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#### **Noise reduction concrete**

Tarmac and National Highways have trialled a new concrete retexturing technique on a section of the A30 in Cornwall that can reduce noise by up to 7dB. A single-pass process treatment creates grooves in the existing concrete pavement while grinding is applied onto raised 'turrets' on the surface to add texture and skid resistance.

#### Let there be light

The Dean of York inaugurated 184 new solar panels installed on the south Quire roof of York Minster during a blessing ceremony. The panels will generate 70,000kWh of energy, which the cathedral said will cover a third of its electricity requirements.



CIC chair Dr Wei Yang was awarded an OBE in the 2025 New Year Honours List (see p12)





#### A 'diffurent' hoarding

A 'pet hydration station' outside an Erith construction site in London gives away poo bags and allows dogs to have a quick refresh during their walks.

#### Challenging upgrade to rail track

The Central Rail Systems Alliance – a partnership between Network Rail, Balfour Beatty, AtkinsRéalis and TSO – completed a complex track upgrade in a narrow Victorian railway tunnel on the West Coast Main Line in Hertfordshire. Over 400m of steel rail and 672 sleepers were installed on 24 track panels.

#### Whorlton Bridge refurbishment

The complete structure of the 1831 suspension bridge in County Durham was dismantled to allow for each of its components to be inspected, shotblasted, tested and repainted. VolkerLaser used Mabey Hire's propping equipment to construct a temporary cable crane structure to support the bridge while it was being taken apart.



#### Restoration at Olympia's Grand Hall

Laing O'Rourke has appointed heritage construction specialist DBR to restore the lost sculptures and friezes of Olympia's iconic Grand Hall entrance, in west London. This close-up shows the Greek goddess Demeter, who will be carved and reinstated on top of the building with the statues of Triptolemus and Persephone.





### Caroline Gumble steps down as CIOB CEO

The executive led the institute through the pandemic challenges

#### **Caroline Gumble has announced**

she will be stepping down as CEO of the Chartered Institute of Building in early July 2025. She leaves CIOB to take on a leadership role within the engineering sector.

Gumble has been the institute's chief executive since August 2019. She led CIOB through the Covid-19 pandemic and UK lockdowns while advocating for clarity for the construction sector and collaborating closely with sister professional bodies.

Gumble also presided over the revamp of the CIOB brand in 2021 to highlight the institute's new identity and support its profile and membership growth.

She was instrumental in the shift to refocus CIOB on its public benefit mission and in the transition from the Novus brand for young professionals to the current Tomorrow's Leaders community to better ensure new entrants to the industry can help drive it forward.

During her tenure at CIOB, Gumble was awarded an honorary doctorate from the University of Wolverhampton for her "positive impact in raising the profile of women in property and construction" and became a visiting professor of built environment global engagement and transformation at Loughborough University.

#### Leaving CIOB stronger

Steve Nitman, chair of CIOB's board of trustees, said: "Caroline has put the CIOB on a solid, forward-looking platform, addressing the needs of the modern professional, and it has been my privilege to work alongside a CEO that has delivered what they set out to do."

CIOB's president, Professor Mike Kagioglou, added: "Caroline was able to cement the global presence and influence of CIOB as the largest professional body for construction management in the world. I know I speak for more than 50,000 members across more than 100 countries globally when I say that she will leave CIOB in a much It has been an honour and a privilege to serve CIOB and act as a custodian for this wonderful institute. I have been constantly motivated by what our members achieve Caroline Gumble, CIOB

stronger position, continuing its growth and impact."

Gumble said: "It has been an honour and a privilege to serve CIOB and act as a custodian for this wonderful institute. It has been an inspiring role. I have been constantly motivated by what our members achieve. I came to deeply appreciate what a talented, dedicated, generous and remarkable group of people they are [and] I have every confidence they are capable of transforming the future of the industry.

"I'm also proud that I was able to bring together a new team within CIOB focused on delivering the headline themes of sustainability, tackling the skills gap and promoting EDI initiatives and support for clients, helping to drive the quality and safety agenda."

Reflecting on the future, Gumble added: "2025 is the mid-point for CIOB's current five-year corporate plan, which has been a strong foundation for much of our recent work, and it is also the conclusion of our 190th anniversary celebrations. My successor will have the chance to shape the next corporate plan and look forward to the Institute's 200th anniversary – this seems like a good point at which to hand over the reins."

Recruitment for CIOB's next CEO is underway, with the process being overseen by the chair of the board of trustees. 1010101010'

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## CIOB has 'much to gain' from government's AI strategy

CIOB says any AI deployment must be ethical and have a human-centric approach. **Justin Stanton** reports

Performance Services and chair of the CIOB Innovation Advisory Panel, said: "The construction sector has much to gain from embracing Al and these new measures will both support and fast-track businesses in doing that.

"Data is today an ever-increasing strategic asset, equal to its physical counterpart. AI, along with machine and deep learning, will enhance its use cases, analysing and contextualising large volumes of project data across the value chain, spotting potential safety risks and offering insights for smarter decision-making.

"Al will turbocharge our sector modernisation and will fuel more efficient, assured delivery of our capital projects and more effective maintenance of our critical infrastructure.

"It will provide infrastructure asset operators with the ability to better monitor and, through simulation modelling, intelligently predict, asset health and maintenance needs – not wait for failures to occur. It will improve asset resilience and performance and help us respond to the challenges of net zero and climate resilience."

#### **Energy strategy**

Philp welcomed the government's focus on SMEs: "Al technology will have a significant impact, enabling them to compete at a larger scale and level the playing field with larger enterprises – a point stressed in CIOB's Artificial Intelligence Playbook 2024."

He also noted a number of caveats, including the need for the UK to have a robust energy strategy to support the government's ambitions for AI: "It is critical though that the government's commitment to AI, both in the plan and in the accelerator, needs to be matched by a commitment to a considered energy strategy. This needs to both support the AI proposals and provide long-term resilience and security of supply.

"The AI action plan positively promotes the need for AI growth zones to help encourage data centre developments where new more innovative energy models can be developed. These should fully consider the role of new technologies such as small modular reactors, as viable routes to provide sufficient, clean power to 'feed' the data centres necessary for the ever-increasing demand for AI."

Philp concluded with an important reminder: "We must be mindful too that we need to take a human-centric approach to Al and ensure that any deployment is ethical, non-biased and value-driven."

Download the Al Playbook for free at www.ciob.me/AlPlaybook.

#### The CIOB Innovation Advisory Panel has welcomed the

government's artificial intelligence (AI) plans, announced in January.

The 50-point AI Opportunities Action Plan seeks to make the UK a global leader in AI and includes recommendations for a national data library, the identification of AI growth zones for the rapid build of data centres and increased computing capacity.

Furthermore, an Innovate UK-funded accelerator programme will back startups and SMEs to design Al solutions to challenges presented by golden thread compliance, digital design and 3D printing of buildings.

Dave Philp FCIOB, chief value officer at Bentley Systems' Asset

## Al will

turbocharge our sector modernisation and will fuel more efficient, assured delivery of our capital projects Dave Philp, CIOB Innovation Advisory Panel



## What concrete costs tell us about construction inflation

Tracking concrete prices can provide the industry with valuable insights to inform decision-making, writes **Pablo Cristi Worm** 



The price of readymixed concrete serves as an early indicator of inflation within construction.

Its fluctuations offer early signals of wider inflationary trends in the industry. Its pricing is influenced by energy costs, supply chain dynamics and demand levels. Periods of heightened demand or supply-side disruptions typically lead to increased concrete prices, creating ripple effects throughout the construction project inflation. Ready-mixed concrete also

serves as an interesting indicator of local construction inflation. While its price is affected by global commodity markets and energy costs, it cannot be transported over long distances due to its short shelf life. This necessitates domestic production, making the price of ready-mixed concrete sensitive to local factors such as the cost of raw materials, labour expenses and regional supply and demand dynamics.

The top graph on page 9 shows a scatterplot demonstrating the strong positive relationship between the price of ready-mixed concrete on the horizontal axis and construction output prices for all new work – a measure of construction inflation published by the Office for National Statistics – on the vertical axis. Each dot represents an intersection between the price of ready-mixed concrete and the construction output price for all new work in a given time. The high correlation coefficient (R-squared = 0.91) shows that when the price of ready-mixed concrete increases, so does the construction output price index, underscoring the material's predictive power.

#### Housing output

While ready-mixed concrete is a good early indicator of inflation in new work, the delivery of concrete blocks serves as an early indicator of construction output in the housing sector.

Although traditional metrics like housing starts and construction output provide valuable insights, they tend to lag behind actual construction progress. The delivery of concrete blocks serves as a timely early indicator of new housing activity, with demand often preceding substantial onsite activity. By analysing trends in supply and delivery, stakeholders can gain early insights into the trajectory of the construction sector.

A strong correlation exists between the volume of concrete block deliveries and new housing construction output. Historical data reveals that a surge in deliveries typically precedes a rise in construction activity by three to six months, reflecting the procurement process and early-stage construction needs.

The bottom graph illustrates the trend in monthly deliveries of concrete blocks and construction output for total new housing.



#### Ready-mixed concrete signals new work inflation

Correlation between the producer price index of ready-mixed concrete and the construction output price of all new work



#### Concrete block deliveries indicate housebuilding recovery

Delivery of concrete blocks and total new housing construction output



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SOURCE: DEPARTMENT FOR BUSINESS AND TRADE AND ONS
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Tracking the volume and frequency of material deliveries and price trends offers valuable insights

An upward trend in the delivery of concrete blocks suggests increasing construction activity, while a downward trend signals a potential slowdown. The slope of the line provides further insights into the pace of construction.

Recent data on concrete block deliveries indicates a recovery in housebuilding activity. Deliveries began trending upwards in the second half of 2024, recovering some of the ground lost earlier.

Concrete block deliveries increased by 5.2% in the year to October 2024, while new housing activity is expected to increase over the next months. Despite this recovery, delivery levels remain 24.9% below pre-pandemic levels of February 2020.

#### Leveraging insights

Tracking the volume and frequency of material deliveries and price trends offers valuable insights into construction activity before they appear in lagging indicators.

Construction firms can use this type of data to optimise procurement and workforce planning. Policymakers can treat delivery trends as early warning signs of changes in construction activity, aiding macroeconomic forecasting. Similarly, suppliers can align production schedules with anticipated demand, reducing the risk of supply chain disruptions.

By leveraging insights like these, stakeholders can enhance their strategic decision-making, ensuring a more agile, resilient and responsive construction sector, staying well prepared for future demands. Pablo Cristi Worm is an associate economist at Turner & Townsend.



Caroline Gumble

## Combining old and new brings out the best in our heritage

The 2025 CIOB Conservation Conference will focus on the people behind the projects preserving UK historic buildings, says **Caroline Gumble** 



**One of my favourite events in** the CIOB calendar is our annual Conservation Conference, a gathering that celebrates the creativity, dedication and expertise within the heritage and conservation sector. This year, we're proud to announce the theme for our conference is 'Engage. Involve. Empower'.

As someone with a deep appreciation for the historic built environment, I've been fortunate to visit breathtaking sites across the UK and beyond. These visits, combined with our annual conference, continually renew my enthusiasm for the conservation sector.

Each year, our event showcases industry experts and their insights into the intricate work involved in preserving our unique historical buildings and sites. The 2025 conference will focus on the people behind these projects, exploring how creativity shapes every part of the process. From artistic drawing and innovative materials to education and visitor engagement, this year's theme highlights how human ingenuity drives heritage work.

Key themes for 2025 include: • Age and inspiration: exploring young people's perceptions of heritage and conservation. • Innovation and technology: examining how advancing technologies transform learning,

decision-making and investment.
Stakeholder involvement: showing how heritage staff use creative skills to shape conservation projects. The CIOB Conservation Conference is organised in partnership with English Heritage

The 2025

conference

will explore

part of the

process

how creativity

shapes every

• Community engagement: showcasing methods to inspire public participation and connections with historic sites.

• Heritage skills cycle: covering the spectrum of conservation work – from surveying and design to installation and repair – emphasising the interconnectedness between disciplines on projects.

