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APRIL 2020
For members of the CIOB

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04/20

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News

► Thames super sewer hits halfway mark

Tunnelling on the Thames Tideway super sewer, which is being built to limit sewage pollution in the River Thames, has reached the halfway mark. Tunnel boring machines (TBMs) have now tunnelled 12.5km of the 25km total length of the structure, with the tunnel currently stretching from Fulham in the west to Blackfriars in the City of London. The tunnel has already passed under 13 bridges including Albert Bridge, Westminster Bridge and Waterloo Bridge.



PATRICIA RAYNER

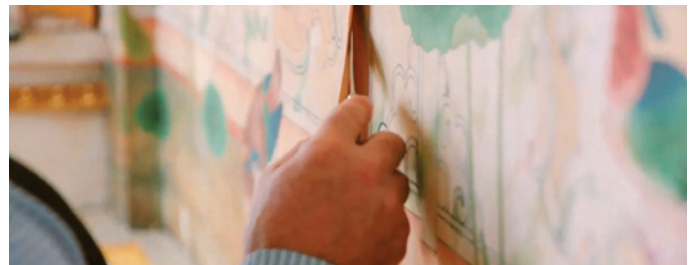


▲ Over 100 charging forecourts for electric vehicles to be built

A network of 100 electric forecourts are to be built across the UK to offer ultra-fast charging for electric vehicles as part of a £1bn programme. The first electric forecourt, developed by Gridserve and designed by Arup, is already under construction at Braintree in Essex. The solar-powered Braintree forecourt will be able to charge 24 electric vehicles at once with superchargers that can deliver up to 350kW of charging power, enabling people to charge vehicles within 20-30 minutes initially. Its construction has been supported by a £4.9m grant from Innovate UK.

▼ Buckingham Palace refurb progresses with conservation work

Conservation experts are carefully removing 19th century Chinese wallpaper piece by piece from the walls of the Yellow Drawing Room in Buckingham Palace as part of conservation works there. The room has been emptied as part of a decant of the east wing of the palace, in preparation for reservicing work that includes replacing outdated pipes and wires. The early 19th century wallpaper came from King George IV's Brighton Pavilion. It was discovered in storage by Queen Mary after the First World War and was rehung in the Yellow Drawing Room.





News story for CM?
Email neil@atompublishing.co.uk



For the latest updates on how the Covid-19 virus is affecting construction, go to: www.constructionmanagermagazine.com



◀ Contractor uses 3D model to replace huge rollercoaster's tracks

Bolton-based Taziker Industrial has installed four new sections of steel track on Blackpool's Big One rollercoaster.

The refurbishment work involved removing work sections of track in November last year, before the new sections were installed earlier this month. The firm used 3D models to manufacture the tracks at its fabrication facility in Manchester.

The rollercoaster tracks were completed ahead of time and transferred to be painted in the red colour of the Big One, which at 71m high was once the tallest rollercoaster in the world, before being lifted into place in February.

Steel special, p32-41

▼ New wearable tech to prevent HAVS launched

A new form of wearable technology that its developer claims can prevent Hand Arm Vibration Syndrome (HAVS) has been launched. Developed by Coventry startup Feraru Dynamics, the HAV Sentry Glove monitors the vibrations created by heavy machinery when operating tools such as grinders, drills and concrete breakers.

The system alerts operatives when it reaches dangerous levels so that they know to take a break.



▲ Amey uses smartphone sensors to detect sewer flooding

Amey has devised a new system using capacitive sensors similar to the ones found in smartphones to predict the likelihood of sewer flooding. Ofwat imposes fines on the water companies for exceeding the allowed number of sewer flooding incidents – each incident can cost a utility company over £40,000. Amey Consulting's new technology, which is undergoing trials with the Water Research Council, uses capacitive sensors to detect the depth and speed of the flow in pipes. Analysis of the data picked up by the sensors is used to assess where blockages are and to predict the likelihood of flooding so that utility companies can take preventative action.

▼ Willmott Dixon volunteers to build lion home

A large Willmott Dixon team volunteered their own time to build a home at the Isle of Wight Zoo, Sandown, for two rescued lion brothers. Vigo and Kumba were saved from a Spanish circus where they spent most of their lives in a lorry trailer. Thanks to zoo operator The Wildheart Trust and Willmott Dixon, they now have a specially built home that includes a heated sleeping area and reinforced full-height windows.



£400m

A £400m fund was announced for mayoral authorities to build houses on brownfield sites

Budget 2020: Cautious welcome for construction investment

THE CONSTRUCTION INDUSTRY HAS BROADLY WELCOMED CHANCELLOR RISHI SUNAK'S PLEDGES TO INVEST IN INFRASTRUCTURE AND HOUSING, AS WELL AS MEASURES TO COMBAT THE IMPACT OF CORONAVIRUS



Figures from across the construction industry broadly welcomed chancellor Rishi Sunak's first Budget on 11 March, which included pledges for billions of pounds worth of investment in infrastructure and housing

Sunak had just weeks to prepare for the Budget, following the resignation of his predecessor Sajid Javid, and was forced to announce a package of measures to tackle the rapid spread of coronavirus.

However, there were also a raft of other announcements affecting construction. That included a total of £175bn on additional infrastructure expenditure, as well as a doubling of flood defences expenditure spending of £5.2bn between 2021 and 2027.

The government has pledged a doubling of expenditure on flood defences

In housing, Sunak announced a £10.9bn increase in investment, including plans for a Building Safety Fund, worth £1bn (see box), as well as £1.1bn towards the Housing Infrastructure Fund to build around 70,000 houses and an additional £400m fund for mayoral authorities to build houses on brownfield sites.

And when it came to measures to protect businesses from coronavirus, he confirmed that workers' statutory sick pay will start from the first day of illness to help slow the spread, as well as an offer to refund sick pay payments for firms with fewer than 250 staff during the outbreak.

Commenting on the announcement, Eddie Tuttle, director for policy, research and public affairs at the Chartered Institute of Building (CIOB), said: "We look forward to working with government on their plans for a new construction strategy and infrastructure strategy.

"We encourage government to ensure they provide a clear route map for how additional spending will be utilised and look at smarter ways the built environment can be used to tackle numerous socio-economic issues the country faces."

Meanwhile, Mace chief executive Mark Reynolds welcomed the plans to combat coronavirus but urged companies to prepare. He said: "We welcome the chancellor's plans to reduce the impact of the virus on small businesses, including a refund for statutory sick pay and business interruption loan scheme.

"However, in the construction and infrastructure sectors the costs of any significant disruption to project delivery is likely to far exceed the benefits of these measures... Businesses of all sizes need to carefully review their contingency plans to ensure that they are as prepared as possible." ●

Government pledges £1bn for cladding refurb fund

New funding available for all types of dangerous cladding

Chancellor Rishi Sunak used his Budget speech to pledge £1bn to a new Building Safety Fund that aims to fund the cost of replacing all types of dangerous cladding on buildings above 18m in height.

The government has previously created funds of £400m to remove aluminium composite material (ACM) cladding of the type found on Grenfell Tower from social housing blocks in 2018, followed by £200m to speed up private housing remediation in 2019.

The new fund will apply to both public and private buildings and will be available for all forms of cladding deemed to be dangerous, rather than just ACM cladding.

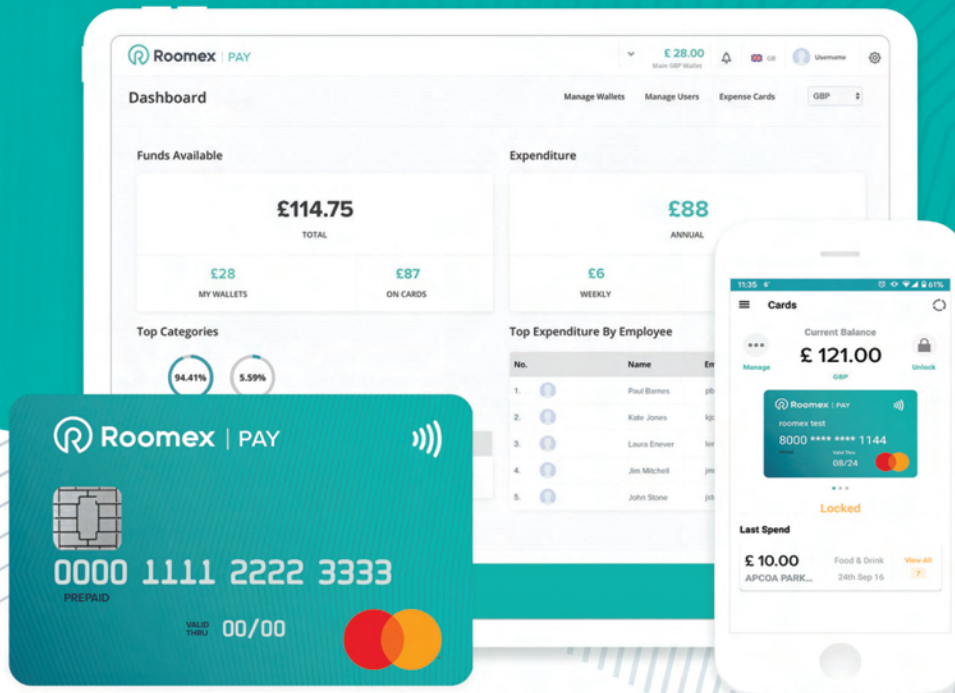
The announcement came after the Association of Residential Managing Agents (ARMA) warned that up to 500,000 people in the UK could be living with cladding now considered to be unsafe, despite the fact that it would have passed building control at the time, including high pressure laminate (HPL) or ACM.

Commenting on the news, Eddie Tuttle, director for policy, research and affairs at the CIOB, said: "The failures of quality that resulted in the recent incidents at Grenfell highlighted the need for an urgent review of the way in which quality is managed within the UK construction industry.

"We are glad the government is committed to remove not just ACM cladding but all unsafe cladding from buildings above 18m. We urge that government ensures that any new home is built to a high-quality standard and ensure that buildings are fit for use."

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How construction can be an economic catalyst for the regions, see p18-20

CIOB: Construction influence 'almost double' estimates

NEW STUDY DEMONSTRATES CONSTRUCTION'S VALUE TO THE UK ECONOMY IS FAR GREATER THAN PREVIOUS ESTIMATES SUGGEST



The CIOB report says construction GDP is almost double ONS estimates

Construction's economic influence in the UK is almost double that of officially recorded figures.

That's according to a new report entitled *The Real Face of Construction 2020*, published by the Chartered Institute of Building (CIOB).

Official figures from the Office for National Statistics (ONS) suggest that construction accounts for around 6% of economic output in the UK and employs 2.3 million people. But the report said that the ONS's "narrow" definition of the industry ignores the work of architects, engineers and quantity surveyors, as well as manufacturers dedicated to the sector and other companies that support construction, such as builders' merchants and plant hire providers.

Once all aspects of the design and construction process are included, construction GDP could be close to double in size, the report argues.

Meanwhile, the report has also uncovered wide variations in performance and output at a regional level in construction since 2013. The CIOB said this indicated the need for careful and integrated policymaking at local, regional and national level.

The report includes regional data examining the number of construction businesses, output from the industry, stock of buildings, number of people employed by sector, annual earnings and key projects in the area.

Better measure needed

The CIOB is calling for a better measure of the construction industry that includes all aspects of the design and construction process, not just the assembly on site.

The report also draws on research that gauges the public's attitude towards the industry and the built environment. It makes the point that the UK construction industry has not reached its full potential and will only do so if it operates in an environment with a clear vision, with an understanding of different regional needs, and with a focus from policymakers armed with good quality data and information.

Caroline Gumble, chief executive of the CIOB, said: "The quality of our built environment affects every member of society; our work influences productivity and wellbeing at home and at work. It is both far reaching and life-shaping. Our purpose for this report is to help educate policymakers about the true value of the built environment and the need to work in closer partnership with the industry to realise its full potential, particularly at a regional level where it can rebalance local economies and offer people a quality career unlike many others." ●

Skanska, Mace, BAM among firms on 'kit of parts' project

Some of construction's biggest players including Skanska, BAM, Kier, Vinci, Mace and Mott MacDonald are working towards building new schools and hospitals from a 'kit of parts' within 10 years.

The Construction Innovation Hub named the firms as those that would take forward its flagship Platform Design programme.

A central plank of the Hub's four-year government-backed programme to transform UK construction, Platforms will enable new buildings to be designed and configured using a pre-defined 'kit of parts'.

The construction businesses will be supported through the programme by manufacturing, building performance and digital specialists from the three partners of the Hub – the Manufacturing Technology Centre (MTC), BRE and the Centre for Digital Built Britain (CDBB).

The Platform participants will develop and refine their products, technologies or services which will then be installed and showcased on a proof-of-concept building, demonstrating how these solutions can be applied across projects like schools, hospitals and prisons.

Construction Innovation Hub programme director Keith Waller described the Platform Design programme as "a game-changer for construction" which would drive "improved productivity and performance".

MMC programme director at the Infrastructure and Projects Authority (IPA), Will Varah said: "There is a strong alignment between the IPA's P-DfMA (Platform Design for Manufacture and Assembly) approach and the Hub's Platform programme.

"We look forward to working together to deliver a more sustainable and productive way to meeting our ambitious investment programme."



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Jobs set to be saved at British Steel after a takeover by Jingye Group in March. Hundreds of employees could still lose jobs under a £1.2bn turnaround programme.

Material price inflation starts to falter

Turner & Townsend economist **Kristoffer Hudson** starts a new monthly column with *CM*, looking at key economic indicators from around the construction industry. This month, he focuses on materials costs



Rising costs for UK materials have started to tail off for the first time in three years, according to quarterly analysis of latest data from the Department of Business, Energy and Industrial Strategy (BEIS).

The rate of inflation faltered in the last quarter of 2019, with the 'all work' material price index decreasing by -1.4% on the quarter and -0.5% on the previous year (see chart 1).

Specific analysis shows inflation within the residential sector falling at a lower level than the overall average for all materials, as a rate of -1.2% on the quarter and -0.2% on the year.

Longer-term tracking indicates the important role housing material inflation has played as a driver behind the index as a whole over the past few years – with the cost of these components increasing 10.6% since Q2 2015, compared to 8.9% for other new work.

Expectations of a boost in construction demand – and subsequently, material costs – have risen on the back of government commitments to spend more on infrastructure as part of its 'levelling up' agenda. However, the short-term

impact will be affected by emerging threats and volatility caused by the impact of coronavirus on global supply chains and the developing position that the UK takes on Brexit trade deal negotiations.

Concrete materials fall

Analysis of the BEIS data shows costs for concrete reinforcing bars, on an annualised basis, have consistently fallen over the last 12 months (see chart 2). Within the last six months to January 2020 costs for concrete reinforcing bars have dropped 9.0%.

Structural steel prices fell by 6.7% in the last six months following a volatile 18 months on global markets. This is partly in response to the high-profile trade wars between the US and China and an easing of global demand.

As an indication of wider price softening, there has also been a sustained drop in price for imported wood materials. Plywood and sawn wood from outside the UK fell by 7% in the last six months. Some of this price softening may be attributed to sterling strengthening against the dollar.

Kristoffer Hudson is an associate director at Turner & Townsend.

