be negotiated, meaning the link is two completely separate sites."

"Once an 85m-long clear span was decided on it could only be achieved with structural steel."

"All materials delivered to site, as well as all construction activity associated with the project had to be approved by the airport security and fire service."

Laing O'Rourke is the main contractor for the entire Pier D project which includes the elevated passenger link. It has employed two different steelwork contractors for the scheme; Watson Steel erected Pier D's steel frame, and locally based SIAC Butlers Steel is doing the link.

The majority of Pier D's frame had already been completed by the time SIAC Butlers started its on-site steel erection work last November.

Pat Egan, SIAC Butlers Contracts Director, says even though the link's steel frame wasn't erected until November, the design and detailing work got under way in July. Working with PM Group, SIAC had two designs worked out for the airport link.

Pat Lonergan, Project Manager for PM Group, says the present design was chosen because it was more acceptable to the planning authority, and it afforded unimpeded views of the old terminal building. "This design was also considered to be more aesthetically pleasing."

Once the plan had been decided on steelwork fabrication was immediately started at SIAC's Portarlington facility, which is approximately 40 miles from the site. "Steel was the only way to go," adds Mr Lonergan. "Once an 85m-long clear span was decided on it could only be achieved with structural steel."

The work was divided into two main areas, the walkway construction and the bridge works, which both ran in tandem. Building the northern walkway, which connects into Pier D was then divided into two further work teams, as this section of the link crosses into the airside security zone.

"The dividing line between airside and landside was fairly fluid, but required detailed planning, communication and police attendance," says Mr Egan. "Once the walkway sections were being lifted into place we were permitted to move a barrier back and forth to allow the job to be done from one side or the other."

Before SIAC came on site the walkway's 22 pairs of concrete pillars had already been cast and this allowed steel erection to begin straightaway. Each pillar has a steel butt plate cast into the top which then connects to a steel runner that ties the two pillars together.

According to Mr Egan, the walkway construction was then fairly straightforward and involved using

Above: The curved bridge was assembled in five sections.
Left: Each mast was lowered through a hole in the bridge and then into its foundation footing.

FACT FILE
New pedestrian link corridor, Dublin Airport
Main client:
Dublin Airport Authority
Project managers: *PM Group*
Architect:
Skidmore Owings & Merrill
Structural engineer:
Capita Symonds/PM Group
Main contractor: *Laing O'Rourke*
Steelwork contractor:
SIAC Butlers Steel
Steel tonnage: *1,350t*

Left: Temporary supports were not dismantled until the bridge's two masts and cable stays were installed.

Below: The bridge affords unimpeded access to the old terminal building.

one 150t capacity mobile crane to lift the pre-assembled walkway sections into place.

"We then infilled these main box column and beam sections once they were welded into position," adds Mr Egan.

The southern walkway is a straight structure connecting the bridge to the existing terminal and has a 2.5m clearance at the terminus end, rising to 7m at the other end. The northern walkway, which is approximately 150m long, has a 45-degree right bend so it can go around an existing airport building.

However, the most challenging part of the project was the centrepiece suspension bridge which connects the two walkways. "This is a very complicated structure as it's curved in plan and elevation, giving rise to a challenging design, fabrication and erection sequence," says Mr Egan.

"Although the bridge only accounts for 85m of the link's overall length, it required 530t of structural steel to construct it, which is about 40% of the total tonnage for about 25% of the overall length," adds SIAC Butlers Project Manager Harry Johnston.

"This is a very complicated structure as it's curved in plan and elevation."

Erecting the bridge required SIAC to install temporary supports which would keep the bridge in position until its two supporting masts and attached cable stays were in installed.

The positions of the temporary trestles onto pilecaps were pre-determined by Capita Symonds to allow for future maintenance of the bridge end bearings by relieving the cable supports of their loads.

"The bridge was built in five sections, the heaviest weighing approximately 130t. These were assembled on the ground and then lifted into position by a 350t capacity mobile crane," explains Mr Egan.

Because of the curvature of the suspension bridge 50mm butt welds where required between each of the five sections, while at either end movement joints connect the bridge to the walkway.

Once each bridge section, containing all the main vertical columns and horizontal beams, was on its temporary supports, the infilling steelwork was then erected. Mr Egan estimates that each bridge section took approximately one week to fully construct.

"Erecting the bridge was a tricky procedure but we were confident it would all fit perfectly as we'd already done a trial erection at our facility," adds Mr Johnston.

Everyone involved in the project agrees that the most logistically challenging part of the steelwork job was the positioning of the two masts, particularly as this was all done in a busy airport environment.

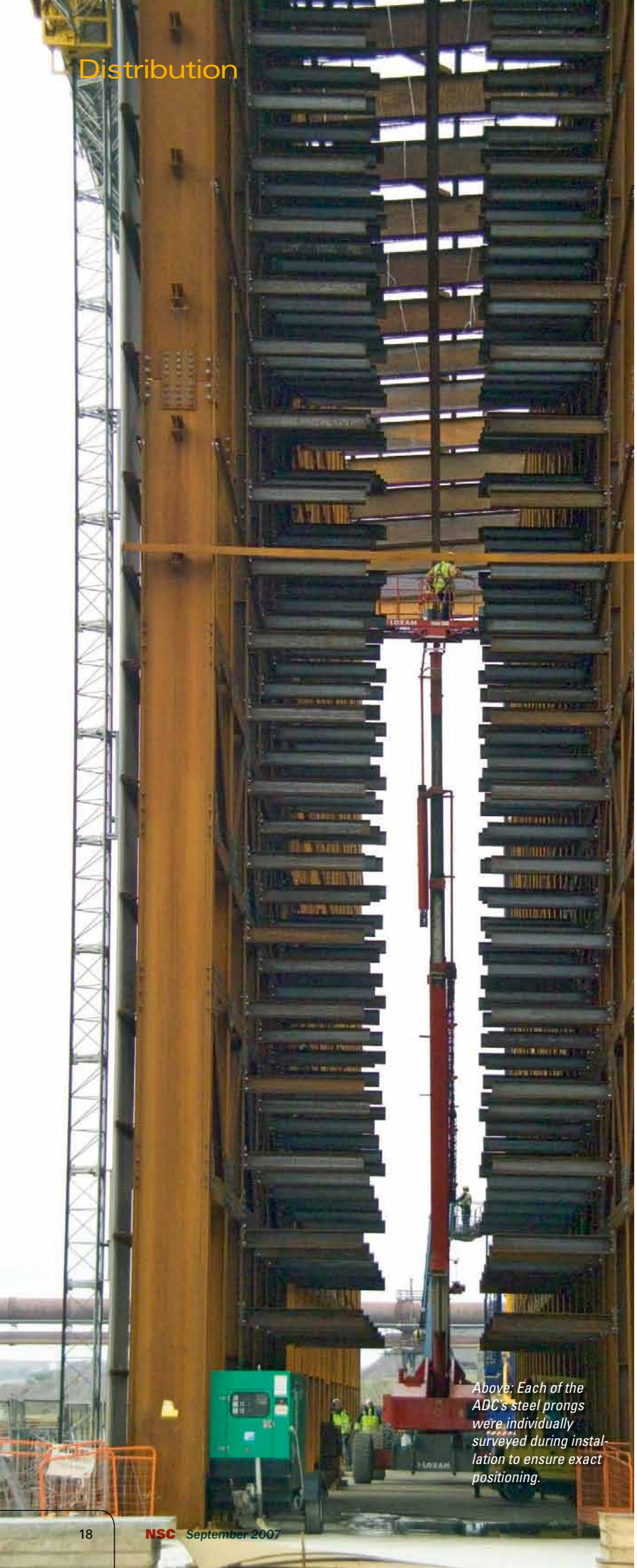
The masts are each 35m long and slightly tapered at one end, giving them a slight cigar appearance. They were imported from the UK and delivered to site as complete items.

Lifting each 26t mast into position required a number of temporary cables and supports to be attached to the unit, so it could be lifted off the ground and lowered through a hole in the bridge into its foundation footing.

"What made the whole procedure difficult is the fact that the supporting masts are positioned at an angle and so they had to be lowered into position at that angle," explains Mr Egan.

After the masts were bolted down the supporting stays were connected, 12 for each mast. Once all of this was complete, the bridge's entire temporary works was dismantled.

The pedestrian link is scheduled to be handed-over to the Dublin Airport Authority this October.



Above: Each of the ADC's steel prongs were individually surveyed during installation to ensure exact positioning.

Rigid frame ensures high-tech distribution

There aren't many steel structures in the world that have been designed and constructed to such tight tolerances and complete structural rigidity as the Automated Distribution Centre (ADC) which will shortly be fully operational at the Corus Scunthorpe works.

This fully automated warehouse, which is 159m long, 25,7m wide and is just over 30m high, will eventually store up to 17,000t of steel sections completely under cover and protected from the elements.

Four computer-operated cranes - one for each of the ADC's aisles and operating at speeds of up to 3m per second - will place and retrieve steel bundles, weighing up to 6t, from 24 stacking levels and load them onto trucks.

To allow this high-tech computer aided stacking equipment to operate correctly an extremely rigid structure had to be guaranteed. As well as a maximum 17,000t of stock held within the structure, an infinite array of possible load combinations also had to be taken into account when deciding on which type of

"We needed extreme rigidity without the risk of differential settlement and steel bearing piles was the solution."

More than 17,000m² of single skin steel cladding covers the ADC.

Computerised Stacking

To allow four computer-driven stacking cranes to operate the recently completed Automated Distribution Centre at the Corus Scunthorpe works required a steel frame with complete structural rigidity. Martin Cooper reports.

Once steel has been conveyed into the ADC from the adjacent mill, automated computer technology will take over. So sophisticated is the technology running the ADC that no staff will be needed inside the building during normal working hours.

Four computer-driven cranes manufactured by Swiss-based CTI, each weighing 72t and formed by a 33m x 28m frame, will distribute the steel bundles coming into and going out of the ADC.

Computer software, driving the cranes, will decide where every bundle of steel sections should be stored in the ADC, and will be able to retrieve it as and when required.

The steel's availability is so critical to continued secure operation that two systems, on computers at different locations, will operate in conjunction to guard against potential failure.

The software will generate a label for every bundle and then weigh and measure it, before deciding on an optimum position within the ADC to store it.

"Measuring to such a degree of accuracy means we can work with the building's design, which is intended to make the most effective use of the available space inside," says Les Jackson, Project Engineer for CNES Projects and Technology.

The warehouse software will also be able to do housekeeping. If there's a need to store bundles quickly, the software will put each of them in the first available space. Later, when in-put slows down, it will redistribute the stock to better locations.

FACT FILE
Automated Distribution Centre, Corus Scunthorpe
Client: *Corus*
Structural engineer: *Corus Northern Engineering Services*
Steelwork contractor: *Billington Structures*
Piling and concrete contractor: *Clugston*
Steel tonnage: *4,350t*

foundation would best suit the structure.

"We originally thought about a concrete raft for the foundations, but after a survey of the site we knew it couldn't adequately support the building," explains Corus Northern Engineering Services (CNES) Senior Project Engineer Ian Clayton. "We needed extreme rigidity without the risk of differential settlement and steel bearing piles was the only solution."

Piling contractor Clugston installed a total of 316 x 25m-long steel bearing piles, one for each of the ADC's columns on a 3m x 6m grid pattern. Once the piles had been installed each one had a steel plate welded to the top, followed by a concrete pile cap with holding down bolts cast in to accept the steel columns. All of this was done as the surrounding concrete slab was cast and once this was complete all the bolts were individually surveyed to ensure their exact positioning before being grouted into place.

This part of the project was the key to getting the entire structure right, says Brian Turton, Senior Project Manager for steelwork contractor Billington Structures.

"We got involved early on in the construction process and together with CNES we recommended that all the bolts were surveyed to ensure their exactness and this would guarantee the columns would be going up in the right position."

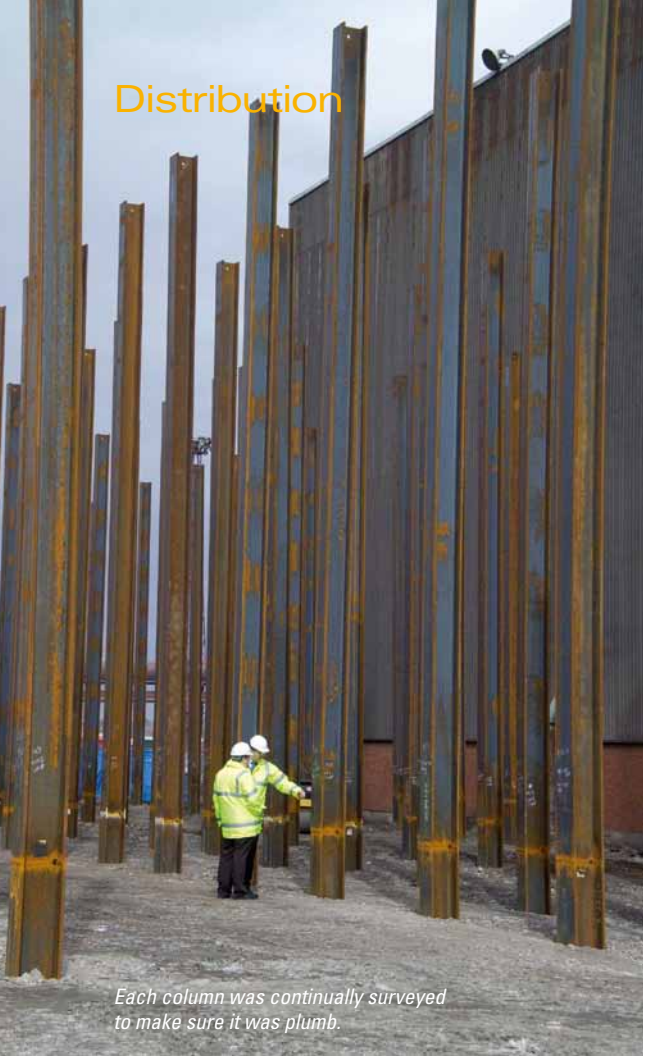
The structure is working to some exact tolerances and a slight deviation at the bottom of the column would mean a seriously out of line steel member nearer the top of the structure, preventing the stacking cranes working.

Once the bolts were set Billington began erecting the 4,350t of structural steelwork for the ADC's main frame. The columns were formed from Corus Advance 914 UKB sections and erected in two spliced 15m-long sections, to give the overall height of the building. There are five lines of columns and this required two 50t capacity mobile cranes to work at either end of the building, while cherry pickers were positioned in the bays.

As the frame went up it was continually surveyed to ensure it was plumb. "We left the connecting bolts at the splice un-tightened until the survey confirmed their alignment, as we had a couple of millimeters to play with if needed," explains Mr Turton.

Sequencing also played an integral role in the structure's erection programme. Once Billington had completed approximately one quarter of the building's 54 bays, they were able to begin placing the prongs which form the racking on which steel will be stored.

More than 9,500 of these steel 1m-long prongs →



Each column was continually surveyed to make sure it was plumb.