One of the things I've been struck by at previous conferences is how traditional techniques can work so well with cutting-edge digital tools. Our conference is about how conservation professionals combine the old and new to bring out the best in our historic buildings.

I am very much looking forward to this event and I am grateful to our Heritage Advisory Panel, particularly Rebecca Thompson FCIOB, director of property at St Paul's Cathedral, and Stewart Wright MCIOB, head of building conservation at English Heritage. Their passion and deep knowledge will help to deliver an excellently curated event, with a line-up of fantastic speakers.

Do join us in a few weeks to celebrate the creativity and collaborative spirit that keeps our heritage alive for future generations. • Caroline Gumble is CEO of CIOB. The CIOB Conservation Conference will take place on 12 March 2025 at Congress Centre, Great Russell Street, London. For more information, visit www.ciob.org/events.

## How professional is your workforce?

Now is the time to focus on professionalising your workforce and encourage your team to reach chartership. Demonstrate your commitment to excellence and core competencies with CIOB membership.

- · Develop your team's skills and knowledge
- Win new clients with qualified employees
- Take your company to new heights

#### Ready to grow your business?

It starts with your workforce. You and your team can become chartered members at CIOB, and together, shape the future of the built environment.

#### ciob.me/professionalise







## CIC: A leadership reflecting the world it serves

**Ian Brant FCIOB** reflects on the importance of having a more inclusive and representative industry to meet construction's challenges



The Construction Industry Council was given a reason to celebrate the start of 2025 as our chair Dr Wei Yang was honoured with an OBE in the King's New Year Honours List.

Wei is an internationally renowned town planner and urban designer, who has shown tireless dedication to advancing the built environment and championing a more sustainable and inclusive future.

This accolade is not just a personal triumph for Wei, but we also hope represents a broader shift in the industry. The recognition of a female leader of Wei's calibre signals a long-overdue acknowledgement of the diverse talent that exists within our sector.

Historically, construction and the built environment have been perceived as male-dominated fields, with significant barriers to entry for women and individuals from underrepresented backgrounds. Wei's success and recognition challenge this narrative and demonstrate the value of diverse perspectives in driving meaningful change.

We were also delighted to see Amos Simbo recognised with an OBE for his services to construction and diversity. Amos is the founder of the Black Professionals in Construction Network (BPIC). BPIC, which is an inclusion hub that aims to create a diverse built environment and enhance industry representation, is also a CIC member.

Amos has been involved with CIC as a 2050 Group member and more recently BPIC became one of the founders of Diversitas, an organisation set up by CIC to increase the representation of Black professionals in the built environment.

#### A more inclusive industry

The need to harness genuine talent has arguably never been as important as it is right now. Moving into 2025, we need to position Dr Wei Yang (left) and Amos Simbo were awarded OBEs at the 2025 New Year Honours list

"

The need to harness genuine talent has arguably never been as important as it is now ourselves to meet the government's ambitious housing and infrastructure targets while addressing major challenges on skills, quality and enacting the cultural shift on building safety so eloquently explained by Dame Judith Hackitt. With climate change here to stay and new strategy announcements on housing and infrastructure due within weeks, this is going to be a critical year to determine whether the construction industry can rise as a collective and move forward with the times.

As we celebrate Wei and Amos's OBEs, let us also celebrate what they represent: a brighter, more inclusive future for the construction industry. These recognitions are a testament to what is possible when leadership reflects the diversity of the world it serves.

It's an achievement that should inspire us all to work toward a sector where everyone, regardless of gender, ethnicity or background, has the opportunity to thrive and contribute to building a better future as well as encouraging the next generation of talent to enter our industry.

Ian Brant FCIOB is a director at Brant Construction Quantum Experts and deputy chair of the CIC.



### **Feedback** A selection of readers' comments about news and issues in the industry from across the CIOB community and social media



#### 💭 BIMplus

#### Welcome home, planetarium

Main contractor GF Tomlinson used Graphisoft's BIMx software to virtually walk around the design of the new Sherwood Observatory during its construction.

Stephen Spiegelhalter, project manager at GF Tomlinson The use of the BIM model was a gamechanger on our site. It was used from the start so that all of the contractors got a better understanding of the build before they saw the build progressing and has had a huge

#### CIOB People Trowels at the ready: showcasing bricklaying in action

The Super Trowel competition was founded in 2023 to celebrate bricklaying skills and exhibit the trade's opportunities.

#### Stewart Jones MCIOB

It's really exciting that this sort of craft is still showcased for all to see – long may it continue. As a retiree I miss going to the building exhibition at effect on paper wastage on the project. Watching your tablet or mobile phone update in real time gives you confidence you're always working from the latest drawings. Being able to provide measurements on site from the device in your pocket is also a huge help.

Birmingham to see all the craft skills on display, especially as I had a winning apprentice working for me in the 1980s!



#### 'Planning system at its best': industry reacts to M&S Oxford St demolition approval

The secretary of state approved the demolition of M&S's flagship store in London's Oxford Street following a three-year planning row.

GF Tomlinson has built a planetarium on top of an old 25m diameter Victorian reservoir in Nottingham

#### Steve Frizell MCIOB

So what can developers learn and apply from this example and the local authorities with their "policies towards a 'retrofit-first' approach" and embodied carbon considerations? I don't see any empirical measures that can guide the investment proposition alongside these sustainability objectives. Planning consents will continue to be delayed and contested until greater objective measurement and transparency is set out.

#### 📿 21CC podcast

How we could build new buildings with old ones

21CC podcast guests explored the possibility of a so-called 'circular' construction industry.

#### Paul Hargreaves

Reminds me of Sir Alexander Gordon, president of the RIBA, in 1972, when he described good architecture as buildings that exhibit 'long life, loose fit and low energy'. Have we not learned since then?

#### 🖸 CIOB People

#### Why construction needs to rethink community engagement

Jack Kidder from Henry Boot Construction argued that building relationships with the local community is just as important as building infrastructure.

#### Anthony Thomas

Community involvement is a standard that I have adopted as a project manager and applied to my projects for many years. Involving and talking to those affected by the works has both reduced 'conflict' and misunderstandings and gives the community a voice – it's worked well for me over the years.

Share your views on the latest industry issues by posting comments online at www.constructionmanagement.co.uk or by emailing the editor at construction-management@ atompublishing.co.uk



Planning consents will continue to be delayed and contested until greater objective measurement and transparency is set out Steve Frizell MCIOB

The screens in the Skyline Cockpit replicate the view from the top of the crane

### Remote working

What's it like operating a remote-controlled tower crane? Kristina Smith visits Winvic's Crown Place Birmingham development to watch the machine in action

invic's Crown Place Birmingham project, a 33-storey student accommodation development, hit the headlines in

September 2024 with news that it was using the UK's first ever remote-controlled tower crane.

And this isn't the only innovation on the job. Alongside the remotecontrolled crane (see box, p18), project manager David Elson and his team are using a raft of digital tools and technology that start to show what the next generation of construction sites could look like.

Crown Place Birmingham will be Winvic's highest ever build. Comprising a 33-storey tower, stepping down to two lower sections of 12 and nine storeys, this is the contractor's second project for client Crown Student Living, following on from a similar, but smaller, development in Nottingham.

Less than 20 minutes' walk from Birmingham New Street and close to Aston University, the 814-bed development will provide more facilities than most student

accommodation, such as a yoga room, retro games room and an external terrace at first floor level. Some students will be able to live in 'duplex clusters', effectively two-storey houses with their own staircases, within the building.

This is a very tight site, says Elson: "We've got one metre on one side, one metre on the other and theoretically 35mm on the other two sides. We are on a red route into Birmingham, so we are not allowed to close the roads, but we did get a bus lane closure to create a drivethrough bay to offload the vehicles, one artic at a time."

Work started on site in February 2023 with groundworks, ground remediation and the installation of continuous flight auger (CFA) piles. In September ►

This crane could theoretically be operated from anywhere in the world David Elson, Winvic



#### Technical



Crown Place Birmingham is an £80m+ residential tower project for Crown Student Living



### SAM SHAW

2023, contractor Midwest began work on the reinforced concrete frame, which combines precast vertical elements and cast-in-situ horizontal ones.

This is the second project where Winvic has deployed a hybrid concrete solution, Nottingham having been the first. At Nottingham, Winvic used two-storey-high precast columns; at Birmingham the columns are just one storey tall.

"Because we are going higher here, we had to think about the wind effects, and also this is a far more compact site, so laying two-storey columns down off the lorry would have been difficult," says Elson. Using precast vertical members requires less hook time from the tower crane, since there's no reinforcement to be lifted and no shutters to be erected and struck. The quality is better, says Elson, because it is factory fabricated, and the speed of construction is faster. Compared to an all in-situ frame, it is cost neutral, but programme certainty is greater, he adds.

"We can stand all the precast columns on a floorplate in a day," he says. "We are turning a floor slab every eight days. And, whilst our core construction is slightly slower than slipping or jumping it, the quality of the finish is demonstrably

#### Project: Crown Place Birmingham

• Contractor: Winvic

 Cost: £80m+
 Form of contract: JCT Design and Build with amendments
 Client: Crown Student Living
 Architect: ECE Westworks
 Engineer: Meinhardt
 Programme:

153 weeks • Completion: November 2025 (targeted)

Subcontractors

- Concrete frame and groundworks: Midwest
- Facade: Hansen
- MEP: Highadmit
- Pods: Offsite
   Solutions
- Piling: Volker
- FF&E: Deanestor
- Roofing:
   Advanced Roofing

Former
 T-level student
 Mohammed
 Sammad using the
 HP Site Print
 Crown Place
 Birmingham uses
 a panelised brick
 curtain walling
 system

better – which means we won't be trying to finish the core while people are moving up and down the staircase."

To provide edge protection as the floors follow on from the columns, four-floor-deep climbing screens from Hünnebeck wrap around the perimeter of the tower. The screens can be hydraulically lifted or lifted using the tower crane.

To cast the floor slabs, Midwest is using a Doka table lifting system (TLS), which allows the formwork to be lifted and positioned without using the tower crane. Again, this frees up hook time and means that the operations are not impacted if wind speeds are too high.

Winvic changed the design of the facade due to the limited space on site, with no room for scaffolding or mast climbers. Instead of a steel framing system (SFS) with brick slips, Winvic switched to a brick facade unitised curtain walling system from Danish company Hansen, which it believes is a first for the UK.

Each panel is one storey or 3m high, with varying widths, from two bricks wide to a full window's width of 1,600mm. The structure is a curtain walling system clad with glass or bricks from Forterra, which have been mechanically fixed into a Forterra carrying frame. The panels are hung onto brackets cast into the slabs, with four lines of gaskets ►

We can stand all the precast columns on a floorplate in a day. We are turning a floor slab every eight days David Elson, Winvic



Being stuck up in a crane, you are a bit isolated. All you have is the walkie-talkie. Down here you have more interaction Dale Burton, Radius

between them to provide air and water tightness.

"The quality of the unitised facade is phenomenal," says Elson. "It is so sharp and crisp. I challenge you to find a vertical brick joint."

Rather than plumb between floors, as is often the practice for multi-storey construction, Winvic is using coordinates to set out every floor slab, to avoid any errors being compounded. "We're just about to cast level 22 and the most out we have been out is 4mm," says Elson.

#### New tech in action

Inside the building, we meet some younger members of the team, who are busy working with some of the technology that Winvic is trialling on the project. Former T-level student and now full-time employee Anas Ahmed is carrying out quality assurance (QA) checks with the help of GAMMA AR.

Ahmed holds his mobile phone over the light switches that have **>** 

Controls in the Skyline Cockpit





#### Game changer

Inside the Skyline Cockpit's remote-controlled crane 'cab'

#### There's something a bit

disconcerting about walking into a site cabin and finding the tower crane driver sitting there in front of multiple screens. It feels more like a security room, or even a gamer's bedroom. But the driver's chair is exactly the same as the one up in the cabin at the top of the tower crane and the controls are the same too.

This is the first time that this remote-controlled technology, Skyline Cockpit, has been deployed on a project site outside its home country of Israel. Crane company Radius had been using it in its yard for around 18 months and introduced the idea to Winvic.