Chart 1. BEIS construction materials price indices

Index 2010 = 100 — Other new work — New housing — Repair and maintenance — All work

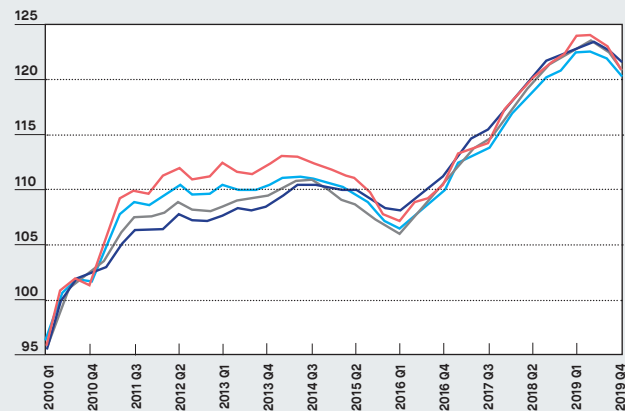
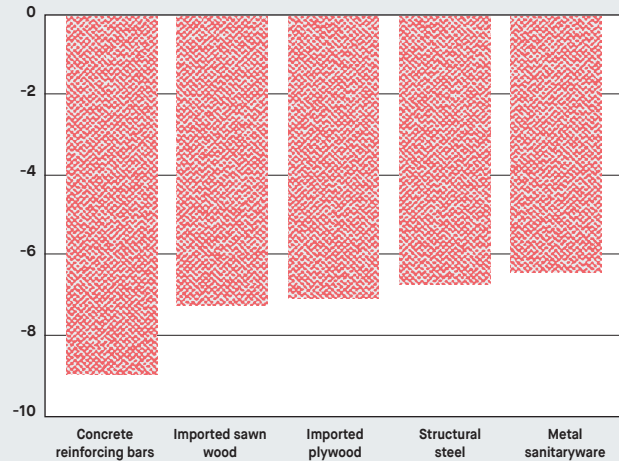


Chart 2. Weakest performing materials prices, six months to Jan 2020

Percentage change (%)



SOURCE: BEIS – DEPARTMENT FOR BUSINESS, ENERGY & INDUSTRIAL STRATEGY

News in numbers

450

Government contracts held by Carillion on entering administration. A damning report from the Institute for Government in March said few lessons have been learnt to prevent a repeat of the crisis.

£25,600

Proposed salary threshold for workers from abroad seeking work after the UK leaves the European Union, raising concerns over labour availability.

27,000

Number of built environment professionals due to attend MIPIM in Cannes in March, prior to the event being postponed due to coronavirus.

£200bn

The additional expenditure needed to tackle regional inequality across the UK. The final report from the UK2070 Commission calls on the government to "go big or go home".

Construction businesses excited about the future

Depending on your mentality as a business owner, hiring new employees can feel more or less daunting.

Speaking at a recent roundtable on the hiring process hosted by Intuit QuickBooks, Roni Savage, Founder and CEO of construction services business, Jomas Associates said: "Initially, when Jomas was founded, I employed freelancers, but it soon became necessary to get someone on board permanently. It really changes the business when you have that employee on board who is committed to the company like you are."

In other words, no matter how daunting it feels, it's crucial for the growth and success of any business to engage with the idea of hiring team members.

Recent research conducted by QuickBooks Payroll found that a third (35%) of small business owners or senior leaders expect their business to hire someone new this year.

Managers are excited about the opportunities new employees can bring to their business, with the majority identifying a range of positives including increased productivity, and new skills and expertise.

Reading between the lines, Britain's bosses are keen to embrace the growth and productivity benefits that new employees can bring. But there's still some nervousness out there about the realities and practicalities of the hiring process.

Tackling the challenges and embracing the opportunities

Speaking further at the roundtable, Savage said, "as the business owner, it is on me to liaise with my employees, make sure all is running smoothly and check the final product. Now that I have employees, it is their responsibility to produce the product and maintain quality control. Having a trusted team takes the burden off me feeling like I have to do everything."

The cold truth of hiring is you could take a risk on someone, and if it doesn't work out, simply help them find alternative employment in three months' time. But that doesn't reflect the emotional investment and responsibility



Small business leaders attend a roundtable at Intuit QuickBooks

many small business owners will place in their team. It also doesn't reflect the time and effort invested in practicalities such as complying with employment legislation to ensure you're protecting yourself, your other employees, and your business.

No small part of hiring employees for the first time is having the weekly or monthly payroll run become a key consideration. Payroll can be a crucial – and confusing – part of any business, but particularly so when a business is just starting out.

Fortunately, help is at hand. QuickBooks provides easy-to-use payroll software that fits every business, from those with simple payroll needs to those with more advanced requirements, such as access for employees via a dedicated portal and the ability to automatically account for benefits like pensions and statutory payments and leave.

Simplifying complex payroll needs

Many businesses have complex payroll requirements – however, thanks to recent regulatory changes, this is particularly common in the construction industry.

Contractors eligible for the newly introduced Construction Industry Scheme (CIS) must make deductions from payments to subcontractors and pay the money to HMRC. Eligible employers must also file monthly returns and keep full CIS records, or risk paying a penalty.

The QuickBooks Advanced payroll solution calculates CIS taxes automatically and creates custom reports to help file with HMRC. This comes in addition to all the standard benefits of cloud-based payroll software, including saved time and improved efficiency, calculations you can count on, auto-updates in line with HMRC requirements and seamless integration with QuickBooks business accounts and other Intuit services.

So whether it's your first or fiftieth employee, QuickBooks Payroll is packed with features that take the hassle out of managing payroll. If you haven't yet explored what QuickBooks can do for you, visit <https://quickbooks.intuit.com/uk/payroll/> to find out more.



Opinion



Mark Beard
CIOB

New immigration rules can be positive for construction

THE NEW POINTS-BASED IMMIGRATION SYSTEM IS GOOD NEWS FOR TRADESPEOPLE AND POTENTIALLY FOR THE WIDER UK CONSTRUCTION INDUSTRY, SAYS **MARK BEARD**



When change looms, a good starting point is always to try and see the positives, accepting that people's motives are invariably well considered and change is part of the dynamic world in which we live. Immigration has been a contentious subject for decades and the UK government's post-Brexit plans were never going to please everyone.

What the UK government has come up with is a pretty smart, balanced solution to a difficult problem. In essence, it is restricting trade and lower-paid immigration, but allowing a more liberal flow of technical, professional and higher paid construction workers, with a focus on permanent roles.

In the short and medium term, this will cause further skills shortages on site, to which the construction industry is likely to respond by paying more for available labour resources, levelling up the wages of those at

the sharp end of our industry. This in itself, is a very good thing.

However, how the industry then reacts to a world of higher labour costs is really interesting and potentially game-changing. My hope and expectation is that higher labour costs will accelerate a number of positive changes already taking place in our industry, including:

- Contractors being forced by the resulting labour shortages to provide tradespeople and others with safer, healthier and better organised working conditions;
- Contractors looking at the ever-increasing cost of every hour worked on site, increasingly focusing on overall site productivity, providing tradespeople with the information to work efficiently and giving them every chance of getting it right first time;
- Those responsible for design putting greater efforts into producing fully detailed,

well-coordinated designs that facilitate efficient working;

- Customers increasingly looking to modular solutions, which minimise the use of site labour; and

- All of us embracing the digital tools that other industries have used for many years.

This may read like motherhood and apple pie. There will be many bumps in the road, but there should be optimism that the government's proposed points-based immigration system will lead to a better industry.

In part, because we have embraced a variety of change over the last decade, that has led to a better industry – most notably in our approach to keeping everyone who works on our sites safe – but also because there are a number of elements of the government's proposed immigration system which further encourage modernisation.

In particular, the focus on allowing in higher-paid technical and professional construction staff will give greater emphasis to fully designing and planning all elements of works before commencing each element of work on site, while the granting of immigration points to permanent employees will disproportionately help modular offsite construction companies.

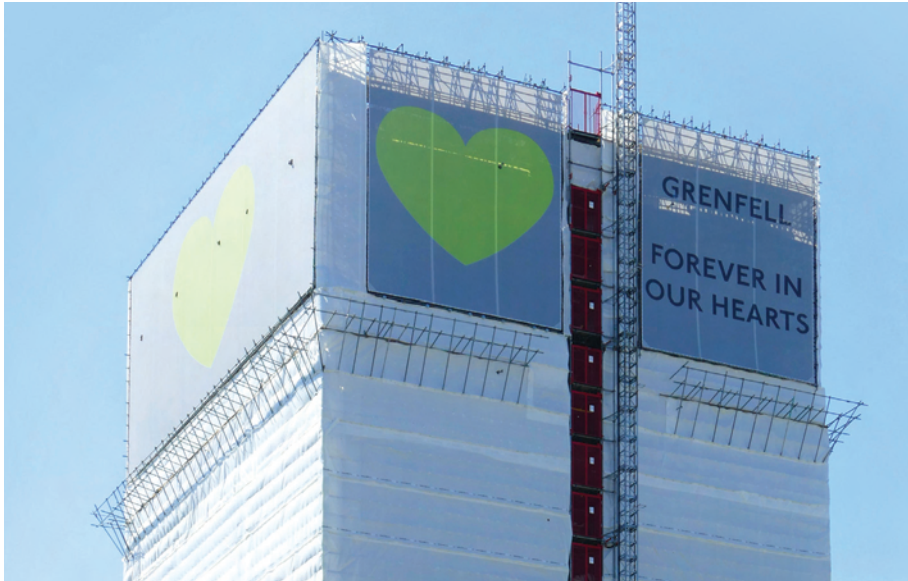
However, there are two very big provisos to our new points-based system leading to a better construction industry.

Firstly, the construction industry presenting a far more positive image to individuals (and to their parents/teachers) considering a variety of career options. And secondly, the construction industry and government working together to ensure education and training provided is fit for purpose: delivering the necessary skills for tomorrow as well as today.

If you are one of the lucky ones to receive a big short-term boost to your earnings from restricted labour flow – enjoy it while it lasts. But do make sure you keep enhancing your skills so that you are ready for the new digital world that is likely to follow. ●

Mark Beard is chairman of Beard Group and president-elect of the CIOB.

LOZ PYCOCK



The systemic failure that created the Grenfell tragedy is a millstone around the industry's neck



Iain McIlwee
FIS

Construction creates value, but business model needs to change

A CBI STUDY HIGHLIGHTS THE VALUE OF CONSTRUCTION TO THE WIDER ECONOMY, BUT REFORM OF THE SECTOR IS NEEDED URGENTLY, SAYS IAIN MCILWEE

A new report by the CBI shows that the construction industry is a vital part of the UK economy – but the business models that underpin it are breaking.

Fine Margins: Delivering Financial Sustainability in UK Construction found that every £1 spent on construction creates £2.92 of value – and yet the operating environment for construction companies is still precarious.

The CBI Construction Council has looked at the role risk allocation plays in the fortunes of UK construction. Poor risk allocation between clients and contractors prevents projects being procured and delivered successfully, and the industry structure leaves major contractors and their subcontractors especially vulnerable.

A rethink of the accepted wisdom in the industry's business model is needed. As this report sets out, a series of behaviour changes

are required across the industry to tackle the problem with risk and move towards a financially sustainable future. It acts as a rally call on businesses to break from poor habits, and on clients to bring new behaviours to the table. It recognises that better risk management is the major enabler and looks at how risk is squeezed onto the supply chain.

The report draws out some inherently unhealthy practices. In 1932, it was recognised that contracts should be balanced and the Joint Contracts Tribunal (JCT) was born. It simply cannot be right that these contracts are often issued with pages of amendments that double the size of the document. Clients should stop asking and we should stop accepting amendments to these contracts. If enough clients did this and the public sector led the way, we would make fix many of the problems overnight.

However, the CBI report doesn't dig far enough into the supply chain. We need positive changes – like zero retentions and more time for planning – through each stage of the process.

The study also does not take the opportunity to reconsider how we value buildings. If we reward effective asset management, clients will give more consideration to how they manage and maintain that asset and, vitally, look in a more considered way at the reuse, recycle and rebuild options they can take. A typical building will have upwards of 30 refits in its life.

Finally, the report fails to offer solutions for the total systemic failure that created the Grenfell tragedy. This is a millstone around the industry's neck. To this end, it was good to see the chancellor announce the creation of the £1bn Building Safety Fund last month. Measures like this are essential to rebuild trust. ●

Iain McIlwee is chief executive of FIS, trade body for the finishes and interiors sector.



Caroline Gumble
CIOB

Conservation and climate change

LET'S JOIN UP THE DOTS BY ENSURING REFURBISHING AND CONSERVING EXISTING BUILDINGS RESULTS IN LESS ENERGY USE AND LOWER CARBON PRODUCTION, WRITES **CAROLINE GUMBLE**



Sir Robert McAlpine is restoring the Elizabeth Tower, a high-profile conservation project

Since I joined the CIOB, I have had the pleasure of visiting many historic buildings where our members work, and this brings home the fact that our members work in many different roles, on a wide variety of sites and structures.

A few weeks ago, I met representatives of the CIOB Conservation Special Interest Group (SIG) where Rory Cullen, SIG chair, updated me on plans for the CIOB's annual heritage conference in London – this year it's on the theme of 'Future

Skills for Traditional Buildings'. SIG member Professor John Edwards was also at the meeting – he is very much involved with climate change and energy efficiency. He gave an overview on 'Joining up the Dots', the presentation he's planning to deliver at this year's conference. It's timely and important, focusing on the aspects of our industry that impact on climate change.

When we look at the different CIOB priorities, we can see what that means. If we carry out

"If we carry out construction work well so that it lasts and doesn't require much attention, it will mean that the building should perform well, including its energy performance"

construction work well so that it lasts and doesn't require much attention, it will mean that the building should perform well, including its energy performance, and will not require activities that need energy and produce carbon to rectify problems. It's simple really, we need good design and good quality practices in construction. We can ensure that we build quality buildings or that we refurbish, conserve or retrofit existing buildings to the required quality standards. When you think about this, it clearly links to climate change.

The CIOB Conservation SIG has its eye on this ball. It instigated the development of the CIOB Building Conservation Certification competency scheme which aims to ensure that those working with traditional buildings (about 25% of UK building stock), are competent to do so, thus reducing risk of inappropriate treatment and poor quality. The CIOB considers certification to drive up quality vitally important. Additionally, we are developing a certification scheme in construction quality management which has the same goals but across the whole industry.

Let's join up the dots and work to achieve more sustainable construction and better performing buildings, ultimately leading to less use of energy and lower carbon production. It may be just one of the things we need to do to tackle climate change, but it's a very important one. ● **Caroline Gumble is chief executive of the CIOB.**

Update: Due to the Covid-19 virus, we have taken the decision to postpone the Conservation Conference. We are working to confirm a date for the autumn and will let members know the new arrangements as soon as we can. In the meantime, you can also check <http://bit.ly/conservation2020> for updates.

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Raising Standards. Protecting Homeowners

 An Innovate UK-backed scheme is encouraging offsite steel use, p32

Feedback

A selection of readers' comments about news and issues in the industry from www.constructionmanagermagazine.com

A New Homes Ombudsman will address issues such as sloppy brickwork



CM 25/02 Shoddy housebuilder crackdown

Ron
Very pleased about the government setting up a new independent ombudsman to protect homebuyers who are faced with shoddy building work in their new homes.

Tim Barrett
Will this really work, will it be enforceable and most of all will the homeowners be satisfied?

Making the works right after the event isn't the point, preventing poor workmanship in the first place is surely the issue to be tackled.

Mike Mogul
It is long overdue to hold these 'cowboys' to account!

Jim Stratford
Until we hit them where it hurts (the bank) there will be no solution due to the ever-increasing numbers of quick builds required.