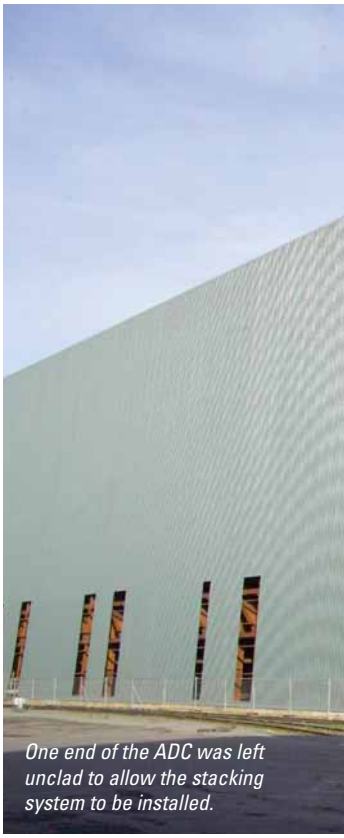
were installed over a 30-week programme and once fitted they were also individually surveyed to ensure they were in the correct position.

This work was carried out by two teams, allowing for a double check to be incorporated. "The second check was to give us a 'vote of confidence' in the work," says Paul Saddington, Corus ADC Project Manager. "Exactness was paramount because if any of the prongs were slightly out then the entire stacking system wouldn't work. However, from the outset, the results were encouraging, with very little rectification work required."

Following immediately behind the prong installation, Billington also began installing the ADC's single skin steel cladding. More than 17,000m^2 of cladding was put up, which equates to more than 124t of the material.

"I've heard some people describe the structure as a machine..."

The ADC is located on a confined site with an internal live railway line on one side and the Corus Medium Section Mill (where the steel for the facility will come from) on the other. This meant there was no room to run a traditional scissor lift alongside the building for the cladding operation.



One end of the ADC was left unclad to allow the stacking system to be installed.

VPN – Virtual Private Network* • technology to keep you working •

KALTENBACH

We don't just

Shotblast and coating lines; *automated, quality finish*

Kaltenbach Ltd 6 - 8 Brunel Road, Bedford, MK41 9TG

tel: 01234 213201 fax: 01234 351226 email: sales@kaltenbach.co.uk www.kaltenbach.co.uk/news

Consequently, two mast climbers were attached to the two sides of the structure's frame. Working up to the eaves, each mast climber enabled six bays to be clad, before being dismantled and moved to the next section of the building.

"The programming and sequencing were key to the project," says Mr Turton. "At one stage we had steel erectors at one end of the structure, the prongs being installed in the middle and cladders further down the frame."

Billington finished the structural frame, the prongs and cladding - including the roof - by January this year. The company left an opening at one end of the building for the installation of the automated stacking system and cranes, and once this phase had been completed the final areas of cladding were then finished in March.

Summing up the steel construction, Mr Turton, says: "I've heard some people describe the structure as a machine because of equipment inside. But when we were erecting it we had to think of it along traditional construction lines. We weren't exactly working to building tolerances, but special tolerances."

Although it is unlikely another ADC will be built in the UK. Asked if he'd work on another, Mr Turton has no hesitation in replying yes. "We've done it once, it would be easier next time."

provide the best technology

Plate Processing ; *hi-speed plasma*

Saw/drill; *hi-efficiency combinations*

Cope/Profile; *robotics*

Punch, shear, drill; *plate processing*

we ensure it stays that way!

Whether stockholder, small fabricator, or operating large-scale structural lines, Kaltenbach not only takes a pride in the quality of technology supplied but ensures its maximum working life. All machines need attention from time to time, so our 10 man UK nationwide service team, ensures machine life-time support; precisely when needed!

NEW – Contour Marking® (DSTV compliant) & 'Solid-Carbide' ultra hi-speed drilling!

**Latest machines (and some retro-fit) can incorporate a VPN (Virtual Private Network) for direct online, remote Kaltenbach interrogation, maximising uptime, minimising costs.*

Adaptable steel shows sustainability benefits

Adaptability, structural efficiency and flexibility are key attributes of constructional steelwork that can be seen in buildings of all types across the commercial, healthcare, residential and other important sectors of the market. Each of these attributes carries significant sustainability advantages, as Nick Barrett explains.

Constructional steelwork's structural efficiency stems from its high strength-to-weight ratio, which means it can be used to create large column free spans, gracefully and economically. Structural steel can carry the required loads with minimal use of material. This is taken advantage of in the construction of single storey buildings where clear spans of over 30m are provided, and with spans of over 150m when trusses or lattice girders are used.

Column free spaces

In multi storey buildings this advantage famously comes into its own, providing large unobstructed spaces that are valued for use as City of London dealing rooms, for example. Many clients insist on their buildings having the flexibility that only steel can provide, with column free spaces of 15m and above.

Having fewer columns provides a major benefit to building owners and users, as it is easy to subdivide space or alter it in any way that changing circumstances demand. In competitive property markets open spaces provided

Open spaces provided by constructional steelwork allow premium rents to be charged.

Plantation Place South

Providing large column free spaces was a key requirement of British Land when Plantation Place South in the heart of the City of London was redeveloped. The designers were briefed to determine the optimal framing solution for the multi storey structure with regard to the site, timescales and budget, which resulted in steel being selected.

The speculative development provides high quality office space designed to appeal to a demanding specialist financial market.

Allowing flexibility of internal layout was a key requirement of the developer, as were large open floor areas, good cooling properties and plenty of electrical connections. The design had to maximise the rentable area and the building had to be finished on time and to budget.

A major influence on the design was the new Part L Building regulations relating to energy efficiency which meant the design had to minimise the cooling load and reduce reliance on air conditioning by a sophisticated approach to environmental performance.

Structural elements were integrated to maximise the net floor area. Universal column sections were used as secondary beams, acting compositely with the lightweight concrete-steel deck slabs to reduce overall structural depth. Service crossovers and core entries were organised in the spaces between the beams, reducing the overall structural depth.

by constructional steelwork allow premium rents to be charged.

Another advantage is that steel framed buildings can be readily upgraded or refurbished for change of use, with new facades and other architectural features added easily.

Warehouses and factories benefit from column free areas as there is more flexibility for fixed equipment to be placed within the building. Forklifts and other moveable plant can operate more safely when there are fewer obstructions.

Shallow floor depths

Steel framed buildings are efficient from the standpoint of structural efficiency as floor to ceiling heights are minimised, cutting the costs for both steel and other building materials used in construction. Minimising height can also help cut heating and cooling costs of buildings. Building heights can be easily reduced by the ability to run services through openings in the web of steel sections; as much as half a metre can be cut from each floor.

Designers are taking advantage of the benefits of Slimflor and the Asymmetric Beam which allow floor depths to be limited to the depth of the beam and the thickness of the concrete cover over the decking. Computer software in common use on steelwork design allows engineers to quickly calculate how large web openings can be, where they can be placed and whether they need reinforcement. It is also possible to accommodate changing building uses by adding additional web openings at a later date.

Steel is inherently ductile and flexible which makes it the material of choice for building design. The material flexes under extreme loads rather than crushing or crumbling. Steel structures are understood by designers to have reserves of strength that are achieved at no additional cost.

Extending buildings' lifetimes

Buildings will frequently require modifications to meet changing needs during their lifetimes – the flexibility delivered by choosing a steel framing solution means that building lifetimes can be considerably extended. Changes could include adding new elevator spaces or stairways, raising or lowering ceilings or adding new column free spaces. Complying with legislative changes during a building's occupation, such as having to provide improved disabled access, might also need the flexibility of steel.

Additional floor loads or even entire floors can easily be added after construction.

Tenants might want floor loads increased to accommodate file storage, mechanical units, or hospital diagnostic equipment, for example. Additional floor loads or even entire floors can easily be added after construction – no other framing material allows this to be done economically.

Non composite steel beams can be later made composite with existing floor slabs or cover plates added to beams to increase strength. Additional steel can easily be bolted or welded to the original frame. Beams and girders can be reinforced or even relocated to support changed loads. Connections can also be easily strengthened.

Changing traffic patterns or space usage can be accommodated by repositioning internal walls as in a steel framed building neither the internal nor external walls are load bearing. Steel framing and floor systems allow easy access to electrical wiring and computer networking cables without disrupting building users.

Empress State Building

The flexibility of steel enabled the working life of a major London office building, Empress State in Earls Court, to be significantly extended by a major refurbishment and vertical and horizontal extension. The 30 storey 1960's built concrete framed building was the headquarters of the Admiralty, being used as centre of operations for the re-taking of the Falklands after the Argentinian invasion.

The tricorn shape was inefficient by modern standards and the building was to be transformed to provide modern, flexible, serviced offices with a radically improved environmental performance. The scale of the transformation was only made possible by using constructional steelwork.

The works included refurbishment of the existing office space at 1st to 26th floors; horizontal extension of the existing building at the south façade to increase office space from 2nd to 26th floors, with a roof terrace at 27th floor; vertical extension of the existing building to increase office space at 27th to 29th floors, with a central revolving bar at the 30th floor; formation of a two-storey circular 'drum' extension enclosing the base of the existing building; on the south side, the drum was to form a double-height, glazed reception area, with a roof terrace at 2nd floor; a new Entrance Building with office space on three storeys.

The most challenging modification to the typical floor was to extend the main south portion of the floor plate by 5.5m. The extended floors rise from the 3rd to the 26th floor with the lid of this extension forming an external terrace for the 27th floor. One of the key architectural ambitions was to maximise the 10ft floor to floor height. The ceiling heights, which were already low by modern standards, had to allow for a slim raised access floor (75mm) and soffit-mounted chilled beams.

Gaining vital work experience

A scaled down steel-framed version of London's Swiss Re building was one of the working projects at the recent National Construction College's Constructionarium.

The project offers graduates hands-on experience.

The Constructionarium project is a unique collaboration between academia and industry, which has been designed to recreate the appearance and atmosphere of working on a real large-scale civil engineering project.

The initiative was originally pioneered in a joint venture between Imperial College London, Expedition Engineering and John Doyle Construction.

This higher education stratagem is also aimed at addressing the current shortfall in practical construction and design expertise among graduates, and attract prospective students by offering a more hands-on degree.

The events are held at the National Construction College, the training division of ConstructionSkills, located at Bircham Newton in Norfolk, on a permanent two hectare site, which has been designed especially for the purpose.

Constructionarium is held intermittently and generally lasts for a week; the most recent event took place in June when more than 80 students from Imperial College London worked on scaled down versions of real sites, including the Swiss Re building (London Gherkin).

Left and below: Students were required to fulfil all the roles in the construction of the Gherkin.

The steel frame for the 10m-high Gherkin was fabricated and supplied by Caunton Engineering, with Expedition Engineering coordinating the design process.

Allan Younger, Business Unit Manager for Caunton, says the entire structure consisted of more than 500 individual steel members with a combined weight of 5.5t.

To make sure all of this steel fitted together perfectly Caunton conducted a trial erection at its facility before the steel was painted.

"Once painted we then delivered the steel to the College in a number of erectable packs to make it easier for the students to assemble," explains Mr Younger.

All of the steelwork for the mini-Gherkin is lightweight and consists of 1.4m-long x 48mm diameter tubes for the external perimeter and an internal core made from 127mm x 76mm beams and columns.

Geoffrey Taylor, Caunton's Marketing Director, says the project has some interesting symmetry as all the fabrication was done by the company's apprentices. "Our academy initially fabricated all the steel so that other students could erect it at the Constructionarium. It all goes to show how the industry as a whole is involved in training."

More than 80 students worked on scaled down versions of real sites.

Each event runs as a real construction site for the week, with everyone receiving a full safety induction. Students work in all roles as part of a team from labourers, steel erectors and foremen, to schedulers, managers and estimators. Method statements, risk assessments and budgeting for plant and labour rates, are also an integral part of the construction scenario.

Caunton donated its steelwork to the Constructionarium and although the structure was dismantled at the end of the event's week, it has been stored at the College and may be re-erected again at a later date.

Robin Holdsworth, Scheme Manager for Constructionarium, says: "The practical experience of working on site is invaluable for students. The scheme demonstrates how industry and academia are combining to combat the on-going shortage in construction and design expertise, and it provides our future construction managers with skills and experience."

Above: The new hospital is being constructed on a former car park and in places it is only 6m away from the existing hospital.

Steel has all the answers for new hospital

The need for a fast erection programme as well as some challenging vibration issues, all came to the fore at a new hospital project in Glasgow where two MRI scanners needed to be accommodated on a first floor composite slab. Martin Cooper reports.

Construction of the new Stobhill Hospital in north Glasgow forms one half of Balfour Beatty's contract with NHS Greater Glasgow & Clyde Health Board to modernise the city's hospitals.

With a combined value of £185M, the contract also includes the construction of the new Victoria Hospital in south Glasgow (see NSC May 2007).

Due to be completed and operational by 2009, the new Stobhill Hospital is being constructed adjacent to the existing facility, on land that was formerly occupied by a car park. When complete it will be one of Scotland's largest hospitals with its two three-level buildings having a total floor area of 30,000m².

"By week 30 of our 122 week contract we were already fitting out services and partitions."

The completion date and the date when the hospital will be up and running are of course paramount to the main contractor and this tight timescale is one of the reasons why steel was used for the entire building's frame.

"The hospital's steel frame was completed in just 15 weeks," says David Cairns, Project Director for Balfour Beatty Construction. "By week 30 of our 122 week contract we were already fitting out services and partitions. This is due to the speed, sequence and efficiency of the steelwork erection."

Balfour Beatty started work in November 2006 and began by clearing the site. By the New Year piling was under way and the reinforced concrete foundations and piles to bedrock were completed towards the end of February.

Steelwork erection was able to begin in early March and was completed rapidly because there was on-site coordination and detailed sequencing which prevented delays and hold-ups, says Andy Burr, Project Manager for Severfield-Reeve. "The weather was good, which obviously helps, but our contract management, site management and erection gangs work well with the Balfour Beatty team which ensured the job ran smoothly and quickly."

Mr Burr adds the grid patterns weren't particularly challenging although they did change

FACT FILE

The new Stobhill Hospital, Glasgow

Main Client: *Glasgow Healthcare Facilities under a PFI contract with NHS Greater Glasgow & Clyde Health Board.*

Architect: *Reiach & Hall*

Structural engineer: *SKM Anthony Hunts*

Main contractor: *Balfour Beatty Construction*

Steelwork contractor: *Severfield-Reeve*

Project value: *£85M*

Steel tonnage: *1,600t*

north to south, but there is a definite line where this alteration takes place, and that's the covered atrium which joins the two structures.

The hospital's two three-storey rectangular buildings comprise a steel frame construction on reinforced concrete foundations and piles. The simply jointed steel frames with composite concrete floors on Holorib metal decking act compositely with the plain UB floor beams.

Vibration can sometimes be an issue on hospital construction and John Robson, Technical Director of SKM Anthony Hunts, comments that the dynamic response factor for all functional areas of the composite floors was assessed with the methods set out in SCI design guide.

"A lot of the connections around the scanner area had to be done by hand because they were so unique."

"Response factors were found to be acceptable for consulting and examination rooms," he says. "The location of operating theatres on the ground floor and the lack of overnight accommodation made the vibration requirements less onerous."

However, one area on the first floor, which needed to accommodate two MRI scanners, did provide a few challenges to the design team.

This area was isolated from the surrounding floor by slab movement joints and rubber bearing under beams to minimise the risk of structure borne vibration reaching the scanners.

"We employed our Sydney-based specialist structural dynamics team to design a suitable solution using the IDEAS software programme," explains Mr Robson. "A minimum natural frequency of 20 Hz was targetted to ensure the supporting floor was not within the range of potential resonance with the MRI scanner."

