



**BUILDING ON THE
DOCK OF THE BAY**
CM VISITS LAING O'ROURKE'S
EVERTON STADIUM PROJECT

CIOB People

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development resource



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- Apprenticeships
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- Employee Engagement
- HR Tech
- Maternity & Paternity
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- Flexible Working
- Tomorrow's Leaders

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▲ Stoneleigh bridge deck milestone

Colas has moved a 740 tonne bridge deck into place as part of the A46 Stoneleigh junction improvement project for Warwickshire County Council. The deck was created off site to minimise disruption to traffic and jacked to full height with help from lifting specialist Sarens.

◀ Net zero cement project launches

A two-year industrial trial for the world's first zero-emission Portland cement has launched in the UK. The £6.5m Cement 2 Zero project is a collaboration between the Materials Processing Institute, University of Cambridge, Atkins, Balfour Beatty, CELSA, Day Aggregates and Tarmac.

In the first in a series of interviews with CIOB fellows, Emma Bull talks about her career. See p46



▲ It's a wrap: electrical substation art

A 21m high and 52m long permanent public artwork called Here We Come, Here We Rise was unveiled at the Brent Cross Town regeneration project in north London. Wrapping round a new electrical substation, it was created by London-based artist Lakwena and architects IF_DO.

▶ Kier adds women's health to app

Kier has added a dedicated women's module to the Peppy health app it made available to employees over the summer. The app has modules on fertility, baby and menopause. Kier Highways head of communications Natalie Geraghty (pictured) has used the app and said it was "invaluable".



▶ Brighter skies for Greyfriars

Greyfriars in Lincoln will welcome visitors again in 2025 thanks to £2m from the National Lottery Heritage Fund and partners. The city council, in partnership with Heritage Lincolnshire, a CIOB training partner, made the bid to fund refurbishment of the 13th century, Grade I-listed building.



▲ Protecting stone and history

Building products manufacturer Forterra has donated £800 towards Imperial College PhD student Ashraf Nayel's (pictured) research into developing protection systems for historical buildings which are under stress. The funds cover tools and mortar ingredients including lime and sand, which are required to perform experiments.



NATALIE OXFORD

Profit must no longer take priority over safety, says CIOB

Institute responds to Michael Gove's deadline for developers to fix unsafe cladding and fire risks on their buildings

The Chartered Institute of Building has called on the industry to put quality and safety before profit, after housing secretary Michael Gove read the riot act to developers over remediation work.

The Department for Levelling Up, Housing and Communities (DLUHC) has given developers until 13 March to sign up to a remediation contract to fix cladding and other fire risks in high-rises they have built.

This will be enforced by a 'responsible actors' scheme that will effectively freeze out from the market those that have not signed up.

CIOB director of policy, external affairs and research Eddie Tuttle, said the announcement "echoes the

findings by Dame Judith Hackitt in her independent review of building regulations and fire safety, and is one that we very much welcome".

He added: "The Grenfell Tower fire and the subsequent public inquiry highlighted the consequences of deregulation and paved the way for the Building Safety Act. But it also revealed the extent to which profit was being prioritised over building quality and safety.

"CIOB is committed to ensuring our industry learns the lessons of the past and works to ensure those who occupy the buildings we create are safe and feel safe in their homes." When the announcement was made Persimmon said it intended to be the

▲ CIOB calls for the industry to learn from the Grenfell Tower fire

CIOB is committed to ensuring our industry learns the lessons of the past

Eddie Tuttle, CIOB



first to sign up to the contract. Barratt has since said it will "be carefully considering the detail" with a view to signing it over the next few weeks.

A Barratt spokesperson said: "We have also always been clear that we do not believe leaseholders should pay for necessary remediation of their homes. We have been working to remediate historic developments for some years now and last spring we were one of the first companies to sign the industry pledge."

Burden on business

The Home Builders Federation has been negotiating the contract with the government. It welcomed the new contract but warned that the burden could not all be put on UK businesses.

A spokesperson said: "UK housebuilders accept they have a major part to play in delivering solutions for leaseholders, have committed to carry out building safety work on all their own buildings and are paying £2.5bn to fix those built by foreign companies and other parties.

"After months of negotiations, the contract better reflects the principles of the pledge, but alongside the onerous taxes introduced by government puts a huge pressure on UK businesses.

"Government now needs to deliver on its commitment to get contributions from the numerous other parties involved in this crisis including foreign builders and providers of the cladding at the heart of this crisis and not to repeatedly take the easy option to target UK companies." ●



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CIOB People

Construction's new people
development resource



CIOB People launched to tackle industry skills gap

New website will focus on construction's people development challenges in areas such as leadership, EDI and mental health

The Chartered Institute of Building has launched a website to address construction's yawning skills gap.

CIOB People (www.ciobpeople.com) aims to support the information needs of any industry professional, in the UK and internationally, whose role includes recruiting and developing people.

Topics covered will include women in construction, mental health, equality, diversity and inclusion, apprenticeships, learning and training, employee engagement, leadership, flexible working and much more. Content will range from video interviews and podcasts to expert guides and webinars.

▲ *CIOB People* aims to support those whose role involves recruiting and developing people

CIOB People's editorial strategy will be steered by a panel of 'Construction People Champions', drawn from experienced industry leaders, and a group of CIOB Tomorrow's Leaders, who will bring perspective from people newer to the built environment sector. The panel line-ups will be announced in the next few months.

CIOB People will also be central to CIOB's five-year Corporate Plan, unveiled in last month's *CM*, which set out a new strategy for modern professionalism in construction around key themes of the skills gap, sustainability, plus quality and safety.

CIOB is ideally placed among construction's professional bodies to lead on people development because of its range of members, from clients through to the supply chain

Nadine Buddoo,
CIOB People



The editor of *CIOB People* is Nadine Buddoo, who has over a decade of built environment journalism experience.

She said: "The construction industry faces a skills gap that is pressing like never before, exacerbated by issues such as Brexit and an ageing workforce. Through *CIOB People*, I am looking forward to speaking with the built environment sector's senior leaders, its HR and training professionals, and providing insights on how to tackle this major issue.

"It is great that CIOB has thrown its weight behind this initiative. CIOB is ideally placed among construction's professional bodies to lead on people development because of its range of members, from clients through to the supply chain."

CIOB People will be published by Atom, on behalf of CIOB. Atom also publishes the CIOB titles *Construction Management*, *BIMplus* and *Global Construction Review*.

Atom carried out market research last summer on the appetite for *CIOB People* among built environment professionals, who gave it an average usefulness score of 76%. Topics identified as of most interest were leadership and mental health. Respondents also asked for more help providing training in 'competency' and 'energy efficient construction'. ●

The *CIOB People* website is at www.ciobpeople.com.

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Sign up for news, interviews, expert guides, case studies and much more at:
www.ciobpeople.com/newsletter

Apprentice contestant calls on 'male allies' to drive diversity in construction

Michaela Wain from BBC's *The Apprentice* spoke to new CIOB People editor **Nadine Buddoo** about construction's people challenges

Male allyship is crucial to attracting more diverse candidates to the industry, according to construction business owner Michaela Wain.

Wain, a former finalist on BBC's *The Apprentice*, believes men in construction have a pivotal role to play in facilitating change across the industry.

"We need to approach it [allyship] in a manner where we are pointing out all the benefits of diversity, not just the potential problems," she said.

"The reality is that a diverse workforce means you have diversity of thought. You have different skill sets that you wouldn't typically find."

She added that there are also huge benefits for a company's bottom-line profit. "That's what we need to talk about and that's what I focus on when encouraging men in the industry to become allies."

Wain explained that the current scarcity of available skills and labour following Brexit and the pandemic is driving companies to consider more diverse candidates.



"Companies now realise that they have to look at different talent pools because there just aren't enough people in their usual talent pools," she said. "Things are improving but it is definitely not moving anywhere near as fast as it should."


Wain believes fundamental change is needed to encourage more people from diverse backgrounds to pursue a career in construction.

"I'm involved with driving diversity in construction, so I get the opportunity to speak to lots of people from different demographics. But I know that's not commonplace across construction," she said.

"In general, if you are working on a construction site, it is still very rare to see a woman, or a black person or a Muslim person, for example. And that really needs to change."

● **For the full story, visit CIOB People at www.ciobpeople.com.**

▲ Michaela Wain: "Companies now realise that they have to look at different talent pools"

 **The reality is that a diverse workforce means you have diversity of thought. You have different skill sets that you wouldn't typically find**

Michaela Wain

▼ Bill Taylor MCI0B receives his Gold award at the 2022 CIOB Awards



ADAM DUKE PHOTOGRAPHY

The award really boosted me as an individual, but more so the credit has to go to the brilliant team of craftsmen and women who worked alongside us to deliver the scheme

Bill Taylor,
Beard Construction



to construct the new sanctuary's marble floor so that it lined up with the handmade bricks of the wall and slotted between stone arches.

He also devised temporary support to leave in situ a huge stained-glass window, as the wall beneath was manually removed to make the opening into the new sanctuary.

"There is a lot of work to do to enter for the awards and the interview process can feel quite intimidating, but we are selected for our projects and the way we run them sets us at the top of our game," Taylor says.

"I have been in construction for 38 years now and when I set out on my journey as an apprentice carpenter this was something I could never have dreamed of achieving.

"If anyone is thinking of entering the awards, I would say do it. You will not regret it at all. It's a great experience and to be recognised by the CIOB and leaders in the industry is something that will last a lifetime." ●

'Something that will last a lifetime'

Bill Taylor MCI0B of Beard Construction was the Gold winner in the Refurbishment & Restoration category at last year's CIOB Awards. He tells **CM** what the recognition means for him and his team

At Radley College Chapel in

Abingdon, Oxfordshire, Bill Taylor managed the extension and reordering of a Grade II-listed chapel. It was a complex scheme requiring careful management of many heritage trades, which ran for 112 weeks.

Taylor deservedly took the Gold award in the Refurbishment & Restoration category at the 2022 CIOB Awards.

"I have to say, winning the CIOB award was something I never expected to achieve. When they called my name out at the ceremony I was flabbergasted!" Taylor says.

He is, however, careful to stress that the project was a team effort.

"The award really boosted me as an individual, but more so the credit has to go to the brilliant team of craftsmen and women who worked alongside us to deliver the scheme," he says.

Taylor describes the project at Radley as "truly a one-off" and was determined that Beard would win the contract and make a success of the delivery from the first meeting he had with the college, prior to tendering the job.

Notable achievements include the new sanctuary's octagonal timber roof, which Taylor arranged to be built off site, using BIM to coordinate the design. His team had

▼ The finished Radley College Chapel in Abingdon



NICK KANE

Percentage of women employed in construction, 32.9 points lower than the UK average

14.7

Gender data shows construction still has work to do

Construction has worked hard to attract more females into the industry. Ahead of International Women's Day, **Kris Hudson** looks at whether this is working



The construction industry will be marking International Women's Day this month with a degree of celebration, but also keen awareness that there remains a lot more to be done to achieve greater diversity across the sector.

Construction as a whole continues to lag significantly behind other industries. Based on data from the Office of National Statistics from the third quarter of last 2022, women make up 47.6% of the overall UK workforce. When employment is broken down by industry, construction sits last, with only 14.7% of those employed in the industry being women, 32.9 percentage points lower than the UK average (see chart top right).

The industry can take some comfort that progress has nonetheless been made and the trend is moving – slowly – in the right direction. Over the last 10 years the number of women as a proportion of the overall construction workforce has increased by 36.9% (see chart centre right).

“The trend is moving – slowly – in the right direction. Over the last 10 years the number of women as a proportion of the overall construction workforce has increased by 36.9%

These data sets are important to help industry leaders understand the direction of travel and they underscore the work that is still to be done. However, it's important to understand their limitations. Most importantly, these statistics only cover a narrow range of construction-related work based on the Standard Industry Classification (SIC) 2007 definitions. They don't cover related professions within the delivery of construction work.

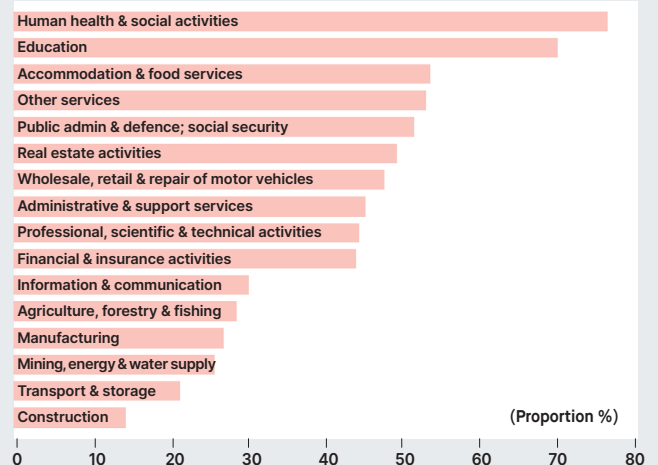
The picture of construction and development-related professional services and management roles is overall more positive. Here 39.4% of architectural and town planning technicians are women, compared to 34.5% of town planning officers, and 29.9% of those in estimation, valuation and assessment roles (see chart bottom right).

The available data reinforces that the industry needs to keep focusing on the issue of diversity. As the nature of construction work gets more complex with new tools and ways of working, alongside a persistent labour shortage, attracting a diverse and inclusive talent pool becomes ever more important.