As with all commercial/ industrial builds, we need to bring in a 5% retention for 12 months post-handover. That makes it so simple – if they don't fix the problem, we use your retention to pay others to rectify at the builder's expense.

That needs no new department, no overpaid consultancies, just a simple change to the contract that the government keeps 5% of every new build until they are satisfied that there are no outstanding issues.

CM 25/02 Joint venture disputes warning

Andy
A couple of projects that I have been involved with in the past which were run using JVs actually ran pretty smoothly.

The main reason was that the JVs formed were set up as bottlenecks between the partner companies and the project site. This enabled the projects to

proceed in normal fashion without disputes between the companies as the JV management had to reach decisions that were mutually agreed and then carried out by the project teams.

Bryan Jones
In my view most successful JVs need to have equal share in the project and develop a common objective and project brand which all staff fall under.

Significant team-building is needed at the start of the project at both team and sponsor level, with clear rules established and agreed in writing as to how JV disputes are resolved to the mutual benefit of the project.

The project will succeed or fail based on the behaviours of the sponsor's team and senior JV project managers.

CM 02/03 Fine after teen's career ended by fall

Peter Hackwell
Good to see that the HSE are still functioning despite their cuts. I would like to think that some of this young man's compensation came from the pockets of the directors.

After all, this is where the money ends up from the savings made by not using quality site supervision, signage or adequate PPE.

I hope that more future, random checks will be carried out now.

Tom
After working on commercial sites for 20 plus years where health and safety CDM is pretty much adhered to, I have recently worked on domestic projects, ie local builders building extensions and loft conversions.

I am shocked by the complete lack of health and safety and policing of health and safety in this domestic field. It's an absolute joke.

CM 24/02 Hot works thermal camera call

Mark
Ok, it is another procedure but if the insurance company offered a discount for this then it is a no-brainer.

The assistant site manager can take these images of all areas where hot work permits were issued to on that day before the site closes.

Obviously if works end earlier in the day then images can be taken at that time.

CM21/02 Tideway reaches halfway

Owen Jordan
Interesting. Should help prevent flooding as well as allow for urban growth. Nice to see it happening somewhere in the UK. But investment only in London again?

Provide your own feedback on latest industry issues by posting comments online at www.constructionmanagermagazine.com or by emailing the editor at construction-manager@atompublishing.co.uk

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Analysis



RESKILLING THE REGIONS

CAN THE UK'S INFRASTRUCTURE PIPELINE BE A CATALYST FOR DEVELOPING SKILLS IN THE REGIONS – RATHER THAN OVER RELYING ON AN ITINERANT WORKFORCE? **CM** TALKS TO THE AUTHOR OF THE CIOB'S LATEST ECONOMIC REPORT

Construction has long experienced major regional variations in workload. From 2013 to 2018, the greater south east – London, South East England and East of England – accounted for 45% of all construction output in Great Britain (see figure 2).

However, that is forecast to change over the next decade. London will still fare well, but some regions will enjoy a surge in construction activity (see figure 4), with Hinkley Point coming on stream, HS2 finally getting the green light and – further off – the Northern Powerhouse firing up.

Politically, elected mayors will be pushing growth agendas while Boris Johnson's new Tory government will likely invest in their new blue constituencies in former Labour heartlands.

In short, demand for construction skills in the regions will rise significantly. The question for the industry is – how should it meet that demand?

Matching skills to local projects

Historically, peaks and troughs in construction workload have fuelled an itinerant workforce. Trades and professionals have moved wherever the work was. But that's not necessarily a good thing for construction, the economy or society, argues Brian Green, industry economist and author of the new CIOB report *The Real Face of Construction 2020: Socio-Economic Analysis of the True Value of the Built Environment*.

"The construction industry should, at a regional level, match the resources to the skills that are needed," he says. "If we are building more transport infrastructure in the North and Midlands, we should have the skills in those regions to deliver those projects."

"Otherwise, we will have an industry where the skills are always moving around. The big contractors who work on the Northern Powerhouse will parachute in project managers from the

“If project managers live near their work, you get the virtuous circle of their wages being spent locally and that money going back into the local economy”

Brian Green, economist

south, who have just come off Crossrail, probably on big wages.

“Alternatively, we can develop those skills locally. Construction can have a huge, positive impact at a local level. If project managers live near their work, you get the virtuous circle of their wages being spent locally and that money going back into the local economy. It’s also better for their family life, to be home each evening rather than away living in a hotel all week.”

At present, most regions are ‘net exporters’ of construction labour, where there is a difference between the number of people employed in construction in the region and the number employed in construction who live there (see figure 3).

The ability of workers to move region to region can be a good thing, as it helps smooth the impact of often volatile local construction markets. But it makes sense to try to balance the local labour force over time.

Wales is a prime example of this effect, with the suspension of the massive Wylfa nuclear power station project pushing Welsh construction workers to look outside their nation for work. At the other end of the scale, London, perhaps understandably, in 2018 had a net inflow of about 41,000 construction workers.

Further exacerbating the regional skills problem is the ageing construction workforce, which is far more pronounced outside of London.

But with the pipeline of work ahead, there is an opportunity to address this regional skills imbalance, says Green.

“Industry leaders should examine what sectors are growing and where the demand is – and ask themselves how effective the industry is at delivering the right skills in the right places,” he says.

A recommendation in the report is the creation of specialist clusters, where regions become centres of excellence in certain areas of expertise (see box).

Offsite centres of excellence

Modern methods of construction (MMC) could be one example of this. In October, the government announced plans for a ‘silicon valley’ for offsite manufacturing in the North of England. The centre of excellence would aim to create a network of people involved in MMC and encourage them to share ideas and future uses.

“Clustering is currently popular among policymakers, the idea being to create hubs of excellence and ecosystems around certain activities,” explains Green. “In construction, regional specialists might be able to take advantage of the local business culture and experience. For instance, offsite manufacturing has historically been strong in east Yorkshire because the caravan industry was based in Hull.”

A further advantage of clustering – and particularly MMC – is that it will reduce the number of itinerant workers.

“Sites move around, factories don’t,” Green says. “Creating MMC clusters in key regions can help create long-term, stable careers concentrated on specific skills sets.”

Establishing skills strategies tailored to regions also fits with the new devolved training funding regime, which is just kicking in. The Department for Education is transferring elements of funding to the mayoral combined authorities and the mayor of London to undertake adult education.

“This is an important and potentially positive move for construction,” says Green. “If more work moves offsite,

45%

From 2013 to 2018, the greater south east – London, South East England and East of England – accounted for 45% of all construction output in Great Britain

Figure 1. Regional construction GVA growth 2012 to 2017

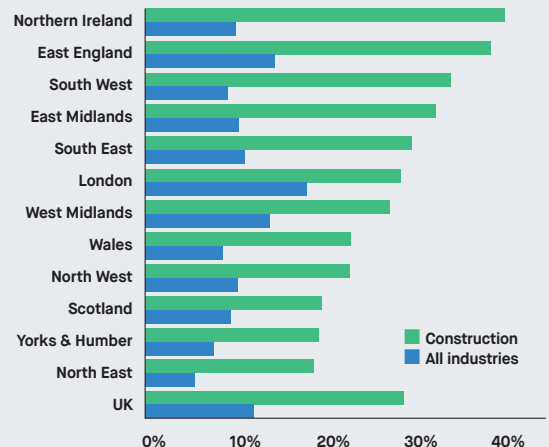
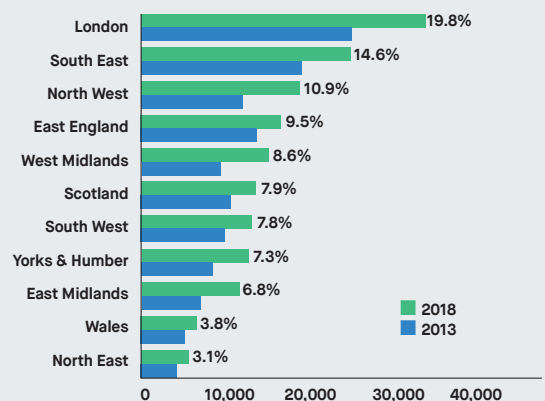


Figure 2. Regional distribution of construction output 2013 and 2018
(£m, current prices with 2018 % share)



there are major implications for training. CITB’s analysis into the impact of MMC on housebuilding suggests a major shift in skilled trades and manual occupations to working offsite.”

In this context, devolved funding priorities for construction training could be tied into a region’s clustering strategy, reasons Green: “There will ▶



70% As much as 70% of new-build construction is dependent on government policy

Clustering and construction

Policies could provide local and national economic benefits

“Across many industries, one solution to generating improved performance has been to cluster businesses, which helps to stimulate innovation, create greater opportunities for networking and sharing of ideas, and open up greater scope for collaboration. This helps make regional companies far more effective in their local market as well as in the wider UK and overseas economies.”

This description of clustering is taken from Brian Green’s new construction economic report for the CIOB. He regards the idea as “particularly important in the context of increasing focus on offsite production and the push for greater innovation”.

Green believes that during a “period of rapid change” for the industry, policies promoting clustering would benefit both the wider construction sector, the economies of these regions and the nation.

“Local and central government should promote and support clusters of construction-related businesses to act as hubs of excellence and innovation,” he argues.

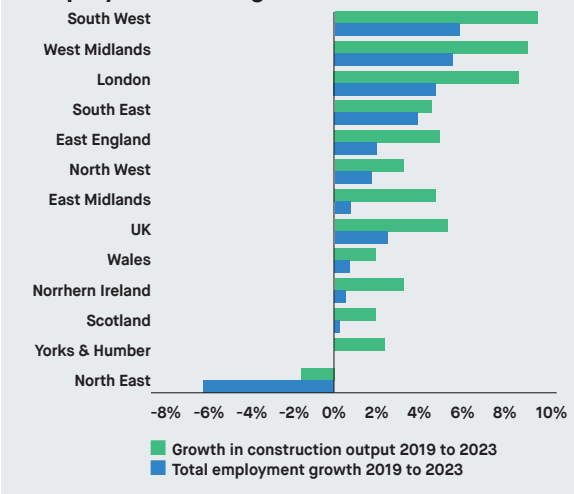
“Incentives, such as low rents or low rates, and services like business mentoring, that support development of the sector, should be provided for engineers, architects, surveyors, contractors, specialists and product manufacturers. These clusters should be near to and linked to centres of education and training.

“Now is the time to provide resources to nurture what looks set to become a significant job-creating, value-generating part of the construction industry and the overall economy.”

Figure 3. Region construction labour flows (workplace employment minus resident employment)



Figure 4. Construction output and employment total growth 2019 to 2023



be regional variations in demand for offsite skills that will relate more to where factories are sited rather than to where there are construction sites.”

However, the report’s regional vision for construction is very much dependent on the national policy framework.

“The report recommendations assume steady economic growth – but construction’s biggest two issues are volatility and uncertainty,” Green notes.

“The industry is much more volatile than the economy overall, but when there are large projects in local areas, the local impact is exaggerated. So, we need to understand how the national and regional context are related.”

And government policy is arguably more important to the future of construction today than for decades. Green reckons as much as 70% of new-build construction is dependent on government policy, so consistent, long-view decision-making is critical.

This is more likely to come about with an understanding of the industry’s real value, as indicated by the title of the CIOB report. Green’s analysis suggests that construction’s contribution to the UK’s GDP is probably double the figure of around 6% given by the Office for National Statistics, when the work of architects, engineers, product manufacturers and plant hirers is factored in.

“It all depends on how you define construction. As things stand, we take a very narrow view that doesn’t really match how people in the industry see construction,” he says. “When policymakers understand the true value of the industry, they will appreciate the importance of construction-related decisions on the wider economy and society.” ●

Brian Green’s report for the CIOB, *The Real Face of Construction 2020: Socio-Economic Analysis of the True Value of the Built Environment*, is available from the CIOB website: ciob.org.



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'UNDERSTAND WHAT VALUE MEANS TO EMPLOYEES'

NEW RIDER LEVETT BUCKNALL CEO ANDREW REYNOLDS SAYS A MOTIVATED WORKFORCE, ARMED WITH SKILLS FOR A RAPIDLY CHANGING CONSTRUCTION INDUSTRY, IS KEY TO THE CONSULTANT'S FUTURE. **NEIL GERRARD** SPOKE TO HIM

Independently owned consultant Rider Levett Bucknall (RLB) is dreaming big under the leadership of newly installed chief executive Andrew Reynolds.

Reynolds took the helm of the company late last year, at the same time that RLB announced it wanted to grow turnover to £150m over the next 10 years.

It has made a promising start. Profit at the firm more than doubled for the year to 30 April 2019, at £7.3m, while turnover rose to £81.7m, from £58.7m the year before.

Perhaps it all has something to do with RLB's official company purpose, which is: "Have fun, feel valued, and make money, forever." Reynolds admits that it sounds rather "fluffy" but there is a very serious intent behind it.

"For us, as a business that is 100% employee-owned, it means that it is very important that our employees feel that they are working in an environment where they are enjoying what they are doing and feeling valued, that they are being well rewarded, and they can see their career growing in the long term.

"We really need to understand what value means to them. We believe that's the starting point from which to build a great workforce," he says.

Reynolds certainly seems to be a good example of the approach. Although only recently appointed chief executive, he has been with the business for 19 years. And in fact, more than 20% of the people working in the business have been employed by RLB for more than 10 years.

Nonetheless, Reynolds sees significant change on the horizon, not just in the way that the company operates as it grows, but also in the make-up of the workforce.

The skills that RLB needs are shifting as construction embraces its digital future, and Reynolds asserts that the main focus is currently on BIM and analytics. Its non-network digital team – those people not working within normal IT functions – is now more than 20 people, and RLB has just appointed its first chief digital officer in Matt Sharp.

"An organisation like ours accumulates a huge wealth of data

that we generate on behalf of our customers. And the challenge for a business like ours is how do we leverage that global dataset and turn it into intelligence for our clients? And how do we make sure that we have the skills that enable that to be done? So, we've certainly seen a bit of a shift in skills," Reynolds says.

Similarly RLB is placing an increased emphasis on offsite construction, which ties into its commitments to sustainability and social value.

"For us, offsite manufacture is about making ethical, balanced decisions for our clients that can marry the uniqueness of offsite with the client need. And I think we are now starting to see some really good case studies that come with offsite," says Reynolds.

He admits that the UK is something of a latecomer to the offsite party and puts that down to a range of complex factors, including the client briefing process, the design and planning and procurement processes, as well as the maturity of supply chain.

"There's a whole series of things that I think need a slightly different approach when you consider offsite. As we know, the industry suffers from fragmentation and to get the right skillset brought to each project with the relevant skills in this subject is always a challenge," he says.

"But I think we will start to see skills move from the site to the manufacturing process and it will become more plug and play. So we see our skills shifting to offsite procurement and offsite contract management." ►

Right: CEO Andrew Reynolds, appointed chief executive of RLB's UK practice in November 2019



TOM CAMPBELL

Andy Reynolds on...

...quality and professionalism

"The very DNA of our business is built around professional qualification. The route through skills in our business is degree-level education and on to an organisation such as CIOB, RICS, APM. We encourage everyone to have a professional qualification. And importantly, what backs that up is the ethical standards that go with that qualification."

...management style

"Leadership isn't about being in charge but is about taking care of those in your charge. Unfortunately, it's a phrase that's been in the press for a very sad reason recently but I've always found that being kind has always been a core ethic. If you encourage, give freedom and listen, I generally find that people shine."