To achieve this, plus extremely tight static deflection limits, all within the restrictions on the maximum iron content in proximity to the scanner magnet, a 250mm composite slab on a grillage of 800mm deep cellform beams at approximately 1,800mm centres was modelled.

"The cellform beams provided the necessary stiffness within the set steel weight limits and analysis results allowed us to optimise the structural design while achieving the required dynamic response," explains Mr Robson.

Severfield-Reeve designed all of the connections for the project and this part of the project also required some time-consuming design work on their part.

"A lot the connections around the scanner area had to be done by hand, because they were so unique," says Mr Burr.

Meanwhile, SKM says computer software design also helped the team optimise and rationalise beam sizes throughout the project. There was a need to avoid using any transfer structures as they would have disrupted the free-flow of internal services. Consequently, a slightly irregular column grid was designed into the plan.

"Lateral stability was provided by RHS K-bracing within the depth of the SFS wall framing, while sway stability was assessed and controlled with the aid of Fastrak software," adds Mr Robson.

The two hospital buildings, north and south, are separated by an enclosed arcade whose RHS framed glazed roof rises above the level of the adjacent plant rooms, which effectively give each building a fourth level.

A movement joint was required between the two blocks, but this had to be incorporated into a simple

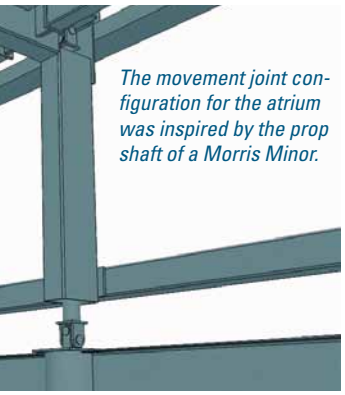
Hot Finished & Cold Formed Structural Hollow Sections

GRADE S355J2H

Hot

RAINHAM STEEL

The new Stobhill Hospital will be operational in 2009.



The movement joint configuration for the atrium was inspired by the prop shaft of a Morris Minor.

rectangular portal frame with one foot on each building.

Mr Robson says the solution to this challenge came from an unlikely vehicular design. "It was inspired by the prop shaft of a Morris Minor - my first car."

By fixing a similar shaft within and at the top of the RHS leg of one side of the frame, and allowing the lower universal joint to protrude out of the open bottom end, where it was fixed to the supporting plant room, the required movement was allowed for. All of this negated the need to increase the exposed frame member sizes to cope with the frictional drag imposed by sliding bearings.

Commenting on the job as a whole, Andy Law, Director of Reiach and Hall, says: "The new Stobhill Hospital, in a semi-rural location adjacent to Springburn Park in North Glasgow, will serve over 2,000 patients a day. The design has been carefully developed to provide a supportive framework throughout the patient journey."

Balfour Beatty is scheduled to be off-site by 23 March 2009. Once the new Stobhill Hospital is operational Phase Two of the project will begin and this includes the partial demolition of the existing hospital in order to provide a new car parking area.

Completing the mountain top challenge

One Hiab crane was brought to site in sections, assembled on the summit and then helped erect roof decking.

Building a new visitor centre on the summit of Mount Snowdon presented a number of unique challenges, not least how to get all the materials to site. Martin Cooper reports on the UK's highest construction site.

FACT FILE
Mount Snowdon Visitor Centre, north Wales.
Client: *Snowdonia National Park Authority*
Architect: *RH Architects*
Structural engineer: *Arup*
Main contractor: *Carillion*
Steelwork contractor: *EvadX*
Steel tonnage: *120t*

Occasional dense fog, intermittent low cloud and winds that can regularly reach speeds of 80mph are just some of the conditions that had to be overcome by the team building the new Mount Snowdon Visitor Centre.

And, aside from the unpredictable weather, the contractors were also faced with the logistical problem of how to get materials to a construction site 1,065m above sea level.

"Working on the highest point in England and Wales was an immense challenge," stresses Andrew Roberts, EvadX Project Manager. "Getting all of the materials, plant and personnel to the summit was certainly a unique challenge."

Conveniently Snowdon has a mountain railway which winds its way to the summit and this provided the contractors with a viable transport route to the top. All of the steelwork was bundled into 14m-long packages so it would fit onto the train's flat bed carriage.

"The project's construction team has been provided with its own train which has to operate around the regular tourist service and nearly everything went up by this route," explains Mr Roberts. "However, equipment such as excavators, that were too big for the train were driven to the top along a stony track, which took the best part of a day."

Once materials were on-site the construction team were very much at the mercy of the elements.

"The weather is extremely changeable, even in the middle of summer."

"It can be a bright sunny day at the bottom, but windy and raining at the summit," says Mr Roberts. "The weather is extremely changeable, even in the middle of summer."

The wind has also played a major role in the project, as the train service is halted when wind speeds exceed 40mph, and on the occasions this happened all work had to be cancelled for the day.

"We had some close calls, but luckily the train service wasn't halted while our workers were still on the summit," says Mr Roberts.

Work on the project effectively began with the demolition of an existing Snowdon visitor centre and this took place in 2006. Once the ground was cleared the concrete foundations were also installed to allow EvadX to begin its steel erection programme last April.

Below: As the structure was erected the site became progressively more confined.

> Enter Your Models NOW!

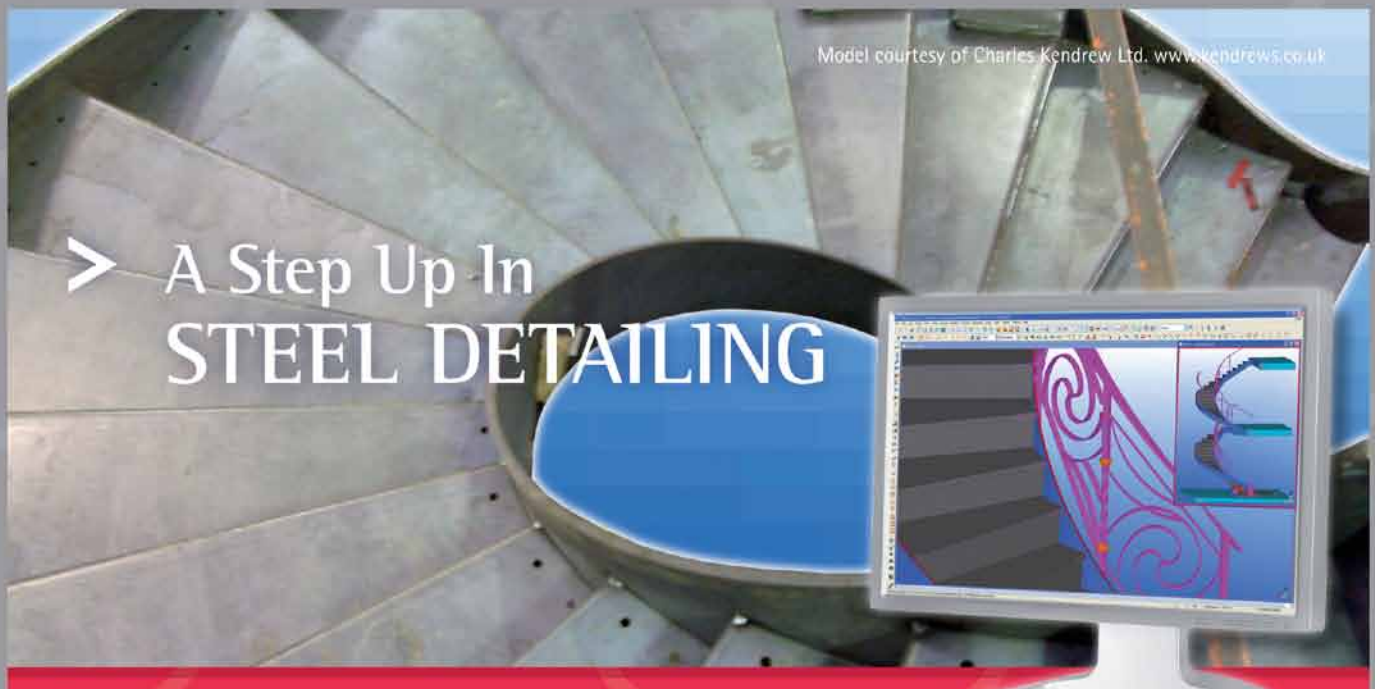
> Tekla UK Model Competition 2007 – OPEN NOW!

Welcome to the first Tekla UK Model Competition. Tekla Structures plays a great role in creating many of the complex structures seen and admired every day. Showcasing these models expresses appreciation toward our customers and enables Tekla to share such great success stories. Enter your own model now or view those already entered at: www.tekla.com/uk

Call NOW for further details!
Tel: 0113 307 1200 or email
emily.brown@tekla.com

TEKLA Structures

www.tekla.com/uk



> A Step Up In STEEL DETAILING

> From concept to reality, Tekla Structures 'Lite' Licence

- *STEEL DETAILING – 'LITE' PACKAGE*
- *INCLUDES TRAINING & MAINTENANCE*
- *UNDER £7,000!*

Call NOW for further details!
Tel: 0113 307 1200
or email sales.uk@tekla.com

TEKLA Structures

www.tekla.com/uk

Hi Span

COLD ROLLED PRODUCTS

Hi-Spec, Hi-Quality, Hi-Satisfaction...

Website: www.hi-span.com
Telephone: 01953 603081
Fax: 01953 607842
e-mail Technical: technical@hi-span.com
e-mail Sales: sales@hi-span.com

CPD CERTIFIED
Construction CPD Certification Service

TO ORDER YOUR FREE DESIGN DISK INCLUDING BS 6399-2 WIND CODE CALCULATOR VISIT www.hi-span.com

The ends of the building are curved and feature cranked columns.

"When we started erecting the steelwork it was like summer, but we've since had all weather conditions," adds Mr Roberts. "Taking that into consideration, we still erected the entire steel frame in just over two months."

The finished Visitor Centre will consist of a large cafe with washrooms and information area, medical facilities and an emergency overnight shelter. Attached to the centre there will be a 60m-long steel framed lean-to structure which will house a new platform for the railway, plant rooms and staff accommodation.

The slope of the structure is intended to fit into the mountain's summit without impairing the view.

In order to make sure the fabricated structure fitted together correctly EvadX did a complete trial erection of the building at Corus' Deeside facility at Shotton. "We marked up all of the individual members which then helped with the second erection on the summit and also ensured the steel was taken up the mountain in the correct order," explains Mr Roberts.

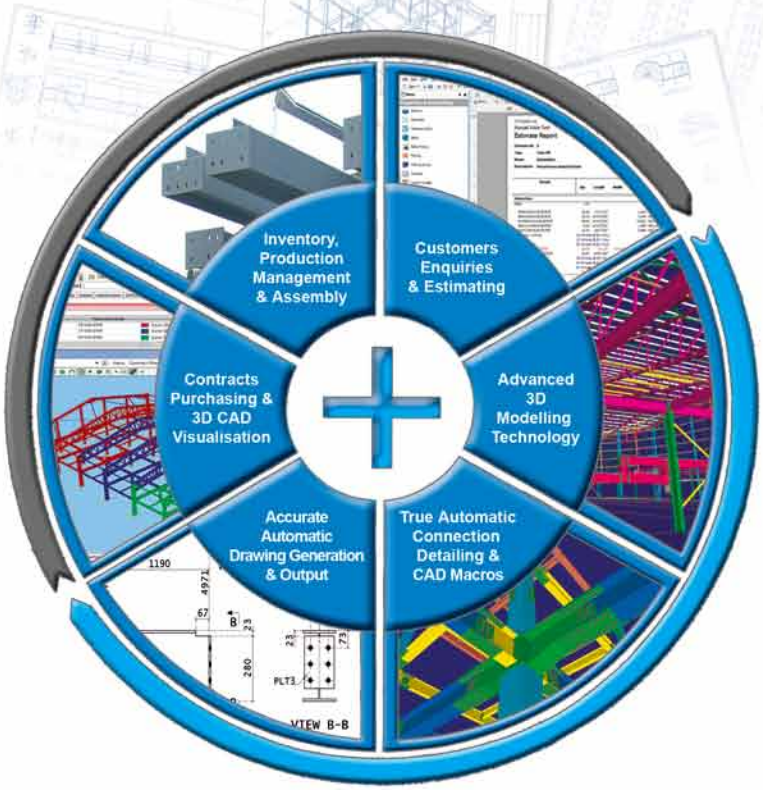
There is little room on the summit to store materials and as the building was erected available space decreased. The erection programme was divided into three main phases and all steel taken to the summit was usually erected that day to minimise disruption to other trades.

EvadX used two cherrypickers for the erection and one 8t capacity mini mobile crane. The cherrypickers were fortunately just small enough to squeeze onto the train's flat bed trailer, while the crane was specially sourced as the largest crane available which could be transported by rail to the summit.

According to the design team the main structure, which measures 30m-long x 13.5m wide, was a challenge to fabricate and design because of its unusual sloping shape. The slope of the structure is intended to fit into the mountain's summit environment without impairing the spectacular view.

The first column was erected on a sunny day in April.

StruM.I.S.NET



StruCad

A combination of StruCad, the ultimate 3D structural steel detailing package and StruM.I.S .NET, the revolutionary management information system delivers unparalleled industry leading benefits to steelwork fabricators of all sizes.

With over 20 years specialist knowledge of the international structural steel industry and using the very latest software technology, AceCad Software gives you the competitive advantage you need.