Dale Burton, who is the resource manager at Radius, is sitting in the chair when we visit. Driving the tower crane remotely feels the same as if he were in the cab, he explains: "When you are driving the crane you feel the machine move. Here, your eyes take in the movement conveyed by the cameras."

There are plenty of arguments for why this style of tower crane driving is safer than the traditional method. The operator has more information – such as wind speed and radius data – displayed in front of them; the cameras give better views of the site and of the hook; there isn't a 30-to-40-minute climb to reach the controls; and if an operator were taken ill, getting them to safety would be a straightforward matter.

It's better for wellbeing too, says Burton. "Being stuck up in a crane, you are a bit isolated," he says. "All you have is the walkieSkyline Cockpit's remote-controlled crane 'cab'

talkie; it is your friend. Down here you have more interaction." Going to the toilet is a far more civilised experience too.

The Skyline Cockpit system also offers the opportunity to collect and analyse data. "Once we get eight weeks' worth of data, we can highlight busy and quiet points and move activities around, for instance bringing deliveries in at quieter times," says Winvic project manager David Elson.

After a 12-week trial, Winvic elected to keep the system on site. Elson says that by analysing the daily and weekly patterns of activity for the crane, it has improved efficiencies in lifting by just under 10%.

Currently, Radius has three drivers who can use Skyline Cockpit. And unfortunately, two of them have just been tempted to lucrative jobs in the Middle East. However, as Elson points out, this crane could theoretically be driven from anywhere in the world. It can also be operated traditionally, from the cab, if needs be.

Winvic's angle on the crane has been that it's a good way to encourage younger people to become crane drivers; the controls could be any design, says Elson, even the same as an Xbox controller. Ultimately, this technology could reduce demand for tower crane drivers.

"There's a chance it could be semi-autonomous, although it's not quite there at the moment," says Burton.



## CUT CARBON, CUT COSTS

#### **BauderSOLAR PV Solutions**

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B

Project: Barony Campus Roof Size: 5,230m<sup>2</sup> Specifier: Sheppard Robson The dryliners know where the sockets and switches will be. We are at level 12 and have not had one clash between MEP, drylining and joinery David Elson, Winvic

been installed, and the augmented reality image of where the BIM model says they should be is superimposed over the top of the picture. "It's a clever bit of kit which makes QA easier," he says. "And it's very accurate."

Another former T-level student, Mohammed Sammad, is standing with a remote control while a robot draws lines on the floor. This technology, HP SitePrint, marks up the position of every item for every room of the building: partitions, wardrobes, bathroom pods, switches and sockets, sprinklers, spotlights, ventilation ducts and fans. Winvic is trialling one of only six prototype generation 2 HP SitePrint robots in the world, and the only one in the UK.

"The whole driver of using it is to prevent rework and clashes," says Elson. "When the dryliners put the studs in, they know where the sockets and switches will be. We are at level 12 and we have not had one clash between MEP, dry lining and joinery." It's faster, too, he adds, and removes the risk of setting-out errors.

Elson is brimming with pride over the work of 17-year-old Viktoriia Grachova – who came to the UK from Ukraine – and has taken a leading role in using the HP SitePrint robot for setting out. She is studying for her T-level, while working part-time on site (see p45).

Elson is also keen to point out the site's energy source: a battery, housed in a container which has replaced three 350kV generators. Elson explains that the tower crane, the goods hoist and the passenger hoist would have required a generator each to provide the startup loads they needed.

The battery, called the Enertainer and supplied by startup Hong Kong company Ampd, converts 90A to 400A and provides all power for the site, trickle charging itself from the mains. "Because we are on green electricity, we have saved 150 tonnes of carbon in four months from the beginning of July and 600 litres of diesel," says Elson.

With no fumes, no noise and no risk of diesel spillages, the Enertainer is perfectly suited for city sites, says Elson: "Going forward this will be implemented on all our multi-room sites."

It's difficult to find fault with this beautifully run site. The Considerate Constructors Scheme (CCS) assessors appear to have come to the same conclusion: the project scored 48 out of 45 and 46 out of 45, due to extra points awarded for the innovations in use here.

 GAMMA AR is used to carry out quality assurance checks using augmented reality





#### CV: David Elson, operations manager, Winvic

David Elson's construction career started straight from school, with a job as a site engineer for Tarmac. He went on to study for a BTEC in civil engineering followed by a construction engineering management course at Loughborough University, both while working.

Having worked up through the ranks to become a project manager at Tarmac – which became Carillion – he moved to work for a local contractor that had set up a development arm for five years, then spent a year with Willmott Dixon, before Carillion persuaded him to return to the business in 2009, where he spent the next 10 years. Six years ago, he joined Winvic.

Elson has worked on most types of project over his career: prisons, hospitals, schools, industrial, commercial, offices, residential, student, apartments and hotels, public and private sector, traditional and PFI. "I like to build," he says. "I am a builder. That's my game."

When asked what he likes most about construction, he replies: "The people. As management contractors, we rely on our suppliers and subcontractors to do the work. I like dealing with people."



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# Could graphene be the future of concrete?

Adding tiny amounts of graphene to concrete promises big benefits in terms of performance, durability and carbon savings. **Kristina Smith** looks at the potential of this super-strength material



Graphene consists of a single layer of atoms arranged in a honeycomb structure

raphene's biggest challenge is it can offer something to almost every sector," says Stephen Hodge, CEO of graphene producer Versarien.

Graphene-enhanced concrete is one of the applications that Versarien has decided to explore because of the pressing need to reduce the environmental impact of concrete, says Hodge.

It is not alone in its ambitions. Researchers and companies in the UK and overseas are working hard to create a viable graphene-based additive for concrete that will allow its deployment to be scaled up.

The proposition is that adding tiny amounts of graphene to concrete can improve multiple properties, such as compressive strength, flexural strength, impermeability and chloride migration. This would mean that concrete – and crucially Portland cement – can be used more efficiently and last longer, reducing the embodied carbon of structures.

There are several hurdles to clear, including the cost of graphene, the variability in quality of graphene and technical issues around dispersing it in the concrete. Exaggerated early claims of graphene-enhanced concrete's performance have also caused concern among some investors. Estimates on the potential growth of the global market for graphene-based concrete ►



additives vary, but all agree it is growing fast. A January 2025 report from Verified Market Research values the market at £15m in 2023 and projects it will rise to £123m by 2030.

#### **Born in Manchester**

Graphene was discovered by researchers at the University of Manchester in 2004, a super-strong material that is just one atom thick. Its strength and thermal conductivity mean that its potential applications seem almost endless, with applications in electronics, composites and coatings, biomedicine, energy and sensors to name but a few. But there are many versions of graphene, explains Hodge, which are made from a variety of sources including waste materials such as methane and plastic.

"Graphene is not just one thing, it's thousands of materials," says Hodge. "Depending on the manufacturing process and the raw materials, the end product is different."

Graphene nanoplatelets (GNPs), which consist of between three and 10 layers of graphene, are generally used in additives for concrete. These are less expensive to produce than the single-atom-thick graphene used in applications such as semiconductors.

Variability of graphene quality was an early challenge in producing graphene-enhanced admixtures, says Alan Beck, head of project management at Concretene, which was set up in 2022 to produce ▲ Concrete technicians filling cube moulds in Concretene's materials laboratory a graphene-enhanced concrete admixture of the same name. "With a novel material like graphene – which has highly variable methods of production – ensuring reliability and repeatability of performance from batch to batch is challenging."

The cost of GNP has reduced significantly in recent years, says Beck, but the sector needs to see the same economies of scale that have been achieved for GNP produced for the polymer and coatings sectors. "Where small-batch GNPs were typically more than £500 per kg in 2020-21, we anticipate that graphene for use in concrete will have to be sold considerably below £50 per kg at scale to enable a price point that works for industry."



This is just the start of developing a commoditised industrial process that may look very different in 10 or 20 years Alan Beck, Concretene

,,,

Camille

Wright, graphene

scientist, making

a formulation

laboratory at

Manchester

in Concretene's

the University of

One of the technical challenges in producing a graphene-enhanced additive that can be used like any other concrete admixture is how to disperse it evenly in concrete.

"Graphene doesn't like water," says Beck. "It's extremely hydrophobic. And concrete is a water-based system, so you need a chemical formulation to disperse the graphene evenly in the cementitious system and let it do its work without agglomerating. Keeping the GNPs in a stable suspension is vital to performance and is something we've achieved this year with Gen 2."

#### **Graphene in action**

From a performance perspective, graphene-enhanced concrete has demonstrated its potential in the UK. A prototype of the Concretene additive was developed by the Graphene Engineering Innovation Centre at Manchester University and was used in three trials in 2021: parking bays at the University of Manchester; a mezzanine deck at the Mayfield Depot, a cultural venue in Manchester; and for the floor slab of a gym in Amesbury, Wiltshire.

## 1,000

Having shown a 30% improvement in compressive strength in the laboratory, real-life trials – using graphene from a variety of sources – achieved an average of 18% uplift in strength, the highest being 22%, says Beck. "The biggest challenge we faced after the 2021 trials was variability of performance in batches of one of the graphene materials we had sourced from overseas."

To create its Gen 2 additive, Concretene worked with two UK chemical companies, Thomas Swan – which owns Black Swan Graphene – and William Blythe, to redevelop the formulation. The first field trials for Gen 2 Concretene took place in December 2024. "The results are still pending, although indicatively they look comparable to the bestperforming from Gen 1," says Beck.

Spanish company Graphenano Smart Materials seems to be further ahead than its UK counterparts. It launched its graphene-based additive six years ago and has sold over 1,000 tonnes to date, according to its president Martin Martinez Graphenano Smart Materials launched its graphene-based additive six years ago and has sold over 1,000 tonnes to date

Rovira, a quantity it forecasts to multiply by five in 2025 alone.

"Our new version of the concrete additive, version 2, will soon be launched on the market," says Rovira. "This version significantly improves upon its predecessor."

Back in 2022, Graphenano started supplying its additive to ready-mix supplier Beton Catalan, part of the CRH Group, and is working with various overseas partners on projects that include a lightweight, low-strength concrete and a mix that uses desert sand. Graphenano is also developing graphene-reinforced fibreglass rebar, which Rovira says will be a game-changer when combined with graphene-enhanced concrete.

#### **Precast first**

Although graphene could in theory be used in any concrete application, the biggest immediate potential seems to be for precast elements. Precast concrete manufacturers have typically used 100% Portland cement, with high proportions of binder to give them rapid strength gain.



"Properties such as improved early age strength could be very significant for precast manufactures," says WSP technical director and concrete expert Jimmy Barratt-Thorne. "A faster cycle time means quicker production." Precast product manufacturers also have tighter quality control over the concrete they use, he adds, and could afford to assure their graphene-enhanced products through testing.

As well as its live field trials on slabs, Concretene is working on two projects with precast companies, with trials on precast concrete piles in January and February 2025 at Roger Bullivant's Swadlincote HQ, and work with the Global Centre for Rail Excellence and Cemex to investigate its use in railway sleepers.

Ireland's Banagher Precast Concrete carried out trials with Versarien's graphene-based additive Cementene in 2023. According to Versarien, these demonstrated that the same performance could be achieved with 20% less Portland cement.

Catalan precast concrete manufacturer Hormipresa began working with Graphenano's additive



It is not only strength that is important. How will this be performing and how will it have degraded in 120 years? Jimmy Barratt-Thorne, WSP



▲ Clough Cottage Farm, Cheshire – site of Concretene's industrial-scale pour of grapheneenhanced concrete, in conjunction with Breedon in April 2022, after trials showed its use reduced carbon emissions and water use by 20%. Other benefits of using the 'Grapheconcrete', says Hormipresa, is that the concrete is more compact with better impermeability and hence durability.

With fewer and fewer concrete mixes containing only Portland cement, the next step is to create graphene-enhanced additives that work with supplementary cementitious materials (SCMs) such as ground granulated blastfurnace slag (GGBS) and pulverised fuel ash (PFA). This is more challenging, says Hodge: "Graphene is straightforward with a CEM I mix but once you start using GGBS, some of the results are a bit hit and miss. You have to understand what's going on; there's quite a lot of work to do."