...Brexit

"Traditionally, Europe for RLB was a series of alliances with independent organisations. What has changed for us is that we're now finding that our clients want to still contract with RLB from the UK as a lead. So for the first time we are registering businesses in Europe to enable us to continue our work with our clients and to contract in a slightly different way."

40%

By 2024, RLB aims for 40% of all staff to be female across its offices

Hand in hand with offsite goes sustainability, and RLB is currently in the process of moving its whole environmental approach to align with the United Nations' (UN) Sustainable Development Goals.

"We see that as a really strong framework from which to adopt a common language and a common set of objectives for the world to address what is the biggest issue that faces us in modern times," says Reynolds.

Repurpose and reuse

In practical terms, that means reducing RLB's own environmental impact, as well as changing how it advises clients. A key area there is looking at opportunities to repurpose or reuse buildings, rather than advising clients to rebuild them completely.

"We've seen some great case studies from clients now where they are truly embracing this and some very good results are being achieved," says Reynolds. Finally, there is the standalone environmental advice and services that RLB can offer to its clients to help them make better decisions.

As far as RLB's own progress on reducing its environmental impact is concerned, the outbreak of coronavirus is already putting some of the methods the company plans to use – for example, reduced business travel – to the test.

"It's a behavioural issue, as much as a policy issue," says Reynolds. "We have put extensive plans for coronavirus in place like any business and it is testing our core beliefs. As an example, I am a global director within RLB and we only meet three times a year as a global board. We were due to have a meeting in Shanghai in February and we cancelled it and decided to do it on Skype. It actually worked really well. And it made us question whether we should just meet twice a year face to face.

Andy Reynolds CV

- 1996: Graduated from University of Salford with a BSc (Hons) degree in Quantity Surveying; joined Gardiner & Theobald as a graduate surveyor
- 2001: Joined RLB as a senior surveyor
- 2005-6: Appointed UK head of retail
- 2008: Role extended to oversee the European business
- 2010: Oversaw the project, cost and health & safety management for the overlay element of London Olympics 2012
- 2014: Appointed to the RLB UK board of directors
- 2015: Appointed to the RLB global board of directors
- 2019: Appointed chief executive of RLB's UK practice



"Sometimes there are these odd moments of positive challenge that get us to rethink how we approach things."

Another major area where RLB is having a rethink is on diversity and inclusion (D&I). The company has introduced a D&I steering and implementation group in a bid to boost the number of women and ethnic minorities within its business.

By 2024, the business aims for 40% of all its staff to be female across its offices, with 20% of senior positions filled by women by 2022. In 2019, 30% of the workforce was female. Meanwhile, it aims for all of its offices to be within 10% of their local ethnicity mix by 2022.

To help achieve that, the company has put thought into making its recruitment process as inclusive as possible, with all staff who undertake recruitment undergoing D&I training on areas like unconscious bias, as well as making recruitment panels more reflective of the workforce.

"There is a lot of work going on in this area, and ultimately, I think it is about how we celebrate people professionally and personally. One of the key challenges for D&I is to give everyone the appropriate level of voice and to make sure that voice is heard," says Reynolds.

Building relationships

While some of the challenges that RLB faces as it continues on its path to doubling in size may be novel, Reynolds concludes by citing the tried and trusted advice that his father gave to him as he set out on his career. "On my first day of work, at the age of 17, he told me: 'Never overlook the small details, treat everybody equally, and finally – it's a small industry so always build relationships very positively.' Those are three things that I have lived by." ●



DIGITAL TRANSFORMATION – OVERCOMING CULTURAL AND BEHAVIOURAL BARRIERS



Digital Transformation is a huge opportunity for the AEC industry that has struggled for decades with low productivity and low profitability. Fully embedding digital tools into business as usual offers a way out of this trap. However, many companies are struggling to make the most of existing products and few are on top of the possibilities created by emerging technologies.

What can engineering and construction firms do to accelerate adoption?

Focus on digital leadership

The industry is not making the most of the technology available because of unawareness about what it can do. At the same time, when technology is deployed it can fail to deliver its potential because of a lack of fit with existing processes and ways of working – or its effectiveness is undermined by the existence of out of date legacy IT systems.

Chief technology officers or chief digital officers are an increasing presence in engineering and construction firms. This trend does point to the industry acknowledging that digital transformation is both an organisational change issue and a technology issue. Now is the time for more organisations to consider if they have the personnel in place to deliver digital leadership.

What can be done at the industry level?

Use technology to develop new business models

We have already seen that E&C firms typically struggle with low margins. This inevitably reduces the appetite to invest in technology and the human capabilities needed to exploit them.

Digital transformation does point to a way out of this trap. Digital tools combined with increased volumes of data mean consultants and contractors know more about the assets they design and build than ever before. This insight can be the basis for new business models in which firms are rewarded for the value they deliver to their clients, rather than the inputs they put into projects.

Establish industry standards and improve interoperability

Volumes of data are generated in different formats via a multiplicity of incompatible systems. This is as a barrier to unlocking the benefits of digital transformation. One size will never fit all but establishing industry standards and improving interoperability would be a big step forward. If industry players can agree to a basic framework, opportunities to develop scalable products and services could be huge.

Read the full report created in collaboration with the Institution of Civil Engineers for more insights.

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Technical

KNIGHTSBRIDGE SHIFT

WITH PILES DRIVEN WITHIN MILLIMETRES OF TUBE TUNNELS AND A COMPLEX FACADE RETENTION ON LONDON'S MOST EXCLUSIVE SHOPPING STREET, SKANSKA HAS ITS WORK CUT OUT ON THE £150M KNIGHTSBRIDGE ESTATE SCHEME.

STEPHEN COUSINS REPORTS

“On most jobs there are two or three handovers in total, but this construction schedule is very detailed, with nine separate critical paths”

John Birch, Skanska



AJPMEDIA

Construction management is all about keeping multiple plates spinning, but with 14 sectional handovers to deliver by 2021 Skanska must focus hearts and minds to deliver the huge Knightsbridge Estate mixed-use development in this well-to-do area of central London.

The contractor is delivering major building works for the scheme, located in the Royal Borough of Kensington

and Chelsea, a mere stone's throw from Harrods, under a circa £150m lump sum contract with Carraig Investments, a wholly owned subsidiary of the Olayan Group, a private multinational enterprise based in Saudi Arabia.

John Birch, project director at Skanska, told *CM*: “I’ve been in the industry a long time and on most jobs there are two or three handovers in

total, but this construction schedule is very detailed, with nine separate critical paths.”

Three retail units will hand over almost a year before Skanska finishes on site and the shops will be trading for six months while the rest of the building is completed.

The logistical imperative to hit programme milestones meant firstly tackling a number of technical challenges, including the complex substructure and above-ground temporary works designed to streamline and support work on the main build.

An ambitious facade retention scheme (FRS) was devised to prevent a patchwork of historic elevations, stretching almost the entire perimeter of the massive 3,800 sq m site, from collapsing onto the street, while the existing building interiors were demolished.

Elaborate foundation works involved the excavation of some 18,000 cu m of muck – 50 lorry loads a day for 10 weeks – to create an 18m-deep, three-storey basement, and the insertion of some 50 piles within a London Underground protection zone.

“At points we had piles less than 250mm away from London Underground assets, when projects are normally not permitted to go within 3m. That proximity required detailed method statements for the piling work, extra monitoring and London Underground had an engineer on site full time to oversee what we were doing,” says Birch.

Above: The site is at the junction of Brompton Road and Sloane Street

Opposite: Concrete is poured for the building's frame

Opposite below: The proposed final development



Technical story for CM?
Email will.m@atompublishing.co.uk

68

The pre-construction agreement ran for 68 weeks

Skanska's involvement in Knightsbridge Estates dates back to July 2016, when it was appointed by Carraig Investments under a 34-week pre-construction services agreement (PCSA) to scope out work based on a design by Fletcher Priest Architects (FPA).

The PCSA was subsequently extended by a further 34 weeks and in early 2018 the main contractor was awarded the build contract. Construction got underway in May. Day-to-day progress on site is overseen by developer Chelsfield, which manages Olayan Group assets in the UK, and a client monitoring team comprising FPA, Waterman Structures and Chapman BDSP.

The project is located on a roughly rectangular plot of land at the junction of Brompton Road and Sloane Street in the heart of bustling Knightsbridge, where a plethora of upmarket shops and fine dining venues encourage the great and good to part with their cash.

The prime location dictated a retail-led scheme (65% by value) with shops spread across basement level 1, ground, first and parts of the second floor. Residential apartments and offices are split across levels 2 to 6 and residents have access to an open-air courtyard garden with an orangery at the centre of the scheme on the second floor. A restaurant is located at the western end of the development on floors 6 and 7.

Knightsbridge Estate

Value: £150m

Programme: 2018-2021

Client: Carraig

Developer: Chelsfield

Employer's representative: Aecom

Cost consultant: Alinea

Main contractor: Skanska

Skanska team:

Architect: Fletcher Priest Architects

Structural engineer: Waterman Structures

Building services engineer: Chapman BDSP

Key subcontractors: Sub/superstructure: Mitchellsons

Steel frame: Severfield

Lifts: Kone

Cladding and shopfronts: Permasteelisa

Facade repair and restoration: PAYE



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The superstructure combines a concrete frame for the apartments, needed for acoustic insulation, and a steel frame. The project involves a total 1,000 tonnes of steel and circa 17,300 cum of concrete (frame and basement).

Knightsbridge Estates integrates with access to Knightsbridge Underground station on the Piccadilly Line and, as part of a development

agreement with London Underground, it involves major alterations to station access and circulation.

The main entrance to the tube, on the corner of Sloane Street and Brompton Road, will be converted into a retail unit and replaced by a new entrance in the Brompton Road elevation with a widened pavement for pedestrians. A second entrance will be created ▶

at Hooper's Court, an alleyway on the western flank of the development, alongside the existing 1906 station entrance with its distinctive 'oxblood' glazed red tiling, which will be retained and restored.

A new step-free route to the platforms, including two 17-person lifts at Hooper's Court, will reopen areas of the station closed in the early 1930s when escalators were introduced.

The site's proximity to London Underground assets, including two tunnels running under Brompton Road, a disused tunnel that loops away from these at right angles, and two existing cast iron shafts (being converted to accommodate a new lift shaft and fire escape stair) dictated the need for stringent control over ground movement during the formation of the substructure.

Scott Newton, engineering manager at Skanska, says: "Dig a big hole and the ground is going to want to lift up and move inwards, so the temporary works basement propping scheme had to be designed to meet tough trigger limits set by London Underground."



The massive escalator barrel to the north of the site was a particular concern, its horizontal movement had to be kept below 9mm at the top and 17mm at the bottom during excavation.

Some 578 structural piles were needed to support the new building, including 1,500mm-diameter piles positioned away from London Underground assets and 50 smaller

Above: Enabling works behind the retained facade in January 2019

Below: Location of the massive site close to Hyde Park

"If construction projects come within a 3m zone, London Underground has to get involved and a lot of our smaller piles are well within that – four are just over 200mm away"

Scott Newton, Skanska

piles of between 600mm and 750mm diameter positioned much closer in.

"If construction projects come within a 3m zone, London Underground has to get involved and a lot of our smaller piles, in the area of the disused tunnels and the cast iron shafts, are well within that – four are just over 200mm away," says Newton.

Detailed method statements for piling in the sub-3m zone were drawn up and reviewed, in discussion with London Underground, the client, its structural engineer and the piling contractor. Work was then carried out in a stop/go process involving regular checks on pile verticality. A small camera was inserted inside the bore holes to check integrity.

Retaining perimeter frontage

If pedestrians were unaware of the challenging work going on beneath their feet, they will surely notice the facade retention scheme (FRS), a lattice of chunky steel towers and beams erected around the outside of the existing facade to prevent it from collapsing while the floors behind were demolished.

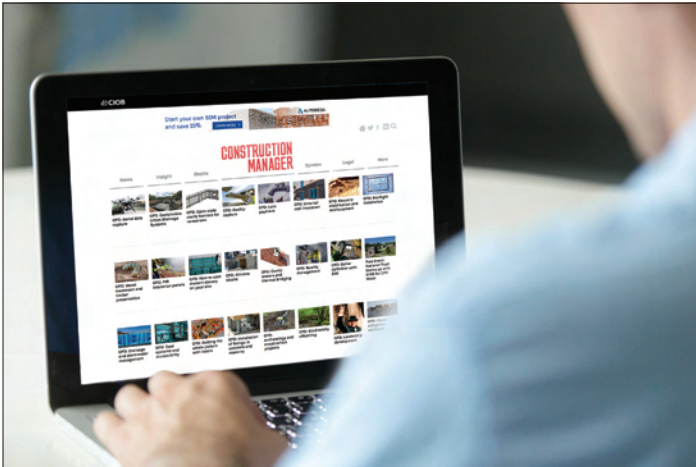
The decision to retain most of the existing perimeter frontage was unusual, given that just one of the buildings, a 1904-built four-storey property at the corner of Sloane Street and Basil Street, is listed. This is being retained on its existing foundations and refurbished to create apartments. ►



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Oxblood red tiling is being retained and restored on the Hooper's Court facade



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Tom Salmons, senior associate at FPA, told *CM*: “The project sits within the Hans Town Conservation Area so we wanted to improve the facade, rather than replace it, because it is such an iconic location and the planners didn’t want us to take down the entire city block.”

The reuse of the facade supports the project’s environmental credentials; the offices achieved a BREEAM Excellent rating and the retail Very Good.

Some sections of the frontage were demolished, including a 1950s building at corner of Brompton Road and Hooper’s Court, which did not fit visually with the rest of the scheme. This gap currently provides site access, but will be filled with a recreation of the

Construction work takes place on the steel frame of the new build

building that originally stood on the plot before being bombed in the Second World War. The design was developed in collaboration with the project’s facade repair and restoration specialist PAYE, based on archive photographs and historic reports.

The Hooper’s Court elevation was demolished above ground floor level to make way for a unitised facade with white enamel tiling and a floral pattern inspired by John Hooper, a keen gardener who developed the masterplan for the existing city block.

The ornate stone facade of the 1920s building at the corner of Brompton Road and Sloane Street had sections of the first floor removed and reconfigured to create taller windows more suitable for residential use. The original architect’s plan for an impressive corner dome and turret was never fully realised but will be reinstated.

“The facade has undergone a lot of modernising to make it work whilst staying sensitive to the original construction. We’re adapting the existing, but in a way that looks like it is original,” says Salmons.

Facade retention design

The FRS was designed by engineering design consultancy Wentworth House Partnership for Keltbray Demolition & Civils as part of the demolition contract. It was subsequently redesigned during Skanska’s PCSA period to meet the needs of main building works, including the requirement to control ground movements during basement excavation.

The steel columns and beams rise to the fourth floor and a height of about 25m and connect back to the facade with timber struts. The bases of the columns plunge through the pavement and are cast into existing vaults underneath, which absorbs loads generated by the movement

“The facade has undergone a lot of modernising to make it work while staying sensitive to the original construction. We’re adapting the existing, but in a way that looks like it is original”

Tom Salmons, FPA

of the facade. The vaults around the perimeter were all infilled with concrete and tied together with cast-in reinforcement to create a ‘ring beam’ that anchors the FRS and shores up support for the basement excavation.

“The biggest issue with installing an external retention scheme is the need to avoid services in the footpath and we were limited to a certain extent by where services are located,” says Newton. “It meant a lot more preliminary investigations and hand digging to avoid damage.”