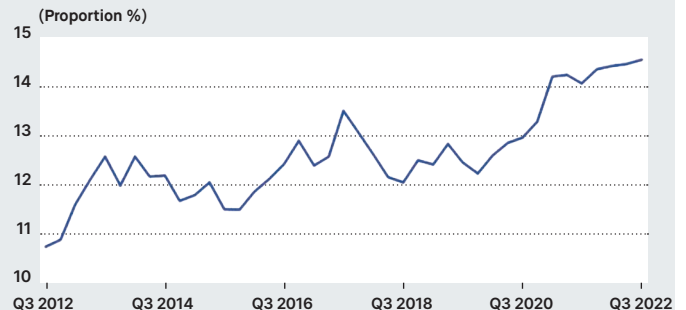
The best and brightest should see a future in construction and, with the sector needing to form the backbone of a greener and more productive society, tapping into this diverse pool of potential will be vital.

Kris Hudson is an economist and associate director at Turner & Townsend.

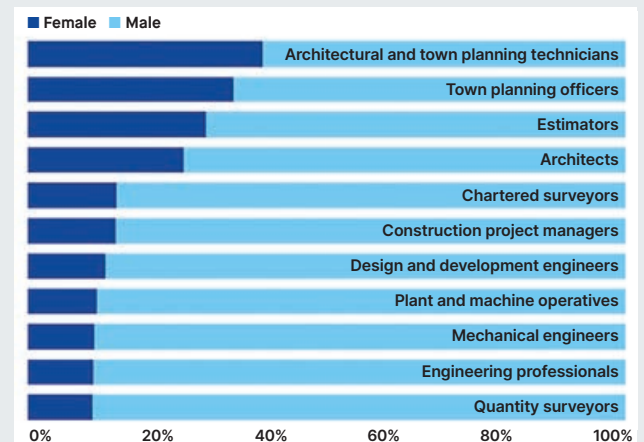
Proportion of women by industry



Proportion of women in construction



Proportion of women by construction role



SOURCE: OFFICE FOR NATIONAL STATISTICS

SOURCE: NATIONAL ONLINE MANPOWER INFORMATION SERVICE



Caroline Gumble
CIOB

Academia can help modernise construction

Better links between industry and the built environment's academic community will support CIOB's theme of modern professionalism, writes **Caroline Gumble**



You may have seen the news item on CM's website about my recent appointment as visiting professor of global engagement and transformation – built environment at Loughborough University. This is exciting news, for me personally and for the institute.

I will be working closely with Professor Chris Gorse MCIOB and his department to support work to engage with a diverse and international community.

This came about after I met Professor Gorse, who is chair of CIOB's Sustainability Advisory Panel and a member of the institute, and talked about the work CIOB is doing to raise the profile of the need to

drive diversity and inclusion. The school is keen to extend its network and ensure it recognises, attracts and engages with talent.

Working together, it was felt that the school will be even better placed to develop national and international ties with sector bodies, including academic and industry partners.

I have long been an advocate of closer links between academia and industry. When I visit CIOB members around the world, I try to include our accredited universities – and other institutions, particularly those on the journey to becoming accredited – to make links between them and with companies and other industry bodies.

▲ Closer links between academia and industry benefit both sectors

CIOB can support collaborations to bring the sector together to draw on our collective influence, promote quality and standards, and help deliver positive societal change

In my CEO role, another key part of my work is to make the case for modern professionalism in the sector to those who work in it, those who are studying to enter the industry and those who could be attracted to a construction career.

CIOB can support collaborations to bring the sector together to draw on our collective influence, promote high quality and standards, delivering the best built environment we can and, while doing so, help to deliver positive societal change.

The Loughborough University post is also a good fit for CIOB strategically, entirely in line with the previous CIOB corporate plan's "moral compass" theme and the theme of modern professionalism which is central to our new plan (as featured in last month's CM).

Our goals as an institute are also supported – our work to play a part in driving a cultural shift in EDI, social mobility, worker welfare and promoting quality, safety and sustainability is reflected in the ethos of the School of Architecture, Building and Civil Engineering.

Caroline Gumble is CEO of CIOB.



Kye Gbangbola FCI0B
Total Eco
Management



Five ways to demonstrate your ESG credentials

What makes a compelling construction sustainability report? **Kye Gbangbola**, author of a new book on the subject, explains

We are amid a global sustainability

and climate crisis, recently called out by the likes of Greta Thunberg, Sir David Attenborough and Severn Suzuki. As seen in the film *Don't Look Up*, we can all see the danger, but choose to turn a blind eye, preferring to listen to the fake news and misinformation of the greedy, instead of acting for the common good.

Sustainability reporting is now mandatory for organisations. Failure to comply will have legal and reputational consequences. Reporting helps investors to secure stable returns, and organisations improve performance in closing the gap between the world as it is, and the sustainable world we need to be.

An organisation's ESG (environmental, social and governance) reporting processes are vital public documents that frame an organisation's sustainability intentions, purpose and performance. More than 50 stock exchanges around the world require an organisation to have a sustainability report to be listed, with 75% of the Fortune Top 500 using the Global Reporting Initiative (GRI).

GRI is, by a considerable distance, the recognised leader among globally compliant reporting methodologies. The 2021 GRI Standard wraps its arms around the other main standards and achieves alignment through formal 'linkage documents'. GRI also links with the UN Sustainable

A sustainability report should be a disciplined corporate document. Any stakeholder should be able to pick one up and know what its content will be ”

Development Goals, and the EU Non-Financial Reporting Directive, which evolved to become the EU Corporate Sustainability Reporting Directive (CSRD).

A sustainability report should be a disciplined corporate document. Any stakeholder should be able to pick one up and know what its content will be. It should be concise, accurate, compelling and clear on where the organisation creates value.

As we get closer to 2050 and its legally binding target of a 100% cut in carbon emissions, it's likely that those organisations that can't show they are operating to high sustainability standards will increasingly be overlooked.

Those looking for advice and direction should look to professional institutions with global membership like CIOB, which has many chartered environmentalists among its members, and offers sustainability leadership courses at its Academy. ●

Kye Gbangbola FCI0B is an award-winning sustainability consultant and founder of Total Eco Management.

Get the reporting right

My new book *Gold Standard ESG and Sustainability* provides advice on how to report sustainability, based on experience supporting and advising organisations including the sustainable 2012 Olympic Games. Here are some pointers.

❶ Get expert advice, get cracking, save time. Reporting standards refer to the importance of experts. To do reporting well, appreciate the need for registered experienced sustainability professionals who will happily talk you through the processes.

❷ Know your angle before you get started. Organisations increasingly refer to the simple need to access future investment.

❸ Get ahead of the game. The 2022 EU Corporate Sustainability Reporting Directive, is now law. Many organisations

started acting last year, so the time to get started is now.

❹ Learn how to use reporting standards to tell your story, demonstrating commitment to ESG.

❺ Learn the type of reporting that generates credibility and trust among stakeholders.

Could your area
play a part in
the solution for
nuclear waste?



If you'd like to initiate a discussion
with us or wish to propose an area
for consideration, please visit:
explore.workinginpartnership.org.uk

We've been using nuclear technology in the UK for over 60 years. We use it to power our homes, in businesses and in medical procedures.

In doing so we create radioactive waste. This is currently stored above ground requiring continual maintenance. Developing a Geological Disposal Facility (GDF) to dispose of our high-level waste deep underground is internationally recognised as the safest long-term solution and will be one of the biggest infrastructure projects the UK has ever seen. Local areas and communities willing to host a GDF will benefit from investment and opportunities for their region and beyond as they play a crucial part in the solution for nuclear waste in our country.

Community and the future

Work on a GDF will continue for up to 175 years. This highly-engineered facility will create long-term opportunities for the host community, the local economy and beyond. The benefits will carry into the future for the next generation and the generations after that.

Jobs and skills

The construction and operation of a GDF will generate around 2000 jobs a year along with training opportunities and apprenticeships for the time it's operational. These roles will vary in skill level across construction, engineering, safety, security and operations.

Investment and funding

This is a multibillion-pound programme, with guaranteed local investment for communities that participate in the siting process for a GDF. Investments will increase once investigations progress to the next stage. New or improved transport links, such as new roads and train lines and new education facilities and environmental protection would bring huge benefits along with the potential to provide a boost to the economy.

What's next?

There are 4 areas in the UK, so far, who have started a conversation about being the location for a GDF, and where the siting process has begun. Do you think your area could benefit from a GDF?

Building on the dock of the bay

Could Everton's beautiful new stadium, rising from the historical Northern Docks of Liverpool, be a metaphor for the fortunes of the club itself? Laing O'Rourke's delivery so far certainly inspires hope. By **Kristina Smith**



► View north across the dock to Everton's Bramley-Moore stadium under construction



Walking the mile or so from Liverpool city centre to Bramley-Moore Dock – the site of Everton’s new stadium – feels like an industrial history tour, passing old brick buildings in various states of use and repair. Some have already been reinvented: the ex-rum warehouse across the road from the stadium, built in 1848, is now the swanky Titanic hotel with luxury apartments under development next door.

The new 52,000-seat Everton stadium, 3km from the club’s Goodison Park home, will feature bricks too: over half a million of them cladding the lower part of

the walls. But unlike their historic neighbours, these bricks will not have been laid by brickies.

This stadium, being built for Everton Stadium Development by Laing O’Rourke, is a study in contemporary construction, using design for manufacture and assembly (DfMA) for many elements. So, every brick – or rather half brick – has been cast into a panel offsite, to be craned into position with no blood, sweat or tears, as every interface has been ironed out digitally before manufacture begins.

“That’s one of the great advances here,” says Laing O’Rourke’s technical lead John Edwards. “Hand-laying

Everton Stadium

Client: Everton Stadium Development
Contractor: Laing O’Rourke
Value: £555m
Contract form: Bespoke, fixed-price contract
Start: 26 July 2021
Completion: 2024/25 season
Architect: BDP Pattern
Structural, MEP, civils design: Buro Happold
Key packages
Steel frame and gantry: Severfield
Precast bowl units: Banagher
Precast twinwall, columns, planks, panels: Laing O’Rourke (CEMC)
Envelope and roof: Lindner Prater
Landscaping: Vetter
MEP: Laing O’Rourke (Crown House Technologies)
Piling: Laing O’Rourke (Expanded Piling)

so many bricks would have been terrible for the workforce, due to the musculoskeletal problems it leads to in later life. Making the panels in a factory in Nottinghamshire means that people are working in a much safer environment, and it is a lot easier to control the quality.”

The ‘LOR Game Plan’ for Everton’s stadium is displayed on the wall of the main project meeting room. The first of nine rules listed is ‘Make safety your highest priority’. Rule two is ‘Does it help the team on site? If not, why are we doing it?’

Further down the list is ‘We are not Building, Expanded or Crown House, we are Laing O’Rourke’, a reference to the group’s self-delivery of huge chunks of this project itself through subsidiaries Expanded Piling and Crown House Technologies (CHT). This rule reminds them they are all on the same side.

So far, the game plan here seems to be working well for the 150-strong Laing O’Rourke team, led by project director Gareth Jacques. Over the past year, the stadium has risen from the banks of the River Mersey to a point where the roof trusses are already being installed.

“It has been a phenomenal effort by the whole team to achieve this amount of progress,” says Jacques. “They have ensured the project is in a good position as we commence the fit-out stage.”

“Hand-laying so many bricks would have been terrible for the workforce. Making the panels in a factory in Nottinghamshire means that people are working in a much safer environment, and it is a lot easier to control the quality”
John Edwards, Laing O’Rourke



◀ Enabling works began by infilling the Grade-II listed Bramley-Moore Dock in 2021

Everton's new
52,000-seat
Everton stadium
is 3km from its
current home at
Goodison Park

52,000



Room to grow

Everton has been planning a stadium move for over 25 years. Goodison Park, its home since 1892, is constrained by its location and a tight footprint. The club secured the new site in Liverpool's Northern Docks area in 2017, signing a 200-year lease with Peel Holdings for Bramley-Moore Dock. It sits within the developer's 200ha Liverpool Waters scheme.

Everton Stadium Development appointed Laing O'Rourke as preferred contractor in February 2020 after a competitive tender process, with the parties initially signing a pre-construction service agreement (PCSA) for a design and build contract.

"The PCSA is when we can develop the details with the client and the design team," says Edwards. For instance, in the plaza area through which fans will access the stadium, Laing O'Rourke and its designers carried out extensive wind modelling to test wind mitigation structures.

US architect Meis created the concept design, with technical input from BDP Pattern, which Laing O'Rourke then took on as its architect. BDP understands the contractor's DfMA processes, Edwards says.

"BDP Pattern were appointed as lead consultant to deliver the Meis concept to suit our suite of DfMA products," says Edwards. "Otherwise, it would be very wasteful."

▲ Night drone photograph of the stadium at the end of 2022

The building is founded on over 2,700 bored concrete piles which bear onto sandstone, connected by a cast-in-situ floor slab. The superstructure of the main stadium is steel with a barrel-vaulted roof and huge glass panels to make the most of the views across the city, the docks and the Mersey estuary.

Laing O'Rourke has removed, labelled and stored heritage elements from the original building and will painstakingly reinstate these. In the plaza, the Hydraulic Engine House which once operated the lock gates is being restored. The brick cladding is patterned to mimic the criss-cross steel work of Goodison Park.

Laing O'Rourke's DfMA philosophy is 70:60:30, delivering 70% of a ►

build using offsite, making things 60% more efficient and saving 30% on programme. On the Everton stadium, around 70% of the superstructure and mechanical, electrical and plumbing (MEP) infrastructure has been delivered through DfMA.