The complete steelwork solution

To find out how AceCad Software can assist your business, contact us to schedule a no obligation demonstration now

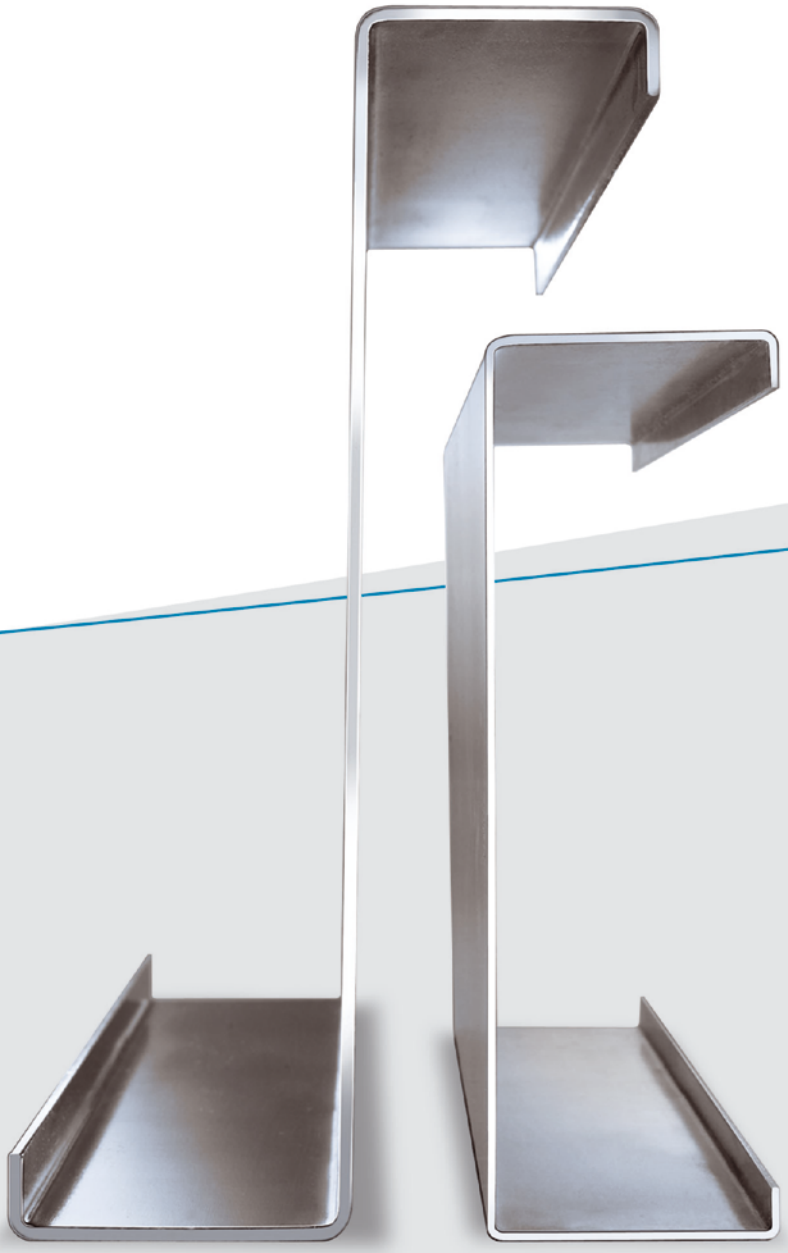
Tel: +44 (0)1332 545800
sales@acecad.co.uk
www.acecad.co.uk

AceCad SOFTWARE

METSEC

Imitations have Limitations

- **The ultimate purlin profile...**
  With clear vertical web and flat flanges our Zed purlin ensures simple connections and consistent secure fixings with maximum bearing area.
- **Comprehensive product range...**
  Metsec Zed purlins and 'C'-sections, with a full range of accessories, offers flexible and cost effective solutions backed by unrivalled service and technical support.
- **Market leading software...**
  MetSPEC 10 is technically the most advanced user friendly building shell design software available today.
- **Commitment to sustainability...**
  Metsec is the first cold rolled manufacturer to be awarded the gold standard for the prestigious Steel Construction Sustainability Charter.



"We have successfully used MetSPEC specification software for many years. It has always proven itself to be a powerful and efficient design tool and it was the natural choice to use when designing the 300,000 sq ft Plot 300 unit at Swan Valley Park."

Jonathan Quinton, Structural Engineer, Cox Turner Morse
Project: Plot 300 Swan Valley, Northampton

Metsec - The first choice for Purlin Systems

For more information how Metsec can help you on future projects call 0121 601 6000 or e-mail purlin@metsec.com

Metsec plc - Purlin Division
www.metsec.com

voestalpine
ONE STEP AHEAD.

The construction team experienced all weather conditions, sometimes all in a single day.

Four columns at the front and back all slope out at 13-degrees, while the curved ends of the structure feature column members which slope inwards and outwards. To achieve the sloping roof the back columns are 5.5m high, while those at the front are only 3m.

These columns are all stainless steel CHS sections and Mr Roberts says they are 'architectural features' and will be visible from inside the finished building. The columns will also be incorporated into large glazed areas which will allow tourists to see right through the building.

Geraint Bowen, Arup Project Manager, says in order to achieve the pitched roof and the curved ends of the structure some complex geometry had to be undertaken. "We also had to design the building using some heavy sections as wind loadings, incorporating speeds of up to 150mph, had to be accounted for."

Consequently the columns are predominantly 254 x 254 x 73 UC sections at 3m centres, while at the corners, where the columns change sloping directions, there are double 250 x 250 SHS sections.

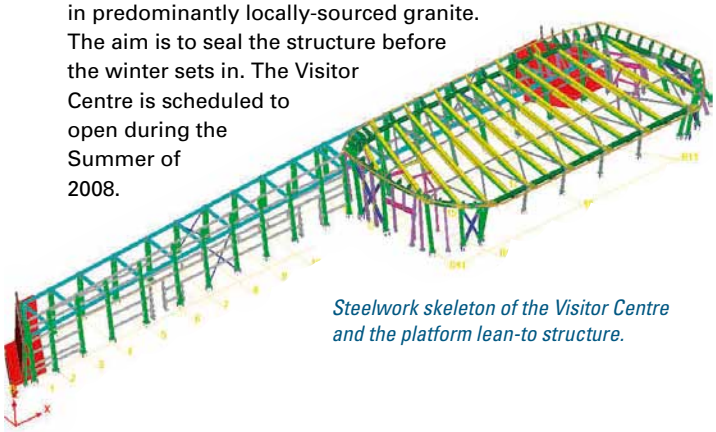
Mr Bowen also says the building will incorporate a granite clad roof which had to take snowdrift loading into account. The roof of the building is ultimately supported by a series of tapered plate girders each weighing approximately two tonnes.

In order to erect the complex shape, on what is a very confined site, EvadX initially constructed one square section. "We then proppped it up and using this as a support we then erected one curved end around this. Once this was up we were able to take the temporary props down and erect the rest of the structure," explains Mr Roberts.

All connections are spliced and bolted which helped make the erection easier. "Welding would have been a difficult procedure as the weather was very bad at times," says Mr Roberts.

Some additional welding of members was done at the Corus workshop during the trial erection. This included 154 brackets which are attached to the roof perimeter and hold granite roof sections in place. The brackets fit to a 300mm x 300mm box section which effectively holds the structure together at eaves level.

Now that steel erection has been completed, main contractor Carillion has begun cladding the structure in predominantly locally-sourced granite. The aim is to seal the structure before the winter sets in. The Visitor Centre is scheduled to open during the Summer of 2008.



Steelwork skeleton of the Visitor Centre and the platform lean-to structure.

The original

There has never been a better floor decking profile than Holorib. For over 30 years, it's set standards that many aspire to. The UK's most widely specified floor decking profile, it's consistently been a top performer on a wide range of projects.

- Speed, simplicity and economic advantages
- Particularly suited to intricate shapes and irregular layouts
- Always available ex stock (UK only)
- Supplied in S350 structural galvanised steel

Holorib also has all the support you'd expect from the UK's number one in steel decking.

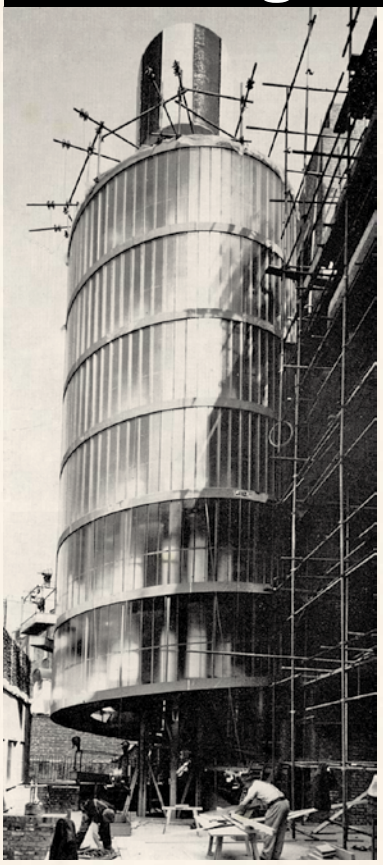
For more details on Holorib and all our products and services, visit rlsd.com

Richard Lees Steel Decking Ltd
Moor Farm Road West, The Airfield,
Ashbourne, Derbyshire DE6 1HD, UK.
Tel: +44 (0) 1335 300 999
Fax: +44 (0) 1335 300 888
Email: rlsd.decks@skanska.co.uk

www.rlsd.com

RICHARD LEES STEEL DECKING

Building with Steel



A tower full of baths

Six large Victorian houses at Lancaster Gate, London, are being converted into an international student's hostel. With space at a premium, the architects were driven outside to provide a service tower at the rear of the building, carrying all the hostel's bathrooms.

A circular structure was decided upon with a diameter of 21 ft. Access to the bathrooms is by a spiral ramp which winds up the building.

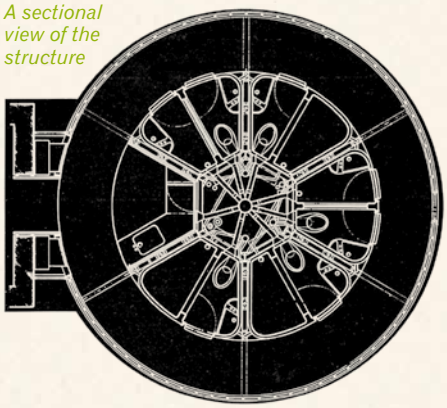
The tower structure consists of a steel framed core with beams radiating from it supporting a continuous spiral steel ramp which gives access to thirty bathroom 'pods' made from glass reinforced plastic.

The twelve pre-fabricated sections from which the core was erected were placed one on top of another by means of a beam slung from the existing buildings. A revolving lifting beam with winch, attached to the top of the core positioned the remaining steel members, bathroom 'pods' and ramps.

Radial beams were placed in position and supported from the core by diagonal hangers. Each radial beam was at 60° to and 1ft 2½ in higher than the last. 'Pod' support beams were fitted between the radial beams and the structure was ready to receive the first bathroom 'pods'. This erection work was completed and all bolts tested to the satisfaction of the District Surveyor within three weeks and exactly on schedule. All steelwork – main structure and ramp units – was shot blasted and zinc sprayed to BS 2569 Part 1: 1964 and all nuts and bolts were cadmium plated of an HSFG type using load indicating washers to indicate correct shank tension.

The architects for this most interesting structure are Farrell Grimshaw Partnership.

A sectional view of the structure



Get your FREE copy of our FBEAM® software NOW!

Call: 0845 094 2530 Email: design@fabsec.co.uk Visit: www.fabsec.co.uk

Engineers in steel decking systems.

Structural Metal Decks is the UK's only Composite Floor Decking Company with its own in house production facility, providing a unique benefit to its clients with regards to flexibility of production and delivery.

With over 20 years experience we pride ourselves on the professional and personal service given to all of our clients. SMD Ltd offers the full range of services, including Design and Detailing, Manufacture, Safety Netting, Installation and Thru Deck Stud Welding.

For more information on our full range of decking profiles please visit our website www.smdltd.co.uk

SMD
structural metal decks ltd
Engineers in Steel Decking Systems

The Outlook Ling Road Tower Park Poole Dorset BH12 4PY
Tel: +44 (0) 1202 718898 Fax: +44 (0) 1202 714980

Bodycote

Bodycote Thermal Processing

Thermal Diffusion Protective Coatings

Sherardizing and Distek are two types of thermal diffusion coatings, producing Zinc Iron alloy layers. The coating offers an economic and more functional alternative to hot spun galvanising.

- **Long term corrosion protection**
- **Coating thickness range up to 100 microns**
- **Uniform protection follows the contours of the component**
- **Salt Spray resistance over 500 hours**
- **Hydrogen embrittlement free**
- **Damage resistant coating**

For further information and copy of our text book on the process please contact:

Bodycote Metallurgical Coatings Ltd. Shakespeare Street, Wolverhampton WV1 3LR
Tel: +44 (0) 1902 452915 Fax: +44 (0) 1902 352917 Email: sales.bmc@bodycote.com
www.bodycote.com

Testing
Thermal Processing

New and Revised Codes & Standards

(from BSI Updates July & August 2007)

BRITISH STANDARDS

BS 8411:2007
Code of practice for safety nets on construction sites and other works
No current standard is superseded

BS EN PUBLICATIONS

The following are British Standard implementations of the English language versions of European Standards (ENs). BSI has an obligation to publish all ENs and to withdraw any conflicting British Standards or parts of British Standard. This has led to a series of standards, BS ENs using the EN number.

Note: The date referenced in the identifier is the date of the European standard.

BS EN ISO 16276:-
Corrosion protection of steel structures by protective paint systems. Assessment of, and acceptance criteria for, the adhesion/cohesion (fracture strength) of a coating
BS EN ISO 16276-1:2007
Pull-off testing
No current standard is superseded
BS EN ISO 16276-2:2007
Cross-cut testing and X-cut testing
No current standard is superseded

SPECIALIST BOOKS FROM BSI

BIP 2133:2007
The Building Regulations. Explained and illustrated. 13th edition
Supersedes BIP 2023:2003

AMENDMENTS TO BRITISH STANDARDS

BS EN 1991:-
National Annex to Eurocode 1. Actions on structures
BS EN 1991-1-3:2003
General requirements
General actions. Snow loads
CORRIGENDUM 1 AMD 17170

PD 6688-1-2:2007
Background paper to the UK National Annex to BS EN 1991-1-2
CORRIGENDUM 1 AMD 17225

BRITISH STANDARDS PROPOSED FOR CONFIRMATION

BS 4076:1989
Specification for steel chimneys

BS 6399:-
Loading for buildings
BS 6399-1:1996
Code of practice for dead and imposed loads
BS 6399-2:1997
Code of practice for wind loads
BS 6399-3:1988
Code of practice for imposed roof loads

BS 7644:-
Direct tension indicators
BS 7644-1:1993
Specification for compressible washers

BRITISH STANDARDS PROPOSED FOR DECLARATION OF OBSOLESCENCE

BS 5493:1977
Code of practice for protective coating of iron and steel structures against corrosion
This standard has been proposed for obsolescence for a further period

BRITISH STANDARDS UNDER REVIEW

BS EN 10326:2004
Continuously hot-dip coated strip and sheet of structural steels. Technical delivery conditions

BS EN 10327:2004
Continuously hot-dip coated strip and sheet of low carbon steels for cold forming. Technical delivery conditions

BRITISH STANDARDS REVIEWED AND CONFIRMED

BS EN 10067:1997
Hot rolled bulb flats. Dimensions and tolerances on shape, dimensions and mass

NEW WORK STARTED

PD 6688-1-7
Background Paper to the UK National Annex to BS EN 1991-1-7

BS EN ISO 14171
Welding consumables. Solid wires, solid wire-flux and tubular cored electrode-flux combinations for submerged are welding of non alloy and fine grain steels. Classification
Will supersede BS EN 756:2004

BS EN ISO 14174
Welding consumables. Fluxes for submerged arc welding. Classification
Will supersede BS EN 760:1996

BS EN ISO 14341
Welding consumables. Wire electrodes and deposits for gas shielded metal arc welding of non alloy and fine grain steels. Classification
Will supersede BS EN 440:1995

BS EN ISO 14343 (Revision)
Welding consumables. Wire electrodes, strip electrodes, wires and rods for fusion welding of stainless and heat resisting steels. Classification
Will supersede BS EN ISO 14343:2007

BS EN 14399:-
High-strength structural bolting assemblies for preloading
BS EN 14399-10
System HRC. Bolt and nut assemblies with calibrated preload

BS EN ISO 15792:-
Welding consumables. Test methods
BS EN ISO 15792-1
Test piece for all-weld metal test specimens in steel, nickel and nickel alloys
Will supersede BS EN 1597-1:1997
BS EN ISO 15792-2
Preparation of test piece for single-run and two-run technique test specimens in steel
Will supersede BS EN 1597-2:1997
BS EN ISO 15792-3
Testing of positional capability of welding consumables in fillet weld
Will supersede BS EN 1597-3:1997

BS EN ISO 17632
Welding consumables. Tubular cored electrodes for metal arc welding with and without a gas shield of non alloy and fine grain steels. Classification
Will supersede BS EN 758:1997

DRAFT BRITISH STANDARDS FOR PUBLIC COMMENT

07/30128103 DC
BS EN 1993-1-5 National Annex to Eurocode 3. Design of steel structures. Part 1-5. Plated structural elements

07/30128138 DC
BS EN 1993-1-9 National Annex to Eurocode 3. Design of steel structures. Part 1-9. Fatigue

07/30128140 DC
BS EN 1993-1-10 National Annex to Eurocode 3. Design of steel structures. Part 1-10. Material toughness and through thickness properties

07/30128148 DC
BS EN 1993-2 National Annex to Eurocode 3. Design of steel structures. Part 2. Steel bridges

07/30128172 DC
BS EN 1994-1-1 National Annex to Eurocode 4. Design of composite steel and concrete structures. Part 1-1. General rules and rules for buildings

07/30128330 DC
BS EN 1991-1-7 National Annex to Eurocode 1. Actions on structures. Part 1-7. Accidental actions

SCI

Buy any BSI Standard from the SCI at 20% discount

Contact Publications Sales:
T: 01344 636505 F: 01344 636570
Email: publications@steel-sci.com

Building Envelopes

P346 Best practice for the specification and installation of metal cladding and secondary steelwork

This new publication presents guidance to designers and contractors on the specification and installation of profiled metal cladding systems and the supporting purlins and side rails. It will promote a greater understanding of the issues faced by the construction team and lead to better co-operation on site and in the design office. Many of these issues have been brought to the attention of the SCI by industry representatives, whose advice and knowledge is the foundation for the guidance presented.