The presence of London Underground assets close to the surface, including a ticket hall and escalator barrel at the junction of Brompton Road and Sloane Street, meant the FRS at this location could not connect to the vaults and instead was retained on strip foundations at pavement level. Additional support was provided by a support tower positioned behind the facade.

The project team’s diligent planning and execution for substructure works ultimately paid off and trigger levels for London Underground were never exceeded.

The FRS is now being dismantled as the building’s concrete and steel superstructure rises behind the temporary works structure. Construction work on the Knightsbridge Estate development will continue through 2020 with a scheduled completion date of April 2021. ●



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STEEL BUILDS A NEW OFFSITE PLATFORM

AN INNOVATE UK-BACKED PROJECT INVOLVING THE BRITISH CONSTRUCTIONAL STEELWORK ASSOCIATION AND THE STEEL CONSTRUCTION INSTITUTE AIMS TO ENCOURAGE MORE STANDARDISED STEEL COMPONENTS. **CM** REPORTS



Steel sees itself as the original offsite construction material, with up to 90% of structural steelwork already manufactured in the factory.

Now, the steel sector is aiming to extend the use of factory processes through an Innovate UK-backed research project run by the British Constructional Steelwork Association (BCSA) and the Steel Construction Institute (SCI).

The initiative follows enthusiastic government backing for offsite construction, including a consultation on a new standardised approach to building announced last year: a platform approach to design for manufacture and assembly (P-DfMA).

**“This
Innovate UK
project sets
out technical
solutions for
multi-storey
structures
which meet
the objectives
of P-DfMA and
deliver benefits
to the client”**

**David Brown,
SCI**

By taking a consistent approach and using standardised and interoperable components across a range of different buildings, the government hopes to encourage the creation of a new market for manufacturing in construction and to take advantage of economies and efficiencies of scale. The Treasury believes this approach can boost productivity while reducing waste by up to 90%.

“Structural steelwork is already a relatively fast form of construction, however, further benefits can be obtained by moving even more of the process offsite,” says SCI associate director David Brown.

“This Innovate UK project sets out technical solutions for multi-

storey structures which meet the objectives of P-DfMA and deliver benefits to the client.

“These are standardised technical solutions, meaning that repeatable components are manufactured offsite. Some have already been successfully used in landmark projects. For example, steel composite cores can shorten a construction programme from 18 months to 10 months and reduce costs by 2%.”

Two multi-storey building types were considered during the study: offices, based on British Council for Offices structural grid recommendations, where common structural forms involve a concrete core with composite

A steel floor cassette is craned into place



slabs and beams; and residential, where shorter span requirements mean that in-situ concrete is the typical structural form.

“Our proposals are evolution not revolution,” says Brown. “Successive renowned studies since the Latham report in 1994 have reached the same conclusion. The key characteristic is to move more construction effort to the offsite factory, rather than the construction site.

“It will help meet government objectives to reduce onsite construction time, increase construction productivity, improve safety on construction sites and address onsite skills shortages.

“The capital cost of some offsite technologies may be higher than the equivalent ‘traditional’ construction methods, but advantage is derived from an earlier return on investment when considering a project holistically.”

The BCSA/SCI project is developing a free online guide, with design prototypes that can be used by clients, contractors and engineers to manufacture and construct mainstream steel-framed buildings that include offsite-manufactured steel components. ●

The BCSA/SCI project documents will be available on the BCSA and SCI websites: steelconstruction.org/ [bcsa](http://bcsa.com) and steel-sci.com.

“Advantage is derived from an earlier return on investment when considering a project holistically”
David Brown, SCI

Modular steelwork construction enabled the Rainier Square office development in Seattle to be completed in 10 months rather than 18 months

Offsite steel solutions using platform principles

The SCI’s David Brown describes constructional steelwork innovations recommended in the study which use a Platform-DfMA approach

1. Steel composite cores

Recent experience in North America has shown twin skin steel composite cores are substantially quicker to construct than the concrete equivalent. Their thinner walls also increase the usable floor area and reduce the load on the foundations.

Although initial costs are more expensive than for concrete, there are speed advantages. The construction of Rainier Square in Seattle, with a twin skin steel core, was completed in 10 months rather than the 18 months anticipated with a traditional concrete core and at reduced cost overall.

With this approach, prefabricated panels comprising external steel plates and internal shear studs are erected in the ‘empty’ condition to form the core. The concrete infill to the panels is placed at a later date and is not on the critical path.

2. Standardised steel columns

In typical multi-storey construction, columns are two or three storeys in height and fire-protected with an intumescent coating, which is applied offsite. Steel beams are connected directly to the columns.

However, with robotic material handling and welding increasing in the UK, standardised single-storey height columns can facilitate a P-DfMA approach. This involves using standardised steel sections, components and offsite assembly. The single storey columns are ‘plain’, with simple end connections, to facilitate mass production offsite.

For high loads, the columns are likely to be universal columns, which have concrete cast within the section profile. Alternatively,

hollow sections, typically circular or square profiles, may be filled with concrete.

3. Dry floor plates

Floors in multi-storey buildings are typically built as composite slabs, comprising profiled steel sheet and concrete. This is a time-consuming operation but can be avoided if complete floor panels are erected, saving the need for concrete to be placed on site.

These ‘dry’ floor solutions are factory produced, meaning they are precise components. Panels are shallow, typically less than 20% of the storey height, so multiple panels can be transported to site in one load.

Panels are rectangular in shape, with some form of floor construction, such as concrete or timber, and a perimeter steel member on each side. The steel supporting members span to primary steelwork supports.

4. Facade and roof panels

The primary advantage of prefabricated panels is the earlier dry envelope, plus a reduction of up to 25% in overall construction programme. Prefabricated panels are dimensionally precise and engineered to provide acoustic, thermal and fire performance.

Modularised external wall panels are formed with a stiff structural core, insulation and a vapour barrier on the external face. Panels may have internal finishes factory-fixed and openings for windows provided.

Light gauge steelwork may be used to provide the structural frame of a modularised wall or roof panel. Single panels, typically around 3m wide, may cover several storeys, supported at the base and attached to intermediate floor levels.



NBBJ/SEAN AIRHART

75

The weight in tonnes of each new bridge



MADE IN HOLLAND, BUILT IN CHELSEA

A PAIR OF STEEL PEDESTRIAN FOOTBRIDGES FOR A THAMESIDE DEVELOPMENT HAVE BEEN FABRICATED IN THE NETHERLANDS AND FLOATED ACROSS THE NORTH SEA PRIOR TO INSTALLATION. **CM** REPORTS

A lesser-known stretch of the London riverside is being brought to life with the aid of two new pedestrian bridges, fabricated from structural steel.

Chelsea Waterfront is a new 3.2ha mixed-use development, including Lots Road power station, which straddles Chelsea Creek. The £140m mixed-use scheme, masterplanned by architect Farrells, includes two glass

residential towers, three riverside buildings, landscaped gardens and redevelopment of the listed power station, formerly the generator for London Underground. Work on the development, where Ardmore is main contractor, began in 2017.

A stand-out feature is the piecing together of the two sides of the creek, connecting the Thames riverfront and

Above: One of the steel bridges is craned across Chelsea Creek beside the power station

path, with three pedestrian bridges. This has involved Farrells repurposing an existing vehicle bridge and creating the two pedestrian crossings, working with Dutch steel contractor Hollandia, engineer Buro Happold and Ardmore.

The new bridges – the western and central of the three crossings – each have a 38m span across the Chelsea Creek. They create a direct link into the power station and are aligned with the centres of the two chimneys. The underside height of the bridges was set by the space needed for the river and creek boats to pass below at the highest tide levels.

“The bridges are simple in concept, with the bridges themselves working as long box beams,” explains Russ Hamilton, design partner at Farrells.



“The top surface is one continuous metal plate that curves upwards in the surface plane, while the sides of the bridge ‘beam’ are set in and angled towards the centre. The base of the ‘beam’ is flat and links the two angled sides.

“This approach reduces the bridge beam at the ends where they meet the creek sides and maximises the beam structure centrally where it is needed the most, to balance the forces of the span.

“Fine steel cords link the set-back side structure with the top plate edge, adding strength to the cantilevered sides.”

The design is completed with fine metal balusters and a thin textured finish on the steel decks, to maintain the slim appearance and minimise additional material weight.

Installing the two bridges was always going to be a significant challenge, given the site constraints and access limitations. With this in mind, Farrells designed the bridges so they could be fabricated as single sections, brought to the site via the river and installed using a single crane.

Kevin Graham is project manager for Hollandia, which fabricated the bridge structures in the Netherlands and transported the completed sections – each weighing 75 tonnes – on seagoing barges via the North Sea to the River Thames and eventually Chelsea Creek.

“Timing the transport against the tide difference in the Thames was the main logistical challenge,” Graham explains. “The barge needed a low tide to pass under the existing bridge on site but still required enough water depth in the Chelsea Creek to offload.

Above: The bridges were transported by barge down the Thames

Below: A single CC2800 crawler crane carried out the installation within 24 hours

“Installation of the bridges was completed using a CC2800 crawler crane, by Hollandia’s UK business, inside 24 hours – a major cost, construction and environmental benefit, negating the need for creek or road closures.”

The third bridge, near the creek mouth, was an existing bridge that has been repurposed. Previously used to ferry construction across the site, the ‘eastern bridge’ had strong foundations, so the project team decided to retain the crossing, while adapting the design to fit in with the new west and central crossings. However, as Chelsea Creek borders the London Boroughs of both Kensington & Chelsea and Hammersmith & Fulham, Farrells had to negotiate with two planning authorities.

“To satisfy both boroughs, it was important we ensured its future use as a pedestrian and cycle bridge,” explains Hamilton. “As the existing bridge was wide enough for vehicles, both authorities were concerned it would go against their mutual low emission focus and encourage the use of cars and motorcycles at the development, while



Fixing one of the steel bridges into place

“The barge needed a low tide to pass under the existing bridge on site but still required enough water depth in the Chelsea Creek to offload”

Kevin Graham, Hollandia

ruining the resident flow of this resident and community-focused project.

“There was also the issue of how its heavy structure would suit the development’s landscaping.”

Farrell’s design focused on the bridge’s landing points and creating soft approaches either end. Abutments were concealed into creek flood terraces on one side and the creek edge wall on the other.

“Brass-like colours were used for the panels and dark grey colours for the retained bridge steels and new balustrades, drawing on the power station and development’s industrial heritage,” adds Hamilton.

The new bridges were installed in late 2019. Work on Chelsea Waterfront is due to complete in 2025. ●



SUSTAINABLE STEEL DELIVERS WORCESTER'S NEW BRIDGE

CLEVELAND BRIDGE DELIVERS A UK FIRST WITH USE OF NEW STEEL ON CONSTRUCTION OF RIVER SEVERN CROSSING



An innovative new steel composition has been employed in Britain for the first time on a new river crossing in Worcestershire, which is intended to be a more sustainable and cost-effective bridge structure.

Steelwork contractor Cleveland Bridge UK is constructing the new Carrington Bridge in Worcester from S460K2W+M, a higher-strength, fine-grained structural steel with improved atmospheric corrosion resistance, which has been used on structures in North and South America, France and Turkey.

"Due to its chemical composition, this steel develops a patina with increased resistance against atmospheric corrosion in comparison with standard structural steels," explains Phil Bailey, chief technology officer at Cleveland Bridge UK.

"The thermomechanical rolling process in its manufacture allows fewer alloying elements, leading to a lower carbon equivalent value (CEV), which offers an improved weldability compared to normalised weathering steels of the same strength. The steel can therefore be used in steel constructions for bridges and high-rise buildings where a higher-strength weathering steel with good weldability is required."

The new bridge is part of Worcestershire County Council's project to dual the A4440 Southern Link Road and will sit alongside the existing Carrington Bridge crossing the River Severn. Main contractor Alun Griffiths was appointed to deliver the improvement scheme.

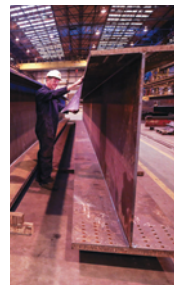
The crossing was originally planned to mimic the design of the existing six-span



Top: CGI of the road improvement scheme, showing the new bridge

Left: The bridge sections fabricated by Cleveland Bridge in S460K2W+M steel, ready for transport to Worcester

Below: Work on the steel sections in Cleveland Bridge UK's facility



bridge. "Using S460K2W+M enabled the new bridge to become a more economic three-span structure," says Bailey.

The revised design, produced by a Burroughs/COWI Design joint venture, working with Cleveland Bridge UK, reduced the number of piers from five to two, which delivered savings as a result of decreased material requirements.

Fabricated at Cleveland Bridge's facility in County Durham, the 873 tonne bridge was produced in four lines of girders to form two braced pairs. The main girders, diaphragms and stiffeners were produced from S460K2W+M with channels, bracings, cross girders and splice plates using another weather-resistant steel (S355J2W+N).

"The new steel decreased the plate thicknesses, which therefore reduced its weight by around 15% to 20%, due to its higher minimum yield strength of 460 MPa – an approximate 30% increase against S355 steel," says Bailey.

"It also reduced the workmanship, as the thinner plates required smaller welds and the possible need for doubler plates. The steel has improved weldability due to its reduced CEV of typically 0.47, which combined with thinner plates required a lower pre-heat process."

S460K2W+M steel is based on a product named DIWETEN 460, produced by a German mill, Dillinger.

Cleveland Bridge's use of the steel on the Carrington Bridge has been CE marked in accordance with BSEN 1090-2.

After a trial assembly, the sections were transported by road to site. They were delivered as four lengths of braced pairs and two lengths as single girders then assembled into six braced pairs using two 500-tonne crawler cranes.

"S460K2W+M offers production, operational and cost efficiencies, which is a benefit to all parties involved in major structural steel projects," says Bailey.

The new bridge is scheduled for completion in spring 2020. ●

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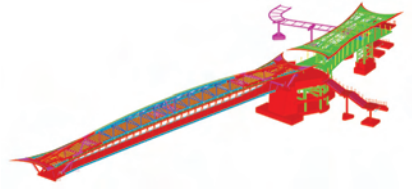
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Right: Digital modelling helped SH Structures plan the steelwork installation for Telford Central Footbridge



BIM BRINGS COLLABORATION TO STEEL CONSTRUCTION

STEELWORK CONTRACTORS HAVE BEEN AHEAD OF THE CURVE WITH DIGITAL ADOPTION. **DUNCAN REED** LOOKS AT THE BENEFITS OF BIM ON STEEL PROJECTS



The ultimate benefit of incorporating a digital workflow on any steel construction project is the resulting collaborative, coordinated and streamlined approach.

While 2D cannot be wholly disregarded, working without digital technology can be both limiting and isolating, with lack of communication between project parties increasing the likelihood of costly errors occurring. In comparison, BIM provides project teams with data-rich visibility and informed communication from the very start.

To achieve this coordinated approach, we are seeing more projects employing digital, cloud-based platforms, where all data can be stored and made available for project partners to view, discuss and share in one centralised hub.

From a steel fabrication perspective, having some form of information management, dedicated to a fabricator's unique requirements, is a must.

With such a large amount of design data on a steel construction project, trying to manage stock and fabrication schedules and ensure component traceability throughout production without a digital workflow can be time-consuming. A digital platform can help the fabrication process, ensuring accurate scheduling in accordance with the activity and progress on site.