The company's Centre of Excellence for Modern Construction (CEMC) is supplying many of the precast elements: 564 twin wall units, 651 columns, 3,844 lattice planks and 731 facade panels. Precast specialist Banagher is supplying the 1,213 bowl units for the terraces, because the CEMC facility did not have the capacity, with other projects underway. Banagher's units arrive from Ireland by sea.

The MEP elements, supplied and installed by CHT, are also largely prefabricated, with vertical and horizontal routes and plant rooms arriving on site as modules. The team also developed a modular system for the plumbing of the 900 toilets.

The project's 'Engineered Safety' approach takes the principles of CDM

well and truly to heart, rethinking and redesigning to reduce as many potential safety risks as possible.

The erection of the stadium's five huge roof trusses, currently underway, has been scrutinised and refined using 4D modelling which includes temporary works and logistics. Each truss comprises three 100-tonne sections which are assembled at ground level in specially designed containers on the floor of the stadium, then lifted into place and supported on temporary stands until the sections are bolted together. The roof modules are pre-clad at ground level, with the first of these lifted into place in November 2022.

Building on sand

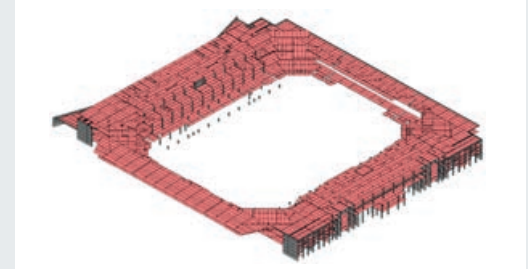
The enabling works for the stadium began in July 2021: infilling the Grade-II listed Bramley-Moore Dock. Contractor Royal Boskalis Westminster pumped liquidised sand, dredged from Liverpool Bay, via a floating pipeline to fill the dock. Before that, the floor of the dock ►

▼ Views across the city and docks from the stadium upper levels



Digital innovation by doing

Augmented reality and 4D BIM are among the tools Laing O'Rourke is trialling at Everton



▲ Digital model of the precast components in the stadium

The only way to trial and advance digital tools is in the thick of it. That's the view of John Edwards, technical lead on Laing O'Rourke's Everton project.

His team are certainly finding new ways of doing things digitally at Everton. Notably, 4D BIM: planning exactly how the work will be executed using the 3D BIM model and incorporating temporary works and logistics into the sequencing.

"We can work smarter; we achieve more because we focus our attention on making something more efficient or designing out safety issues," says Edwards.

Not new, but a digital tool that has helped is BIMcollab, used for commenting on and developing the model, saving time taken to minute and review design meetings.

There's use of augmented reality (AR) too. In the workshop where the brick panels are made, a worker checks the position of darker bricks which form a pattern, to make sure they are in the right place before concrete is poured. Out on site, an engineer uses AR to project MEP modules onto the ceiling to see where they will fit.

The Everton project is also using an immersive '3D room', with three screens for interactive

induction and safety training and look-aheads for work coming up.

Created with training provider Immersive Interactive, the technology is evolving as the project progresses. It is a much better way to engage with people, says Edwards, and can encourage contributions from people who might not typically contribute in a traditional meeting.

One of Edwards' design management team, Reece Singleton, has led development of a digital process for ensuring fire-stopping products are designed and installed properly – following the 'golden thread' principles of the Hackitt review and Building Safety Act.

The automated process, developed with software house Solibri, interrogates the design to confirm compatibility between products and design for over 70 situations.

"It is data-driven and ensures we have modelled the build and the MEP correctly and that we have compliant details," says Edwards.

Doing all this on-project means dissemination and development is faster, says Edwards.



architectural acoustic finishes

SonaSpray in 20 Water Street, London.

Create calm and inviting interior spaces with Oscar Acoustics' SonaSpray range of fire-rated, recycled acoustic finishes. The seamless spray follows and accentuates the lines of the existing ceiling surface, retaining it's original character and height.

SonaSpray absorbs sound energy, allowing designers to create productive spaces free of distraction, where employees can thrive.

Fit-out by Tétris Design x Build. Photo by Jonathan Banks Photography.



OSCAR
acoustics

12

Enabling works turned up 12 unexploded shells from anti-aircraft guns posted round the dock during the Second World War

had to be raked and any debris removed, most commonly paint pots tossed into the sea as boats were painted. The operation also turned up 12 unexploded shells from anti-aircraft guns posted round the dock during the Second World War; the team called in an ordnance team from the navy or army when these were found.

By December 2021 the dock was full and compacted. The pitch will sit on top of this sand, with the settlement closely monitored. "It's beginning to flatline," explains Edwards. "In reality, most football clubs relay their pitches every year or two, and we are talking about millimetres here."

Piling began in October 2021 and ran until June 2022. In May 2022 the first steel column was erected, with

the first terrace units and the first concrete raker on the West Stand installed in August. In January 2023 the first roof truss was in place. They should be in place by Easter 2023, with the whole roof complete by August. Come autumn, the site workforce will peak at just over 1,000.

Laing O'Rourke's contract is fixed price – £555m – and, given material and labour inflation, this could have caused the commercial team a few headaches. Fortunately, the DfMA elements have mitigated this, as materials were bought earlier than if the project was being constructed traditionally. Self-delivery helps too.

"Escalation has been assessed in detail and is being closely managed by the project's commercial team, rather

than being subject to opportunistic market fluctuations," says Edwards. There's also short-term uncertainty about Everton's footballing future, with the prospect of relegation from the Premier League and all the financial repercussions that would have.

But Edwards and his Laing O'Rourke team are focused on the long-term impact of delivering a stunning new venue for Everton and the city of Liverpool.

"We are building this for an organisation that has a commitment – not only to its fans, but to its city. That makes a difference to how people feel around the project," he says. "There's more of a community feel than if you were working on a standard commercial development." ●

▼ Computer generated image showing the finished stadium in context





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At 86m, Ascent, a 25-storey tower in Milwaukee, USA, is the world's tallest timber building. See p28



Can we take timber to new heights?

There's a global trend for more high-rise timber buildings but why are we not seeing a similar story in the UK, asks **David Hopkins**



As sustainable construction moves high on the priority list globally, timber as a material has also grown in popularity, and in height. We see taller and taller timber buildings being constructed around the world using engineered timber (see p28), with the new record now standing at 86m, for a 25-storey tower in Milwaukee, USA, called Ascent.

This surge in record-breaking high-rise projects around the world is largely driven by two factors: the maturing of engineered timber technology and the drive to decarbonise the built environment.

Engineered timbers have had their properties modified to give the timber added strength, allowing them to be used in place of more energy-intensive materials like steel. These products can then be engineered to precise performance specifications, and often will be cut to measure offsite before being transported and erected at great speed.

Some engineered woods, such as cross-laminated timber (CLT), are pound-for-pound stronger than steel, with the same carbon-saving advantages as standard timber. This has opened the door for ambitious timber projects like those seen internationally. ►

◀ Homerton College Dining Hall has a sweet chestnut glulam frame

CONSTRUCTION MANAGEMENT



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10bn

Timber is a £10bn supply chain employing 350,000 people in the UK

Risk-averse UK

Given the progress made elsewhere and the obvious environmental benefits, why are we not seeing high-rise timber buildings appearing in the UK?

At present, we have a unique set of circumstances driven by a focus on building safety following the Grenfell tragedy and tough economic conditions driven partly by austerity, Brexit and other global factors.

Structural timber became a victim of these circumstances and was caught up in a blanket ban on combustible material allowed for buildings over 18m in height, before the government admitted a more nuanced approach was needed and allowed it for use provided appropriate fire tests are met. However, a ban still remains for residential buildings above 18m.

The uncertainty this situation caused has created confusion among many – and made investors even more risk-averse. Meanwhile, the development of more ambitious taller timber buildings has stalled.

Perhaps the biggest hurdle in the UK to overcome is education. Understanding of timber – how to build with it, its properties and how it relates to existing building regulations – is a real problem at all stages of construction, along with many green construction skills. It also makes insuring timber buildings more difficult.

This is a problem we are trying to address at Timber Development UK (TDUK) through our knowledge database and industry partnerships. But the huge gap in green construction skills in the UK will need to be closed if we are to see more large-scale sustainable projects.

However, size isn't everything. The UK was an early leader in

constructing timber towers, with architect Waugh Thistleton and Hackney Council completing a 29m, nine-storey apartment building in Murray Grove in 2009. This has become a world-renowned example of timber construction.

In January, the Black & White Building, from Waugh Thistleton and The Office Group, became London's tallest engineered-timber office building. Standing 17.8m tall, the six-storey building is an ingenious example of timber construction. It contains no concrete above the ground-floor slab; its frame uses timber to provide all the strength and adaptability of steel.

Meanwhile, the 2022 Wood Awards winner, Homerton College Dining Hall by Feilden Fowles, was built using sweet chestnut glulam for the frame and internally lined with ash. The 2022 RIBA Stirling Prize winner Magdalene College Library in Cambridge showcased engineered timber elements to a global audience.

Volume solutions

So, the expertise does exist in the UK to tackle ambitious timber projects. There is also potential to increase use of panelised timber-frame houses. Volume solutions will help ensure the supply chain is ready to reach new heights when the time is right.

One thing that we know is that timber will take centre stage as 2050 looms, whether that is above or below 18m. Though we are going through tough economic times, construction businesses should be encouraging staff to undertake CPD on timber and other green building methods. You don't want to be left on the ground when others start building higher with timber. ●

David Hopkins is CEO of Timber Development UK.

Though we are going through tough economic times, businesses should be encouraging staff to undertake CPD on timber and other green building methods



Gearing up the timber industry

Timber is a £10bn supply chain employing 350,000 people in the UK.

As part of the UK's England Trees Action Plan, the UK government is working on a policy roadmap to encourage the use of homegrown wood in construction.

A key element of this is to increase tree planting rates across the UK to 30,000ha by the end of this parliament. However, the government is far from fulfilling that pledge.

As demand for timber construction increases, the UK needs to secure supply

from trading nations on a short-term basis – and in the long term gear up for growth.

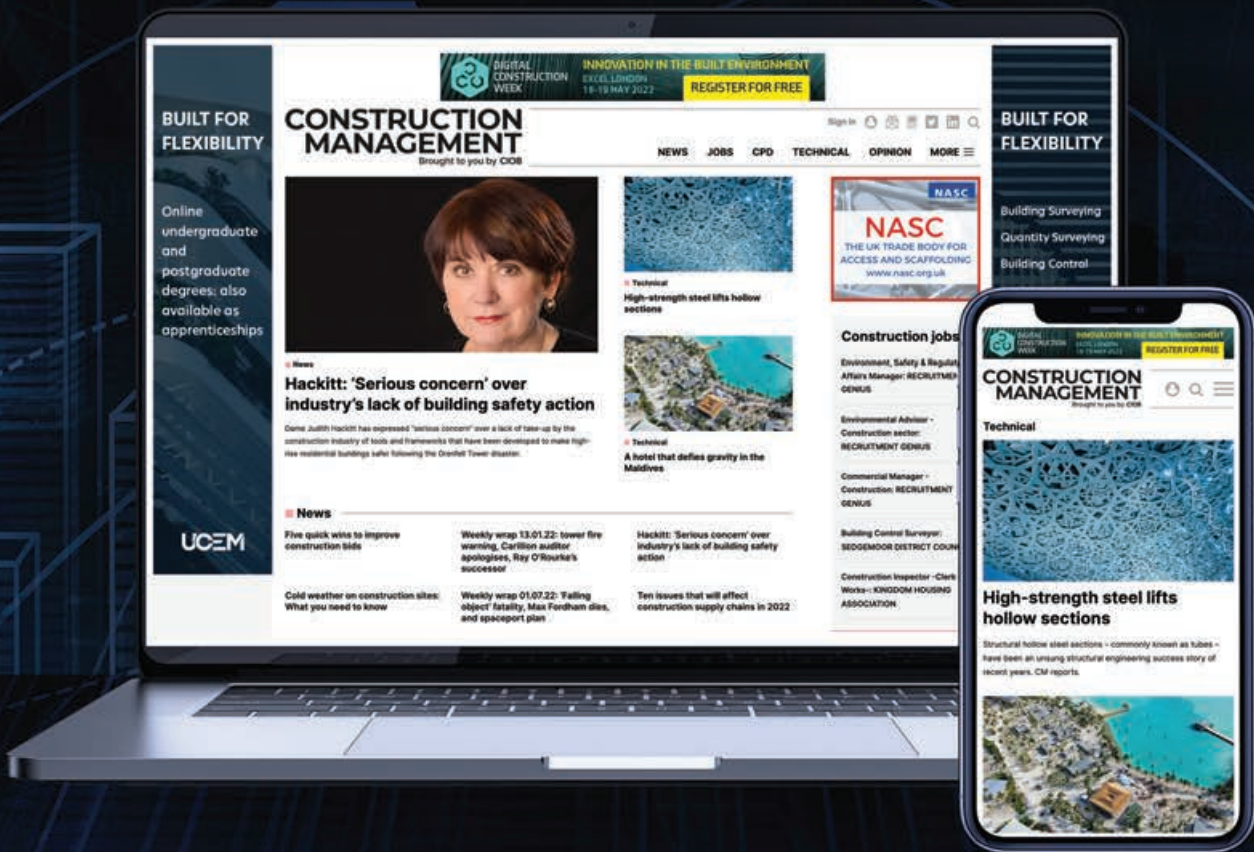
This includes increasing the amount of sustainable, productive forests in the UK, investment in sawmill capacity, panel product manufacture and wood fibre insulation manufacture. This will not only allow us to rely less on imported wood, but also create jobs for growth.