Price: £50.00

Composite Construction

P351 Precast concrete floors in steel framed buildings

This publication provides best practice information on detailing, construction methods and how to satisfy building regulations for the use of precast floor units in hot rolled steel framed buildings. It covers generic information on:

- designing to avoid disproportionate collapse;
- floor diaphragm action;
- construction procedures;
- provision of temporary support;
- detailing recommendations for compliance with building regulations.

Price: £60.00

Structural Steelwork

P354 Design of floors for vibration: A new approach

This publication provides guidance for vibration design of all steel-framed floor and building types. Vibration measurements taken over the last ten years on steel-framed floors have been used to develop new design methodology in this publication.
It extends the previous guidance to new forms of construction (such as Slimdek®) and special floors (such as dance floors, hospital floors, light steel floors etc.). It heralds the biggest change in new methods of assessment of floor vibration in steel framed buildings.

Price: £80.00

Buy online at: **www.shop.steelbiz.org**
Or contact SCI Publications Sales on: **+44 (0) 1344 636505**

AD 314
Columns Splices and Internal Moments

Today, with a higher emphasis of site safety than ever, the provision of temporary barriers around the perimeter of buildings and edge of floor openings is common practice. For columns in these locations their splices are often located well above the level of the floor steelwork because the extended column provides a convenient means of connecting the barrier. It may be convenient to carry the lateral loading on the barrier horizontally back to the columns rather than to the edge beam below. This is because loading carried to the beam may induce torques which would need to be included in the design of the beam during the temporary condition. Traditionally, splices levels in columns were located between 500 mm and 750 mm above the top of steel level for the floor beams but are now often situated at 1.2 to 1.5 metres above the top of the floor steelwork and on occasions at mid height in the column. The Advisory Desk has received many questions concerning the design requirements regarding internal moments and stiffness for these column splices. This AD note only provides background advice explaining the need to allow for such moments because the central technical requirements have already been covered in Advisory Desk Notes AD 243 and AD 244. These relate to Annexes B3, C3 and I5 in BS 5950-1: 2000.

Where possible splices should be situated as close as practicable to restrained points (points of inflection) in the member, which is the practice recommended in clauses 6.1.8.2 and 6.1.8.4. They will not then have to be designed for the additional moments that are described in the above annexes; however, they have of course to be designed for their applied moments and axial load. The column splices described in *SCI-P-212 Joints in Steel Construction Simple Connections* are examples of this type of splice and are usually situated about 500 mm above the level of the floor steelwork.

If the splice has to be located away from a restrained point in the member for whatever reason it will have to be designed for its applied moments and axial load as before, as well as an appropriate combination of internal moments that are described in the above annexes.

When members are designed for flexural or lateral-torsional buckling (LTB), BS 5950-1: 2000 provides procedures for calculating reduced strengths p_c and p_b. These reduced strengths are used to determine the resistance of the member in relatively simple design procedures. However, at the critical cross section at collapse the maximum stress in the member is equal to the material design strength of the member, p_y, not the reduced design strength. This is easiest shown for a member subject to axial load (flexural buckling) alone although a similar case could be presented for lateral-torsional buckling.

Figure 1 shows a pin ended axially loaded strut on the verge of collapse and its associated strut buckling curve from BS 5950-1. For its effective length, λ, the compressive strength p_c can be determined (Table 24) which will allow the maximum axial load, F, which the strut can carry to be calculated. The important thing to note however is that with the strut model used in BS 5950-1 the column is deemed to fail when the stress on the compression face

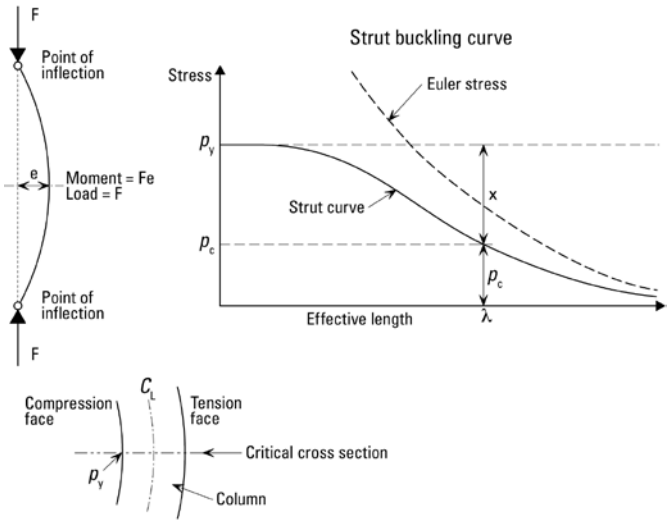


Figure 1 - BS 5950-1 - Strut Buckling Curve.

of the column at the critical cross section reaches its design material strength p_y. The difference between the material strength p_y and compressive strength p_c, marked x on the strut buckling curve for the effective length, λ, is that which arises from the additional moment in the strut from bowing. This effect is called strut action and produces an additional internal or secondary moment. This effect occurs about both axis. A splice must carry this internal moment as well as the axial load F.

Likewise a similar case can be presented which shows that an additional internal (secondary) minor axis moment also arises in the case of lateral-torsional buckling.

Strut action is covered in Annex C.3 and Annex B.3 deals with the additional internal moment that arises due to LTB. Both annexes also provide equations for calculating the value of the moments along the length of the member between points of inflection which is useful when the splice is situated nether close to a point of restraint nor at the critical cross section in the member. Annex I.5 deals with the case when both buckling phenomena occur simultaneously which includes more additional internal moments because the two phenomena augment each other. Splices away from points of restraint have to be designed for these internal or secondary moments as well as their applied moments and axial load.

Splices should also be designed for the tying forces that occur when structural integrity requirements apply. Non-preloaded bolts are often used in column splices unless tension develops in the splice and the resulting slip is unacceptable. If this situation arises preloaded bolts may be used in the splice to avoid slip. The chapter on column splices in *SCI-P-212 Joints in Steel Construction Simple Connections* offers guidance in this regard.

The internal moments described in this Advisory Desk note also apply to welded splices when located away from points of restraint although their consideration is academic when full penetration butt welds are used.

BS 5950-1: 2000 says very little about stiffness at splice locations although Clauses 6.1.8.2 and 6.1.8.4 mention it in parts. Another Advisory Desk note will follow which will provide advice on this issue.

Contact: Thomas Cosgrove
Tel: 01344 636525
Email: t.cosgrove@steel-sci.com

RÖSLER®
finding a better way ...

Rösler is a leading manufacturer and supplier of conservation equipment that includes automatic shot blasting, painting and drying systems.

Offering modern and innovative solutions Rösler has supplied many major companies throughout the world.

- **Shot Blast**
- **Conservation**
- **Painting**
- **Surface Preparation**
- **Service**
- **Consultation**

After sales service, spare parts and maintenance programmes are also provided through our various distribution points.

Specialist in solvent to water based conversions.

For more information please contact Paul Rawlinson or Haydn Kitchen.

Rösler UK

Unity Grove, School Lane
Knowsley Business Park
Prescot, Merseyside, L34 9GT

Tel: +44 (0) 151 482 0444
Fax: +44 (0) 151 482 4400
Email: rosler@rosleruk.com
Website: www.rosleruk.com

The British Constructional Steelwork Association Ltd

You can find email and website addresses for all these companies at www.steelconstruction.org

BCSA is the national organisation for the steel construction industry. Details of BCSA membership and services can be obtained from Gillian Mitchell MBE, Deputy Directory General, BCSA, 4 Whitehall Court, London SW1A 2ES
Tel: 020 7839 8566 Email: gillian.mitchell@steelconstruction.org

KEY

Categories
- **A** All forms of building steelwork
- **B*** Bridgework
- **C** Heavy industrial plant structures
- **D** High rise buildings
- **E** Large span portals
- **F** Medium/small span portals and medium rise buildings
- **H** Large span trusswork
- **J** Major tubular steelwork
- **K** Towers
- **L** Architectural metalwork
- **M** Frames for machinery, supports for conveyors, ladders and catwalks
- **N** Grandstands and stadia
- **S** Small fabrications

Quality Assurance Certification
- **Q1** Steel Construction Certification Scheme Ltd
- **Q2** BSI
- **Q3** Lloyd's
- **Q4** Other

Classification Contract Value
- **10** Up to £40,000
- **9** Up to £100,000
- **8** Up to £200,000
- **7** Up to £400,000
- **6** Up to £800,000
- **5** Up to £1,400,000
- **4** Up to £2,000,000
- **3** Up to £3,000,000
- **2** Up to £4,000,000
- **1** Up to £6,000,000
- **0** Above £6,000,000

Notes
1. Applicants may be registered in one or more categories to undertake the fabrication and the responsibility for any design and erection of the above.
2. Where an asterisk (*) appears against any company's classification number, this indicates that the assets required for this classification are those of the parent company.
- * For details of bridgework subcategories contact Gillian Mitchell at the BCSA.

ACL STUCTURES LTD (E F H M 4)
Holland Way Ind. Est., Blandford, Dorset DT11 7TA
Tel 01258 456051 Fax 01258 450566

AMSE LTD
Clara Road, Moatee, Co Westmeath, Republic of Ireland
Tel 00 353 90 648 1184 Fax 00 353 90 648 1735

ASA STEEL STRUCTURES LTD
Brick Kiln Lane, Parkhouse Ind. Est. West,
Newcastle-under-Lyme, Staffs ST5 7EF
Tel 01782 566366 Fax 01782 564785

ASME ENGINEERING LTD
Asme House, 788 Kenton Lane, Harrow, Middlesex HA3 6AG
Tel 0208 954 0028 Fax 0208 954 0036

AWF STEEL LTD
21 Lenziemill Rd, Lenziemill, Cumbernauld G67 2RL
Tel 01236 457960 Fax 01236 452250

ADEY STEEL LTD
Falcon Industrial Park, Meadow Lane,
Loughborough, Leics LE11 1HL
Tel 01509 556677 Fax 01509 828639

ADSTONE CONSTRUCTION LTD
Adstone House, Wassage Way,
Hampton Lovett Industrial Estate, Droitwich WR9 9NX
Tel 01905 794561 Fax 01905 794040

ADVANCED FABRICATIONS POYLE LTD (F J H J K L M 7 Q4)
772-775 Buckingham Avenue, Slough, Berkshire SL1 4NL
Tel 01753 531116 Fax 01753 531120

ALLERTON ENGINEERING LTD (B 5* Q3)
Allerton House, Thurston Road,
Northallerton, N. Yorkshire DL6 2NA
Tel 01609 774471 Fax 01609 780364

ALLOTT BROS & LEIGH
Fullerton Rd, The Ickles, Rotherham S60 1DJ
Tel 01709 538000 Fax 01709 538004

ALLSLADE PLC (E F H L 2)
Dundas Lane, Portsmouth, Hants PO3 5SD
Tel 023 9266 7531 Fax 023 9267 9818

THE ANGLE RING CO LTD
Bloomfield Road, Tipton DY4 9EH
Tel 0121-557 7241 Fax 0121-522 4555

APEX STEEL STRUCTURES LTD
Kings Close, Charfleets Industrial Estate,
Canvey Island, Essex SS8 0QZ
Tel 01268 660 828 Fax 01268 660 829

ARROMAX STRUCTURES LTD (Q4)
Langwith Junction, Mansfield, Notts NG20 9RN
Tel 01623 747466 Fax 01623 748197

ATLAS WARD STRUCTURES LTD (A 0* Q1)
Sherburn, Malton, N. Yorkshire YO17 8PZ
Tel 01944 710421 Fax 01944 710512

ATLASCO CONSTRUCTIONAL ENGINEERS LTD
Rowhurst Industrial Estate, Apedale, Chesterton,
Newcastle-U-Lyme ST5 6BD
Tel 01782 564711 Fax 01782 564591

B D STRUCTURES LTD (D E F H 4*)
Westhoughton Ind Est, James St, Westhoughton, Lancs, BL5 3QR
Tel 01942 817770 Fax 01942 810438

BHC LTD
Edinburgh Road, Carnwath, Lanarkshire ML11 8LG
Tel 01555 840006 Fax 01555 840036

BSB STRUCTURAL LTD
Whitecross Industry Park, Whitecross,
Nr Linlithgow, West Lothian EH49 6LH
Tel 01506 840937 Fax 01506 840932

A. C. BACON ENGINEERING LTD (E F H 6)
Norwich Rd, Hingham, Norwich NR9 4LS
Tel 01953 850611 Fax 01953 851445

BALLYKINE STRUCTURAL ENGINEERS LTD (E F H J N 4 Q2)
51 Lisburn Rd, Ballynahinch, Co Down BT24 8TT
Tel 028 9756 2560 Fax 028 9756 2751

BARNSHAW SECTION BENDERS LTD (Q2)
Structural Division, Anchor Lane, Coseley,
Bilston, West Midlands WV14 9NE
Tel 01902 880848 Fax 01902 880125

BARRETT STEEL BUILDINGS LTD (E F H 1 Q1)
Barrett Court, Cutler Heights Lane, Dudley Hill, Bradford BD4 9HZ
Tel 01274 266800 Fax 01274 266860

BARRETTS OF ASPLEY LTD
North Common Farm, Woburn Road,
Lidlington, Bedfordshire MK43 0NN
Tel 01525 280136 Fax 01525 280137

BILLINGTON STRUCTURES LTD (A 0 Q1)
Barnsley Road, Wombwell S73 8DS
Tel 01226 340666 Fax 01226 755947

BILLINGTON STRUCTURES LTD (A 0 Q1)
456 Badminton Rd, Yate, Bristol BS37 5HY
Tel 01454 318181 Fax 01454 318231

BONE STEEL LTD
P.O. Box 9300, Wishaw, Lanarkshire ML2 0YA
Tel 01698 375000 Fax 01698 372727

F J BOOTH & PARTNERS LTD
Dockside Road, Middlesbrough, Cleveland TS3 8AT
Tel 01642 241581 Fax 01642 223398