Another area of digital technology that is steadily becoming an integrated feature of the construction industry is the use of mixed and virtual reality.

As well as encouraging engagement among all partners, including the

end-client and developer, MR and VR can aid improved visibility and project coordination. By overlaying the BIM model in the real-time physical context, the project can be brought to life, allowing the project team to interact with and view the model in levels of detail that 2D simply wouldn't allow.

Steel contractors can visit a site and, using mixed reality, compare the as-built condition in conjunction with the proposed BIM model, viewing the existing steel structure alongside the proposed new steelwork, and immediately identify any areas of concern.

Mixed-reality technology can also be beneficial for quality control management on a project – particularly at the fabrication and assembly stages. Trimble Connect for HoloLens was recently taken onto the factory floor at industrial steelwork specialist J Wareing & Son, where it was used to view the BIM object and its data overlaid on the fabricated steel joist, to check that all measurements were accurate.

The final phase to consider is the assembly. From site access and delivery schedules to crane locations and assembly logistics, digital technology can help to ensure an efficient and streamlined process. It proved imperative on the recent Telford Central Footbridge project, allowing SH Structures to extract accurate weights of components and the centre of gravity of complex assemblies, all crucial for optimising crane locations.

When considering the role of digital technology on steel construction projects, BIM belongs at the forefront of this discussion. Incorporating a digital workflow has the potential to utterly transform the approach of a construction project, encouraging collaboration, communication and coordination and creating a culture of project partners, rather than subcontractors. ●

Duncan Reed is digital construction process manager at Trimble.

“Steel contractors can visit a site and using mixed reality compare the as-built condition in conjunction with the proposed BIM model and identify areas of concern”

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IN PICTURES: SIX INNOVATIVE USES OF STRUCTURAL STEEL

CM LOOKS AT SOME INVENTIVE APPLICATIONS FOR CONSTRUCTIONAL STEEL, FROM A LISTED BUILDING EXTENSION TO A SPECTACULAR NEW FOOTBRIDGE

▼ Tintagel Castle reconnected by steel footbridge

For the first time in more than 500 years, the two halves of Tintagel Castle have been reconnected after the installation of a new steel footbridge. Spanning a deep gorge between two rocky outcrops on the north coast of Cornwall, the spectacular bridge was fabricated in Plymouth by steelwork contractor Underhill Engineering from 47.5 tonnes of steel. The bridge was designed by William Matthews Associates, working with engineer Ney & Partners and main contractor American Bridge.



JIM HOLDEN

AGNESE SANVITO



▼ Retail regeneration in Edinburgh

The vast Edinburgh St James retail-led regeneration project is being delivered with 15,000 tonnes of structural steel, using complex grid patterns and transfer structures. Steelwork contractor BHC is working with architect BDP, main contractor Laing O'Rourke and structural engineer Arup on the city-centre development in the Scottish capital.

▲ Steel supports Shoreditch resi towers

The centrepiece of a London mixed-use development is two residential towers supported on a series of 15 steel trusses. One Crown Place in Shoreditch, Hackney, includes apartments, offices and a hotel. Steelwork contractor Severfield supplied 2,600 tonnes of steel for the trusses, working with architect Kohn Pedersen Fox, main contractor Mace and structural engineer AKT II.



▼ Steel provides extra floors on London office

Steel construction has been used to provide three extra floors on a five-storey concrete-framed London commercial block. Steelwork contractor William Hare fabricated 2,142 tonnes of steel for the extension of British Land's 1 Triton Square scheme on Euston Road, which dates from 1997. Arup acted as architect and structural engineer, working with main contractor Lendlease.



▲ An 'origami' roof in the Scottish Borders

An irregular-shaped building with a folding origami-style roof is being built to house the Great Tapestry of Scotland, in the borders town of Galashiels. The 143m-long linear pictorial history, depicting events going back 12,000 years, will sit in a specially designed steel-framed building. Some 180 tonnes of steel were fabricated by steelwork contractor Hescott Engineering, working with engineer Goodson and main contractor Ogilvie.



▲ Hitting the right note in Manchester

Manchester's Hallé Orchestra is enlarging its St Peter's rehearsal and recording centre with the construction of a steel-framed extension. The three-level facility, to be known as The Oglesby Centre, is a modernist addition to the existing Grade II-listed building designed by architect Stephenson Studio. Steel contractor BD Structures fabricated 120 tonnes of steel for the project, working with main contractor HH Smith and engineer Booth King.

BIM & Digital



SUNNY OUTLOOK FOR MET OFFICE DIGITAL TWIN

THE MET OFFICE HAS WORKED WITH SKANSKA TO CREATE A DIGITAL TWIN OF A WEATHER BALLOON FACILITY IN CORNWALL. **CM** FINDS OUT MORE

Since 1854, the Met Office has been providing meteorological services for the UK and beyond – from supplying scientific data to businesses through to analysing the impact of climate change.

With 2,000 employees in total, around 400 based outside the UK, it has a vast and diverse estate – and has become one of the market leaders in using digital technology to inform

its asset management strategy. That includes development of digital twins for some of its buildings.

“Innovation is really important for us, because it means we can do things much more efficiently,” says Ralph James, FM and technical services manager, who spoke at last year’s Digital Construction Summit about how BIM had benefited his organisation.

Above: An exact 3D model replica was made of the Met Office’s weather balloon facility in Camborne

“I like to think we’re an early adopter of new technology,” says James. “I was really interested in how the Met Office might benefit from digital twins.”

A digital twin is a highly accurate 3D model with a range of technical data. The Met Office, working with Skanska, has created a digital twin of its weather balloon facility at Camborne in Cornwall.

“We are really excited about the prospect of digital twins and have set up a new service offering called Digital Estates,” explains Peter Jones, technical director of Skanska Building.

“We have the in-house expertise to convert the existing building assets of estates like universities and government departments into asset-rich digital models – IoT enabled – and then use the model to more efficiently manage the building. We expect this to be able to save operational and maintenance costs on existing buildings by up to 30%.”

Laser scans of the facility

The Met Office scheme at Camborne was one of Skanska’s earliest digital twin projects. Building information modelling was used throughout the process. The first stage was to create an exact 3D model replica, using laser scans of the actual facility, and then operational and maintenance data was added.

“Having a digital twin enables us to cut costs significantly,” says James. “We have another balloon site, which we need to replace. We can use the digital twin to cut out lots of the design work. There are other benefits, too. For example, at Camborne we know the condition of single components, their remaining useful life, replacement cost and unique identity.”

The Met Office has over 450 weather reporting stations – some in remote places such as Lerwick in the Shetland Islands. It also has 16 weather radars.



Digital story for CM or BIMplus?
Email denise.chevin@atompublishing.co.uk



“We have the in-house expertise to convert the existing building assets of estates like universities and government departments into asset-rich digital models and then use the model to more efficiently manage the building”

Peter Jones, Skanska Building

“My ambition is to create a digital twin for all our sites,” says James. “That will help us direct our resources in the most efficient way possible to ensure the sites remain operational and safe. Another major benefit of this approach is that you get very robust lifecycle planning. You know, with certainty, the lifespan of your assets and when they need to be replaced.

“If you know what’s there, you can make sure your engineer has the right part for any maintenance work. But it’s also about condition-based maintenance – knowing if a component is about to fail or provide a degraded service – which again could lead to significant long-term savings.”

Next, James is eyeing the potential of the internet of things, where devices are linked up over a computer network. This allows operators to find out how that device is performing in real time, or even control it remotely. Mobile phone giant Ericsson predicts that, by 2022, there will be around 18 billion devices connected to the internet of things.

“The internet of things is really exciting, because of the opportunities it opens up,” James says. “We have lots of remote, unmanned, sites – in some cases, quite literally, on top of a mountain. Knowing something as specific as the state of health of a pump, uninterruptible power supply or the heating, ventilation and air-conditioning equipment, is something that would be really useful, from a maintenance perspective.

“But you can go further than that. Take, for example, occupancy sensors in the floor of a building. They could measure how many people are there, send and update to the building management system, alter the amount of heat or cooling being provided for that area of the building, because it knows how many people are there. That would be a great way of using technology to improve efficiency.”

Supply chain management

Research by the Met Office shows a high level of trust in the organisation – around 80% – from the general public, so supply chain management is crucial for the organisation.

“It’s really important that our suppliers understand what the Met Office does, and the impact of that on our customers,” adds James. “We’re always explaining to our suppliers what we do. We want them to understand the bigger picture. It’s like the cleaner at NASA, who told President Kennedy – in response to the question ‘what are you doing?’ – that he was ‘helping to put man on the moon’.

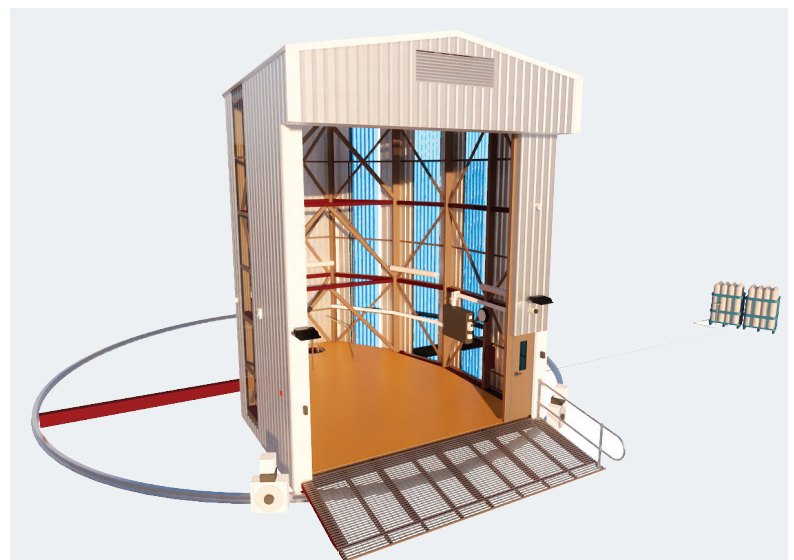
“We took this approach when we were building our collaboration building at the Exeter Science Park. From the person painting the wall to the person laying slabs in the courtyard, we said: ‘You’re helping to advance UK science by 10 years, this is not just another job. You’re part of that advance. Every time you see one of our weather forecasts, you know you’ve had a small part in that.

“I think that approach did make a difference. Plus, the Met Office has such a strong brand, for our suppliers to be associated with great delivery – it’s a real positive impact on their business.

“I believe that close collaboration with suppliers, being completely open and transparent, leads to us getting a better service. For me, it’s about getting what you see on the side of the tin. To ensure that, I think you need an evidence-based approach.”

Returning to innovation, James wants suppliers to be forward-thinking and, if possible, visionary: “The whole of the industry is there to provide an environment where people can thrive and do the very best they can. And new technology has a big part to play in that.” ●

Right: Operational and maintenance data was added to the BIM model





Water Management
Waterside Campus | University of Northampton



askACO

Location of case study

Waterside Campus,
University of Northampton.

Project requirements

Redevelop the brownfield site into a new, multi-use home for the University of Northampton while managing the high risk of flooding from the nearby River Nene.

The solution

A modern campus blending open squares where MultiDrain Brickslot carries water from paths into adjoining swales. ACO MonoDrain and KerbDrain, quickly channel water away from busy roads into StormBrixx attenuation tanks.

Creating for the Future

In World War II, key locations such as power stations became priority targets for German bombings. Opened in the 1920's, the Nun Mills Power Station, quickly became a high priority target as it provided power to the railway works at nearby Wolverton.

Although there were near misses, the site never received a direct hit and continued to support the war effort. In 1943, it began an even more important role when the British Government made one of the steam turbines available as a test facility for what would become the jet engine invented by Sir Frank Whittle.



That same sought after waterside location, on the edge of the town centre, recently became home to the University of Northampton. ACO MonoDrain and KerbDrain clear the roads across campus, the water flowing on into StormBrixx attenuation tanks. From the pedestrianised areas, discreet MultiDrain Brickslot directs water into nearby swales.

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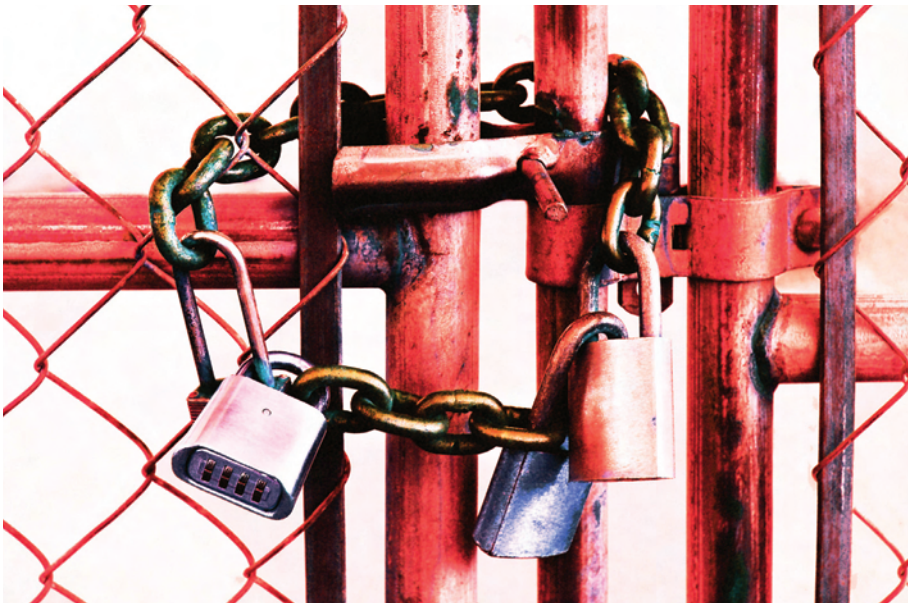
WWW.ACO.CO.UK



Emma Butcher
Clarkslegal

Can a contractor turf out site squatters?

WHAT ARE THE RIGHTS OF A CONSTRUCTION COMPANY WHEN SQUATTERS TAKE UP OCCUPANCY OF A SITE? **EMMA BUTCHER** EXPLAINS THE LEGAL IMPLICATIONS



CM was recently contacted by a frustrated CIOB member who asked:“If we are the contractor where the site is in our possession for the commencement of building works, we have secured the building as best we can but squatters have broken in, re-secured the place and taken up occupancy overnight – can we simply turn them out when we come to work the next day?”

Unfortunately, there is no simple answer to this question. The legal issues which arise come loosely under the headings of: land law; delay to the works; occupiers’ liability and the Occupiers’ Liability Acts of 1957/1984.

Land law

The immediate problem is that the “squatters have broken in”. This would suggest some

act of criminal damage. If the individuals forced entry to a building or site, causing damage, this is for the police to deal with. This requires evidence of criminal damage. If no such damage is clear, then the issue may be more difficult to deal with.

There is also the question over whether this is a commercial or residential property. There are differences in the protections afforded to owners of residential properties compared with commercial properties.

Where the land is wholly commercial, and particularly if the squatters are on open land rather than having broken into a building, it is often possible to instruct bailiffs to remove them without the need for a court order. However, it is a criminal offence to use force or violence to evict squatters, so care needs to be taken.

If residential property is involved, or if the squatters do not co-operate in leaving, then a possession order, obtainable from the court, will be required. Timescales for possession orders can be relatively quick, usually a matter of one to two weeks.

Delay to the works

Which party takes the risk for any delay to the works is likely to depend on the terms of the contract and who has “possession” of the site at the time.

If it is the employer who has possession, the employer is unlikely to be able to give possession to the contractor and is preventing the completion of the works.