A strong, connected supply chain at home will help provide the backbone needed for more ambitious timber projects in the future.

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In pictures: The world's tallest timber buildings

Around the globe, timber buildings are getting higher and higher. Here, **CM** looks at five planned or recently completed projects



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ICON ARCHITECTS

▲ Toronto plans hit 90m

In Canada, Icon Architects has unveiled its design for a 31-storey tower in Ontario, which, at 90m tall, would be the tallest mass-timber structure in North America.

◀ Ascent is world's tallest

A 25-storey tower in Milwaukee, USA, called Ascent has been named as both the world's tallest timber building and the tallest concrete-timber hybrid structure by the international body the Council on Tall Buildings and Urban Habitat. The scheme was designed by Korb & Associates.

▼ **Norway's Mjøstårnet is 18 storeys**

Scandinavian countries have traditionally taken the lead on timber construction. Norway is home to Mjøstårnet, the world's second tallest timber building at 18 storeys and 85.4m, which is located on the shore of Lake Mjøsa.

KEILANIEMENPORTTI



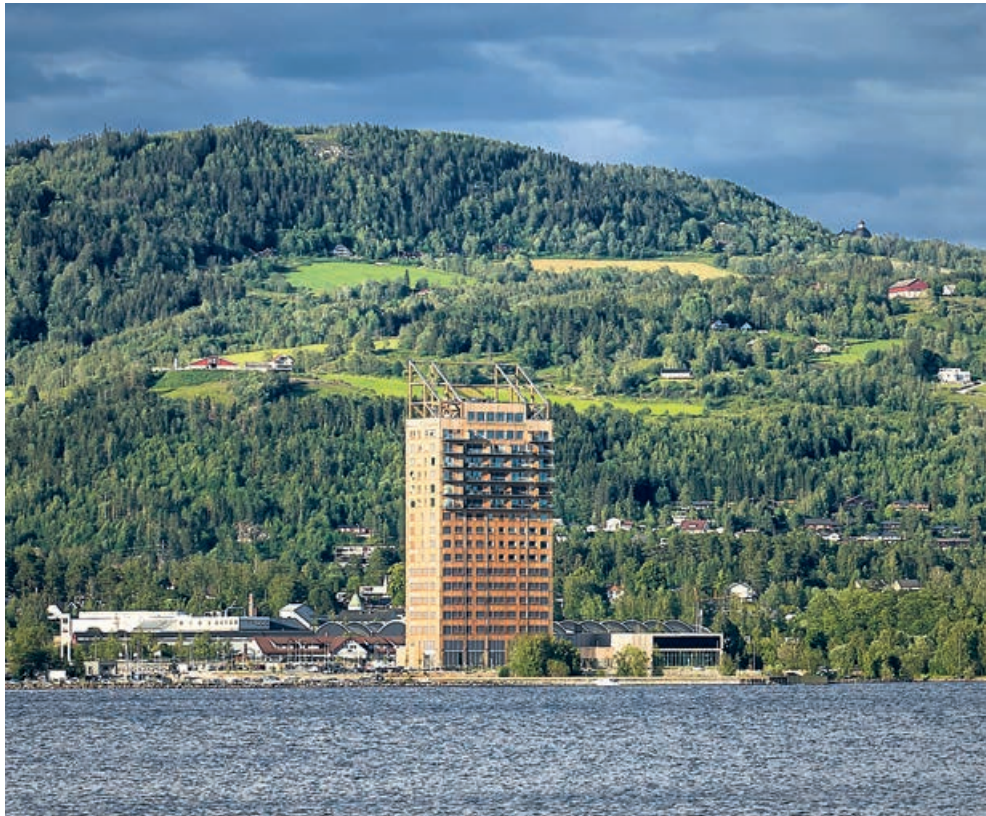
◀ **Finland starts 60m tower**

In Espoo, Finland, construction work has started to build the country's tallest timber building – Keilaniemen Portti. The 60m-tall building, featuring architect Soini & Horto and engineer Ramboll, will be home to offices, a conference centre, restaurant, sauna and rooftop terrace.

▼ **Winterthur chases record**

Danish studio Schmidt Hammer Lassen last year revealed its design for a 100m-tall housing block in Winterthur, Switzerland, Rocket&Tigerli, which would be the world's tallest timber building when it completes.

ØYVIND HOLMSTAD



SCHMIDT HAMMER LASSEN



Charlie Law
Timber Development UK

Timber's net zero roadmap

The timber industry has set out its plan to meet the 2050 net zero challenge, with transport and more local sourcing a key focus, writes **Charlie Law**



DIRK LINDNER

The timber industry has long advocated the use of timber to reduce the embodied carbon impact of construction. However, until now, there was very little information available to show the wider impacts of the timber supply chain.

Timber Development UK (TDUK), in collaboration with other key UK timber trade associations and other like-minded organisations, has launched the Timber Industry Net Zero Roadmap. This sets out the emissions within the timber supply chain and proposes steps the industry could take to reduce these, and what the journey to net zero by 2050 could look like.

The timber-related industries in the UK are responsible for 1,575,356 tonnes CO₂e territorial emissions, which equates to 0.35% of UK emissions. This is very low compared to other UK manufacturing industries such as steel (12 million tonnes, 2.7% of UK emissions) and concrete (7.3 million tonnes, 1.5% of UK emissions).

Timber is also responsible for 3,655,715 tonnes CO₂e of imported embodied emissions from the processing and transportation of wood products overseas.

All figures in the roadmap exclude sequestered (stored) carbon within the timber product, as the document is focused on reducing the industrial emissions from timber processing and

Percentage of UK emissions accounted for by the timber industry

0.35

Specifying timber in place of steel or concrete wherever practicable will reduce the whole-life embodied carbon emissions of construction

transportation. In fact, the amount of carbon absorbed and stored by timber products is greater than that emitted via industrial processes.

Reducing embodied emissions
Specifying timber in place of steel or concrete wherever practicable will therefore reduce the whole-life embodied carbon emissions of construction, and store CO₂ out of the atmosphere for the life of the asset (and longer if the timber products are reused or recycled).

One example of this is The Gramophone Works in west London, the former headquarters of Sanderson Fabrics and subsequently Saga Records, which is now a commercial office scheme comprising a mix of refurbished and extended office space.

The scheme reuses the existing structure to reduce the embodied carbon, and by using glulam and cross-laminated timber (CLT) for the extended areas, the embodied carbon within the building was reduced even further, with upfront emissions kept to 1,259 tonnes CO₂e, with 1,292 tonnes CO₂ being stored in the timber elements for the life of the project.

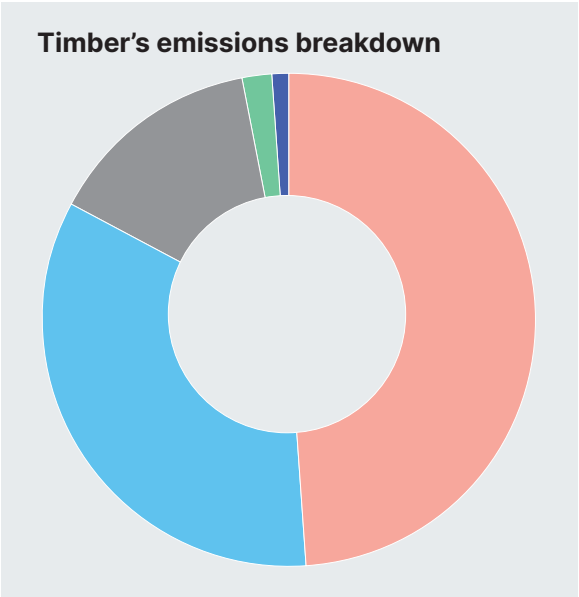
Reducing industry emissions
With almost half of all emissions being from the transportation of timber products, this will need to be a key area of focus for reduction.

Efficiencies in the use of transport and the vehicles themselves (aerodynamics) can significantly reduce emissions now, and zero-emissions trucks are likely to be widely adopted by the end of the decade.

However, construction professionals can help reduce transport miles by specifying more 'locally sourced' timber – for example UK-produced OSB and particleboard, or spruce plywood from Scandinavia, rather than plywood produced in the Far East or South America. In many cases this will also reduce the embodied production emissions – the second biggest source of emissions – as UK and European manufacturing is decarbonising faster than some other parts of the world.

Of the remaining emissions, UK production facilities, including sawmills and panel mills, are the largest source. This will require action from the UK government to ensure the electricity grid decarbonises sufficiently by 2050, as well as action from the UK timber industry.

The key use of energy in production is heat, to dry out timber products for use. Where natural gas is currently used, the use of waste timber to produce energy via combined heat and power (CHP) plant is the most cost-effective and carbon-efficient option in the short term.



- 49% Transportation of timber products
- 34% Imported embodied production emissions
- 14% UK production facilities & merchants
- 2% Forest activities
- 1% Waste

Emissions from forestry processes, such as felling and forwarding to the roadside, are relatively low-carbon activities, with hybrid plant already being used to reduce emissions further. This process will require new technology, in the form of green hydrogen-fuelled plant, to fully decarbonise over the long term.

Processing waste is the last key emission source. Seventy percent of emissions from waste are from the transport and initial processing of waste from construction sites, so the key action here is for the wider construction industry to reduce waste production, through offsite prefabrication where possible, and good material management on site.

By working together, the timber industry, along with the wider construction sector, can help reduce embodied carbon within the built environment, and in doing so help meet the UK government's net zero by 2050 targets.

Charlie Law is sustainability director at Timber Development UK.

The Gramophone Works development in west London incorporates glulam and cross-laminated timber

‘The scale is like nothing anyone has ever seen’

Rick Hopper FCIOB is the new managing director for Mott MacDonald in Saudi Arabia, and the new chair of the CIOB's MENA region hub. He tells **Rod Sweet** how mind-blowing the building scene is in the kingdom today



Rod Sweet: Tell us how your career started.

Rick Hopper: I started my studies in civil engineering as a mature student, alongside an internship in architectural design in the US. I moved to England in 2004, taking on my first job at Jane Duncan Architects, doing high-end residential work in the Home Counties.

Interested in bigger, mixed-use schemes, I moved on to Sutton Griffin Architects, working on the Parkway Newbury mixed-use scheme in Berkshire. This was also the time BIM came along, so I became the firm's BIM champion.

My last UK job was with Lyons+Sleeman+Hoare Architects, researching how English town centres, hastily rebuilt after the Second World War, could be restored to their more organic, pre-war character. That was fascinating, and I'd probably still be doing it if the boom in the Middle East hadn't happened.

RS: What made the Middle East beckon?

RH: I still had this niche skill for taking a design concept and running a multidisciplinary team to get it built. Atkins initially hired me as a design manager on the Al Areen Downtown development in Bahrain. Over time I progressed to project director working on the National Theatre – one of the most exciting projects I undertook in Bahrain.

Percentage
growth in CIOB
members in
Saudi Arabia
during 2021-22

38



You almost have to be here to understand that it's real

**Rick Hopper FCIOB,
Mott MacDonald**



Atkins identified my skill for pulling effective teams together, so I became managing director for Bahrain and Kuwait, before moving on to Saudi Arabia.

◀ Hopper worked on the revisioning of the King Abdullah Financial District in Riyadh

RS: What did you work on initially in Saudi?

RH: When I arrived, Atkins had only five people on the ground, but we got the timing right because Vision 2030 was announced six months later. We immediately started picking up projects from that. In a very short time, we went from five people to about 100.

Aecom recruited me at the end of 2018, with the remit of developing the business as I had for Atkins. As head of operations and strategy for Saudi, I worked with the CEO to grow Aecom to become one of the largest consultancies in the country – expanding from a small team of four to five people to a 300-person business over four years.

The teams I led won work on projects that are almost household names today. We took part in the original visioning project for Qiddiya, the entertainment giga project west

of Riyadh, the revisioning of the King Abdullah Financial District and the first masterplan for the Diriyah Gate heritage development. For the Neom giga project, I also started working on the regional planning study and recently was leading the Neom business operations team.

RS: Saudi now seems to be booming.

RH: The challenge is to stay focused because the boom here is well beyond anything in the UAE. The scale of projects is like nothing anyone has ever seen. My first tour of the Neom site in 2018 took three days! And that was just an overview.

Traditional site monitoring techniques don't work on these massive programmes in Saudi, so they moved to drone technology and now they use satellite imagery on certain sites. You almost have to be here to understand that it's real.

The biggest challenge is competing for good people. During Q2 and Q3 of last year, 1.5 million new expats gained residency, adding to an expat population of 10 million. Construction is by far the biggest driver of the population boom.

For CIOB, that has translated into a 38% growth in members in the country between 2021 and 2022. The institute is in a good position to support people because they're getting promoted fast and they

want their professional accreditation to keep pace with that.

CIOB champions equality, diversity and inclusion (EDI), and some very interesting things are happening in the kingdom in that respect. The government had set a target of reaching 30% Saudi female representation in the workplace and, having started from a very low base, it now stands at 37%. Many Saudi women have studied overseas and are now working in planning, project management, architecture, engineering, and we want to carry that momentum on.

RS: How are you settling in at Mott MacDonald?

RH: I have been in my new role for just over a month and the team has lived up to its reputation for being a positive and collaborative group of professionals. I'm particularly looking forward to working with all the new Saudi graduates as they shape their careers in Mott MacDonald and help shape the future of their country.