Graphenano's additive has already been used with SCMs, says Rovira, and even volcanic ash. In the UK, Breedon laid a test slab in 2023 using a graphene-enhanced CEM II/A-L (Portland limestone cement) mix. Concretene too is working with mixes containing SCMs, says Beck. "Our pour before Christmas used a Breedon CEM III mix design with GGBS and Roger Bullivant's mix is also CEM III GGBS. With Cemex, we're working on a CEM II limestone mix design," says Beck. "One of the main differences in our Gen 2 development has been the use of more industryrelevant mixes, as opposed to CEM I, which is now less commonly used."

Cemex is leading a project, with partners Galliford Try, Sika, Northumbrian Water and Graphene@ Manchester – part of the Graphene Engineering Innovation Centre – to produce an SCM that combines micronized limestone and graphene, with the help of Innovate UK funding.

#### Long-term performance

For graphene to take the step into everyday use, the industry and investors need cold, hard facts in place of hyperbole, says Beck.

"One barrier is about perception of nanomaterials and the idea that **>** 

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**BUILDING TRUST** 

One metric of success for graphene is that we'll have stopped talking about graphene Alan Beck, Concretene

**)** 

graphene is 'magic dust' that you sprinkle into a concrete mixer and somehow transforms the performance of your concrete. " he says. "Even if people have heard of graphene, they often don't understand how much chemistry and engineering goes into benefiting from its properties."

One of the key questions for designers is how grapheneenhanced concrete will perform in the long-term, says Barratt-Thorne.

"It is not only strength that is the most important aspect. Durability comes into play, particularly in an external environment. How will this be performing and how will it have degraded in 120 years? How does it react with reinforcement, prestressing? This is a complex nano material and there's a lot going on."

For now, Concretene is focusing on collecting robust data, says Beck, working with its equity partner Arup. As for the future, it seems certain that graphene-enhanced concrete will have a role to play – although predicting just how is difficult to say.

"This is still just the start of developing a commoditised industrial process that may look very different in 10 or 20 years' time," says Beck. "One metric of success for graphene is that we'll have stopped talking about graphene. In the same way that carbon-fibre and silicon were once novel but eventually became commodity products, the same applies to graphene. It will simply be one component among others in better-performing products."

#### Three other concrete technologies to watch

Construction wants to improve its productivity and sustainability – and these emerging concrete technologies could be central to that



▲ In a trial loading sandbags onto two concrete slabs, the self-stressed slab supported 33% more weight before collapsing compared to a traditional slab

• Self-stressing concrete. Arriving in the UK from Latvia is a chemically self-stressing concrete, which contains a patented combination of three admixtures and steel fibres. Called PrīmX, the concrete has been developed by Primekss to be both stronger than conventional steel fibre reinforced concrete and non-shrinking.

A test comparing structural performance of a PrīmX floor slab versus traditional steel fibre-reinforced slab of the same thickness showed the traditional slab collapsing after 159 tonnes of sandbags were added, whereas the PrīmX slab did not collapse until 211 tonnes of sandbags had been loaded on.

Projects in Sweden and Denmark demonstrate how the concrete can be used without joints for the floor slabs of huge logistics and distribution centres. There are four Primekss-approved contractors in the UK. • Self-healing concrete One of the most developed selfhealing concrete technologies - by Basilisk, which came out of the Technical University of Delft - uses bacteria within the concrete to close cracks.

The bacteria are activated by water, multiplying and producing  $CaCO_3$  – limestone. Last year, contractor Heijmans Infra installed the self-healing concrete for the first time in the wall of an underground pump room for the Vijfeiken Tunnel in Rijen.

In the earlier stages of development is Mimicrete, which sees polymer-based tubing installed within concrete elements, which will rupture if the concrete cracks, releasing a healing agent.

The Cambridge University startup is working on a project at the Global Centre of Rail Excellence which will look at how the technology could be deployed in railway sleepers and retaining structures. • Recycled cement paste Another Cambridge University spin-out, Cambridge Electric Cement, is progressing with its project to industrialise the conversion of recycled cement paste back into Portland Cement.

The cement paste – separated out from recycled concrete – is used as the flux material in an electric arc furnace (EAF) used for recycling steel.

After the first successful industrial trial at Celsa UK's Cardiff EAF was announced in May 2024, the project raised £2.5m in seed funding in July 2024 from a group of investors focused on decarbonisation technology.

This means that Cambridge Electric Cement, Celsa UK and the other industry partners – AtkinsRéalis, Balfour Beatty, Day Group, Materials Processing Institute and Tarmac – can continue with the development of the low carbon cement.



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Steve Nesbitt

## RAAC Playbook: 5 key takeaways

The Manufacturing Technology Centre (MTC) has published a 'playbook' for managing reinforced autoclaved aerated concrete (RAAC). **Steve Nesbitt** picks out the need-to-knows



Identification and assessment
 One of the primary challenges
 in managing RAAC is accurately
 identifying and assessing its
 presence and condition in buildings.
 But traditional detection methods,
 such as drilling into the material,
 are invasive and can be damaging,
 making them less desirable for
 ongoing maintenance and inspection.

The RAAC Playbook therefore explores alternative methods such as advanced non-destructive testing, including groundpenetrating radar and ultrasonic testing. These methods provide accurate assessments without causing damage to the structure or compromising the building's structural integrity.

So far, these techniques have been successfully implemented in various public buildings, including schools and hospitals, to detect the presence

scanning using

of RAAC and evaluate its condition. Onsite trials using spot measurement ultrasonic testing have been able to further validate estimated results found using contact ultrasonic array NDT (non-destructive testing) equipment in lab trials. MTC is also working on the development of a protocol to assess RAAC where coatings, plasterboards or asbestos are present.

#### **2** Understanding RAAC's properties and condition

Once you've detected RAAC, it's crucial to understand its properties. While the presence of RAAC does not necessarily imply poor quality or safety concerns, it's important to note its condition over time.

RAAC is lightweight and has good thermal insulation, but it is porous. This makes it susceptible to water ingress, which can lead to the potential corrosion of the steel reinforcements and deterioration over time. Understanding these technical properties and their impact on structural integrity is vital for effective management. If not properly addressed, the deterioration of RAAC can lead to significant structural issues.

The RAAC Playbook provides a detailed analysis of RAAC's technical properties including its composition, load-bearing capacity and factors that influence its degradation. This information is essential for making informed decisions about ongoing assessment, maintenance and remediation.

Research conducted by Loughborough University, Sweco, CPT, IAconnects and Lucideon highlighted the shear failure of RAAC planks during flexural tests. This research has been instrumental in understanding RAAC's limitations and vulnerabilities, leading to more targeted remediation strategies.

#### **3** Remediation strategies

Dealing with deteriorating RAAC roof planks presents a significant challenge. What's more, there is no standardised methodology when it comes to remediating RAAC planks.

The *Playbook* outlines various remediation strategies, including repair, reinforcement and replacement options, designed to ensure safety and structural integrity while minimising disruption and cost.

These options for dealing with RAAC have considered a broad range of complexities associated with the installation and accessibility of RAAC, such as suspended ceilings, coating materials and different structural systems, such as reinforced concrete and steel frames.

Leighton Hospital at Crewe, operated by the Mid Cheshire Hospitals NHS Foundation Trust, provides an example of a remediation strategy. In easily accessible areas, plank reinforcements were installed to support the RAAC from underneath, but in areas with compromised access Unistrut pieces were used as a mitigation strategy while a permanent solution is developed.

#### Industry collaboration

The lack of a standardised approach for managing RAAC can lead to varying levels of safety and efficacy. Without a unified method, there is a risk of inconsistent inspections, missed detections and ineffective repairs, increasing costs and potential safety hazards.



Industry collaboration is therefore crucial. By consolidating shared knowledge and resources, the industry can effectively address RAAC-related challenges. The *RAAC Playbook* is intended to be the vehicle for aggregating such knowledge and sharing best practice and lessons learned.

To initiate a collaborative effort, the MTC, Construction Leadership Council and other industry groups created the first edition of the *Playbook*, to promote the development and adoption of best practices and standardised approaches, providing a robust framework for managing RAAC.

#### **5** Future research and training

Continuous research and training are essential for staying up to date with the latest developments and best practices in managing RAAC. Without ongoing education, construction professionals will be unable to implement the most effective strategies and innovations.

Within the *Playbook* you can find initiatives for ongoing research and the development of training

There is no standardised methodology when it

comes to

remediating

**RAAC** planks

#### What is RAAC?

RAAC is the reinforced version of autoclaved aerated concrete (AAC). The lightweight cementitious material is 'bubbly' in appearance and typically reinforced by steel bars or mesh to enhance its structural strength. RAAC planks were widely used in construction across the UK from the 1950s until the mid-1990s in roofs, floors and walls of buildings such as schools, hospitals and housing. RAAC manufacturing is believed to have ended in 1982 in the UK.

RAAC plank showing ineffective bonding

programmes to support construction professionals in managing RAAC effectively. One notable initiative is the RAAC Impact Programme, funded by Innovate UK. This supported the first consolidation of research and training efforts aimed at enhancing the understanding and management of RAAC. • Steve Nesbitt is chief technologist for the built environment at MTC.

**Further reading** 

• The RAAC Playbook, Manufacturing Technology Centre (MTC)

• Reinforced Autoclaved Aerated Concrete (RAAC) Investigation and Assessment – Further Guidance, The Institution of Industrial Engineers (iStructE)

• Information and FAQs on reinforced autoclaved aerated concrete (RAAC), Construction Leadership Council (CLC)

• Reinforced Autoclaved Aerated Concrete (RAAC): Identification Guidance, Department for Education

• The Construction Playbook, HM Government



## Digitising rebar's chain of custody

On the Euston HS2 project, the Mace Dragados JV has used cloud technology to track rebar compliance – and deliver higher quality and safety standards. **CM** reports

ame Judith Hackitt's CIOB lecture before Christmas delivered a sobering message on construction product safety, warning that progress on independent assurance testing post-Grenfell remains far too slow.

At HS2's Euston Station project, the Mace Dragados JV has run a

trial using a cloud-based system to prove the chain of custody for steel reinforcement bar.

"Ensuring the authenticity and safety of construction materials, particularly reinforcing steel, is now more crucial than ever," says Andrew Kinsey, sustainability operations director, Mace. "And reinforcing steel is one of ▲ The rebar trial was driven by quality and sustainability concerns the most safety-critical elements in any project."

As well as build safety, contractors face increasing pressure to account for the environmental impact of their designs and the carbon footprint of materials, Kinsey adds. Historically, obtaining accurate data on embodied greenhouse gas emissions of

The implementation of digital recording resulted in an 11-day saving in processing time



Ensuring the authenticity and safety of materials is now more crucial than ever. And reinforcing steel is one of the most safety-critical elements in any project Andrew Kinsey, Mace

#### **The Euston trial**

The Mace JV's trial of CARES Cloud, supported by HS2's innovation fund, was undertaken on two of the early works piling packages.

It had several objectives, including: operational cost savings; improving speed of data collection and quality; establishing QR codes as a standard for rebar; data exchange improvement; and accurate carbon data reporting.

Kinsey says the trial achieved all the goals set; 100% of steel reinforcement was delivered with a complete set of assurance records, including all CARES certificates of approval, and complete carbon footprint data for all reinforcement manufacturers and fabricators.

"The project dashboard recorded, analysed and summarised the data along the supply chain, in real time," he says. "Supply chain transparency increased confidence in product integrity, production safety record and carbon accountability.

"The implementation of digital recording resulted in an 11-day saving in processing time for 712 tonnes of reinforcement."

Carbon savings data could be accurately quantified, based on the actual manufacturer of the reinforcement, the quantities used, production methods and origin of manufacture, Kinsey continues.

"CARES Cloud enabled the use of actual carbon footprint data during the construction phase, overcoming challenges such as ►

materials like steel reinforcement bar has posed a challenge.

"On HS2, there are stringent standards for material procurement and supply, which include product conformity, responsible sourcing certification and BREEAM criteria, necessitating a robust chain of custody," says Kinsey. "Traditional paper-based certificates have historically been used to verify compliance but are time-consuming."