But if, as in this scenario, the contractor already has possession then it is probably at the contractor’s risk, as they have ‘control’ over the site. It will therefore be difficult to argue any entitlement to an extension of time or other compensation without express provision in the contract.

In *Rapid Building Group Ltd v Ealing Family Housing Association (1984)*, it was decided that an extension of time that had been granted was invalid because the squatters were present when the contractor took possession. So the employer could not, in fact, provide possession to the contractor.

In that case, time became ‘at large’, meaning that the contractor only had to complete in ‘a reasonable time’. Being a somewhat imprecise term, ‘reasonable time’ might work in favour of the contractor, particularly at such an early stage in the project. This will be down to the facts of the case, rather than being a matter of law or contract, and relatively limited case law exists for determining what constitutes a ‘reasonable time’.

Occupiers’ liability and tort

Occupiers’ liability is a related area of concern. There is a general ‘duty of care’ in the legal doctrine of tort which must be observed.

Many feel that if a ‘trespasser’ injures themselves while on a property they shouldn’t have entered, that’s their problem. Unfortunately, that’s not the case in law. It is the responsibility of the occupier to ensure no injury to anyone who enters that property.

The issue of occupiers’ liability is particularly relevant to construction sites. If a person enters a site and injures themselves, the ‘occupier’ may be liable for that injury. This applies even if signs, security, fences and so on are in place. For example, if an individual entered a site, climbed up a tower crane and injured or killed themselves, the contractor could find themselves facing a substantial claim.

Some recognition is given to attempts to secure a site and display adequate warnings. But if it could reasonably be demonstrated that foreseeable risks were not addressed, such as missing protection or not using a proprietary guarding system, then it would not matter if this was a result of oversight or cost-cutting – a degree of negligence could be argued, and the contractor might be liable.

Ultimately, each situation needs to be reviewed in light of the facts at hand, and decisions taken on the basis of the law, the contract in operation, and any other circumstances. If in doubt, where members of the public are concerned, always seek legal advice. ●

Emma Butcher is an associate solicitor at Clarkslegal.

“Which party takes the risk for any delay to the works is likely to depend on the terms of the contract and who has ‘possession’ of the site at the time”

Providing CDM clarity



Five years on from the CDM regulations changes, greater clarity is needed on how to apply them, writes **Issaka Ndekugri**

Many industry accidents could be prevented with better management of design and occupational safety and health risks at the pre-construction phase.

In the UK, these responsibilities are set out in the current Construction (Design and Management) Regulations 2015 (CDM 2015). When they were revised five years ago, changes included the replacement of the old CDM coordinator role with a principal designer (PD).

However, these revisions have introduced uncertainties.

The specific attributes of the PD dutyholder, including their skills, knowledge and experience, and how this will support decision-making by relevant project stakeholders, remains unclear.

There also appears to be some reluctance on the part of architects and engineers to take up the PD role.

To improve the industry’s occupational safety and health performance, better understanding is needed about risk management practices during the design and pre-construction stage and how the PD role can be integrated into this processes.

Against this backdrop, the University of Wolverhampton has secured a research grant from the European Union to study pre-construction occupational safety and health risk management. Dubbed Pre-COSH, this project aims to develop a flexible model for effective CDM 2015 compliance.

The project will contribute to both theory and practice of occupational safety and health



risk management at the pre-construction phase. It aims to deliver five specific outcomes:

- A taxonomy of the skills, knowledge and experience required for a PD.
- Measures of skills, knowledge and experience for an individual and capability at an organisational level.
- Mechanisms and organisational structures for the effective performance of the PD role through the project supply chain.
- Case studies on occupational safety and health risk management at the pre-construction phase to support training.
- An advanced pre-construction occupational safety and health risk management simulator.

The grant from the EU gives us the opportunity to develop a practical risk management tool to support collaborative decision-making by the supply chain before work starts on site – eliminating the bad practices that are the root causes of many industry accidents.

Issaka Ndekugri is professor of Construction and Engineering Law at the University of Wolverhampton and one of nine research partners on the Pre-COSH project.



Community



Event

Sydney to host GSC finals and 2020 Members' Forum

CIOB MEMBERS WORLDWIDE WILL GATHER IN AUSTRALIA IN JUNE

The 2020 Members' Forum and the finals of the Global Student Challenge will take place in Sydney in June.

The Members' Forum is an annual gathering of the world's most senior construction professionals to discuss the biggest issues the industry faces. Each year the forum changes

location to ensure the CIOB is visiting cities and regions around the world to actively develop a diverse and representative voice.

The forum will run from Sunday 21 to Thursday 25 June, 2020.

Running alongside the forum will be the finals of the Global Student



Challenge. This event will see the top six ranking teams from universities around the world battle it out for the coveted top prize.

The winning teams will be announced on 7 April. They will have been through three phases of the competition since January.

Launched in 2014, Global Student Challenge is an annual competition run by the CIOB that provides built environment students with an opportunity to apply their learning to a real-world scenario of running their own virtual construction company. ●

For more information, visit
<https://membersforum.ciob.org>.

Governance

CIOB Trustee recruitment 2020 – announcement

NO REQUIREMENT FOR BOARD OF TRUSTEES ELECTION

The Nominations Committee has now completed its assessment of applications for three Trustees to be elected to the Board from June 2020.

The result of that assessment process found fewer successful candidates than vacancies and therefore in accordance with Bye-Law 65(d), the candidates shall be deemed elected without a vote.

This decision was ratified by the Board of Trustees on 31 January 2020. For 2020, there will be no requirement for a Board of Trustees' election.

Virginia Borkoski, Stephen Nitman and Paul Young shall be duly elected to the Board of Trustees from the close of the AGM in June 2020.

The committee shall now continue under Bye-Law 67 to propose to the Board of Trustees a further two candidates from the applications based on a skills audit of the full Board of Trustees to ensure we have the required mix of skills and experience.

The membership will be updated following the Board meeting in April.



Story for Community? Email Nicky Roger
nicky@atompublishing.co.uk

Education

London students take a trip to Kuala Lumpur

MALAYSIAN CIOB HOSTS UNIVERSITY OF WESTMINSTER TOUR

The CIOB in Malaysia and Lendlease hosted a visit for construction students from the University of Westminster.

Final year undergraduates recently visited Kuala Lumpur (KL), where they attended live projects and organisation offices with industry partners including Lendlease, Savills and the CIOB.

Students visited Tun Razak Exchange (TRX), an integrated 28ha development that will be KL's new Central Business District and Malaysia's International Financial District.

A joint venture between Australian developer Lendlease and the Malaysian government, TRX is the single largest mixed-use development site underway in South-East Asia.

Students were able to ask the senior project team questions on subjects such as the digital agenda and challenges such as decarbonisation, social inclusiveness and modern slavery.

They explored the procurement, delivery and operation of private and public sector built assets from a South-East Asian perspective and compared this with the approach in the UK.

The CIOB, which is the accrediting body for many of university's courses, engaged in an open discussion around the subject of the Malaysian and UK construction industries and hosted a visit to an interchange station, the Chan Sow Lin station, under construction as part of the Mass Rapid Transit (MRT) project.

CIOB hosts included Ho Chee Leong, president of Malaysian CIOB, Wong Khin Yip, vice-president CIOB administration,



University of Westminster students visit the MRT rail interchange (above) and the TRX site (below)

and Audrey Chen, the CIOB regional administrator for Malaysia. In addition the students and staff were taken for dinner by industry veteran Datuk Seri Michael Yam, an alumnus of the University of Westminster.

The Lendlease team were headed by Stuart Mendel, managing director of Lendlease Malaysia, who with his senior project team and Ezreen Malek, the Lendlease Malaysia Academy manager, gave the students two days' immersion into the design, planning, construction and operation of the TRX project.

University of Westminster academic staff who ran the visit were Sean Flynn, Ian Cannings, Wala Al-Daraji and Onur Demirci. ●



Heritage

Conservation conference postponed

NEW AUTUMN DATE TO BE CONFIRMED



The CIOB's annual conservation conference, which was due to take place on 28 April at Church House in London's Westminster, (above) has been postponed.

The event, titled Future Skills for Traditional Buildings, was due to include high-profile speakers from the heritage and built environment sector, led by event chair and CIOB chief executive Caroline Gumble.

However, due to the Covid-19 virus, the CIOB has now taken the decision to push back the conference to a later date.

The CIOB is working to confirm a date in the autumn and will let CIOB members know new arrangements as soon as possible. Check the CIOB website for updates and further details: <http://bit.ly/conservation2020>.

Visit

CIOB CEO continues world tour in Leeds

CAROLINE GUMBLE SEES THE SITES ON DAY TRIP TO THE CITY



The Leeds Hub welcomed CIOB chief executive Caroline Gumble for a full day of meetings and site visits recently as part of a worldwide tour she is making.

The focus of the visit to Leeds was to promote the image of the industry

as well as broadening the appeal of construction.

Key to this was a meeting with Zoe Price, chief operating officer of ISG's UK construction business, in which they discussed the benefits of diversity in the industry and

Caroline Gumble (centre) pays a visit to Galliford Try's Carnegie School of Sport research centre site

"The focus of the visit to Leeds was to promote the image of the industry as well as broadening the appeal of construction"

attracting the "brightest and best" to construction.

Gumble had a chance to learn more about ISG's commitment to developing young talent when she met Anna and Ben, apprentices on the city's Yorkshire Post redevelopment site.

She also met education professionals from Leeds Beckett University and Leeds University Technical College to find out more about the barriers to attracting the right talent to construction and how the CIOB can support this.

A new relationship was also built with STEER, an initiative which matches undergraduates with mentors in the industry.

Gumble also spent some time at two interesting local builds: the Carnegie School of Sport teaching and research centre by Galliford Try and the Leeds Building Society head office refit by Graham.

Both sites showed innovative construction methods, unusual design considerations and an excellent relationship between contractor and client. ●

Events

Ireland tees up May events

CORK HOLDS STANDARDS CPD, WHILE DUBLIN HOSTS GRADUATION CEREMONY

Members in Cork can build their knowledge of standards at a CPD organised with Ireland's official standards body in May.

Held in conjunction with the National Standards Authority of Ireland (NSAI), The Role and Application of Standards and Certification in Construction will feature a presentation from

Séan Balfe of the certification section at the NSAI.

It will also provide an update on topics including Agrément assessment, fire testing, acoustic performance testing, energy efficiency testing, weather resilience testing, CE marks and the possible impacts of Brexit on recognised standards in Ireland.

The event will take place at Rochestown Park Hotel, Cork, on 6 May at 6pm.

Also in May, CIOB Dublin Hub will be hosting the Dublin Graduation Ceremony 2020 in the Mansion House, Dublin. Newly chartered members will celebrate their professional achievements on 23 May.

Member initiative

West Midlands innovation group growing fast

400+ JOIN MEETUP GROUP

A group established by a Birmingham-based CIOB member to advance innovation is celebrating reaching nearly 500 members in a few months.

Hassan Emam, principal consultant for planning and controls at LogiKal and a member of the Birmingham West Midlands Construction Analytics meetup to share knowledge about innovation and construction analytics.

The group began with a LinkedIn group and meets monthly. Meetings include software developers presenting new tools, for the industry to provide feedback, as well as academic experts presenting research on subjects such as 4D printing.

Emam founded the group when he became frustrated with the industry repeatedly facing the same challenges and wanting to find new ways to find efficiencies. Having explored how AI is being applied to other industries – as part of his PhD – he wanted to see how it could benefit construction.

“I am hugely motivated personally to see change in the industry which is why I created the group. It’s great to have knowledge sharing and learn from others’ experience so we don’t repeat the same problems. It also provides great support,” he says.

In his job Emam has established LogiLab – LogiKal’s research lab – and is training the team members in using AI for project controls. He has also delivered a presentation at Project Controls Expo about the applications of AI in construction, and at the same event was awarded the Global Project Controls Consultant award.

AI in Construction can be found on LinkedIn at <https://www.linkedin.com/groups/8814236>.



Hassan Emam of LogiKal



Site visit

Members head to prison

KIER GIVES CIOB A PREVIEW OF THE GOVERNMENT’S FLAGSHIP PROJECT IN WELLINGBOROUGH

The 11.5ha site will provide 1,680 prisoner places in 2021

Kier took CIOB members on a tour of the new prison in Wellingborough in Northamptonshire recently.

The prison, a flagship project for the Ministry of Justice, is a design template for extensive government investment into custodial facilities nationwide.

Kier demolished the former prison in 2018/2019, and began work on a £250m new build in summer 2019.

To deliver the Ministry of Justice’s requirements, the company has utilised the benefits of offsite construction and advanced digital technologies.

Members had the opportunity to visit the 11.5ha site, which will provide 1,680 prisoner places in 2021. Its 13 main buildings were at different

“To deliver the Ministry of Justice’s requirements, Kier has utilised offsite construction and advanced digital technologies”

stages of construction, providing an opportunity to witness the logistics and scale of the operation.

Kier’s head of bid management, Rebecca Wade, also delivered a talk on Kier’s journey with the prison and the application of digital tools and design for manufacture and assembly (DfMA) on the flagship scheme. ●

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Education

Student competition winners thrilled with industry intern prize

THREE NOTTINGHAM TRENT UNIVERSITY STUDENTS WIN PLACES WITH GLEEDS



The winning students are:
Humma Khan
Project management intern winner.
Nottingham Trent University course: MSc Project Management



Martin Logue
Cost management intern winner.
Nottingham Trent University course: BSc Quantity Surveying (1st year)



Roxanne Phillips
Building surveying intern winner.
Nottingham Trent University course: BSc Building Surveying (2nd year)

“I was so ecstatic when I found out that I had got the internship at Gleeds, I may have done a little dance in the room!”

**Roxanne Phillips,
Nottingham Trent University**

This summer three aspiring construction industry professionals from Nottingham Trent University will have the opportunity to work alongside the experts to gain hands-on experience and learn more about the industry thanks to international property and construction consultancy Gleeds and CIOB Novus.

The scheme, launched last year, aims to help close the gap between undergraduates and their first paid work opportunity. Interested students were asked to submit a written statement outlining what the position would mean to them, their best skill and why they believe Gleeds is the right company for them.

A shortlist of finalists then attended an assessment day where the winners were announced, who will become Gleeds interns between June and July.

The winners were chosen by six judges in total: two people from each department offering a placement – ranging from apprentice level through to senior director level, to ensure all opinions and voices were heard across different business levels.

Cost management intern winner Martin Logue, who is in his first year of a BSc in Quantity Surveying, sees the win as a great way to kickstart his career: “I know previous students who have entered the industry through these competitive selection processes have gone forward to do big things. I wanted to follow in those footsteps. It’s an honour to have gained this position through this process.”

Building Surveying student Roxanne Phillips had had her eye on a placement at Gleeds so was delighted to win the building surveying internship. “It honestly means the world to me, I was so ecstatic when I found out that I had got the internship at Gleeds, I may have done a little dance in the room!”

Humma Khan, who is doing an MSc in project management, was also thrilled. “The whole process throughout has been great: the launch event provided a brilliant networking opportunity to meet and engage with industry professionals all the way throughout to the assessment day, where I thoroughly enjoyed taking part in the group activities and challenges.” ●

Midlands

Members learn how to be carbon neutral

FILM OF CPD TALK ONLINE



Northampton Hub hosted a highly topical CPD event on Becoming Carbon Neutral. Tom Reynolds, operations director at MES Building Solutions, and James Willcox, head of sustainability at

Willmott Dixon (pictured), covered definitions, approaches and how to make new and existing buildings carbon neutral.