This is a very interesting time to take the lead for Mott MacDonald in Saudi. Our new Riyadh office brings us closer to our key Saudi clients as we work with them to support Vision 2030. As we grow our team, we can draw on Mott MacDonald's global expertise, while developing a pool of industry-leading experts in this country. ●

17 March
entry deadline



That winning feeling

The entry deadline for the Digital Construction Awards – 17 March – is rapidly approaching. Not sure if you should enter? Listen to the reaction of some of last year's winners



ASV PHOTOGRAPHY

◀ Emma Hooper of Bond Bryan Digital receives her Digital Construction Champion of the Year award in 2022

On-site Productivity category, said: "As a tech start-up finding our feet within the industry, we were thrilled to be recognised among many great long-standing companies in the ConTech space. Since winning the award, we've been inundated with industry interest about how engineering-grade augmented reality can reduce rework."

Emma Hooper, associate director, head of R&D at Bond Bryan Digital, was named the Digital Construction Champion of the Year. "Winning the award has genuinely meant the world to me. Having my work recognised among the industry and my peers – and it being of value – there is nothing more I could ever ask for."

"When I have times where I doubt myself and my ideas, I think about the award and the people who put their faith in me, and that helps give me the confidence I need to push a bit harder. It is like having a hug from the industry."

The Digital Construction Awards celebrate best practice and reward innovation in the application of BIM, information management and digital technology in the built environment sector, and will take place at a gala dinner on 4 July 2023 at The Brewery in London.

Partners for the awards are Digital Construction Week, the Chartered Institute of Building, and *Construction Management* and *BIMplus*. ●

To find out more, go to www.digitalconstructionawards.co.uk.

The winners of the 2022 Digital Construction Awards have given a collective thumbs-up to last year's event and the positive impact of their success.

Vinci won the Best Use of Data on a Project category for work on the HCA Cancer Care Hospital in Birmingham. Marco Bonelli, digital lead of Vinci Building, said: "Winning the award demonstrated that we were on the right track to improve our digital project delivery. The award increased interest in the data project, allowing us to apply our innovation across multiple projects more quickly."

Eurovia UK and Paperless Construction won the Digital Innovation in Health, Safety and

Wellbeing award. Eurovia UK digital construction manager Philip Reid said: "It was great to be recognised, but also to help highlight the good solutions available to others, so that we can raise everyone up."

Skanska UK – Infrastructure secured the Digital Excellence in a Construction Business category for its development of a digital twin for infrastructure, which involved integrating GIS and BIM data. George Floros, GIS lead for Skanska UK – Infrastructure, said: "We had a fantastic team and this award is testament to our innovation."

David Mitchell, CEO and founder of XYZ Reality, developer of the Atom augmented reality helmet that won the Digital Innovation in

It is like having a hug from the industry
Emma Hooper,
Bond Bryan Digital

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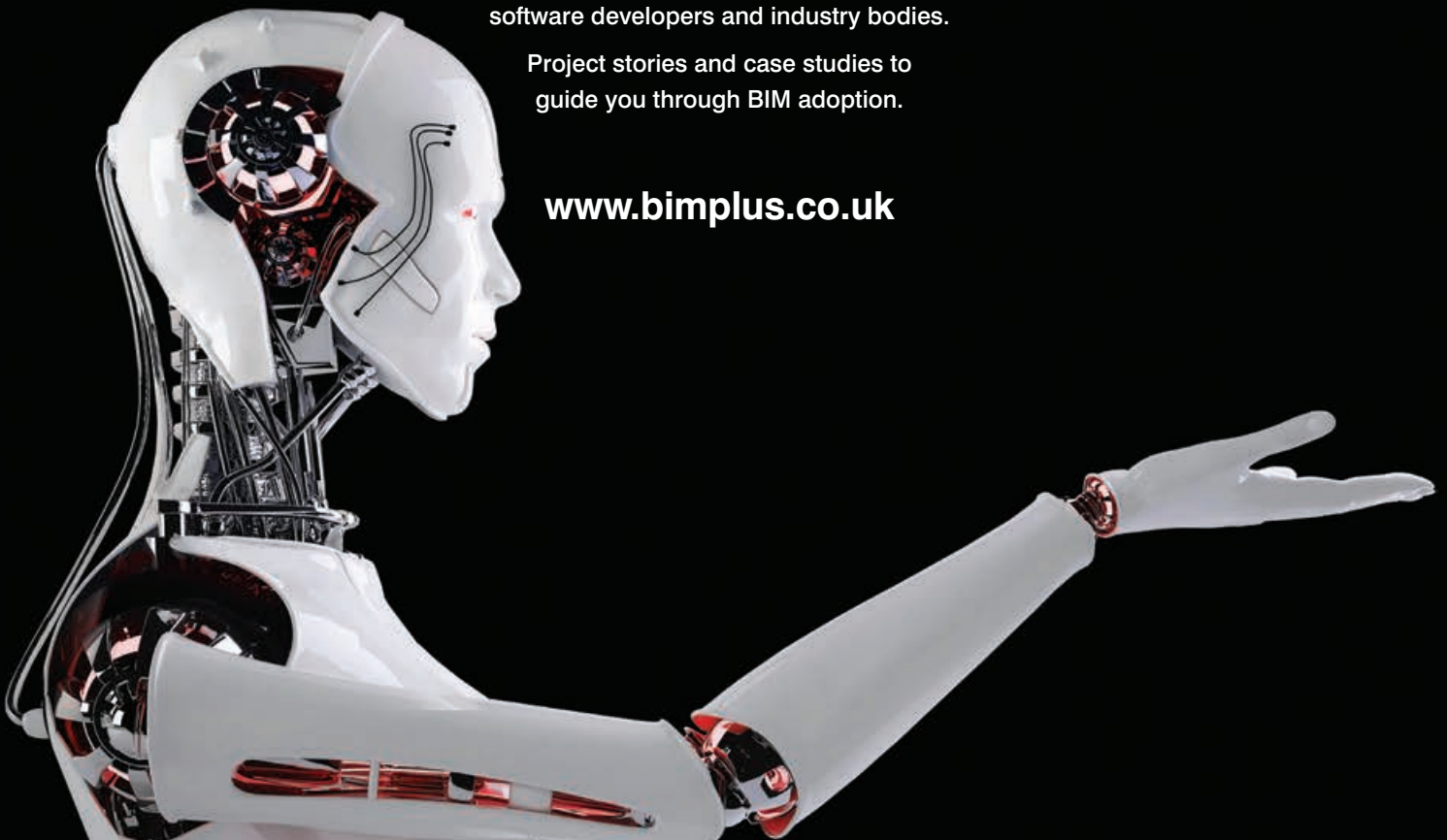
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Powering productivity with Hilti's smart range

The construction sector knows it's missing a trick when it comes to productivity. Thibaud Lefebvre, Hilti's GB vice president, tells **Hamish Champ** how his company's smart tools can help the industry slash time-wasting and work more sustainably

The challenges facing construction – coping with tight schedules and labour shortages, defending margins, managing risk and doing things as efficiently and as environmentally responsibly as possible – are all too familiar

to companies in the sector. Important as these issues are, the industry's poor productivity record is instrumental in holding back its fortunes.

Thibaud Lefebvre, the newly appointed vice president of tool manufacturer Hilti's GB operation,

▲ Hilti's Nuron DSH 600-22 Battery Cut-Off Saw at work on site

argues that the reason construction productivity is stagnating, lagging behind most industries from agriculture to retail, is simple.

"You have many stakeholders working on a site, all using a multitude of systems. You have workers who aren't as productive with their time as they could be – around 70%, we believe, of unproductive behaviour is due to missing information, materials or tools. And then you have poor communications between workers on site and those in the office."

Much of this could be overcome if the industry embraced digitalisation, Lefebvre argues. Hilti commissioned research which showed its customers' adoption of digital working was held back by two factors: first, a lack of integrated solutions – firms were working across numerous software platforms at any one time, leading to duplication, time delays and even mistakes. The second issue centred on clients struggling to implement new software packages. Barriers to the adoption of new software include an absence of integrated solutions and critically, says Lefebvre, a lack of management coaching in digital technology.

Hilti's strategy of having a direct relationship with its customers is a key factor in solving both these hurdles to success. As Lefebvre says: "We don't go through big distributors. We work directly with clients. That change management element, which is so important in the adoption of new technologies, is supported by our field teams. More than half of our total workforce are out there every day, supporting customers, job sites, offices. We are supporting every step of their journey."

In association with **HILTI**

Enhancing clients' profitability

Three things make Hilti a great productivity partner, says Lefebvre: "Our dedication to the industry; a commitment to innovation, which sees us invest \$500m [£407m] every year launching more than 100 new solutions, connecting hardware, software and services together; and that direct relationship with our customers."

Hilti can enhance the profitability of a client by boosting the degree to which it works digitally. Its systems support a job site team's ability to plan and delegate tasks, while its resource management capabilities support the management of assets, commodities and consumables. Hilti also works with customers on design, construction and prefabrication.

"We help clients increase many minutes of productivity per hour, using the best performing tools and applications," says Lefebvre. Which leads neatly into a discussion on Hilti's new generation of battery-powered tools and how they can enable teams to work more productively.



We don't go through big distributors. We work directly with clients. More than half of our total workforce are out there every day, supporting customers, job sites, offices

Thibaud Lefebvre, Hilti



Cordless battery platform

Across 2022 and 2023 Hilti will have launched over 100 new cordless tools using its state-of-the-art Nuron 22V battery platform. "You have the same performance as a corded tool," says Lefebvre of the system, "along with uncompromising health and safety."

Hilti's tools are 'smart', using digital communication technology to alert operators when the battery is running low via a 'state of health' function.

"We can radically reduce the number of steps it takes to become aware of a battery's condition, when it goes below 60% capacity, and the time it takes to supply a replacement. Given the number of tools a company might be using, this can save a lot of money – and, crucially, it also enhances productivity," says Lefebvre.

In addition, digital processes including near-field communication (NFC) systems, where tools have inbuilt chips; Bluetooth, which connects the tool with the database via a sensor tag; and wifi technology can all advise a company when and where a tool was last charged.

These also help with locating tools and helping to find out how many are lying idle. This can optimise the use of assets worth hundreds of thousands of pounds. Checks can be carried out by location, asset group or worker.

Managing tools in this way is part of Hilti's ON!Track system, which the company says is the largest software system for asset management in the world, serving 16,000 customers.

Says Lefebvre: "Companies can integrate ON!Track with their own enterprise planning system in order to manage small tools and equipment, along with materials, labour and consumables, thanks to the strategic partnership we have established with Trackunit, the world's largest telematics device provider."

The sensor tags and software work not just on Hilti tools but across all different brands and equipment both onsite and in vans, ultimately sharing all the information with the offices and warehouses.

"The strategic partnership with Trackunit will enable full automation of tracking, managing and optimising all kind of assets, Hilti or non-Hilti assets, including heavy equipment and vehicles through telematic devices leveraging GPS technology. There will be no more lost tools due to mismanagement and automatic transfers between vans and warehouses," says Lefebvre.

This 'live' information will help firms to be more productive. "Can I relocate a tool not being used at one location to another site where it could be put to use? With Hilti's smart tools I can. This is all part of proactive tool scheduling, tracking and maintenance. Essentially we are offering tools that talk."

Hilti's Nuron single cordless platform allows connectivity between site, office, warehouse and vehicles, enabling firms to know the location and power status of every small tool.

And it doesn't stop there. Hilti offers impressive sustainability credentials – repairing tools to be sent out to customers, or simply recycling parts of the equipment where possible.

"Our one-platform battery offer means our customers can have fewer batteries in stock at any one time," says Lefebvre. "Combined with our approach to recycling materials we believe this is circularity in action." ●

▼ Lefebvre says the 22V Nuron battery platform offers the same performance as corded tools





Ray Simpson
SoftwareOne



Digitising construction

Ray Simpson explains how to streamline digital transformation and the outcomes contractors can expect

Technology has played an integral role in helping the construction industry overcome recent challenges and adapt to new ways of working. Many contractors understand that a digital transformation is necessary, but with so many competing demands it's easy to push it off for later. Proper planning can streamline the process. Here are five steps to help your business launch a successful digital transformation.

1 Get the CEO and stakeholders onboard

Change management needs to start from the top. CEOs should have the vision and the understanding of future trends, and anticipate what tomorrow's clients will expect. They must get senior management onboard with all changes and provide them with the budget, people, time and resources needed to achieve this

transformation, so all stakeholders are invested in the process.

2 Develop a digital transformation strategy

Once the digitalisation commitment runs from top to bottom, senior management should establish a clear strategy. It is important to define expectations such as: How will the company benefit from digital transformation? What type of construction management software is needed? What result do we expect?

3 Start with a small group

Implementing change throughout an entire organisation can be challenging, so it can help to roll out the process with a small group. For example, you could start digitalisation within your design or planning teams to develop the workflows and standards. This way you can evaluate

Outcomes from digital transformation

- **Consolidation.** Aggregating and rationalising desktop applications, software tools, IT systems and manual processes will open opportunities for cost savings and achieving a single source of truth.
- **Automation.** Digitalisation drives efficiencies and the ability to lock down governance on all projects. Automating approval processes and workflows gives senior management automated KPI reports, dashboards and alerts for data-driven decision-making.
- **Simplification.** A single digital platform with all the construction modules in one single database gives users a consistent experience and enables a seamless end-to-end flow of data.
- **Standardisation.** Digitalisation enables best-in-class standardisation of processes to improve productivity and performance. As information is gathered consistently and in a structured format it allows businesses to leverage the valuable data captured.

Download the *Futureproof Your Construction Business* white paper to learn more about how MTWO can help you digitally transform your business.



what is working well and what could use some adjustment before implementing new processes in other departments.