The UK government's procurement guidelines, such as Procurement Policy Note *PPN 11/16* and its successor *PPN 04/23*, further emphasise the need for transparency in the origin of steel used in publicly financed projects, he adds.

#### A cloud solution

The Mace JV, working with consultant Digital Construction Solutions, decided to partner with CARES Cloud and trial a digital chain of custody system for steel rebar at Euston.

The software was introduced by CARES (UK Certification Authority for Reinforcing Steels) in 2016. It tracks each batch of reinforcing steel from its point of origin at a steel mill, through offsite fabrication processes and onward delivery to the construction site.

Standardised QR codes are used on bundles of rebar provided by each CARES-certified rebar manufacturer. A mobile app available scans rebar which is received and used on the project, providing a digital record of the entire process.

A dashboard provides an overview of the product conformity approvals status of each bundle of rebar, ensuring it is of the grade specified, plus a digital product material passport of the rebar used, together with quality and responsible sourcing certificates. Product information and evidence of assurance can be included in project BIM models.

The system also gives carbon footprint data, sustainability information to achieve credits in BREEAM assessments, and environmental product declarations (EPDs) for the actual material used.

 Aerial view of HS2's site at Euston Station in central London



Collating carbon footprint data meant a (non-cash) saving of £19,000 based on the carbon price

## 19,000

The data allowed our procurement team to give preference to lower emission steel sources, and accurately calculate the actual emissions associated with the reinforcing bar Andrew Kinsey, Mace



a time lag in receiving data and inconsistent formats," he explains. "It collated carbon footprint data for all reinforcement manufacturers in the UK and elsewhere and the tonnage from each manufacturer was reported and analysed via the CARES Cloud dashboard.

"The data allowed our procurement team to make informed decisions and give preference to lower emission steel sources, and accurately calculate the actual emissions associated with the reinforcing bar. This meant a (non-cash) saving of £19,000 based on the carbon price used at the time of £50 per tonne.

"The carbon savings and digital data exchange support HS2's carbon reduction plan and commitments, and this system can contribute towards any company's carbon emissions reductions, in line with industry pathways such as Co2nstruct Zero and SteelZero."

The technology also provided HS2 with the toolset to comply with UK government guidelines on procuring steel in public contracts.

"CARES Cloud offers a valuable digital solution for tracking quantities, quality and characteristics of steel rebar used," concludes Kinsey. "We have learned invaluable lessons about improving efficiency in rebar tracking and quality assurance. It could become a key part of a materials passport scheme on future projects."



Lee Brankley CARES

#### Rebar ready for product assurance reform

Hackitt's call for changes in product certification is supported by the steel reinforcement sector, says **Lee Brankley** of CARES

Dame Judith Hackitt's warning at November's CIOB lecture about independent assurance for construction products was not new. In the same lecture 12 months

earlier, Paul Morrell highlighted this point – yet there has been little or no progress towards a new regulatory framework.

Testing and assurance must be independent and the "perceived obstacle around CE markings" must be removed, said Hackitt. All points with which CARES concurs – and which we are talking about directly to ministers in the coming days.

But we cannot bring about change on our own. Others who share Hackitt's goal of creating "a robust new regime for product regulation" can help by acknowledging that we are in a digital age; paper in construction, particularly in product certification, is no longer a viable means of providing the assurance which comes from a secure digital process.

Even the United Nations has now stepped in to sound the death knell for the "anomalies" or "data errors" that plague paper-based formats. A recent report by the UN's Centre for Trade Facilitation and Electronic Business says digital data-based solutions are the answer, giving full traceability and product provenance.

This is the route we have taken with CARES Cloud. We now have a digital ecosystem giving full product provenance from steelmaking through to fabrication and on to site delivery. It is now possible, for example, to see the full back story of each batch of rebar with just a smartphone swipe.

HS2 is taking advantage of this technology, and other responsible clients can play a role in driving positive change – those who share the goal of traceable outcomes for end users. Critical when products



on which their lives may one day depend are hidden from view, once the concrete is poured and that final bridge span slots into place.

Some remain resistant to change, yet this digital approach is fundamental to achieving the changes called for on product regulation in the Grenfell Inquiry report.

When CARES was set up over 40 years ago, it was against a background of a very different UK steel industry. Now we work with global supply chains and changing attitudes to regulation. Some, such as regulators in the UAE, have now mandated independent digital assurance for reinforcing steels on the statute book. Hong Kong and Singapore are set to follow suit.

They have taken the leap to digital in pursuit of precisely the same clarity and rigour Morrell and Hackitt advocate.

Lee Brankley is CEO of the Certification Authority for Reinforcing Steels (CARES) which certifies products in over 100 steel mills globally. ▲ Digital solutions allow full rebar traceability



It is now possible to see the full back story of each batch of rebar with just a smartphone swipe Lee Brankley, CARES



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## Win a digital Oscar in 2025

There's just over a month left to enter the Digital Construction Awards 2025. Pick out the categories you want to enter and read our tips on what makes a compelling submission



he Digital Construction Awards are back for 2025, celebrating best practice and rewarding innovation in the application of BIM, information management and digital technology in the built and managed environments.

The trophies will be awarded to the winners at a gala dinner on 1 July at The Brewery in London.

New categories have been added to the 13 that featured at the 2024 Awards. These include Digital Team of the Year, which recognises the team driving digital transformation and/or information management best practice within their business. Also new is Best Use of AI. And the Design Innovation category recognises the best use of digital technology and data to enhance the practical aspects of building and project design for successful delivery. Existing categories have also been updated.

The entry deadline is 7 March. The shortlisted entrants will be revealed on 6 May. Partners for the Awards are the Chartered Institute of Building (CIOB), Digital Construction Week, *Construction Management* and *BIMplus*.

Will Mann, editor of *Construction Management*, said: "We were overwhelmed by the reaction to the 2024 Awards – there were more than 160 entries, and 450 digital construction professionals attended the gala dinner. We're proud to stage the Awards again – the industry's Oscars – and we look forward to celebrating the progress the industry is making."

Justin Stanton, *BIMplus* editor, added: "We've tweaked the categories, so please read the entry criteria in plenty of time. Wherever you are in the built and managed environment supply chains, there's a category that will allow you to showcase your work."

Last year's winners included McLaughlin & Harvey (named Digital Contractor of the Year), AtkinsRéalis (which won Digital Innovation in Productivity and the Best Application of Technology categories) and Sir Robert McAlpine (which won the Delivering Sustainability with Digital Innovation award). Balfour Beatty secured the prestigious Digital Construction Project of the Year for its work on the Midland Metropolitan University Hospital.

To become an Awards sponsor, email Karolina Orecchini – korecchini@divcom.co.uk. For entry queries, email Justin Stanton – justin.stanton @atompublishing.co.uk. Further information: www.digitalconstruction awards.co.uk.

#### Digital Construction Awards 2025: full list of categories



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- Digital Team of the Year
- Digital Collaboration of the Year
- Digital Rising Star of the Year
- Digital Construction Champion of the Year
- Best Application of Technology
- Product Innovation of the Year
- Information Management Best Practice
- Delivering Sustainability with Digital Innovation
- Asset Management Best Practice
- Digital Innovation in Health, Safety and Wellbeing
- Digital Innovation in Productivity
- Best Use of AI
- Design Innovation

#### 10 tips for a compelling entry

To improve your chances of winning an industry Oscar, read and observe the following 10 tips

 Study the criteria closely.
 Make sure you're entering the correct category.
 Review who won last year and read about their winning entries to understand what caught the judges' attention last year.

**4.** The entry form sets out the story that your entry needs to tell. Answer the questions and provide the information requested.

5. Take the time to draft a formal entry rather than simply uploading content from marketing collateral: your entry will be all the better for this.
6. Use clear, plain English. **7.** Jargon: construction is awash with it, but avoid using too much of it in your entry.

8. In the Challenge section, be mindful that, as experienced and knowledgeable as the judges are, they may not have heard of your firm or project before. Provide the necessary context.

9. In most categories, the Benefits and Achievements section is worth up to 20 points, so make sure you share detailed results of your work here.

**10.** Get a colleague to proof your entry before you submit it.



## Germany's crumbling infrastructure

As Germans heads to the polls on 23 February, builders hope whoever wins understands what a terrible state the country's bridges are in. By **Rod Sweet** 

n 2 September last year, the city of Dresden began testing a new arrangement of cycle lanes on the Carola Bridge, the most central of the city's four bridges across the Elbe, linking the Old and New towns.

The prestressed concrete bridge was built in the Soviet era between 1967 and 1971. Officials wanted to see if letting cyclists use a road lane in the middle of the bridge would cut friction with pedestrians since, until then, cyclists and pedestrians had shared a pedestrian lane at the edge.

The trial was to last until the end of the year but, just over a week later, at 3am on 11 September, one of the bridge's three parallel spans collapsed without warning. ▲ Section C of the Carola Bridge in Dresden collapsed into the river on 11 September The city cannot afford to rebuild the Carola Bridge without the help of the federal and state governments Stephan Kühn, construction mayor, Dresden

No one was hurt because the bridge was empty, but it was a narrow miss. The span that collapsed, span C, carries trams over the river, and the last tram of the night passed over just 10 minutes before. Dresdeners woke in the morning to traffic chaos.

"The bridge is a lifeline for the people, the economy and the culture of this city. It is the most important north-south connection," said Dresden mayor Dirk Hilbert.

The city appointed Professor Steffen Marx from the Institute of Concrete Structures at Technical University Dresden to examine the cause of the collapse.

#### Marx visits Berlin

Then, on 9 October, the city's construction mayor Stephan Kühn and Marx went to Berlin to meet members of the Bundestag to plead for cash. They pointed out that the bridge was a crucial artery for Dresden and a core part of the regional transport network.

"The collapse of the Carola Bridge will lead to follow-up costs that will overburden even a large municipality like Dresden," Kühn said at the time. "The city cannot afford to rebuild the Carola Bridge without the help of the federal and state governments."

There was something else: Marx's initial findings showed the bridge had been assessed as good before the collapse. Later, Marx would report that the city

It was found that manufacturing methods used 50 years ago had contributed to the damage



had followed all statutory guidelines in maintaining and testing the bridge.

Kühn and Marx pointed out to lawmakers that this meant that conventional methods may not detect vulnerabilities before disaster struck, raising concerns over thousands of prestressed concrete bridges throughout Germany.

#### **Coalition collapse**

But then, on 6 November, something else collapsed: Germany's coalition government. Tensions bubbling among the ruling Social Democrats (SPD), Greens and Free Democrats (FDP) boiled over when SPD chancellor Olaf Scholz sacked his FDP finance minister, Christian Lindner, leading to mass resignations of FDP ministers.

It meant that all federal decisions, including on the budget for fixing transport infrastructure and building more, were on hold while new elections were held and a new government formed.

On 16 December Chancellor Scholz lost the confidence vote he called, paving the way for snap elections on 23 February.

German builders have looked from Germany's crumbling infrastructure to its crumbling politics with dismay. "We are extremely worried," said Jürgen Faupel and Daniel Jonas of the Federal Association of Medium-Sized Construction Companies (BVMB) in a joint statement on 3 December.

A new budget was unlikely before summer 2025, they said, effectively freezing the start of any major remediation programmes until then.

"This is poison for the infrastructure and for road and bridge builders," said Jonas.

Professor Marx unveiled interim findings from his investigation on 11 December and found the seeds of the bridge's untimely destruction were sowed during its construction more than 50 years before.

The main cause was hydrogeninduced stress corrosion cracking due to moisture ingress during the construction phase, exacerbated by fatigue of the prestressing steels.

"Due to the manufacturing method commonly used 50 years ago and the influence of the weather on the steel during the construction period, the corrosion damage already occurred during the construction of the Carola Bridge, which was completed in 1971," he wrote.

Clearly, if many bridges were built the way Carola Bridge was at the time, similar fates can be expected for many more bridges.