BORDER STEELWORK STRUCTURES LTD (C E F H J N 4)
Winchester House, 58 Warwick Rd, Carlisle CA1 1DR
Tel 01228 548744 Fax 01228 511073

BOURNE STEEL LTD (A 0 Q2)
St Clements House, St Clements Rd, Poole, Dorset BH12 4GP
Tel 01202 746666 Fax 01202 732002

W.S BRITLAND & CO. LTD (Q2)
Tilmanstone Works, Pike Road, Eythorne, Dover CT15 4NB
Tel 01304 831583 Fax 01304 831983

BRITON FABRICATORS LTD (B 6 Q4)
Watnall Road, Hucknall, Notts NG15 6EP
Tel 0115 963 2901 Fax 0115 968 0335

BROWNE STRUCTURES LTD
Queens Drive, Newhall, Swadlincote, Derbyshire DE11 0EG
Tel 01283 212720 Fax 01283 215033

BUTTERLEY LTD (A B 3* Q4)
Ripley, Derby DE5 3BQ.
Tel 01773 573573 Fax 01773 749898

CAIRNHILL STRUCTURES LTD (C F H J L M 5* Q4)
Sun Works, Waverley Street, Coatbridge,Lanarkshire ML5 2BE
Tel 01236 449393 Fax 01236 428328

CAUNTON ENGINEERING LTD (C E F H J M N 1 Q1)
Moorgreen Ind. Park, Moorgreen, Nottingham NG16 3QU
Tel 01773 531111 Fax 01773 532020

CHIEFTAIN CONTRACTS LTD
Antonine Works, Broomhill Road, Bonnybridge FK4 2AL
Tel 01324 812911 Fax 01324 814927

CLEVELAND BRIDGE UK LTD (A B 0* Q3)
Cleveland House, Yarm Rd, Darlington, Co Durham DL1 4DE
Tel 01325 381188 Fax 01325 382320

COMPASS ENGINEERING LTD (C E F K 4)
Whaley Road, Barugh, Barnsley S75 1HT
Tel 01226 298388 Fax 01226 283215

CONDER STRUCTURES LTD (D E F H 1 Q2)
Wellington Rd, Burton-on-Trent, Staffs DE14 2AA
Tel 01283 545377 Fax 01283 530483

LEONARD COOPER LTD (C F H K M 6 Q1)
Balm Road, Hunslet, Leeds LS10 2JR
Tel 0113 270 5441 Fax 0113 276 0659

CORDELL GROUP LTD (Q4)
Sotherby Road, Skippers Lane Industrial Estate,
South Bank, Middlesborough TS6 6LP
Tel 01642 452406 Fax 01642 464118

COVENTRY CONSTRUCTION LTD (Q1)
Torrington Avenue, Coventry CV4 9AP
Tel 024 7646 4484 Fax 024 7669 4020

CRONIN BUCKLEY (Q1)
Killumney, Ovens, Co Cork, Republic of Ireland
Tel: 00 353 214 870 017 Fax: 00 353 214 872 890

CROWN STRUCTURAL ENGINEERING LTD
Burma Rd, Blidworth, Mansfield, Notts NG21 0RT
Tel 01623 490555 Fax 01623 490666

CUSTOM METAL FABRICATIONS LTD
Central Way, Feltham TW14 0XJ
Tel 020 8844 0940 Fax 020 8751 5793

DGT STEEL & CLADDING LTD
Atlas Works, Norwich Road, Lenwade,Norwich NR9 5SW
Tel 01603 30820 Fax 01603 308201

D H STRUCTURES LTD (Q2)
Tollgate Drive, Tollgate Industrial Estate,
Beaconside, Stafford ST16 3HS
Tel 01785 246269 Fax 01785 222077

FRANK H DALE LTD (D E F 1 Q4)
Mill Street, Leominster, Herefordshire HR6 8EF
Tel 01568 612212 Fax 01568 619401

DISCAIN PROJECT SERVICES LTD
Hartburn Close, Crow Lane Industrial Estate,
Northampton NN3 9UE
Tel 01604 787276 Fax 01604 407290

DUGGAN STEEL
The Square, Millstreet, Co Cork, Republic of Ireland
Tel 00 353 29 70072 Fax 00 353 29 70073

ELLAND STEEL STRUCTURES LTD (C D E F K 1 Q1)
Philmar House, Gibbet St, Halifax HX2 0AR
Tel 01422 380262 Fax 01422 380263

EMMETT FABRICATIONS LTD (E F H 6)
Hirst Wood Works, Hirst Wood Road, Shipley BD18 4BU
Tel 01274 597484 Fax 01274 588671

EVADX LTD (E F H J L M N 5 Q4)
Unit 9, Tir Llywd Enterprise Park, St. Asaph Avenue,
Kinmel Bay, Rhyl LL18 5JZ
Tel 01745 336413 Fax 01745 339639

FAIRFIELD-MABEY LTD (A B 0 Q4)
Chepstow, Monmouthshire NP16 5YL
Tel 01291 623801 Fax 01291 625453

FISHER ENGINEERING LTD (A 1 Q1)
Ballinamallard, Enniskillen, Co Fermanagh BT94 2FY
Tel 028 6638 8521 Fax 028 6638 8706

FOX BROS ENGINEERING LTD
Ballycanew, Gorey, Co Wexford, Republic of Ireland
Tel 00 353 53 942 1677 Fax 00 353 53 942 1733

GME STRUCTURES LTD
Unit E11-E14, Wem Industrial Estate,
Soulton Road, Wem, Shropshire SY4 5SD
Tel 01939 233023 Fax 01939 234059

GIBBS ENGINEERING LTD (Q4)
17A Axe Road, Colley Lane Industrial Estate,
Bridgwater, Somerset TA6 5LP
Tel 01278 455253 Fax 01278 453174

GLENTWORTH FABRICATIONS LTD (F H J K L M N 6)
Molly Millar's Bridge, Molly Millar's Lane, Wokingham RG41 2WY
Tel 0118 977 2088 Fax 0118 977 2907

GOGGIN BUCKLEY STRUCTURAL STEEL
Dromcollogher, Co Limerick, Republic of Ireland
Tel 00 353 63 83149 Fax 00 353 63 83170

GORGE FABRICATIONS LTD
Gorge House, Great Bridge Industrial Estate,
Toll End Road, Tipton, West Midlands DY4 0HR
Tel 0121 522 5770 Fax 0121 557 0415

GRAHAM WOOD STRUCTURAL LTD (A 1)
Lancing Business Park, Chartwell Road, Lancing BN15 8TY
Tel 01903 755991 Fax 01903 755384

GRAYS ENGINEERING (CONTRACTS) LTD
Globe Industrial Estate, Rectory Road, Grays, Essex RM17 6ST
Tel 01375 372411 Fax 01375 375079

D A GREEN & SONS LTD (E F H J N 3 Q1)
Whaplode, Spalding, Lincs PE12 6TL
Tel 01406 370585 Fax 01406 370766

GREGG & PATTERSON (ENGINEERS) LTD (Q4)
Riverside Works, Ballyskeagh Road, Lambeg, Co Antrim BT27 5TD
Tel 028 9061 8131 Fax 028 9062 2813

HAD-FAB LTD (Q4)
Macmerry Ind. Est., Tranent, East Lothian EH33 1RD
Tel 01875 611711 Fax 01875 612711

WILLIAM HALEY ENGINEERING LTD (Q1)
Bellcombe Works, East Brent,
nr. Highbridge, Somerset TA9 4DB
Tel 01278 760591 Fax 01278 760587

HAMBLETON STEEL LTD
Gatherley Road, Brompton-on-Swale,
Richmond, North Yorkshire DL10 7JH
Tel 01748 810598 Fax 01748 810601

WILLIAM HARE LTD (A 0 Q1)
Brandlesholme House, Brandlesholme Rd, Bury, BL8 1JJ
Tel 0161 609 0000 Fax 0161 609 0409

M. HASSON & SONS LTD (Q1)
17 Glebe Rd, Rasharkin, Co. Antrim BT44 8SS
Tel 028 2957 1281 Fax 028 2957 1575

HENRY SMITH (CONSTRUCTIONAL ENGINEERS) LTD (C D E F H J 4)
Wharton Steelworks, Winsford CW7 3BW
Tel 01606 592121 Fax 01606 559134

HESCOTT ENGINEERING CO LTD
Lochlands Viaduct, Larbert, Stirlingshire FK5 3NN
Tel 01324 556610 Fax 01324 552970

HILLCREST STRUCTURAL LTD
Hillcrest House, Toynbee Road, Eastleigh, Hants SO50 9DT
Tel 023 8064 1373 Fax 023 8061 3586

HILLS OF SHOEBURYNESS LTD (L M S 6)
17-19 Towerfield Road, Shoeburyness, Essex SS3 9QL
Tel 01702 296321 Fax 01702 297072

JAMES BROS (HAMWORTHY) LTD (E F H J N 4 Q3)
19 Blandford Rd, Hamworthy, Poole BH15 4AW
Tel 01202 673815 Fax 01202 684033

JOY STEEL STRUCTURES (LONDON) LTD,
London Industrial Park, 1 Whitings Way, East Ham, London E6 6LR
Tel 020 7474 0550 Fax 020 7473 0158

JAMES KILLELEA & CO LTD (C D E F H N 1*)
Stoneholme Road, Crawshawbooth, Rossendale, Lancs BB4 8BA
Tel 01706 229411 Fax 01706 228388

T. A. KIRKPATRICK & CO LTD
Beltenmont, Kirkpatrick-Fleming, Lockerbie DG11 3NQ
Tel 01461 800275 Fax 01461 800340

LEACH STRUCTURAL STEELWORK LTD
Brockholes Way, Claughton-on-Brock, nr Preston PR3 0PZ
Tel 01995 640133 Fax 01995 640719

LEONARD ENGINEERING (BALLYBAY) LTD
St Patrick's Street, Ballybay, Co Monaghan, Republic of Ireland
Tel 00 353 42 974 1099 Fax 00 353 42 974 1001

LOWE ENGINEERING (MIDLAND) LTD
Bramshall Industrial Estate, Stone Road,
Bramshall, Staffs ST14 8SH
Tel 01889 563244 Fax 01889 563554

M D FABRICATIONS LTD
Queens Hill, Newport, South Wales NP20 5HJ
Tel 01633 266691 Fax 01633 844612

M&S ENGINEERING LTD
East Road, Lowthertown, Eastriggs DG12 6TD
Tel 01461 40111 Fax 01461 40542

TERENCE MCCORMACK LTD (Q1)
17 Camlough Rd, Newry BT35 6JS
Tel 028 3026 2261 Fax 028 3026 8177

MALDON MARINE LTD
Unit 16, West Station Ind. Est.,
Spital Road, Maldon, Essex CM9 6TW
Tel 01621 859000 Fax 01621 858935

HARRY MARSH (ENGINEERS) LTD
The Parade, Hendon, Sunderland SR2 8LT
Tel 0191 510 9797 Fax 0191 510 9798

MIDLAND STEEL STRUCTURES LTD
Golden Acres Lane, Binley, Coventry CV3 2RT
Tel 024 7644 5584 Fax 024 7645 9995

MIFFLIN CONSTRUCTION LTD (D E F H M 4)
Worcester Rd, Leominster, Herefordshire HR6 8AY
Tel 01568 613311 Fax 01568 614935

MILLTOWN ENGINEERING LTD
Garryhill, Bagenalstown, Co Carlow, Republic of Ireland
Tel 00 353 59 972 7119 Fax 00 353 59 972 7202

NEWBRIDGE ENGINEERING LTD
Tees Bay Business Park, Brenda Rd, Hartlepool TS25 2BU
Tel 01429 866722 Fax 01429 869811

NEWTON FABRICATIONS LTD
9 York Street, Ayr, Ayrshire KA8 8AN
Tel 01292 269135 Fax 01292 610258

NORRIS BROS LTD
Englishtown, Stradbally, Co Waterford, Republic of Ireland
Tel 00 353 51 291 222 Fax 00 353 51 292 322

NUSTEEL STRUCTURES LTD (B H J K L 4* Q1)
Lympne, Hythe, Kent CT21 4LR
Tel 01303 268112 Fax 01303 266098

ON SITE SERVICES (GRAVESEND) LTD (Q4)
Wharf Road, Denton, Gravesend, Kent DA12 2RU
Tel 01474 321552 Fax 01474 357778

OVERDALE CONSTRUCTION SERVICES LTD
Millers Avenue, Brynmenyn Industrial Estate, Bridgend CF32 9TD
Tel 01656 729229 Fax 01656 722101

PMS FABRICATIONS LTD
Thomas Lane, Burgh Road Industrial Estate,
Carlisle, Cumbria CA2 7NA
Tel 01228 599090 Fax 01228 599091

HARRY PEERS STEELWORK LTD (Q1)
Elton St, Mill Hill, Bolton BL2 2BS
Tel 01204 528393 Fax 01204 362363

PENCRO STRUCTURAL ENGINEERING LTD (Q4)
Orpinsmill Road, Ballyclare, Co. Antrim BT39 0SX
Tel 028 9335 2886 Fax 028 9332 4117

QMEC LTD
Quarry Road, Bolsover, Nr Chesterfield S44 6NT
Tel 01246 822228 Fax 01246 827907

RSL (SOUTH WEST) LTD (E F H M 6)
Millfield Industrial Est., Chard, Somerset TA20 2BB
Tel 01460 67373 Fax 01460 61669

JOHN REID & SONS (STRUCSTEEL) LTD (A 1)
296-298 Reid Sreet, Christchurch BH23 2BT
Tel 01202 483333 Fax 01202 499763

REMNANT ENGINEERING LTD
Unit 161, Lydney Industrial Estate,
Harbour Road, Lydney, Gloucestershire GL15 4EJ
Tel 01594 841160 Fax 01594 843208

RIPPIN LTD
Thistle Ind. Est., Church Street, Cowdenbeath KY4 8LP
Tel 01383 518610 Fax 01383 513099

ROBERTS ENGINEERING
16D Bergen Way, Sutton Fields Ind. Est., Hull HU7 0YQ
Tel 01482 838240 Fax 01482 830697

J. ROBERTSON & CO LTD (L M S 9)
Mill Lane, Walton-on-Naze CO14 8PE
Tel 01255 672855 Fax 01255 850487

ROBINSON CONSTRUCTION (C D E F H 1 Q1)
Wincanton Close, Ascot Drive, Industrial Estate, Derby DE24 8NJ
Tel 01332 574711 Fax 01332 861401

ROWECORD ENGINEERING LTD (A B 0 Q1)
Neptune Works, Uskway, Newport, South Wales NP20 2SS
Tel 01633 250511 Fax 01633 253219

ROWEN STRUCTURES LTD (A 1)
Fulwood Road (South), Sutton-in-Ashfield, Notts NG17 2JW
Tel 01623 558558 Fax 01623 440404

S H STRUCTURES LTD
Moor Lane Trading Estate, Sherburn-in-Elmet,
North Yorkshire LS25 6ES
Tel 01977 681931 Fax 01977 681930

SIAC BUTLERS STEEL LTD (C D E F H J N 1 Q4)
Lea Road, Portarlington, Co Laois, Republic of Ireland
Tel 00 353 57 8623305 Fax 00 353 57 8623207

SIAC TETBURY STEEL LTD (D E F H 4 Q1)
London Rd, Tetbury, Gloucs GL8 8HH
Tel 01666 502792 Fax 01666 504246