4 Integrate with other departments

The next step is to bring more departments, such as cost estimation, procurement and site teams, into the workflow. The goal is complete digital integration, with everyone utilising standardised workflows and connected data.

5 Expand your scope of service

The business environment is changing fast so it's important to remain agile to compete in the current market.

Business models and scope should evolve concurrently to ensure you can respond quickly to market demands. ●

Ray Simpson is a business development manager at SoftwareOne.

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Digitising workflows in construction

What do construction managers stand to gain from digitising their workflows? How can this improve efficiency? This CPD, in association with Topcon Positioning GB, explains

In association with  TOPCON

Advances in construction technology have important implications for site managers and construction companies looking to overcome the challenges facing the industry. A digital workflow can be the key to working more efficiently and mitigating the impact of skill shortages, tightening sustainability requirements and shrinking margins. Switching to a digital workflow can seem a big undertaking, but there are a number of reasons why this solution can be the foundation of a more productive and efficient way of working.

Complete connectivity

The advantages of digital workflows start at the planning stage, where they offer opportunities for easy and efficient collaboration, whether colleagues are working from a job site, the office or even from home. Tools such as Topcon's MAGNET software suite host digital plans and designs in the cloud, allowing collaborative working and sharing of information from multiple locations instantly.

This collaborative digital workflow gives everyone oversight of how the project is developing, where budget is being allocated, and allows anyone to interject with their expertise at a particular stage. Digital plans can also be shared and published in easy and understandable formats when it's time to submit them to the relevant authorities. Many systems also allow sharing of a live plan which evolves as the design process continues.

Once work begins, sites are dynamic and ever-changing, which makes it difficult to keep everyone singing from the same hymn sheet, especially when last-minute changes or problems arise. This is

◀ Topcon's X-53x Automatic Excavator GPS system in use

▼ Topcon's MAGNET Enterprise connects field and office teams



When plans change, the new designs can be synchronised across the entire site, with each operator's view showing exactly what the changes mean for their tasks

where digital workflows can change the game. Digital site management software gives managers a comprehensive and up-to-date view of the entire site, even when working remotely.

Platforms such as Sitelink3D v2 from Topcon display data gathered from all machines and connected workers at a site to build an accurate picture of all the activities taking place. They also host design files that allow managers to ensure that everything is going to plan. Project data is collected and stored automatically, ensuring that decision-makers are in possession of all the facts and can act faster.

When plans change, the new designs can be synchronised across the entire site, with each operator's view showing exactly what the changes mean for their tasks. This means that work needn't stop while managers travel from the office to the site, or operators are rebriefed on the new job. For equipment fitted with machine control technology, the whole process can be managed remotely, with machines working

independently to the latest designs. Operators receive real-time, dynamic, on-screen bucket location and design views, improving accuracy and removing the need for someone to check the grade from the trench.

Efficiency made easy

In the context of rising material and fuel costs, margins are tightening, and construction managers are on the lookout for ways to do more with less. A key advantage of digital workflows is the increased efficiency offered by being able to easily and consistently manage everything happening on site. Digital site management boosts efficiency by ensuring work is completely accurate first time around.

By constantly sharing up-to-date plans with everyone working on site, accuracy is never compromised by sudden changes or updates to work schedules, or the extent or type of work to be completed. When used in conjunction with machine control software, human error can be all but eliminated, and remote monitoring ▶





Topcon's MC-Max machine control solution provides a real-time view of machine positioning

Digital workflows afford projects a crucial element of flexibility that allows managers to move quickly and mitigate the impact of outside factors

means mistakes can be nipped in the bud when they do occur. Fewer mistakes mean less rework is needed, and less wastage of time, money and materials.

However, there will always be issues that cannot be foreseen or those which construction managers are powerless to prevent. Here, digital workflows afford projects a crucial element of flexibility that allows managers to move quickly and mitigate the impact of outside factors. For example, if a delayed delivery means that work can't be completed at a certain time, manpower, machines and resources can be quickly redirected to different jobs and work schedules updated immediately to minimise disruption.

Topcon Pavelink is a specific example of an end-to-end digital workflow that's helping paving businesses work faster and more efficiently. On asphalt paving projects, it's crucial that the work is done quickly to ensure road closures are brief and materials wastage avoided. The platform connects cutting-edge scanning and design technology through machine control hardware on milling and paving machines to prevent delays and deliver improved accuracy.

Pavelink also offers the ability to communicate with batching plants and track truck locations and paver data in real time, ensuring that operators aren't left sitting on their hands while they wait for a delivery

and that, when they are working, it's with accuracy and efficiency.

With transit, loading and wait times also displayed on the dashboard, construction managers can hunt down inefficiencies in all the extra work that goes into a project. All of these features are individually valuable but when brought together in one application for convenience this technology has the ability to transform workflows.

Seeking out sustainability

Building green is a serious concern for the built environment and will remain so for the foreseeable future. If the UK is to hit its target of net zero by 2050, as one of its most polluting industries, construction will have to be a leader of this change. For construction managers and contractors, this means leaving no stone unturned when it comes to cutting emissions, and digital workflows can be a valuable tool in the search for savings in new areas.

Many emissions reductions come hand in hand with the increased

efficiency that can be attained with digital workflow platforms. Getting more work done with fewer materials keeps the emissions toll of a project as low as possible. Likewise, eliminating the need for rework also removes the emissions produced by the machine movements needed to complete the work.

Being able to point to a more efficient, and therefore more sustainable, workflow will be invaluable for construction companies looking to stand out from the crowd when working on winning contracts with strict sustainability requirements.

Complete connectivity can also have a powerful impact. Being able to monitor and direct what happens on site remotely vastly reduces the number of journeys that site managers have to take and eliminates the emissions they're producing in the process.

Many platforms, including Sitelink3D v2, also offer features which make getting a second opinion much easier and better for the environment. Desktop sharing

▼ Instant screen connectivity allows greater accuracy and efficiency



functions allow live views to be shared with experts from outside the project wherever they are, again cutting down on journeys to and from work sites. Less travelling (and fewer machine movements) also translates into fuel savings which have a positive impact on a company's bottom line, as well as its carbon footprint.

When viewed in isolation, these individual emissions savings might seem small compared to the carbon footprint of the built environment as a whole. However, over time, these small savings have a significant impact in helping to lower the footprint of the construction industry. Importantly, while other measures to make projects more sustainable, such as pivoting to use new materials or bringing in electric vehicles, can be slow, switching to a digital workflow is something that construction companies can implement now, with the knowledge that it will have an immediate impact on their carbon footprint.

Bridging the skills gap

Construction companies everywhere are struggling to get the people they need for the job. Experienced team members are reaching the end of their careers and a lack of talent coming through at the other end leaves the industry in a difficult position.

Digital workflows can help by enabling technology, such as machine control, to work at its best. With platforms that send updated plans to machine control systems, operators can complete complex work without needing constant input from supervisors. They're also able to move on quickly should plans change, with an updated plan for their new task. With a consolidated view of everything happening provided by site management platforms, fewer

► Topcon's MAGNET Field software optimises workflow on site

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Switching to a digital workflow is something that construction companies can implement now, with the knowledge that it will have an immediate impact on their carbon footprint

To test yourself on the questions on the right, visit www.constructionmanagement.co.uk/cpd-modules.

supervisors are needed to monitor individual parameters or processes, freeing more experienced workers up to concentrate on other tasks.

When it comes to attracting the best talent in a competitive market, companies that embrace a digital way of working give themselves an important advantage. Greater use of technology is undoubtedly the way forward for construction, and offering the chance to gain experience on digital solutions will not only attract new recruits looking for somewhere to start their career, but ensure they remain technologically capable of embracing future innovations when they come along.

A smarter future

Making the transition to digital workflows can be transformational for how a company's sites work and communicate, but it doesn't have to involve an arduous learning curve, or a large upfront investment.

Many manufacturers offer ongoing support to firms with installation and throughout their time using the system. This is intended to help them achieve that return on investment by using the technology how it was intended. It also enables companies to best understand how it works with their existing structures and tailor it to their needs. From a cost perspective, some systems are available to rent, meaning there's no need for businesses to pay for a system on one project that they won't use for others.

For construction companies navigating a tricky working environment, there's plenty to be gained from making their workflows digital. The latest platforms are powerful and intuitive paths to unlocking the benefits of a more efficient, sustainable digital future for construction. ●



CPD Questions

- How do cloud-based designs facilitate collaborative planning?
 - a) They send everyone an email when the design is finished**
 - They allow collaborative working and sharing of information from multiple locations instantly
 - They allow planners to share pictures with other people working on the project
- How can digital workflows help mitigate the impact of external factors such as delayed deliveries?
 - a) Machines and resources can be quickly redirected to different jobs and work schedules updated immediately to minimise disruption**
 - Complaints can be sent to delivery providers
 - Alternative materials can be sourced
- How does eliminating rework reduce a project's carbon footprint?
 - a) Leaving the site earlier allows people to avoid rush hour and arrive home faster**
 - b) Removes the emissions produced by the machine movements needed to complete the work and the extra materials needed**
 - Because emissions from rework can't be offset by developers
- How does remote monitoring of work sites allow projects to reduce their carbon emissions?
 - a) Remote monitoring allows site managers to keep in constant contact with clients**
 - b) Carbon totals can be reported to authorities faster**
 - Remote monitoring and direction reduces the number of journeys that site managers must take, eliminating the emissions they're producing



Paul Stinson
Hovaloft

'How can we stop a drone flying over our site?'

This month's contract clinic question comes from a contractor worried about a drone flying over their site. Aerial photography expert **Paul Stinson** looks at the legal position

THE QUESTION

Someone is flying a drone over our site and filming images without our permission. We think it may be for industrial espionage, or at least unsafe. Is there anything we can do to stop it?

THE ANSWER

This is an increasing challenge for all business owners, not just construction companies managing projects, as drone technology has become cheaper and more easily available. The flying of drones in the UK is regulated by the Civil Aviation Authority. But the rules are not as simple as you might think.

Data and privacy

Let's start with GDPR (General Data Protection Regulation) and associated privacy laws. There are two issues here. Firstly, GDPR only applies to organisations carrying out recording, not to individuals. And in any case, consent may not be needed, even where a business is doing the recording.

In terms of privacy, rules tend to apply where there's a 'reasonable expectation of privacy'. As recently as last year, the courts ruled that even suspects of crime can have a reasonable expectation of privacy. Last month, the Supreme Court found in favour of the Neo Bankside residents in their case against Tate Modern. However, that expectation wouldn't normally apply in the general workplace or in public.

An argument often raised concerns property rights and trespass. However, trespass is a civil matter unless damage occurs, then damages may be recoverable in tort. But a drone is likely to be in the air, which is not part of the property, and is usually flown from the public realm.

Airspace and safety

Control of airspace is again the domain of the Civil Aviation Authority, so the chances are that won't be something you can do anything about. The only exception to this might be if your site is in a controlled airspace. These generally

exist around airports and airfields, prisons and one or two other sites, such as the homes of members of the royal family.

Controlled airspace is often protected by drone jamming technology. These areas are determined by NATS (National Air Traffic Services). There is an app called Drone Assist, which outlines where all the flying restrictions lie. Intelligent drones, those with GPS, are pre-programmed by the manufacturer to disable take-off in a controlled zone.

Safety is another argument occasionally cited. But, provided the unmanned aerial vehicle (UAV) is lightweight and flying at a reasonable height, it would be hard to prove a demonstrable risk to health and safety.

The drone and its operator

So, having dealt with all the initial reasons that might inhibit the use of a drone, what remains is the drone and its operator.

By law, a UAV cannot fly unless registered by its operator, who must have an operator ID. That ID must be visible on the drone. The pilot must also have a flyer ID. However, unless a drone has landed or crashed, it can be impossible to see the operator ID. A flyer is not obliged to show their ID, unless a police officer has reasonable grounds to suspect a crime is being committed.

If the drone is under 250g, it can fly almost anywhere provided it is below 400ft (122m) from the surface and is within visual line of sight of the pilot



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



◀ A drone can fly over a construction site unless specific restrictions apply

The drone may be restricted in where it can fly, if it is over 250g. However, if it is under 250g, it can fly almost anywhere provided it is below 400ft (122m) from the surface and is within visual line of sight of the pilot. That is likely to include overflying your site. The CAA gives some helpful factsheets on its website and you should also check out the latest regulations it has published on unmanned aerial systems (UASs).

So, in summary, it seems there are a few questions you should ask:

- Is the drone 250g or less? If so, then it can fly over your site.
- Is the site in a restricted area? If not, then it can fly over your site.
- Does the drone have an operator ID displayed? If so, it can fly over your site.
- Is the drone being flown by someone with a flyer ID? If so, then it can fly over your site.
- Is there a GDPR or privacy breach? It is very unlikely, so the drone can probably fly over your site.

Ultimately, unless there's a very good reason in law for the drone not to fly across the site, then the pilot will likely be able to fly the drone. And there's very little at all that can be done to prevent it except with jamming technology which must be licensed in the UK. ●

Paul Stinson, managing director of aerial photography company Hovaloft, was speaking with Stuart Wilks, director at consultancy Limeslade.

'Having the fellowship on my CV has opened doors'

In the first of a new series of interviews with CIOB fellows, Emma Bull FCIOB, senior framework manager at Southern Construction Framework, tells **CM** how the post-nominals have boosted her career

What made you go into construction?