This is poison for the infrastructure and for road and bridge builders Daniel Jonas, Federal Association of Medium-Sized Construction Companies

The last tram of the night crossed the bridge just 10 minutes before it collapsed



Meanwhile, state broadcaster DW reported in June last year that as many as 5,000 Autobahn bridges were in need of repair or replacement.

This would be a big problem for any country, but it's uniquely problematic for Germany because of its controversial "debt brake", a clause in the Basic Law, Germany's constitution, inserted after the crash of 2008 making it illegal for the federal government to run up a deficit greater than 0.35% of its GDP.

Germany is the only G7 country with such a stricture. The EU rule for member states is eight times as generous, at 3% of GDP. It's what brought Scholz's coalition down. Scholz wanted higher spending to stimulate the economy, but finance minister Lindner refused, insisting on tax and spending cuts instead.

All eyes are now on 23 February. At time of writing, Friedrich Merz of the Christian Democratic Union party led in the polls. Last November, he suggested he was open to reforming the debt brake for vital investment, but that will depend on the vagaries of coalition wrangling.

Those who understand the problem of crumbling infrastructure will be hoping nothing else collapses in the meantime.





## 'Should we accept a climate resilience contract clause?'

This month's contract clinic question comes from a main contractor worried about a data centre project where the client wants to put in a clause on climate events. **Peter Vinden** looks at this growing area of risk

#### THE QUESTION:

We're building a data centre in a coastal location in Wales under a bespoke contract. The client has insisted in the contract that we must ensure the building is fit for purpose and resistant to climate events for at least 15 years. Is this acceptable and, if so, what risks are we exposing ourselves to, having accepted the clause?

#### THE ANSWER

As the need for climate-resilient buildings and infrastructure increases, the construction industry will have to contend with many changes. These will range from regulations and building strategies, to the management of risk. Recent events such as Hurricane Milton and, more locally, Storm Darragh have thrown a spotlight on the vulnerability of modern infrastructure to our changing climate.

Consultants and contractors need to keep in mind that they can face claims long after a project finishes. Uncertainty about how materials respond to climate change and whether they will remain resilient, is another thing to consider. You can typically negotiate and agree any contractual terms you wish. So, it would be possible to accept an obligation to design and build a new data centre that is fit for its intended purpose. In this scenario, the party accepting that obligation would be expected to guarantee the building's resilience to climate events for at least the 15 years specified.

There are, however, important legal and insurance issues that need careful consideration before agreeing to this obligation.

#### Implied terms

In law, a consultant's implied design obligation is quite different to that of a contractor who is appointed to design and build a new project.

Unless explicitly stated in the contract, consultants are expected to perform their duties, such as design, specification, and inspection, with "reasonable skill and care". They must also apply a degree of professional competence. This standard of care is implied in all consulting agreements.

The level of competence required is that of a reasonably skilled professional in the relevant field.



While consultants are not expected to be the best in their industry, they must meet the average or standard level of expertise. If a consultant performs at this level, they will have fulfilled their obligations. As a result, it would be unlikely that a consultant would be found to have been negligent, even if the project subsequently encounters issues.

On the other hand, contractors responsible for both design and build are held to a much higher standard of care than consultants.

Unless the contract specifies otherwise, contractors must ensure the completed project will be fit for intended purpose. This obligation is a strict liability requirement. The contractor is responsible for achieving a specific outcome regardless of whether it was negligent or not. If the project fails to meet its intended purpose, the client can sue for damages without having to prove negligence.

Most consultant appointments and standard forms of building contract include an express term requiring the consultant and/or contractor to discharge its design obligations with reasonable skill and care.



Question for contract clinic? Email construction-management@atompublishing.co.uk





#### Insurance

The majority of professional indemnity (PI) policies will only cover the insured in the event of a claim arising out of professional negligence. Insurers will not typically agree to indemnify a party who accepted a contractual obligation to ensure the result is fit for purpose.

If a party was to assume a contractual obligation to ensure that the final product is fit for purpose, a 'state of the art defence' would likely fail. Such a defence argues that the design or specification met industry standards at the time. This would be unlikely to work against a claim from a client whose building failed in an unforeseen climate event. Even if you can convince an insurer to provide cover above the bar of reasonable skill and care, the extension is likely to be limited in scope.

▲ Weather events like Storm Darragh mean climate clauses may become more common in contracts Many PI policies will void or restrict cover if an insured consultant or contractor enters a contractual arrangement agreeing to guarantee its design or specification services

Fostering collaboration among stakeholders to address climate resilience is a complex but crucial task. Engaging in meaningful discussions, ahead of entering a contract, can help navigate the changing risk profile through the supply chain.

As a consultant, you should always be careful about entering into any non-standard appointment or collateral warranty. Keep in mind that any design and specification liability beyond the duty to use reasonable skill and care, could create problems with your PI policy cover. You may be left with an uninsured liability.

As a contractor, it would be wise to insist on having a written contract in place that restricts your design liability to reasonable skill and care.

Your client is likely to require proof of PI insurance for the duration of your project, and probably for a period after completion. However, many PI policies will void or restrict cover if an insured consultant or contractor enters a contractual arrangement agreeing to guarantee its design or specification services.

It would be wise to decline any appointment that extends your design and specification liability beyond the standard of reasonable skill and care. If in doubt, get any prospective appointment or contract wording checked by your insurer or a suitably qualified professional. • Peter Vinden is non-executive director at Decipher, A DeSimone Company.



## 'EDI means different things to different people'

Do one-size-fits-all EDI approaches work in a global construction context? Dr Florence Phua FCIOB talks about her research on this issue

#### Tell us about the research you have been working on

The new research questions the way we understand and implement EDI frameworks in an international construction industry context, and argues that the conventional approach might be counterproductive.

Construction firms the world over are keen to promote the notion that they are seriously embracing EDI initiatives. However, what we have found is that while there is a global drive to implement EDI targets and policies to improve, among other things, female participation rates and career progression, there is little evidence to indicate that the largely Western-derived EDI frameworks work in large swathes of patriarchal countries/societies such as India, the Middle East and south-east Asia. ▲ Dr Florence Phua: 'We conducted an analysis to compare EDI practices of construction firms in India, the UK and Sweden' We conducted an analysis to compare EDI practices of construction firms in India, the UK and Sweden. We were interested in investigating the effects of EDI policies in various cultural and organisational contexts to understand how socio-cultural norms influence EDI practices.

#### What is new about this research?

This research offers insights into the nuances of what EDI means, how it is prioritised and measured in different countries that are underpinned by distinctive sociocultural norms. We looked at publicly accessible corporate annual reports and LinkedIn profiles of 30 large construction companies by annual revenue, with 10 from each country. • Main finding 1: India has the most extreme gender gap, both in the overall workforce and in leadership positions, reflecting deep-rooted socio-cultural norms that limit women's professional opportunities.

In the UK, there is a somewhat fair distribution of the workforce but, similar to India, women have challenges in attaining board and senior management roles.

Sweden, known for its commitment to gender equality, presents a paradox: where the women are well represented in lower-level jobs, their presence significantly decreases in top leadership positions, indicating that corporate structures still lack complete integration of policies promoting gender equality. The results also indicated that although different regulations and cultural changes may enhance female representation in the workforce, these advancements do not automatically result in an increase in leadership participation. • Main finding 2: Although all companies are working towards enhancing diversity and inclusion, their areas of emphasis differ.

Indian corporations prioritise sexual harassment prevention whereas UK and Swedish companies use more inclusive measures that encompass gender, race and LGBTQ+ inclusion.

Swedish companies are notable for their cultural change initiatives and well-organised leadership development programmes designed for women. UK companies have greater emphasis on specific objectives for the participation of women and minorities, whereas Indian organisations are progressively enhancing workplace safety above all else.

• Main finding 3: Out of 10 organisations examined in India, only one has implemented diversity objectives, highlighting the absence of institutional commitments to gender equality. On the other hand, Sweden and UK demonstrate a greater dedication to diversity targets, suggesting that the Indian construction industry is falling behind in establishing diversity settings that are appealing to and able to retain women.

#### CV: Dr Florence Phua

• Associate professor and school director of postgraduate research studies, School of Construction Management and Engineering, University of Reading, 2010 to present

• Senior lecturer, Faculty of the Built Environment, University of New South Wales, 2003-09 Education

 PhD, Construction Management, University of Hong Kong

Research shows the limitations of a one-size-fits-all approach to EDI India has a prominent gender difference in leadership positions, with women being notably underrepresented in top management and board posts. Its construction sector lags substantially behind; women are mostly found in lower-level roles and have limited career advancement.

#### How will companies in different regions apply your research?

The results show that a one-sizefits-all framework for tracking EDI progress has limitations. It is clear that the EDI practices and policies that companies choose to adopt are tied to the socio-cultural landscapes of different countries.

This divergence is intuitively acknowledged but it is rarely openly recognised when it comes to measuring EDI outcomes because the standard key performance indicators (KPIs) inherent in conventional EDI frameworks do not always account for these differences.

The main takeaway is that construction companies should be



It is clear that the EDI practices and policies that companies choose to adopt are tied to the socio-cultural landscapes of different countries

Dr Florence Phua, University of Reading



less concerned about being seen to adopt standard EDI targets that are prescriptively developed without considering the EDI 'maturity' levels of different regions and countries.

Instead, this research argues that a more meaningful approach would be for companies to consider aspects of EDI that are valued and relevant at the local level and use this understanding to develop a contextspecific EDI approach of which companies can have ownership.

#### What outcomes could be achieved across the industry?

Many construction companies tend to adopt conventional EDI frameworks and this often leads to disappointingly poor performance based on standard KPIs. To break this cycle, the benchmarking has to be tailored to suit companies' particular EDI journeys and regional/local contexts.

Regional companies can start by sharing EDI best practices and experiences, and setting EDI targets that reflect regional sociocultural norms and which are more conducive to achieving true gender equality at the institutional levels.

When enough companies are involved, a community of practice can be established to share, learn and advance EDI practices and resources across the industry. • If you're interested in

academic membership visit www.ciob.org/membership/ become-a-member/educator.



#### Job spotlight:

#### National director, Pick Everard

Matt Hall MCIOB talks to **Nadine Buddoo** about the most rewarding and challenging aspects of his role

#### What are your main responsibilities as a national director?

As a national director at Pick Everard, my main responsibility is overseeing the project management discipline. This includes ensuring the highest standards of delivery and quality, managing resources effectively and monitoring the commercial performance of the discipline to achieve the business plan targets.

I also serve as the face of the discipline, both internally and externally, to promote our services and raise the profile of our multi-disciplinary brand.

A key part of my role is developing and implementing the business plan, focusing on driving growth. Over the past few years, we've achieved significant expansion and increased profitability through our improved delivery efficiency.

#### What do you enjoy most about your role and what would you change if you could?

The two most satisfying aspects of my role are seeing people's careers flourish and contributing to the realisation of a client's vision. I take pride in helping individuals grow, whether they're fresh graduates or team members with no prior experience and seeing them develop into industry leaders.

Creating an environment that fosters career development through



I take pride in helping individuals grow, whether they're fresh graduates or team members with no prior experience Matt Hall, Pick Everard  Matt Hall: 'It's rewarding witnessing schemes come to life and seeing their positive impact'

mentorship, training and growth opportunities is key to how we deliver better together. It's equally rewarding witnessing schemes come to life and seeing their positive impact on clients, communities and the planet.

If I could change anything, I'd want an unlimited pool of talent – it would be a utopia. I also miss the hands-on aspects of project delivery, like being on site and seeing the physical progress. I still make a point to visit sites as often as possible though and get the boots dirty.

#### How do you keep your skills and knowledge up to date?

I keep up to date by regularly reading industry magazines and articles, attending conferences, talks, and exhibitions, and maintaining my NEC accreditation and MCIOB chartership.

While I'm now less involved in the day-to-day project delivery, I stay closely connected to our projects to ensure I have a clear understanding of the outputs we provide for our clients.

I'm also heavily engaged with our supply chain, working closely with subcontractors to deliver consultancy services. These interactions help me continuously learn and stay up to date on the latest design standards, methods of construction and industry best practice.