SELWYN CONSTRUCTION ENGINEERING LTD
Tarron Road, Tarron Industrial Estate,
Moreton, Wirral CH46 4TU
Tel 0151 678 0236 Fax 0151 678 8959

SEVERFIELD-REEVE STRUCTURES LTD (A 0* Q2)
Dalton Airfield Industrial Estate, Dalton,
Thirsk, North Yorkshire YO7 3JN
Tel 01845 577896 Fax 01845 577411

SHIPLEY FABRICATIONS LTD
Maddocks Park, Ancaster, Grantham, Lincs NG32 3PL
Tel 01400 231115 Fax 01400 231220

SNASHALL STEEL FABRICATIONS CO LTD
Pulham Business Park, Pulham, nr Dorchester, Dorset DT2 7DX
Tel 01300 345588 Fax 01300 345533

SOUTH DURHAM STRUCTURES LTD
South Church Enterprise Pk, Dovecot Hill,
Bishop Auckland, Co. Durham DL14 6XR
Tel 01388 777350 Fax 01388 775225

STEEL & ROOFING SYSTEMS LTD
Kilkenny Road, Castlecomer, Co Kilkenny, Republic of Ireland
Tel 00 353 56 444 1855 Fax 00 353 56 444 1860

TAYLOR & RUSSELL LTD
Stonebridge Mill, Longridge PR3 3AQ
Tel 01772 782295 Fax 01772 785341

THE AA GROUP LTD
Priorswood Place, East Pimbo, Skelmersdale, Lancs WN8 9QB
Tel 01695 50123 Fax 01695 50133

THE STEEL PEOPLE LTD
Unit 3E, Priory Park, Mills Road, Aylesford, Kent ME20 7PP
Tel 01622 715900 Fax 01622 715905

TRADITIONAL STRUCTURES LTD (D E F H J K N 5 Q1)
Findel Works, Landywood Lane, Cheslyn Hay,
Walsall, West Midlands WS6 7AJ
Tel 01922 414172 Fax 01922 410211

PADDY WALL & SONS
Waterford Road Business Park,Waterford Road,
New Ross, Co Wexford, Republic of Ireland
Tel 00 353 51 420 515 Fax 00 353 51 420 516

WARLEY CONSTRUCTION COMPANY LTD (F L 7)
Swinborne Road, Burnt Mills Industrial Estate,
Basildon, Essex SS13 1LD
Tel 01268 726060 Fax 01268 725285

WALTER WATSON LTD (Q4)
Greenfield Works, Ballylough Rd, Castlewellan,
Co Down BT31 9JQ
Tel 028 4377 8711 Fax 028 4377 2050

WATSON STEEL STRUCTURES LTD (A B 0* Q1)
PO Box 9, Lostock Lane, Bolton BL6 4BL
Tel 01204 699999 Fax 01204 694543

WESTBURY PARK ENGINEERING LTD
Brook Lane, Westbury, Wilts BA13 4ES
Tel 01373 825500 Fax 01373 825511

WESTOK LTD
Horbury Junction Ind Est, Horbury Junction, Wakefield WF4 5ER
Tel 01924 264121 Fax 01924 280030

JOHN WICKS & SON LTD
Unit 1, Crabbers Cross, Rattery, South Brent, Devon TQ10 9JZ
Tel 01364 72907 Fax 01364 73054

WIG ENGINEERING LTD
Barnfield, Akeman Street, Chesterton, Oxon OX26 1TE
Tel 01869 320515 Fax 01869 320513

H. YOUNG STRUCTURES LTD (C E F H J N 6)
Ayton Road, Wymondham, Norfolk NR18 0RD
Tel 01953 601881 Fax 01953 607842

ASSOCIATE MEMBERS

STRUCTURAL COMPONENTS

ALBION SECTIONS LTD (Q4)
Albion Rd, West Bromwich,West Midlands B70 8BD
Tel 0121 553 1877 Fax 0121 553 5507

AYRSHIRE METAL PRODUCTS (DAVENTRY) LTD (Q2)
Royal Oak Way, Daventry NN11 5NR
Tel 01327 300990 Fax 01327 300885

BARNSHAW PLATE BENDING CENTRE LTD (Q2)
Corporation Rd, Audenshaw,Manchester M34 5LR
Tel 0161 320 9696 Fax 0161 335 0918

CELLBEAM LTD
Unit 516, Thorp Arch Estate, Wetherby, West Yorkshire LS23 7DB
Tel 01937 840614 Fax 01937 840608

COMPOSITE PROFILES UK LTD
15 Moor Road, Broadstone, Dorset BH18 8AZ
Tel 01202 659237 Fax 01202 659288

CORUS PANELS & PROFILES (Q1)
Severn Drive, Tewkesbury Business Park,
Tewksbury, Glos GL20 8TX
Tel 01684 856600 Fax 01684 856601

FLI PRODUCTS
Waterwells Drive, Waterwells Business Park,
Gloucester GL2 2AA
Tel 01452 722200 Fax 01452 722244

FABSEC LTD
1st Floor, Unit 3, Calder Close,
Calder Business Park, Wakefield WF4 3BA
Tel 0845 094 2530 Fax 0845 094 2533

HI-SPAN LTD
Ayton Rd, Wymondham NR18 0RD
Tel 01953 603081 Fax 01953 607842

INTELLIGENT ENGINEERING (UK) LTD
Shire House, West Common, Gerrards Cross, Bucks SL9 7QN
Tel 01753 890575 Fax 01753 899056

KINGSPAN METL-CON LTD (Q4)
Sherburn, Malton, N. Yorkshire YO17 8PQ
Tel 01944 712000 Fax 01944 710555

RICHARD LEES STEEL DECKING LTD
Moor Farm Rd West, The Airfield, Ashbourne,
Derbyshire DE6 1HD
Tel 01335 300999 Fax 01335 300888

MSW STRUCTURAL FLOOR SYSTEMS
Acton Grove, Long Eaton, Nottingham NG10 1FY
Tel 0115 946 2316 Fax 0115 946 2278

METSEC PLC (Q2)
Broadwell Rd, Oldbury, West Mids B69 4HE
Tel 0121 601 6000 Fax 0121 601 6181

STRUCTURAL METAL DECKS LTD
The Outlook, Ling Road, Tower Park, Poole, Dorset BH12 4PY
Tel 01202 718898 Fax 01202 714980

STRUCTURAL SECTIONS LTD (Q1)
PO Box 92, Downing St, Smethwick, Warley B66 2PA
Tel 0121 555 1342 Fax 0121 555 1341

STUDWELDERS LTD
Millennium Hse, Severn Link Distribution Centre, Newhouse Farm
Ind Est, Chepstow, Monmouthshire NP16 6UN
Tel 01291 626048 Fax 01291 629979

COMPUTER SOFTWARE

COMPUTER SERVICES CONSULTANTS (UK) LTD
Yeadon House, New St, Pudsey, Leeds, LS28 8AQ
Tel 0113 239 3000 Fax 0113 236 0546

PSYCLE INTERACTIVE LTD
The Stable House, Whitewell, Whitchurch, Shropshire SY13 3AQ
Tel 01948 780120 Fax 08701 640156

RAM INTERNATIONAL (EUROPE) LTD
4 Woodside Place, Glasgow G3 7QF
Tel 0141 353 5168 Fax 0141 353 5112

STEEL PROJECTS UK LTD
6 Highfield Drive, Gildersome, Leeds LS27 7DW
Tel: 0113 253 2171 Fax: 0113 252 878

TEKLA (UK) LTD
Tekla House, Cliffe Park Way, Morley, Leeds LS27 0RY
Tel 0113 307 1200 Fax 0113 307 1201

DESIGN SERVICES

ARRO-CAD LTD
Bretby Business Park, Ashby Road,
Bretby, Burton-on-Trent DE15 0YZ
Tel 01283 558206 Fax 01283 558207

DEVELOPMENT DESIGN DETAILING SERVICES LTD
171 Bradshawgate, Bolton, Lancs BL2 1BH
Tel 01204 396606 Fax 01204 396634

STEEL PRODUCERS

CORUS CONSTRUCTION & INDUSTRIAL
Frodingham House, PO Box 1,
Brigg Road, Scunthorpe DN16 1BP
Tel 01724 404040 Fax 01724 404229

CORUS TUBES
PO Box 101, Weldon Rd, Corby, Northants NN17 5UA
Tel 01536 402121

MANUFACTURING EQUIPMENT

FICEP (UK) LTD
10 The Courtyards, Victoria Park, Victoria Road, Leeds LS14 2LB
Tel 0113 265 3921 Fax 0113 265 3913

KALTENBACH LTD
6-8 Brunel Road, Bedford MK41 9TJ
Tel 01234 213201 Fax 01234 351226

PEDDINGHAUS CORPORATION UK LTD
Unit 6, Queensway Link, Stafford Park 17, Telford TF3 3DN
Tel 01952 200377 Fax 01952 292877

RÖSLER UK
Unity Grove, Knowsley Business Park,
Prescot, Merseyside L34 9GT
Tel 0151 482 0444 Fax 0151 482 4444

VOORTMAN UK LTD
Unit 5, Mercian Park, Felspar Rd,
Amington Rd, Tamworth B77 4DP
Tel 01827 63300 Fax 01827 65565

PROTECTIVE SYSTEMS

FORWARD PROTECTIVE COATINGS LTD
Vernon St., Shirebrook, Mansfield, Notts NG20 8SS
Tel 01623 748323 Fax 01623 748730

INTERNATIONAL PAINT LTD
Protective Coatings, Stoneygate Lane,
Felling, Gateshead NE10 0JY
Tel 0191 469 6111 Fax 0191 495 0676

LEIGH'S PAINTS
Tower Works, Kestor Street, Bolton BL2 2AL
Tel 01204 521771 Fax 01204 382115

PPG PROTECTIVE & MARINE COATINGS
Micro House, Station Approach, Wood Street North,
Alfreton, Derbyshire DE55 7JR
Tel: 01773 837300 Fax: 01773 837302

SIGMAKALON MARINE & PROTECTIVE COATINGS UK LTD
4 Vimy Court, Vimy Road, Leighton Buzzard LU7 1FG
Tel 01525 375234 Fax 01525 378595

SITE COAT SERVICES LTD
Unit 11, Old Wharf Road, Grantham, Lincolnshire NG31 7AA
Tel 01476 577473 Fax 01476 577642

JACK TIGHE LTD
Kirk Sandall Ind. Est., Kirk Sandall, Doncaster DN3 1QR
Tel 01302 880360 Fax 01302 880370

WEDGE GROUP GALVANIZING
c/o Worksop Galvanizing Claylands Avenue,
Worksop, Notts S81 7BQ
Tel 01909 486384 Fax 01909 482540

WELLS PROTECTIVE COATINGS LTD
Unit 21, Wright Business Park, Carr Hill, Doncaster DN4 8DE
Tel 01302 733611 Fax 01302 733639

SAFETY SYSTEMS

COMBISAFE INTERNATIONAL LTD
Unit 1, Zone A, Cheaney Drive, Grange Park,
Northampton NN4 5FB
Tel 01604 660600 Fax 01604 662960

EASI-EDGE
Ollerton Rd, Tuxford, Newark, Notts NG22 0PQ
Tel 01777 870901 Fax 01777 872047

STEEL STOCKHOLDERS

ADVANCED STEEL SERVICES LTD
South Ribble Industrial Estate, Capitol Way,
Preston, Lancs PR5 4AJ
Tel 01772 259822 Fax 01772 259561

ALTERNATIVE STEEL CO LTD
Dobson Park Way, Ince, Wigan WN2 2DY
Tel 01942 610601 Fax 01942 821999

ASD METAL SERVICES – EDINBURGH
24 South Gyle Crescent, Edinburgh EH12 9EB
Tel 0131 459 3200 Fax 0131 459 3266

ASD METAL SERVICES – BODMIN
Unit 13, Cooksland Ind. Est., Bodmin, Cornwall PL31 2PZ
Tel 01208 77066 Fax 01208 77416

ASD METAL SERVICES – LONDON
Thames Wharf, Dock Road, London E16 1AF
Tel 020 7476 9444 Fax 020 7476 0239

ASD METAL SERVICES – CARLISLE
Unit C, Earls Way, Kingsmoor Park Central,
Kingstown, Cumbria CA6 4SE
Tel 01228 674766 Fax 01228 674197

ASD METAL SERVICES – HULL
Gibson Lane, Melton, North Ferriby, E. Yorkshire HU14 3HX
Tel 01482 633360 Fax 01482 633370

ASD METAL SERVICES – GRIMSBY
Estate Road No. 5, South Humberside Industrial Estate,
Grimsby DN31 2TX
Tel 01472 353851 Fax 01472 240028

ASD METAL SERVICES – BIDDULPH
PO Box 2, Tunstall Road, Biddulph, Stoke-on-Trent, Staffs ST8 6JZ
Tel 01782 515152 Fax 01782 522240

ASD METAL SERVICES – DURHAM
Drum Road, Drum Industrial Estate,
Chester-le-Street, Co. Durham DH2 1ST
Tel 0191 492 2322 Fax 0191 410 0126

ASD METAL SERVICES – CARDIFF
East Moors Road, Cardiff CF1 5SP
Tel 029 2046 0622 Fax 029 2049 0105

ASD METAL SERVICES – STALBRIDGE
Station Rd, Stalbridge, Dorset DT10 2RW
Tel 01963 362646 Fax 01963 363260

ASD METAL SERVICES – NORFOLK
Hamlin Way, Kings Lynn, Norfolk PE30 4LQ
Tel 01553 761431 Fax 01553 692394

ASD METAL SERVICES – EXETER
Sidmouth Road, Clyst St Mary, Exeter EX5 1AD
Tel 01395 233366 Fax 01395 233367

ASD METAL SERVICES – DAVENTRY
Royal Oak Ind. Est., Daventry, Northants NN11 5QQ
Tel 01327 876021 Fax 01327 87612

ASD METAL SERVICES – TIVIDALE
Tipton Road, Tividale, Oldbury, West Midlands B69 3HU
Tel 0121 520 1231 Fax 0121 520 5664

AUSTIN TRUMANNS STEEL LTD
Moss Lane, Walkden, Manchester M28 5NH
Tel 0161 790 4821 Fax 0161 799 0411

BARRETT STEEL SERVICES LTD
Barrett House, Cutler Heights Lane,
Dudley Hill, Bradford BD4 9HU
Tel 01274 682281 Fax 01274 651205

BROWN MCFARLANE LTD
Ladywell Works, New Century Street, Hanley,
Stoke-on-Trent ST1 5QH
Tel 01782 289909 Fax 01782 289804

CELTIC STEEL SERVICES
Caerphilly Road, Ystrad Mynach, Mid Glamorgan CF82 6EP
Tel 01443 812181 Fax 01443 812558

CORUS BELLSHILL
Mossend Engineering Works, Unthank Road, Bellshill,
North Lanarkshire ML4 1DJ
Tel. 01698 748424. Fax 01698 747191

CORUS BLACKBURN
Unit 5, Walker Road, Blackamoor Road,
Guide, Blackburn BB1 2QE
Tel 01254 55161 Fax 01254 670836

CORUS BRISTOL
Badminton Rd Trading Est., Yate,Bristol BS37 5JU
Tel 01454 315314 Fax 01454 325181