Opportunity – it wasn't something I had considered prior. My GCSE results were poor and led me to work within a youth employment scheme and then as a library services researcher, then a bonus clerk. I quickly realised I wanted a career not a job and came upon a 'quantity surveyor' opportunity – which appealed to my mathematics abilities. I secured the role with a local authority, comprising reactive repairs to housing stock. Once I could see where the job could take me, I worked my socks off and didn't look back!

Wanting to work on larger projects for a private company, I attained a QS role for a groundworking contractor on residential newbuild. The scale, complexity, variety, responsibility and intense surveying tasks were matched by the 'I built' factor and pride in the sites I was involved with. Then my career moved at a pace.

What do you remember from your first project?

It was a £13m secondary school and I was an assistant surveyor working for a tier 1 contractor, with responsibility for cladding, brickwork, roofing and groundworks. I remember the team so fondly – we had so many challenges but an amazing client and a fantastic-looking building.

I now live close by and I still feel so much pride every time I pass. I developed confidence, knowledge and teamwork on that first project – oh, and ambition, of course!

What was the best advice you were given?

Be happy in your work. I spent six years doing my degree part-time while working and it was tough – I remember questioning my ability to complete the degree and evaluating its worth. But my career was providing me with so much satisfaction I knew that it was worth sticking with.

Emma Bull CV

● Senior framework manager, SCF Construction, Sept 2020-present

● Framework manager, ISG, 2017-2020

● Education & community manager, BAM Construct UK, 2014-2017

● Community engagement manager, Willmott Dixon, 2003-2014

Education:

● Cardiff Metropolitan University, Construction Management, 2014-2015

● University of South Wales, BSc Quantity Surveying, 1999-2005

How do you think becoming a fellow has helped you in your career?

The fellowship stands you in very high regard. They are not awarded lightly and you must have significant experience, influence and status, recognised by those that see the post-nominals.

I have been a member since my student days and have been involved in CPD events, sessions and improved my membership status as my experience has developed. The post-nominals are something I wear with pride and often lead to further discussions with others considering or on the journey to attaining a membership status with CIOB. Undoubtedly, having the fellowship on my CV has opened doors.

Is there a specific project or achievement you are most proud of?

I take most pride in a records office building for a steelworks factory that my family had connections to. It was a heritage project and at the beginning of developing core social value benefits, ultimately enabling sustainable employment in an area of high unemployment. The completed building was blessed with a visit by the late Queen and Prince – I was there in my PPE bursting with pride!

Is there anything in your career you would do differently now?

Be more confident in my abilities at a younger age; you're not expected to know everything. We are still learning every day, no matter what experience or knowledge we have. The insight the industry provides across so many different sectors is incomparable – for example, clients working from education to space exploration.



We are still learning every day, no matter what experience or knowledge we have. The insight the industry provides across so many different sectors is incomparable

Emma Bull, Southern Construction Framework



What's the most valuable training you've received and why?

My postgraduate certificate in sustainable leadership was so useful and exposed me to strategic management approaches and theories.

It showed me the value of taking opportunities to learn after a degree and continue with your professional knowledge to ensure you are providing a valuable, relevant and up-to-date service to your clients.

Do you have a motto that applies to your work – and, if so, what is it?

I have many that change regularly depending on my work, but I always strive to be professional and provide a quality service to my 'clients', internal or external.

I am fully accountable – I want to do it well and, if I am honest, like to also be told I am doing it well! I want to deliver the client's objectives – be that profitable turnover or an informed service and advice. ●

▲ Emma Bull: "The post-nominals are something I wear with pride"

Who do you most admire in the construction industry, past or present?

The Nightingale hospitals are such an amazing achievement in both design development and subcontractor mobilisation, and showed our collective ability to step up when it's needed. Also, the passion that project teams have for upcoming generations is very heartwarming – most people are keen to share knowledge to help ensure a future for our industry.

What advice would you give to someone starting in construction today?

Keep an open mind – there are so many options and transferable skills

in this sector. Don't ever feel you are hemmed into one role or discipline. Focus on communication skills – it's absolutely critical in all forms, from BIM to formal board presentations and client interviews.

What has changed the most about construction since you've been working in it?

Technology and the evolution of sustainability. It's still a journey but more individuals are being employed for specialist areas within the sustainability theme, such as social value and carbon practitioners. This is massively different to when I started with just a site manager and a visiting surveyor.

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CIOB Community



TechCIOB gets official seal

New CIOB membership grade secures TechCIOB as its name

The CIOB's new membership grade has taken a step forward this month following the Privy Council approval of TechCIOB.

The new grade will open this summer and has been developed to reflect the increasing number of technical roles in the industry.

The new membership grade will extend to a variety of roles. Application will be similar to the professional review: candidates supply a written report in which they demonstrate competencies against technical standards by giving work-based examples.

"We look for applicants to provide a validation of competencies at non-managerial level and not merely based on qualifications," explains CIOB director of education and standards Rosalind Thorpe.

CIOB has been running a pilot across roles in building control,

site supervision, Level 4 technical apprenticeships, design technicians and QS technicians. TfL has been heavily involved with the pilot.

The creation of the grade follows a review in 2015. Former non-chartered qualifications based solely on qualifications held (HNC for the Associate grade and HND for the Incorporated grade) were closed to new entrants and those who are already in the grades cannot use their postnominals after 2025. ●

For information contact
customerservice@ciob.org.uk.

CIOB joins West Midlands Great Debate

Sandi Rhys Jones features in panel of cross-institute experts

CIOB senior vice president Sandi Rhys Jones will be a featured panellist at the West Midlands Great Debate this month.

The 2023 Great Debate will focus on 'Making the Most of What We've Got: How to Improve the Existing Built Environment'.

This cross-institute panel event will be chaired by Professor

Carl Chinn, the social historian, writer and teacher.

Experts from six institutes will examine key themes including regional and socio-economic inequality, inclusive design and development, ongoing building and planning reform and climate resilience and adaptation.

CIOB, ICE, LI, RIBA, RICS and RTPI represent a combined membership of over 360,000 skilled professionals.

The event will take place at The Studio, Cannon Street, Birmingham, on Wednesday 22 March at 6pm. Register at www.ciob.org/events or contact gffloyd@ciob.org.uk

Birmingham members set their sights high with tall building visit

Site tour of 30-storey Essex Street build



On 9 March Birmingham members will have the opportunity to join Quantem and Wates Construction for a tour of the new 30-storey South Central residential scheme in Essex Street, Birmingham, which will be 98m high when completed.

The build, which features one, two and three-bedroom apartments, has been designed to echo the city's terracotta heritage. Residents will benefit from a rooftop garden and sky cinema, a concierge service and a private gym. Commercial space will also be included on the ground floor.

Visitors will be able to view the site, receive a presentation from the project team about the work underway and hear about the challenges faced during this complex build. ●

To register please go to www.ciob.org/events or contact gfloyd@ciob.org.uk.

◀ Birmingham's new South Central tower echoes the city's past use of terracotta

New performance evaluation guide

New publication offers practical guide to BPE



Building Performance and Evaluation is a new CIOB guide which offers a method to identify, limit and reduce uncertainties in building performance.

Over eight chapters the book covers management tools and methodologies to support building performance and evaluation, from the design stage through to post-occupancy. It emphasises how taking a holistic approach can test building design and building performance.

The guide outlines the various tests and methods used in evaluation, which inform clients, end-users and practitioners of possible interventions, and supports data collection and analysis so that energy use can be assessed against the energy performance expected.

The guide is written by Chris Gorse MCIOB, professor of construction engineering and management at the University of Loughborough and chair of the CIOB Sustainability Panel and Policy Forum, and Dr Kambiz Rakhshanbabanari, a research assistant at Leeds Sustainability Institute.

The guide is available to download for £40 at www.ciobacademy.org/product/building-performance-and-evaluation-guide. CIOB members receive a 20% discount.

CBC offers discounts on site-safety courses

A range of safety training is on offer from Majestic Site Management

Chartered Building Company Majestic Site Management is offering a suite of site safety courses, with discounts for CIOB members.

The company offers the following Site Safety Plus courses, which are accredited by the CITB.

- Site Managers Safety Training Scheme (SMSTS)
- Site Managers Safety

Training Scheme – Refresher (SMSTS-R)

- Site Supervision Safety Training Scheme (SSSTS)
- Site Supervision Safety Training Scheme – Refresher (SSSTS – R)
- Health and Safety Awareness (HSA)
- Temporary Works Co-ordinator Training Course (TWCTC)
- Temporary Works

Supervisor Training Course (TWSTC)

- Temporary Works General Awareness Training Course (TWGATC)

These can be delivered face-to-face at Majestic's Huddersfield office or at a venue to suit, including active sites.

"We are able to offer these online if it helps with site constraints, and

we can offer Saturdays including the SMSTS over a five-week period," says Lee Marsden MCIOB, chartered construction manager at Majestic.

The company also offers first aid training, face-to-face or online, or a blend.

For details or to enrol on a course, contact lee@majesticsite-management.co.uk.



Achieving nutrient neutrality: construction's pollution challenge

CIOB webinar sheds light on environmental issue

Nutrient pollution is a serious environmental issue which poses challenges to construction, according to experts speaking at a recent CIOB event.

In January CIOB members attended a Norwich Hub webinar explaining nutrient neutrality and how it is affecting planning applications and the construction industry.

Natural England states that nutrient pollution is a big environmental issue in many places. Increased levels of nutrients like nitrogen and phosphorus can affect the delicate ecosystem. Extra wastewater from new housing developments can further impact this problem.

The webinar speakers discussed the effect of this on planning

▲ Wastewater can add to the environmental impact of nutrient pollution

Phil Courtier described the work of the Norfolk local authorities, along with other organisations, to try to reduce the burden on the development sector

applications and developments, how councils are applying legislation and how mitigations to ensure nutrient neutrality can be put in place.

Phil Courtier, director of place serving two district councils in Norfolk, provided an introduction and overview of the issue and its impact on the Norfolk catchment. He then described the work of the Norfolk local authorities, alongside other organisations such as Anglian Water, to try to reduce the burden on the development sector and plans for a programme of mitigation and environmental credits.

Ray Winney MCIOB, construction director of Orbit Homes East, explained the challenges to developers. Finally, William Mackveley, general manager at ST Connect, discussed mitigation using onsite community-scale water recycling centres – describing the delivery process and identifying who could benefit and how.

This webinar can be accessed from the CIOB Academy at www.ciobacademy.org.

Karting fun in Kent



Book up now for the popular annual event in June

The popular annual Kent Construction Karting will take place on 22 June.

Once again taking place at the Bayford Meadows Karting Circuit in Sittingbourne, the yearly competition is an endurance race with entries from individuals or teams of

three. Last year 13 teams vied for a podium place.

The event is an ideal evening for fun and to network while competing in a friendly (although hard fought!) race on one of the country's premier outdoor floodlit kart circuits. The event is sponsored by TEAMPOL.

For further information go to <https://www.eventbrite.com/e/maidstone-tomorrows-leaders-construction-karting-cup-2023-tickets-523677452357>.

For all bookings contact Beverley Lawrence on blawrence@ciob.org.uk or 01344 630861.

New ward at Norfolk hospital shows insight into MMC challenges

Norwich Hub site visit includes CPD

▼ The Concept Ward will accommodate inpatients during structural works



CIOB members in East Anglia have the opportunity to visit a large-scale modular build for the NHS this month. The Norwich Hub is offering a site visit to the new 'decant' ward at James Paget University Hospital, in Great Yarmouth on 30 March.

The Concept Ward is a £15m modular build project. It will accommodate inpatients while urgent structural works throughout the 40-year-old main hospital are undertaken. It is hoped that the new 28-bed facility will provide an insight into what the hospital will look like once it has been rebuilt.

The visit will feature a presentation from the main contractor Health

Spaces, the designer Fleet Architects and the client James Paget University Hospitals NHS Foundation Trust. All parties share a passion for the NHS, supporting the evolution of the service to find solutions that meet the urgent needs of the post-pandemic backlog, while progressing towards a new hospital building programme.

The project has been subject to a very tight timetable, with the Concept Ward needing to be built and occupied within an overall 14-month project programme.

Complying with the trust's Green Plan, the scheme will also be environmentally conscious and aims to achieve a BREEAM Excellent rating.

Modern Methods of Construction (MMC) and a modular strategy have been key to achieving this tight deadline. During the CPD the modular design and build will be discussed, along with its challenges, perceptions and benefits. ●

For further information and bookings visit ciob.org/events.

“The project has been subject to a very tight timetable, with the Concept Ward needing to be built and occupied within an overall 14-month project programme

One to watch

Jordan Reid MCIOB

Asset manager, Kajima Partnerships



I was fortunate to work full time, and my employer allowed me to attend university on day release to attain my bachelor's degree. I gained knowledge in my job role while also being a student working towards academic qualifications to match my work-life experience.

After successfully juggling work, studies and home life for several years, I realised I needed to keep pushing my potential and be the best I could be: read more, learn more, get involved, meet like-minded people and listen to those more experienced. The mindset of never stopping personal development gives me the ambition to keep going.

Why did you choose construction for a career? What other path might you have taken?

I've always been passionate about the built environment. Some interests include: heritage buildings, managing built assets, identifying defects and remediation.

I am currently an asset manager, contract managing the day-to-day operations of two hospitals in the north of England.

It was never my life ambition to do what I do – but I love it, and I cannot imagine doing anything else. If I had taken another path, it would likely have brought me back to a construction-related career anyway!

You already have a stellar record as a student and you were Europe rep for Tomorrow's Leaders at the CIOB Members' Forum in Sydney. What drives your ambition?

What do you want to achieve in your career?