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### CIOB Jobs

### Meet Winvic's Ukrainian whizz kid

Trainee site engineer Viktoriia Grachova from Ukraine is making her mark in the construction industry. **Nadine Buddoo** speaks to her

#### As a T-level student, balancing

hands-on experience with academic studies can be hugely demanding. But it's a challenge that Viktoriia Grachova is taking in her stride.

Last October, the 17-year-old was recognised at the Department for Education's (DfE) National Apprenticeship and Skills Awards for her confidence, communication skills and problem-solving abilities.

Grachova received the East Midlands T-level Student of the Year award and was shortlisted for the national trophy.

Despite this early career success, her route into construction has been far from conventional. Originally from Ukraine, Grachova relocated to the UK following the conflict with Russia.

After being displaced from her homeland, the trainee undertook her GCSEs in the UK as the first step towards becoming a construction site engineer.

Grachova secured a placement at Winvic for her Construction: Survey, Design, and Planning qualification and has had the opportunity to work on one of the contractor's most complex projects: the 33-storey purpose-built student accommodation scheme, Crown Place Birmingham (see p14).

"Growing up in Ukraine, construction did not initially appeal to me – I had never thought I think as new innovations and digital tools continue to develop, more and more young people will be attracted to the industry Viktoriia Grachova, Winvic

Viktoriia

'Embrace each

challenge as an opportunity'

Grachova:

I would go into this type of career," Grachova says.

"However, over time I began to notice unique design details in buildings that made me think differently about this field and I became more curious about how buildings are designed to withstand various loads while maintaining an aesthetic appeal."

As a young construction professional, Grachova is well placed to help encourage fresh talent into the industry. She believes anyone with "a curious and open mind and a passion for exploration" should consider a career in construction.

"I think as new innovations and digital tools continue to develop, more and more young people will be attracted to the industry and thrive due to their familiarity with technology," she says.

Her advice to other young people at the start of their career journey is not to be afraid of making mistakes because "they are valuable learning experiences that help you grow".

She adds that it is important to "embrace each challenge as an opportunity to improve your knowledge and skills" and "keep asking questions to expand your understanding".

"Construction is constantly evolving, so a willingness to adapt and keep learning is a good attitude to have in building a fulfilling career."





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### **CIOB** Community



#### CIOB's Dundalk event links students with industry

Irish Student Challenge and conference to boost employer/student engagement

▲ Dundalk Institute of Technology will host the CIOB Construction Conference

#### Bremner to make an impression at Kent's construction dinner and awards

Comedian is guest speaker at Maidstone Hub dinner



The Student Challenge will take place alongside the CIOB Construction Conference at Dundalk Institute of Technology on 27 February. It offers the opportunity for industry professionals to connect with the upcoming generation

The Maidstone Hub is hosing its popular annual dinner and awards on 6 March.

Held at the Tudor Park Marriott Hotel & Country Club, Bearsted, the black-tie dinner gives an opportunity to network with leaders of the south east's building environment sector in a social setting.

This year's guest speaker is Rory Bremner (left), the impressionist, comedian, satirist, writer and presenter. The conference will include talks from industry professionals covering the latest trends, challenges and innovations from different sectors

of construction talent and key stakeholders in the industry.

The conference will include keynote talks from CIOB staff about membership pathways, company memberships and policy, and public affairs – and from industry professionals covering the latest trends, challenges and innovations from different sectors.

CIOB has replaced its longstanding Global Student Challenge with local competitions, which some hubs already run. This allows greater levels of student engagement at a local hub level and with local employers, to support students in taking their first steps into the industry.

To enable fully accessible competitions to be run all over the world and at different times of the year, CIOB has created a toolkit to support staff, members and Tomorrow's Leaders Champions to deliver newly branded Tomorrow's Leaders Student Challenges. For more information, contact your local hub.

The supported charity for the evening is the Young Lives Foundation.

Bam, Chartway Civil Engineering, Coniston and Quigg Golden are the sponsors for the dinner and Baxall Construction and GVE Commercial Solutions for the awards.

A table for 10 at the dinner costs £1,200.00. For bookings contact: blawrence@ciob.org.uk.

#### New members celebrate at graduation ceremonies

Congratulations to new fellows, members, company members and technical members who were awarded at a ceremony held at Painters' Hall on 13 December 2024



Graduates at the afternoon ceremony

#### Morning ceremony

#### Fellows

Steffan Battle Lyndsey Cann Reza Ravandi

#### Members

Yemi Akintunde Dandonald Alahirah Eamonn Barrett George Borg Joe Brazill Gabriel Cindea Adam Cordrey Paul Derouich Jamie Duncan Karol Garstka Jo-Anne Giannakellis De Bono Ricardas Grabauskas Temitope Idowu Hayel Khazaal Chris Lamb Hong Man Lucy Marshall Martin McBride Harvey Messenger

Stewart O'Brien **Steve Paskins** Scott Pavne Linsey Peterson Dan Pratt Lauren Radcliffe Rajen Raghwani Chris Sawyer **Tim Simmons** Mark Smedley Katherine Stops Thomas Theakstone Andrew Thompson Kristoff Wasenczuk Paul Wood Mark Wood

Dariusz Miler

#### New company member

Invvu Construction Consultants

#### New technical members Abbi Bird

Henry Gray

Afternoon ceremony Fellows Tim Carpenter Simon Yeo

#### Members

Paul Barnes Gareth Bartlett Charlotte Blackmore Wavne Blair Fabio Branco Oliver Briault Alan Browne Charlie Butler Rav Clarke Antony Collinge Paul Corcoran Tom Devenish Tom Feltham Amy Foster George Gaduzo Darren Gannon Adam Gusterson Jayson Hannam Padraig Hickey Timothy Huxtable Edison Hysa

Mike Kennedy-Diggins Stephen Mason Bradlev McCarthy Edward McDonald Amir Ali Miran Tim Murdoch Dan Pither Radhamohan Poovendran Ataif Rafique Liam Robinson James Rutherford Gary Searcy Aginatious Shiri Kevin Sims Gurbachan (Gavin) Singh Gerard Somers Tom Somers 7ander Sutherland Colin Walker New technical members Charlotte Thomas

New chartered environmentalist Robert Beales

**CIOB** apprentice of the month

Brent Richardson, Level 4 construction design and build technician, **BDW Trading – Barratt** 

What's one piece of advice you'd give to someone enrolling onto a construction apprenticeship? Don't be afraid to ask questions. You will never be bothering anyone by showing interest to learn in fact they will appreciate it. Asking questions will help your development massively.

#### Do you find it helpful having a mix of academic and practical?

My apprenticeship has helped me massively with my development and will assist me going forward within the industry. It has also prepared me for working within the industry as I have learned on the job within my role.

Within the first two years I have achieved a promotion from technical trainee to assistant engineer.

#### Which technological advances within the sector are you most excited about?

With rising energy costs and the need to cut carbon emissions, the energy house 2.0, which is a partnership between the University of Salford, Barratt Redrow, Bellway Homes and Saint-Gobain, is an interesting project which can give us an understanding of how



homes of the future can withstand more extreme weather conditions.

It will give us a further understanding of how to reduce carbon emissions that our homes of the future produce with a range of new technologies.

What was your favourite project to work on over the course of your apprenticeship? Our development at Witham St Hughs in Lincolnshire - The Meadows and Lancaster Grove - was a massive

opportunity to learn. It has had its challenges in terms of services point of connections, service clashes, dealing with an existing road running throughout our development and poor ground conditions.

Pushing to get the site up and running and sticking to build programme even with all these difficulties has made it my favourite.

#### Join our mental health survey

Help CIOB gain greater insight into sector

CIOB is seeking insights from construction professionals on mental health and how organisations address it. The survey is anonymous and only

takes a few minutes to complete at https:// brnw.ch/21wP7FB. This research updates the institute's 2020 report, which is available at: https://brnw.ch/21wP7FA.

## Tomorrow's Leaders show how to master networking

North west event offers tips to make the most of the career-boosting activity



Attendees practise their networking at the event in Manchester

#### Taking the awkwardness out of

networking and making it work for you was the theme of an event, Master Your Networking Game, held at Manchester Metropolitan University by CIOB's Tomorrow's Leaders, Generation 4 Change (G4C) and Constructing Excellence.

Recognising that a lot of people starting out in their career find networking deeply uncomfortable, the event showed how to master the networking game with talks from experts and activities.

Professor Perry Shard from John Sisk and Sons talked about the soft skills of networking and the importance of networking. He asked: "Are you a frog, an elephant and hummingbird or a unicorn?" Are you early in your career, taking on new responsibilities and listening and never forgetting, like an elephant? Are you trying to move vertically and hop up the chain of command, like a frog? As new opportunities come along you adapt and move sideways, like a hummingbird. Or are you going to go down a different path, like a unicorn?

Rebecca Moloney of Career Garage shared tips on personal branding and how to use LinkedIn to expand a network.

She said to "think more recruiter" and make sure your LinkedIn reflects you as a person, not just the facts on your CV. When creating posts, ask thought-provoking questions to get others interested, express genuine interest in others by commenting and resharing their posts and be professional and friendly.

The session allowed a chance for attendees to practise networking on tables with people they had never met before, with facilitators on each table from CIOB Tomorrow's Leaders, G4C and sponsors Seddon, Macclesfield Infrastructure Development (AstraZeneca), Betts Associates and Ibstock.

Tomorrow's Leaders expanded during the event, welcoming new representatives for the north west of England: Ben Taylor and Isabel Armer for Manchester; Isobel Evans and Suklane Riaz for Cumbria & Lancashire; and Petra Appiadu for Merseyside & Cheshire.



#### CIOB member in new year honours list

Amos Simbo, founder of BPIC Network, received an OBE in the King's New Year Honours for his work in construction.

Simbo, pictured, set up the built environment membership network for ethnic minority representation, and is a working group member at CIOB's external affairs advisory board. He was a finalist at the 2022 CIOB Awards in the EDI individual award category. Simbo said he was "truly humbled".

"It's the honour of my life being in construction, promoting inclusion for individuals and small businesses."



#### Consultancy celebrates five-year milestone with software launch

Cube launches project management software on its fifth birthday

Construction management consultant Cube unveiled its latest project, Milestone, as it celebrated a significant business anniversary at the end of last year.

Milestone is a real-time digital solution designed to help contractors manage every stage of a construction project from award, through design to project delivery, completion and aftercare. It includes tools construction managers need to reduce risk, ensure consistent work and allocate processes and projects to team members.

Through a real-time online dashboard, it gives instant access to project information for the whole team whether on site or off, enabling issues or remediation actions to be proactively managed.

Cube, which celebrated its fifth anniversary as it launched the software, became a ClOB chartered construction management consultancy in 2021. Over the past five years founders Nicola Slater and Mark Johnston MCIOB (pictured above) have worked with some of the biggest names in the industry.

Johnston, who is vice chair of CIOB's Nottingham Hub, said: "Holding multidisciplinary workshops in London and Nottingham has embedded us firmly in the discussion about where the industry is heading in terms of competency and best practice. We've incorporated that into the Milestone software, so it is a practical tool to help firms meet their obligations under the Building Safety Act, demonstrate competency and provide a digital 'golden thread' of project information."

#### One to watch

Will Renals, site manager, VolkerFitzpatrick

## Baxall's 'doing it differently' ethos is recognised

Baxall crowned 60 years of business in 2024 by winning two industry awards

#### Baxall crowned 60 years of

business in 2024 by winning two industry awards.

The contractor was recognised as Best Building Contractor at the South East Construction Awards in May, and secured Best Building Contractor at the National Federation of Builders' Construction Awards of Excellence at the end of last year.

The family-run business transitioned to an employee ownership trust in 2020 and continues to grow, with its values based on striving to be different.

Its Baxall Academy allows staff to develop themselves, but also works with local schools and colleges to inspire the next generation into construction.

In a Knowledge Transfer Partnership (KTP) with the University of Kent, Baxall is using new technologies to collect data used to improve the efficiency of buildings as well as their occupants' health.

In a bid to improve carbon efficiencies, Baxall has set a target to be net zero by 2045. It has already

In a Knowledge Transfer Partnership with the University of Kent, Baxall is using new technologies to collect data used to improve the efficiency of buildings as well as their occupants' health handed over two schools that are net zero in operation, with their performance continually monitored against the standard.