CORUS DARTFORD
Farnigham Road Station, South Darenth,nr Dartford DA4 9LD
Tel 01322 227272 Fax 01322 864893

CORUS NEWCASTLE
Chainbridge Road Industrial Estate,
Blaydon-on-Tyne, Tyne & Wear NE21 5SS
Tel 0191 414 2121 Fax 0191 414 2210

CORUS STOURTON
Wakefield Rd, Stourton, Leeds LS10 1AY
Tel 0113 276 0660 Fax 0113 272 4418

CORUS WEDNESFIELD
The Steelpark, Steelpark Way, Wednesfield,
Wolverhampton WV11 3BR
Tel 01902 484000 Fax 01902 484288

LASERTUBE CUTTING
Unit 8, Autobase Industrial Estate, Tipton Road,
Tividale, West Midlands B69 3HU
Tel 0121 601 5000 Fax 0121 601 5001

NATIONAL TUBE STOCKHOLDERS LTD
Dalton Industrial Estate, Dalton, Thirsk, North Yorkshire YO7 3HE
Tel 01845 577440 Fax 01845 577165

NEWTON STEEL STOCK LTD
Landshire Lane, Gibbs Marsh Trading Estate,
Henstridge, Somerset BA8 0TN
Tel 01963 365028 Fax 01963 365034

PORTWAY STEEL SERVICES
The Stables, Brook Farm, Westerleigh, Bristol BS37 8QH
Tel 01454 311442 Fax 01454 311445

RAINHAM STEEL CO LTD
Kathryn House, Manor Way, Rainham, Essex RM13 8RE
Tel 01708 522311 Fax 01708 559024

SOUTH PARK STEEL SERVICES
Thomson House, Faraday Street
Birchwood Park, Warrington WA3 6GA
Tel 01925 817000 Fax 01925 818844

SOUTH PARK STEEL SERVICES
South Park Road, South Park Industrial Estate,
Scunthorpe DN17 2BY
Tel 01724 810810 Fax 01724 810081

STEELSTOCK (BURTON ON TRENT) LTD
Ryder Close, Cadley Hill Road, Swadlincote, Derbyshire DE11 9EU
Tel 01283 226161 Fax 01283 550406

STRUTHERS & CARTER LTD
Erimus Works, Valletta Street, Hedon Road, Hull HU9 5NU
Tel 01482 795171 Fax 01482 786186

STRUCTURAL FASTENERS

ANDREWS FASTENERS LTD
Latchmore Park, Latchmore Road, Leeds LS12 6DN
Tel 0113 246 9992 Fax 0113 243 6463

BAPP GROUP LTD
Unit 15, Darton Business Park, Darton,
Barnsley, South Yorkshire S75 5NQ
Tel 01226 383824 Fax 01226 390004

COOPER & TURNER LTD
Sheffield Road, Sheffield S9 1RS
Tel 0114 256 0057 Fax 0114 244 5529

LINDAPTER INTERNATIONAL
Lindsay House, Brackenbeck Road, Bradford BD7 2NF
Tel 01274 521444 Fax 01274 521130

TENSION CONTROL BOLTS LTD
Whitchurch Business Park, Shakespeare Way,
Whitchurch, Shropshire SY13 1LJ
Tel 01948 667700 Fax 01948 667744

CORPORATE MEMBERS

BALFOUR BEATTY POWER NETWORKS LTD
Tel 01332 661491

GRIFFITHS & ARMOUR
Tel 0151 236 5656

HIGHWAYS AGENCY
Tel 08457 504030

ROGER POPE ASSOCIATES
Tel 01752 263636

The Register of Qualified Steelwork Contractors

BUILDINGS SCHEME

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

A All forms of steelwork (C-N inclusive)
C Heavy industrial plant structures
D High rise buildings
E Large span portals
F Medium/small span portals and medium rise buildings
H Large span trusswork
J Major tubular steelwork
K Towers
L Architectural metalwork
M Frames for machinery, supports for conveyors, ladders and catwalks
N Grandstands and stadia
S Small fabrications

Company Name	Telephone	A	C	D	E	F	H	J	K	L	M	N	S	QA	Contract Value (1)
ACL Structures Ltd	01258 456051				●	●	●				●				Up to £2,000,000
A&J Fabtech Ltd	01924 402151		●			●								●	Up to £400,000
Advanced Fabrications Poyle Ltd	01753 531116					●	●	●	●	●	●			●	Up to £400,000
Allslade PLC	023 9266 7531				●	●	●			●					Up to £4,000,000
Atlas Ward Structures Ltd	01944 710421	●	●	●	●	●	●	●	●	●	●			●	Up to £6,000,000*
B D Structures Ltd	01942 817770			●	●	●	●								Up to £2,000,000*
B & K Steelwork Fabrications Ltd	01773 853400		●		●	●	●	●	●		●			●	Up to £4,000,000*
A C Bacon Engineering Ltd	01953 850611				●	●	●								Up to £800,000
Ballykine Structural Engineers Ltd	028 9756 2560				●	●	●	●				●		●	Up to £2,000,000
Barrett Steel Buildings Ltd	01274 266800				●	●	●							●	Up to £6,000,000
Billington Structures Ltd	01226 340666	●	●	●	●	●	●	●	●	●	●	●		●	Above £6,000,000
Border Steelwork Structures Ltd	01228 548744		●		●	●	●					●			Up to £2,000,000
Bourne Steel Ltd	01202 746666	●	●	●	●	●	●	●	●	●	●	●		●	Above £6,000,000
Brooksby Engineering	01707 872655					●		●	●	●	●				Up to £200,000
Butterley Ltd	01773 573573	●	●	●	●	●	●	●	●	●	●	●		●	Up to £3,000,000*
Cairnhill Structures Ltd	01236 449393		●			●	●	●		●	●			●	Up to £1,400,000*
Caunton Engineering Ltd	01773 531111		●		●	●	●	●			●			●	Up to £6,000,000
Cleveland Bridge UK Ltd	01325 381188	●	●	●	●	●	●	●	●	●	●	●		●	Above £6,000,000*
Compass Engineering Ltd	01226 298388		●		●	●	●		●						Up to £2,000,000
Conder Stuctures Ltd	01283 545377			●	●	●	●							●	Up to £6,000,000
Leonard Cooper Ltd	0113 270 5441		●			●	●		●		●			●	Up to £800,000
Costruzioni Cimolai Armando SpA	01223 350876	●	●	●	●	●	●	●	●	●	●	●		●	Up to £6,000,000
Curtis Engineering Ltd	01373 462126					●									Up to £800,000
Frank H Dale Ltd	01568 612212			●	●	●								●	Up to £6,000,000
EAGLE Structural Ltd	01507 450081				●	●	●	●	●	●					Up to £400,000
Elland Steel Structures Ltd	01422 380262		●	●	●	●	●		●					●	Up to £4,000,000
Emmett Fabrications Ltd	01274 597484				●	●	●								Up to £800,000
EvadX Ltd	01745 336413				●	●	●	●		●	●	●		●	Up to £1,400,000
Fairfield-Mabey Ltd	01291 623801	●	●	●	●	●	●	●	●	●	●	●		●	Above £6,000,000
Fisher Engineering Ltd	028 6638 8521	●	●	●	●	●	●	●	●	●	●	●		●	Up to £6,000,000
Glentworth Fabrications Ltd	0118 977 2088					●	●	●	●	●	●	●			Up to £2,000,000
Graham Wood Structural Ltd	01903 755991	●	●	●	●	●	●	●	●	●	●	●			Up to £6,000,000
D A Green & Sons Ltd	01406 370585				●	●	●	●				●		●	Up to £3,000,000
William Hare Ltd	0161 609 0000	●	●	●	●	●	●	●	●	●	●	●		●	Above £6,000,000
Harland & Wolff Heavy Industries Ltd	028 9045 8456		●		●	●	●	●	●	●	●			●	Up to £6,000,000
Hills of Shoeburyness Ltd	01702 296321									●	●		●		Up to £800,000
James Bros (Hamworthy) Ltd	01202 673815				●	●	●	●				●		●	Up to £2,000,000
James Killelea & Co Ltd	01706 229411		●	●	●	●	●					●			Up to £6,000,000*
Meldan Fabrications Ltd	01652 632075		●		●	●	●	●	●		●			●	Up to £4,000,000
Mifflin Construction Ltd	01568 613311			●	●	●	●				●				Up to £2,000,000
Normanby Wefco Ltd	01427 611000		●				●	●	●		●			●	Up to £800,000
Nusteel Structures Ltd	01303 268112						●	●	●	●				●	Up to £2,000,000*
Oswestry Industrial Buildings Ltd	01691 661596				●	●	●		●		●				Up to £400,000
RSL (South West) Ltd	01460 67373				●	●	●				●				Up to £800,000
John Reid & Sons (Strucsteel) Ltd	01202 483333	●	●	●	●	●	●	●	●	●	●	●			Up to £6,000,000
J Robertson & Co Ltd	01255 672855									●	●		●		Up to £100,000
Robinson Construction	01332 574711		●	●	●	●	●							●	Up to £6,000,000
Roll Formed Fabrications Ltd	028 7963 1631				●	●	●	●		●	●	●		●	Up to £800,000
Rowecord Engineering Ltd	01633 250511	●	●	●	●	●	●	●	●	●	●	●		●	Above £6,000,000
Rowen Structures Ltd	01623 558558	●	●	●	●	●	●	●	●	●	●	●			Up to £6,000,000
SIAC Butlers Steel Ltd	00 353 502 23305		●	●	●	●	●	●				●		●	Up to £6,000,000
SIAC Tetbury Steel Ltd	01666 502792			●	●	●	●							●	Up to £2,000,000
Severfield-Reeve Structures Ltd	01845 577896	●	●	●	●	●	●	●	●	●	●	●		●	Above £6,000,000*
Henry Smith (Constructional Engineers) Ltd	01606 592121		●	●	●	●	●	●							Up to £2,000,000
Traditional Structures Ltd	01922 414172			●	●	●	●	●	●			●		●	Up to £1,400,000
Warley Construction Company Ltd	01268 726020				●					●					Up to £400,000
Watson Steel Structures Ltd	01204 699999	●	●	●	●	●	●	●	●	●	●	●		●	Above £6,000,000*
Webcox Engineering Ltd	01249 813225				●	●	●				●				Up to £400,000
H Young Structures Ltd	01953 601881		●		●	●	●	●				●			Up to £800,000

Notes (') Contracts which are primarily steel but which may include associated works. The steelwork contract for which a company is pre-qualified for 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.

RQSC
The Register of Qualified Steelwork Contractors Scheme

BRIDGEWORKS SCHEME

Based on evidence from the company's resources and portfolio of experience, the Subcategories that can be awarded are as follows:

FG Footbridges and sign gantries
PT Plate girders [>900mm deep], trusswork [>20m long]
BA Stiffened complex platework in decks, box girders, arch boxes.
CM Cable stayed bridges, suspension bridges, other major structures [>100m]
MB Moving bridges
RF Bridge refurbishment
X Unclassified

Applicants may be registered in more than one sub-category.

Company Name	Telephone	FG	PT	BA	CM	MB	RF	X	Contract Value (1)
A&J Fabtech Ltd	01924 402151	●	●	●			●		Up to £400,000
Allerton Engineering Ltd	01609 774471	●	●	●	●	●	●		Up to £1,400,000*
Briton Fabricators Ltd	0115 963 2901	●	●	●			●		Up to £800,000
Butterley Ltd	01773 573573	●	●	●	●	●	●		Up to £3,000,000*
Cleveland Bridge UK Ltd	01325 381188	●	●	●	●	●	●		Above £6,000,000*
Concrete & Timber Services Ltd	01484 606416	●	●		●	●			Up to £800,000
Costruzioni Cimolai Armando SpA	01223 350876	●	●	●	●	●			Up to £6,000,000
Fairfield-Mabey Ltd	01291 623801	●	●	●	●	●	●		Above £6,000,000*
Harland & Wolff Heavy Industries Ltd	028 9045 8456	●	●	●	●		●		Up to £6,000,000
Interserve Project Services Ltd	0121 344 4888						●		Above £6,000,000
Interserve Project Services Ltd	020 8311 5500		●	●		●	●		Up to £400,000*
Meldan Fabrications Ltd	01652 632075	●	●	●	●	●	●		Up to £4,000,000
'N' Class Fabrication Ltd	01733 558989	●	●	●		●	●		Up to £1,400,000
Normanby Wefco Ltd	01427 611000	●	●	●			●		Up to £800,000
Nusteel Structures Ltd	01303 268112	●	●	●	●				Up to £2,000,000*
P C Richardson & Co (Middlesbrough) Ltd	01642 714791	●					●		Up to £6,000,000
Rowecord Engineering Ltd	01633 250511	●	●	●	●	●	●		Above £6,000,000
Taylor & Sons Ltd	029 2034 4556	●	●	●	●	●	●		Up to £800,000
Watson Steel Structures Ltd	01204 699999	●	●	●	●	●	●		Above £6,000,000*

Notes (') Contracts which are primarily steel but which may include associated works. The steelwork contract for which a company is pre-qualified for 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.

SCI Members

SCI

SCI (The Steel Construction Institute) develops and promotes the effective use of steel in construction. It is an independent, membership-based organisation. Membership is drawn from all sectors of the construction industry; this provides beneficial contacts both within the UK and internationally. Its corporate members enjoy access to unique expertise and free practical advice which contributes to their own efficiency and profitability. They also recieve an initial free copy of most SCI publications, and discounts on subsequent copies and on courses. Its multi-disciplinary staff of 45 skilled engineers and architects is available to provide technical advice to members on steel construction in the following areas:

- Technical Support for Architects
- Bridge Engineering
- Building Interfaces
- Civil Engineering
- Codes and Standards
- Composite Construction
- Connections
- Construction Practice
- Corrosion Protection
- Fabrication
- Health & Safety — best practice
- Information Technology
- Fire Engineering
- Light Steel and Modular Construction
- Offshore Hazard Engineering
- Offshore Structural Design
- Piling and Foundations
- Specialist Analysis
- Stainless Steel
- Steelwork Design
- Sustainability
- Vibration

Details of SCI Membership and services are available from:
Sandi Gentle, Membership Manager, SCI (The Steel Construction Institute), Silwood Park, Ascot, Berks.
Telephone: +44 (0) 1344 636544 Fax: +44 (0) 1344 636510
Email: s.gentle@steel-sci.com Website: www.steel-sci.com

SCI would like to welcome the following new Corporate Member:

UK
Light Steel Framing Solutions Limited

All full members of the BCSA are automatically members of SCI. Their contact details are listed on the BCSA Members pages.

FASTRAK™
BUILDING DESIGNER

FASTRAK™
BUILDING DESIGNER

DEDICATED STEELWORK
BUILDING DESIGN

The software solution for structural engineers

Fastrak Building Designer is the most comprehensive, easy to use, dedicated software solution for general steel and composite building design. Complete physical design models are quickly created via an intuitive interface. Full model validation allows you to make changes with minimum effort. It produces fast, accurate, detailed design and sway results, automated drawing production and material lists. Fastrak Building Designer is the market leading, proven solution that will save you time and money.

CSC™
SOFTWARE AND SOLUTIONS
FOR STRUCTURAL ENGINEERS

www.cscworld.com

CALCULATIONS | ANALYSIS | DESIGN | 3D MODELLING | DRAWINGS | SUPPORT & TRAINING