As I'm in the early(ish) stages of my career, I don't have a definitive end goal in mind just yet. In time, I want to be known as a leader within my sector, where my experience and knowledge are recognised and valued.

What do you do in your spare time?

I am in my final year of a part-time master's degree, so much of my time is spent studying. I have a long-suffering wife and two lovely children, and I love having family time. I also have a Leeds United season ticket, so my remaining spare time is at a premium.



CIOB

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Tuesday 25 April 2023
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ENGLISH HERITAGE

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Learn how different types of historical and traditional buildings were successfully delivered and how delegates can apply that learning to their own decision making.

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**Sir Robert
McALPINE**
Special Projects





◀ Jonathan Payne
FCIQB, NI hub vice-chair
(back row, centre),
with students from
Queen's University

CIOB draws a crowd in Northern Ireland

Showcase event attracts large turnout

More than 80 people attended a 'Meet the CIOB' event in Belfast in January where staff and members from the Northern Ireland hub showcased the benefits of membership of a professional body.

Visitors, including students, CIOB members and others from across the built environment sector, heard about the resources, training and development opportunities, and wellbeing support available to CIOB members. They also learned about its mentoring programme and Tomorrow's Leaders initiative.

There was also a range of exhibitors from across Northern Ireland's construction sector.

Roger Gillespie, chair of the Northern Ireland hub, said: "I was delighted to see such a large turnout for the event. The engagement from the attendees who were able to hear and speak directly to CIOB staff and committee members was extremely positive."

Nick Cuffe FCIQB, operations director with ICW, said: "Following the event our Belfast team is really looking forward to closer ties with CIOB during 2023." ●



Orbit Homes recruits primary school 'building buddies'

Housebuilder launches school engagement initiative

Primary school children will get an insight into how homes are built as part of a new educational programme being launched by Orbit Homes.

'Building Buddies' is aimed at children aged seven to 11 (Key Stage Two) and will see local schools being invited to experience a hands-on site visit, where children

▲ Ray Winney,
with children from
Woodland View
Junior School in
Norfolk, at
Orbit Homes'
Dovecote Gardens
development

can develop their knowledge and skills by safely exploring the site, speaking to the development team, learning the importance of health and safety, and discovering how brand-new houses are constructed.

There will also be an opportunity for the children to build a home of their own, with a special 3D model house which teaches young Building Buddies the build stages of a new home.

Ray Winney MCIQB, construction director at Orbit Homes, said the educational programme aims for children to discover housebuilding and how exciting it can be.

"We want to show young people that anyone can work in the construction industry – in jobs varying from design and planning, to site management and bricklaying. The children will be able to build a 3D house, learn about the stages of construction and get an insight into the job roles within the building sector."

"It is our hope that this new initiative helps involve local people in our developments, as well as offer children a unique learning opportunity."

Classroom resources, which include worksheets for all KS2 pupils as well as a supporting teachers pack, are available for teachers to download from the Orbit Homes website. ●

For more information, contact: building.buddies@orbit.org.uk.

Innovation and quality scholarship open for applicants

CIOB scholarship offers opportunity for professionals early in their career

Applications for the CIOB Construction Innovation and Quality Scholarship are now open.

The scholarship is designed to provide a professional development opportunity for those working towards a career in construction management. It is aimed at sector professionals working anywhere in the world and is an opportunity for academics, undergraduates or

postgraduates currently studying at a CIOB-accredited HEI and FE institution.

Applicants who are working full-time, part-time or are in between employment are eligible to apply. Applicants must be a CIOB member but any membership grade will be accepted.

During the programme, scholars will be required to complete a

research project with a definable, published output that is relevant to the industry.

Applications will close on 30 June. Panel interviews for those shortlisted will be in July, date to be confirmed. For full details and how to apply visit www.ciob.org/learning/scholarships/construction-innovation-and-quality-scholarship.

Student Festival delivers knowledge and confidence

Two-day virtual event in March offers value to student members

CIOB's Student Festival, now in its third year, will take place on 8-9 March 2023.

The two-day event will take place in one virtual space for all CIOB student members around the globe. The purpose is to inspire, inform and celebrate CIOB student members, who can expect to take away meaningful messages from a diverse community of CIOB members.

This will allow them to benefit from technical and practical insights, professional views and personal wisdom for their future careers.

The festival will include:

- industry leaders – thoughts and opinions from leaders in the sector;
- global careers – a spotlight on career perspectives from global organisations in all areas of construction;
- learning essentials – student takeaways from dissertation tips to finding your next job;
- Tomorrow's Leaders – views from our early career and future leaders; and
- networking – making new professional contacts worldwide.

Tomorrow's Leaders champion Giovanni Bortolin, a master's student at UCL, attended last year's festival as an undergraduate. "This was a fantastic experience. It was nice to see many like-minded student members with a passion for the built environment and interesting to hear the opinion of industry professionals on the role of graduates and

This was a fantastic experience. It was nice to see many like-minded student members with a passion for the built environment
Giovanni Bortolin, UCL

students in the industry," he said.

"As I was in the last year of my bachelor's degree, I found really useful tips for my dissertation too.

"The festival also offers the opportunity to have a Q&A with the speakers. I was pretty interested in the questions raised by other students and the well-answered reflections the speakers gave.

"I would highly suggest to other students to participate in the CIOB Student Festival 2023 to feel more motivated and passionate about the possibilities in the industry at the end of their studies. Also, the knowledge obtained can help students to make more informed decisions and to enrich their current studies." ●

Register now at www.ciob.org.



New CIOB guide to safety-critical building issues

Simon Pitchers sets out procedure for identifying risky elements

CIOB has issued a new guide to help identify safety-critical issues.

The guide enables users to identify safety-critical elements that if omitted or installed incorrectly, could lead to failures that have the potential to result in loss of life. It also outlines systems that should be in place to ensure that such safety-critical elements are properly incorporated in the building.

Simon Pitchers, co-owner of structural engineering and design consultancy Craddys and a regular on TV and radio shows as a 'building fails' expert, is the author.

He said: "It's a practical short, simple guide for everyone involved in building, full of examples and avoiding management-speak. You can read the main body in 12 minutes and then be able to identify a safety-critical element and how to take the right level of care when you build it. It's a small document – but we think it's quite a big step towards industry culture change."

The guide, jointly initiated by the CIOB and RIBA, has been produced with the intention of increasing awareness across all sections of the industry of the need to bring a rigorous and structured approach to the design, construction and inspection of elements identified as potentially safety-critical.

It focuses on elements frequently found to be defective and carry a high risk to building users. Its foreword says: "By successfully addressing these systemic issues, the industry would be taking a major step forward in both ensuring the safety of users in the buildings we produce and in restoring public confidence in our industry, an industry in which we can then all justifiably be proud to work."

In association with  **BLUEBEAM**
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Using tech for a more sustainable industry

Technology holds the key to organisations in the construction sector reducing their environmental impact, says **Bluebeam**

From design through to construction, technology can help the construction sector reduce its heavy contribution to carbon emissions by driving a more efficient industry and providing the data needed to enable better decision-making.

Using technology to drive change

The industry must achieve net zero. Enshrined in law, part of government guidance and increasingly influencing procurement, finance and insurance, it is a question of when, not if. Many organisations are therefore testing new technologies to improve building performance and reduce carbon emissions in construction and operation. However, with lots of products and services available, it can be difficult to decide where to start.

Early investment in tools that allow the supply chain to collaborate are essential.

This is because engagement improves the likelihood of a more sustainable project by having access to the full range of experts who will be responsible for the project.

By bringing them together to ask the right questions at project inception and agree realistic performance expectations, you can set your project up for success.

This is more efficient too. Even at a basic level, collaborative software removes a significant amount of paper and ensures that everyone is working with the latest documents, avoiding unnecessary activity and creating a helpful audit trail, which also helps mitigate risk.

Building methods are changing too

It's not just in traditional construction that we need more sustainable options. Offsite construction promises a more efficient, low-carbon future too.

Constructing buildings in a factory-based environment means that the most efficient and accurate production methods can be used, improving quality and removing waste from the process. For example, standardised components allow more accurate forecasting and use of materials.

Manufacturing also lends itself to continuous improvement, with more effective processes or materials being introduced as and when appropriate. It means that as new, more energy-efficient or eco-friendly products become available, production can follow suit.

Monitoring performance to improve the future

Tracking life-cycle information via operational dashboards – which compare the original brief, design approach and 'in-use' performance – provides building operators with a greater understanding of their assets. This should lead to better decisions when planning new projects – reducing both the financial and carbon cost – and drive more innovation in materials and processes.

Ultimately, this will lead to better quality, better value project outcomes, underpinned by a culture of learning about and improving our built assets.

We have worked on a guide with the Chartered Institute of Building (CIOB) to outline where technology can be introduced to help organisations enjoy the benefits we have described above. Our aim is to help clients understand how technology can be effectively harnessed for better outcomes.

The guide is divided into three sections: planning and design, construction, and occupation and ongoing management, to help people along every step of the way. ●

To download a copy use the QR code.

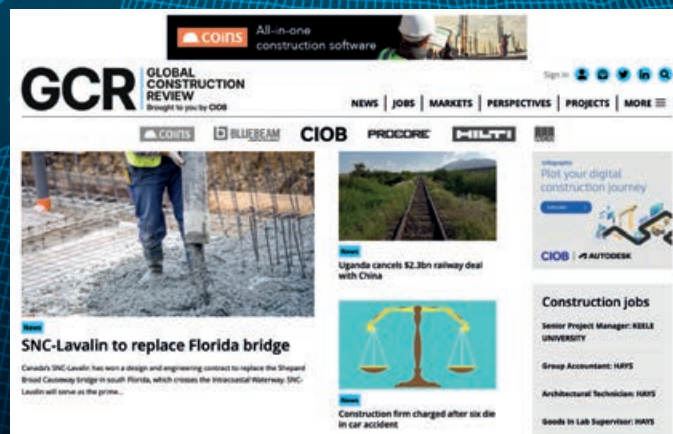




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Diary dates

Highlights of the CIOB Calendar for the coming month

Membership Surgery

► 3 March, 9.30am-2pm, Inverness

Lynne McKay, the CIOB regional manager for Scotland, will be on hand to offer advice for those looking to take the next steps into CIOB membership or to members looking to upgrade. Anyone who is interested should book a 15-minute slot in this clinic. Please get in touch for your space.

Contact: lpacock@ciob.org.uk

CPD: Raising the Bar on Delivering Quality in Construction – An update

► 9 March, 5.30-8pm, Reading
Come and meet Caroline Gumble, CEO of CIOB, and attend this presentation delivered by Professor Roger Flanagan, past president of CIOB.

The industry is facing more legislation, regulations, codes and standards, with the need for compliance and conformance.

The new BS 99001:2022 is specific to the built environment with requirements for the industry

to deliver quality projects; it supplements ISO 9001:2015. Ignorance of a standard is not a defence if something goes wrong.

Quality impacts every aspect of an enterprise: safety, profitability, reputation, repeat business, and liability. This talk will look at the issues in quality planning on projects, with some of the requirements in BS 99001:2022.

Contact: ecatalano@ciob.org.uk

CIOB NE Yorkshire and Humber Meet and Greet

► 16 March, 6-8pm, Holme-on-Spalding-Moor, Yorks

This is an informal gathering at Ye Olde Red Lion, aimed at all our members, local construction companies, young professionals and people who would like to join CIOB. It will give you an opportunity to meet your local hub and find out more about what's happening locally and our plans for 2023.

Contact: kbarker@ciob.org.uk

West Midlands Great Debate 2023: Making the Most of What We've Got – How to improve the existing built environment

► 22 March, 6-8.30pm, Birmingham

This cross-institute panel event will see experts from the built

environment, chaired by Professor Carl Chinn, examine key themes including regional and socio-economic inequality, inclusive design and development, building and planning reform and climate resilience and adaptation (see p48).

Experts from the UK's leading professional bodies will share their vision to help communities maximise the long-term benefits of development.

To ensure you are catered for, please book your place through ciob.org/events, selecting your appropriate membership institute.

Britain Has Got Talent... but is wasting it!

► 23 March, 1-2pm, online

Join David Gibson, partner and head of employment and HR at Burnetts Solicitors for this webinar, which will help promote talent in the workplace.

The informative 40-minute session will run through key cases in the field of discrimination that will assist you in promoting talent in the workplace and avoiding legal action.

Gibson will cover areas of gender discrimination, neurodiversity and religious discrimination and provide practical tips and hints.

Contact: dmoore@ciob.org.uk

Maidstone Construction Professionals' Dinner

► 23 March, 7pm-12.30am, Bearsted, Kent

The Maidstone Hub invites guests to join them for this prestigious annual black-tie dinner at the Marriott Tudor Park Hotel and Country Club.

The Maidstone annual dinner is always fully booked, with many companies returning year on year. The event provides guests with the opportunity to network with the leaders of the south-east's building environment sector, providing a unique opportunity for like-minded professionals to meet and entertain guests in a social setting.

Digital by Default

► 28 March, 6-7pm, online

Join James Bishop, BIM manager (Devon & Cornwall) at Kier Construction, as he presents this core CPD on digital construction.

A variety of topics will be covered in the webinar, including:

- collaboration software;
- an insight into COBie; and
- applications of digital construction technologies.

There will also be a Q&A.

Contact: estreames@ciob.org.uk

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



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Futurebuild is taking a stand for a better built environment and is urging companies and professionals throughout the construction supply chain to make a similar commitment by 'taking a stand' on an issue they passionately believe will help propel the industry towards a more sustainable future. Join us in taking a stand.

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