The presentation covered a number of examples of sustainable

builds, including the University of Leicester’s Centre for Medicine, and the lessons that could be learnt from them.

The CPD was filmed and is now available on the CIOB Academy website.



Diary dates

HIGHLIGHTS OF THE CIOB CALENDAR FOR THE COMING MONTH. FOR MORE EVENTS VISIT CIOB.ORG

South East Construction Expo 2020

April 28, 9-4pm Haywards Heath, West Sussex

South East Construction Expo is an innovative business-to-business event, dedicated to the construction sector that brings together clients, contractors, developers, consultants and other related industries across the UK.

With live demos of new and innovative products, 30+ industry-focused speakers, over 150 exhibitors and 2,500 attendees, the expo is a must-visit for anyone working in property, development or construction.

Contact: bmilton@ciob.org.uk

CETC bridge removal talk

April 23, 4.30-8.30pm, Fareham, Hampshire

In 2019 the M27 was closed over two weekends for bridge removal and replacement. Andrew Winson, project manager at Highways England, will explain the planning for such a huge logistical operation, while Malcolm Attrill, engineering manager with Osborne, will be going through the planning process.

Also Jamie Elliott, contracts manager with R&W Civil Engineering, will speak on the Castle Way Bridge Refurbishment – how the bridge from the Bargate, Southampton was removed, renovated and reinstated. Hear how the project was managed and the specialist work involved in planning the project. **For details call 01344 630700.**

Site Visit to St Hilda's College

April 30, 5.30-7.30pm Oxford
A site visit to St Hilda's College, Oxford University, will be hosted by Beard Construction.

The college is undergoing major redevelopment of accommodation and facilities for students and staff on the college site.

Undertaken in two phases, the planned building programme will enhance significantly the experience of St Hilda's as a place to study, live, and work – providing a college room for all undergraduate students for the duration of their degree.

The work will include a new Middle Common Room for graduate students, as well as new high-quality teaching, office and social spaces.

The new Porters' Lodge and main entrance will revitalise the college's profile on Cowley Place, while redesigned gardens will embed the buildings in the distinctive green space of St Hilda's riverside setting.

Contact: Ecatalano@ciob.org.uk

Constructing Excellence CIOB Partnership Awards Dinner 2020

May 1, 6.45pm-12.30am, Leicester

The CIOB is partnering with Constructing Excellence East Midlands on its annual awards and dinner.

It is the most significant celebration of best practice in the East Midlands and the only event of its kind that connects every single element of construction working towards a built environment fit for future generations.

The black tie dinner, from 6.45pm, will start with a drinks reception followed by a three-course meal served throughout the awards ceremony. Entertainment will also be provided.

Contact: gffloyd@ciob.org.uk

Kyle Spiller MCI0B

Meet a member

KYLE SPILLER, DIRECTOR, SAM DRYLINING



How did you get into construction?

As a keen sports fan I was always fascinated by the stadiums I was lucky enough to visit around the UK, from the old to the new. My younger life was consumed by sports participation so I never gave much consideration to any career away from sports.

My interest for the construction industry was then sparked in my early teens when the Millennium Stadium was commissioned for construction in the heart of Cardiff city. Witnessing such an iconic stadium being constructed on my doorstep, which put Wales well and truly on the world map, was really inspiring.

Despite such prestigious projects being undertaken in Wales, construction was never really promoted by my school, so it was only my own research into the career opportunities in construction that led me to apply for a position on the Quantity Surveying degree course in the University of Glamorgan.

You're studying for arbitration qualifications. What prompted that?

My initial interest in the legal side of construction began during my quantity surveying studies. Working for a regional specialist subcontractor during my QS studies allowed me to get heavily involved with contracts, which in turn required me to quickly gain a good understanding of the key characteristics of the widely used standard forms of contracts. Being a QS results in many commercial disagreements which further developed my interest in dispute resolution processes.

I have been a director of my organisation for over six years and identified the need to progress my legal knowledge due to the growth of the business. Such growth resulted in the company entering into complicated and high value contracts – often heavily

amended to favour the client. I've been studying part time towards a master's in Construction Law, Arbitration and Adjudication with Robert Gordon University and the modules I have already passed have gained me membership with the Chartered Institute of Arbitrators (MCIArb). The arbitration and adjudication studies have been invaluable in terms of ensuring our projects are managed in a way that actually avoids disputes.

What do you love about your job and what are the frustrations with it?

The construction industry is very rewarding, meeting people from all walks of life and being involved with changing the environment in which we live is a great privilege.

Spending time mentoring staff members to aid with their professional development and giving people the opportunity to progress their careers is incredibly gratifying. However the industry remains rife with disputes and arguments regarding money. Delays with payments to the supply chain continues to hamper the growth and development opportunities for many SMEs and, despite changes to legislation to prevent poor payment practices, it continues to plague the industry.

As a member of the CIOB Cardiff Wales Hub I gave evidence to the Welsh Assembly government regarding the use of retention payments in the industry – which I believe requires statutory reform to protect the supply chain to prevent organisations holding onto the cash of the supply chain well past the end of defects liability period.

The construction industry is continuously changing for the better. Recent advances in technology have bridged the gap between site and the office to improve efficiencies and reduce defects but there is still resistance to the adoption of such changes from some parties, subsequently the uptake on the use of available technologies to assist with the delivery of projects is not as rapid as I would hope for.

What do you do for fun?

My weekends are usually filled with family time visiting Welsh beaches. I remain an avid sports fan and love watching football and playing the occasional round of golf.

“Repointing was particularly sensitive as any lime mortar dropped on the soil could kill the rare pear tree collection”

Michael Brearey FCIOB, Cardinal

Me and my project

Listed skills

MICHAEL BREAREY OF CARDINAL EXPLAINS THE SKILLS DEVELOPMENT OPPORTUNITIES A RECENT CONSERVATION PROJECT PRESENTED



The grounds and some buildings of Barnsley's Cannon Hall have been restored to their former Georgian glory thanks to a Heritage Lottery Fund of £3m and Big Lottery Fund's Parks for People programme.

The money has been used to restore original features, some of which have never been seen by the public. An intact ice house built in the 1700s will be revealed and a 0.8ha area of woodland behind the walled garden will be cleared and opened up. The gardener's cottage will also be restored and a 'midden', an early example of an outside toilet, has also been revealed.

For Cardinal, Cannon Hall not only allowed us to save and repurpose a number of listed buildings but to also continue with our initiative of upskilling the next generation and being an inclusive employer.

As part of the project we were able to employ three apprentices on site completing joinery works, one roofing apprentice and one general building apprentice, who was able to learn lime pointing, general brickwork repairs and how a listed building was built.



Top: Cottages at Cannon Hall after restoration

Above: Michael Brearey of Cardinal

Below right: Exterior and interior works under way

It is not often that an apprentice would be able to work on a wall constructed in 1760 which has a 'spectacular collection of espaliered pear trees' either adjacent or attached to it. The repointing works to this wall were particularly sensitive as any lime mortar dropped on the soil would have the potential to kill the rare pear tree collection.

The onsite project team was also made up of female operatives and a few ex-service personnel, ensuring that the site was fully inclusive.

Cardinal also gave work experience to a local student, who was able to get up close and hands on with the listed building, see the techniques and skills needed to work on one and gain real-life experience of 'working' on a building site.

Our in-house HSEQ team visited site and the apprentice, Joe Vickers, also gained valuable site skills which has enabled him to complete his course.

Not all opportunities that Cardinal created as part of this project were on site: two further apprentices, based in our joinery workshop in Bradford, were responsible for creating timber products that were used in the build.

Work on the roof revealed some amazing artefacts, as well as the original carpenters' marks on the timber. To ensure that the building was safe there were various immediate repairs to the timberwork, thus saving historic timbers by installing new ones by the side of existing ones, or completing repairs rather than full replacement.

These immediate repairs were identified following the stripping-off of the roof, which highlighted some dangerous chimney stacks that needed to be supported and then fully rebuilt.

Other discussions included ensuring the properties remained 'bat friendly', and flight paths uninterrupted, through bat tiles to the roof, changes in insulation and installation of bat boxes.

Internal refinishing works included a full rewire, new heating system, new water installation, plastering, kitchens, bathrooms, fires and floor coverings.

A further two buildings were structurally repaired using traditional methods coupled with modern stabilisation techniques and finished by reinstating more traditional roof coverings: changing the built-up felt roofing system back to stone slates.

The project's challenges included bringing the building up to current regulations (where possible) and the relocation of bees.

I really enjoyed working with Cannon Hall, Barnsley Metropolitan Council and the Heritage Lottery Fund to deliver a project we can all be proud of.

It is always brilliant to be involved in a project that preserves and restores existing buildings to their former glory either through conservation works to reinstate it for the next generation or through repurposing to give the building a new life. ●

Michael Brearey FCIOB is construction director at Cardinal.





Partnership

**Sir Robert
McALPINE**

Mind the gap

HANNAH PROWSE, PRECONSTRUCTION MANAGER
FOR SIR ROBERT MCALPINE SPECIAL PROJECTS,
ON TACKLING THE SKILLS GAP IN CONSERVATION



The Elizabeth Tower is one of many heritage projects by Sir Robert McAlpine

There is a skills shortage in the heritage sector but our first challenge is to define what that workforce is. With no official current research to look to, we currently have to rely on anecdotal evidence.

Heritage skills – stonemasonry, carpentry, metalwork, plastering, roofing, etc – are carried out by small specialist companies and this pool is dwindling. Across construction as a whole, 45% of the workforce is over 45, according to the latest census. Much has been written about the ageing workforce and the need to attract young people into construction, and excellent work is being done in many areas to change the perception of our industry.

The construction industry is a conglomerate of businesses of all

sizes and specialisms, with a history of protectionism and insularity. Most of the industry operates in a competitive market, on tight margins, and so the sharing of knowledge and skill is restricted by the environment in which we operate. As long as the industry continues to operate in competitive silos, this will continue to be the case.

In the heritage sector, we have a fantastic opportunity to attract talent. The buildings that we have the privilege to work on are part of the fabric of our society and our national identity. In an era where many young people are looking for jobs with meaning, inherent sustainability and environmental credentials, heritage construction offers a great career path.

The challenge is how to unite to present a coherent and attractive path to new recruits. Last year, at the CIOB Conservation Conference, we issued a ‘call to arms’ – for interested parties from across the sector to come together to find a solution to apprenticeships and training. The response was non-partisan and overwhelming. Our first meeting saw representatives from CIOB, English Heritage, Historic England, the Prince’s Foundation, Historic Royal Palaces and the Landmark Trust, sitting alongside colleagues from plasterers, stonemasons, carpenters, main ‘tier 1’ contractors, specialised ‘tier 2/3’ contractors and many more. There was a unanimous recognition of the fact that none of us can solve this problem alone. The scale of the challenge requires a united solution.

The size of the skills shortage has yet to be quantified. Our group have determined to fund a position, with the assistance of the CITB, to conduct rigorous research into the formation of a heritage skills training college, together with ‘satellite’ colleges wider afield. We also believe there is a real need to create a clear chain of custody for shared apprenticeships across the sector.

The heritage sector may “lack a clearly defined consensus” – but it is not an unfeasibly large world. The onus is now on us as an industry to create a solution that links the policy, the funding and the opportunity in a manner that is appealing to people of all ages and from all backgrounds looking for a career. It is a phenomenally exciting opportunity. ●

“The onus is on us as an industry to create a solution that links policy, funding and opportunity that is appearing to people of all ages and backgrounds”

The CIOB’s conservation conference, scheduled for 28 April at Church House, Westminster, and sponsored by Sir Robert McAlpine, has been postponed. The CIOB is now working to find an autumn date for the conference, titled Future Skills for Traditional Buildings. Check <http://bit.ly/conservation2020> for updates.



Training & Recruitment

Job spotlight Bruce Harrison

Director,
NEXis Project Services

OFFSHORE DRILL

BRUCE HARRISON EXPLAINS HOW HIS WORK IN THE OFFSHORE RENEWABLES SECTOR DIFFERS FROM CONSTRUCTION ON LAND



Tell us about a typical day in your job.

My day generally follows the schedule of the offshore work parties – and even shifts covering 24-hour operations at times – to control construction activity in the offshore site.

Generally speaking I work Monday to Friday and weekends as and when required. However, currently I am working two weeks offshore and two weeks onshore. The time onshore could either be working days or

non-working days, depending on what the project and my business requires.

An essential element of my role is to manage construction progress and report this to our stakeholders, manage contractor activities and control simultaneous operations. Also to review their safe system of works and support contractors to bring these in line with the construction phase plan, as well as issuing and controlling the principal contractor's permit-to-work system and ensuring the safety of the site and personnel offshore at all times.

Do you need specific skills/training?

Very similar to standard onshore structural construction management – a degree in engineering, project or construction management, and competence managing programmes of works, contract management.

However, working in an offshore environment, there are a few additions. Other qualifications include: Working and Rescue from Height, Confined Space Rescue, Advanced First Aid, Sea Survival – and even potentially Helicopter Underwater Escape Training.

What are the most challenging aspects?

The unpredictability of the environment in which we work. The sea and weather offshore can have far-reaching impact on the project progress, costs and the speed at which the conditions may change, requiring us to be far more safety-conscious and responsive.

What is the most rewarding part of your job?

I believe people working in the offshore renewables industry are similarly outgoing and passionate people and, as much of a cliché as this sounds, I love the fact I am making a difference in climate change, sustainability and the control of CO₂ emissions. ●

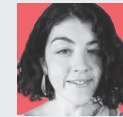


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Mind your language

CITB's Welsh language policy advisor **Gwenno Griffith** on developing Welsh skills in the workplace



The Welsh government has a highly ambitious plan: its Cymraeg 2050 strategy aims to ensure that the number of Welsh speakers rises from 562,000 – its current figure – to one million, by 2050.

CITB supports the government's bold plan and fully recognises the importance of promoting Welsh in the workplace.

For example, CITB's Welsh Language Scheme, a result of the Welsh Language Act 1993 and Welsh Language Measure 2011, states that "organisations should not treat the Welsh language less favourably than the English". It sets out how CITB is expected to use Welsh in the workplace and with the public.

I joined CITB in August 2019. Encouraging new Welsh speakers is an important part of my work at CITB Wales. In January I was delighted to offer CITB Wales staff across the country the chance to learn Welsh via taster sessions, online or at a residential course.

Take-up, I'm pleased to say, has been very good – staff's enthusiasm to learn the language has been encouraging.

Providing opportunities for those who can speak Welsh is also an important part of CITB's work. That's because the ability to complete qualifications bilingually can be an essential element for some Welsh speakers.

A good role model is award-winning bricklayer Ifan Williams, a bilingual apprenticeship ambassador for CITB Wales. He completed a bilingual Foundation Apprenticeship and Apprenticeship in Brickwork with the CITB through Coleg Meirion Dwyfor in Dolgellau, north Wales.

Williams used his first language of Welsh and written English to complete the qualifications and was named CITB Apprentice of the Year for Wales in 2018. His story is an example of the value of offering Welsh-language apprenticeships.

I believe promoting the Welsh language has numerous benefits for staff and our clients.

It helps CITB put the customer first, promotes inclusivity and ensures CITB supports the culture of Wales by helping the Welsh government achieve its ambitious 2050 vision.

Gwenno Griffith is Welsh language policy advisor with CITB.



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