The firm has also developed its Baxall Playbook, which outlines its 'blueprint for best practice', providing a whole-life solution approach of design, construct, maintain and optimise.

 Baxall is focusing on improving carbon efficiencies in its new buildings

The winning team at the NFB

Construction Awards of Excellence 2024







The opportunity to shape communities through impactful projects is something I find deeply motivating Will Renals

What made you choose construction as a career? What else might you have done?

Because of the wealth of opportunities it provides. It's a fast-paced, dynamic industry where the results of your hard work are tangible and meaningful.

Each project brings unique challenges and rewards; the variety of roles and the opportunity to shape communities through impactful projects is something I find deeply motivating. If I hadn't pursued construction, I would have followed my family's footsteps into farming.

You've had quite a career trajectory already – from work experience to MCIOB in a short time. Tell us about that? In just over five years, I've built a highly rewarding career with VolkerFitzpatrick. What began as work experience during school evolved into a five-year apprenticeship, during which I successfully graduated with a BSc (Hons) and earned MCIOB accreditation.

I've been fortunate to contribute to some fantastic flagship projects. Being nominated for and winning industry awards has been a particular highlight. While the journey has certainly had its challenges it has been fulfilling, shaping me both personally and professionally and I am excited for what the future holds for me and my career.

#### What change would you

like to see in the industry? I believe a greater emphasis on the passing down of knowledge and skills is required in the industry. UK construction is suffering from a skills shortage, whether direct labour or an ageing population, and this is only going to worsen and be more disruptive as time goes on. I firmly believe in apprenticeships and their benefit to the industry, and therefore would like to see an increase of them in terms of both management roles and tradespeople.

#### What are your career ambitions?

I currently aspire to become a project manager, delivering my own high-quality projects successfully and efficiently.

I aim to create and maintain positive legacies for my teams, projects, and the companies I work with, fostering strong relationships and supportive cultures.

I also want to promote and uphold a good image for the construction industry, showcasing its value and potential.

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## Learning curve

Baxall has just completed its first Islamic faith school, which earned contracts manager **Matthew Fothergill MCIOB** a fulfilling career boost

#### **Baxall's Iqra VA Primary School**

project in Clapham, south London, consisted of demolishing existing school buildings and constructing a new steel-frame school with a brick and cladding facade. With a 68-week programme and a contract value of £8.3m, it kept us busy.

Iqra Primary School began as a charity in a townhouse in Brixton, with several moves before it arrived at its bespoke school building. The school is Baxall's third net zero in operation school and the first project on the new Department for Education (DfE) framework.

The project was also an education in itself as the team and I learned about Islamic culture. It was the team's first installation of an ablution room, for example. But one thing that stood out for me was the dual signage: the Arabic lettering underneath the English was not a ▲ The tight site, surrounded by residential buildings, meant meticulous logistical planning was crucial word mirroring the above, but an inspirational, enlightening phrase.

It's the unique characteristics like this that have made this project an exceptional one, along with early engagement with the whole project team. By liaising with the DfE, our client, the school and the whole supply chain, we have been able to collaboratively create a project that we can all be proud of, and that will serve the needs of the local community for a long time to come.

Of course, it hasn't been without its challenges. Onerous planning conditions certainly played their part, with the site's location probably the most challenging of all.

This was an island site, surrounded by roads and residential



properties, meaning meticulous logistical planning was crucial. The tight site not only caused challenges for delivery timings, but also storage issues, where tree root protection limited the storage even further.

We kept the residents well informed and it's fantastic to hear that the residents were all very complimentary about the site and its conscious planning.

During construction, contaminants were discovered, along with structural challenges to boundary walls that had to be removed and replaced with fencing.

Also February 2024 was the fourth wettest on record since 1871. With a rainfall total of 130mm, it proved extremely testing – especially as we were on task for the intumescent spraying of the steel frame.

The final hurdle was the limited power supply, which required solutions to be devised for the coordination of commissioning while maintaining progress on site.

We were keen to keep the children and staff involved as much as possible and created several events for them to attend, from steel signing to the topping-out ceremony.

We were also regular speakers at the school's assembly, demonstrating the Oculo 360 camera scans to show the children the project's progress. We hosted many site visits, attended not only by pupils, but by school governors, senior DfE members, the school's senior leadership team and education minister Stephen Morgan.

Echoing its slogan 'Buildings Built on Teamwork', Baxall worked with the school throughout, involving it in the design process, enabling it to choose its own colours and have an input into the finished building.

Baxall's collaborative culture was prevalent throughout. We worked with a 'whole team' approach which comprised the DfE, the school, its supply chain and the local residents.

It is thanks to this that we were able to overcome the challenges – sometimes even before they had arisen – and create solutions. And that we were able to deliver a successful handover that exceeded the DfE's expectations, going above and beyond for soft landings.

This was a project with many opportunities to learn, and I had to overcome new challenges, step out of my comfort zone and apply new leadership skills. All of this led to my



We have been able to collaboratively create a project that we can all be proud of, and that will serve the needs of the local community for a long time to come Matthew Fothergill, Baxall

promotion to contracts manager during this project.

It was a very complex project and I had to deal with many more people than I typically would – from DfE members to multiple stakeholders, all specialists in their own field.

Not to mention the inspection and testing that was required. This was a heavily evidence-based project, requiring continuous proof of installation across all aspects along the DfE's complex governance process – listing all deliverables through RIBA stages 0-6, from feasibility to end of defects.

This all-encompassing process begins with the DfE and is then passed to its technical advisers, which complete their submissions. Following project award, this document is handed to the construction contractor which will, with its consultants and subcontractors, use this tracker to manage the deliverables for the next stages of the project.

This was a mammoth task and a new learning curve for the whole Baxall team, paired with a very large and intricate O&M at handover.

The lessons learned have been carried forward to future projects to maximise efficiencies, and I look forward to another great team effort on the next DfE project to continue developing my career and leadership skillset.



▲ The new main entrance welcomes pupils to the school ▲ Matthew Fothergill led the project through its various challenges

 Bright colours highlight the school's nursery reception



### Unlocking growth in 2025

Ensure you're getting everything your business deserves with R&D tax credits

s the UK construction sector continues to evolve, innovation remains at the heart of its growth. From digital construction methods to sustainable building materials, contractors are consistently pushing the boundaries of possibility. But, with tighter budgets and increasing project complexity, are you leaving money on the table by not fully leveraging available R&D funding?

The latest statistics reveal that construction businesses claimed nearly £800m in R&D tax credits last year, highlighting the scale of opportunity. With changes to the R&D tax credit scheme and updated guidance from HMRC, 2025 offers new opportunities and challenges for firms looking to innovate and thrive. R&D tax credits in 2025: what's changed? The R&D tax credits landscape is shifting, with several key updates to be aware of: Merged scheme: From 1 January 2025 for December year-end companies the existing RDEC and SME schemes will merge into a single, streamlined regime. For R&D-intensive, loss-making SMEs, they will be eligible for net benefits of up to 27% tax relief on qualifying expenditure. Contracted R&D: A recent tribunal ruled that businesses can claim R&D tax relief for client-led projects, provided specific criteria are met, overturning HMRC's restrictive interpretation of 'contracted out' or 'subsidised'.

• Increased scrutiny: We anticipate increased scrutiny of R&D tax credit claims in 2025, resulting in more

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enquiries and potential processing delays. Businesses should focus on submitting well-documented and compliant claims to withstand HMRC's rigorous assessments.

#### What qualifies as R&D in construction?

Many construction firms overlook R&D tax credits because they don't recognise their activities as eligible.

- However, qualifying R&D could include:
- developing new or improved techniques;
- trialling innovative sustainable
- materials or processes;
- overcoming technical challenges on bespoke projects; and
- implementing or enhancing digital
- construction tools like BIM.

It's equally important to ensure claims are accurate and meet HMRC's rigorous standards. The complexity of R&D tax legislation means errors are common, which can result in rejected claims or even penalties. Robust documentation is critical.

#### Why act now?

Delays in accessing funding could put your business at a competitive disadvantage. With a growing pipeline of innovative projects in 2025 and beyond, ensuring you're equipped to claim R&D tax credits efficiently is more critical than ever.

Kene's expertise in the construction sector is unmatched. It has worked with contractors of all sizes, from SMEs to major players, helping unlock the full potential of R&D funding. As a Chartered Tax Adviser and Certified B Corp, it brings a unique blend of compliance, expertise and ethical business practices to support your goals.

#### Book your free consultation today.

Don't let funding opportunities slip away in 2025. Book a free consultation with the team at Kene to explore how R&D funding can drive your business forward.

Email Liam at liam@kene.partners to book your free consultation. For more information about our services, visit http://kene.partners.

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**Diary dates** Highlights of the CIOB Calendar for the coming month

#### **Building from the Ground Up**

▶ 3 February, 12-1pm, online Jonathan Atkinson, technical director, Claire, explains why the ground we build on matters.

The session will be introduced by Amanda Williams, CIOB head of environmental sustainability, who will give a brief overview of CIOB's involvement in this sphere.

Atkinson will then explain soil care practices, look at project flow, GI, layout, BNG, SuDs and explore the circular economy. He will also address quality control, costs, declarations and the effect on the total project timeline, rounding off with a look at liabilities and who is responsible for what.

Contact: vcoxon@ciob.org.uk

#### Site visit: The Glebe, Purleigh

▶ 4 February, 2.30-5pm Join us for an insightful site visit to the Moat Project at The Glebe in Purleigh, Essex, where theory meets practice in the world of sustainable retrofitting. This event offers a hands-on exploration of innovative techniques used to enhance energy efficiency, environmental performance and liveability in existing structures.

Witness first-hand how the retrofit approach is shaping a greener future by reducing carbon footprint and improving building resilience. Learn from experts in the field about challenges faced, solutions implemented and lessons learned in making sustainability a practical reality. **Contact: slaing@ciob.org.uk** 

#### Site visit: Beaulieu Park Station, Boreham, Essex

6 February, 3-4.30pm

Set to become the first new station on the Great Eastern Main Line in over a century, the Beaulieu Park Station project is a vital part of Chelmsford's growth plans.

During the tour, visitors can observe the construction of the station's modern infrastructure, designed to integrate seamlessly with local developments and offer increased accessibility.

Switchboard: +44 (0)20 7490 5595

This site visit underscores the project's transformative potential, balancing technical achievement with community-focused innovation. **Contact: slaing@ciob.org.uk** 

#### Site visit and networking: Double-Barrelled Brewery, Tilehurst

▶ 13 February, 5.30-7pm Join us for a brewery tour and tasting, where you'll leave with a little more knowledge about Double-Barrelled beer and the inner workings of a microbrewery.

Explore the history of brewing in Reading; learn about the beer production process and key brewing ingredients; enjoy a guided tour of the brewery; experience a tutored tasting of beers; and benefit from 10% off beers purchased in the taproom. **Contact: cgarner@ciob.org.uk** 

#### Taming Volatility in Project Reporting Requirements

26 February, 5.30-7.30pm, Bristol Thomas Croxford, senior project controls manager complex infrastructure at AtkinsRéalis, has first-hand experience of how the demands of shifting priorities, evolving organisational structures, and external PESTLE factors can overwhelm even the most well-intentioned reporting teams. His presentation will focus on a framework that addresses the root causes of reporting chaos and empowers teams to build and maintain agile, responsive and resilient systems. **Contact: nbreakspear@ciob.org.uk** 

#### CIOB Student Challenge and Construction Conference 2025 – Ireland

27 February, 9am-5pm, Dundalk Institute of Technology, Dundalk From this year, the Student Challenge will be held alongside the CIOB Construction Conference (see p48 for more details).

Join us for this competition where teams of four compete to win the challenge. As well as the student presentations, keynote talks will offer insights about CIOB membership pathways and policy and public affairs.

Industry professionals will also deliver talks on the latest trends, challenges and innovations from different sectors. Refreshments and a light lunch will be provided.

Exhibition tables are available for €100. Contact: abuso@ciob.org

or shallinan@ciob.org

For a full list of events and to register visit www.ciob.org/events.

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