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
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▲ Bridge slide is world first, says Balfour Beatty Vinci JV

Balfour Beatty Vinci JV has claimed the world's longest box 'bridge slide' as part of the HS2 project. It took 450 people, over a 48-hour period during Christmas, to move the 12,600-tonne bridge over the M42 in Warwickshire. Working at speeds of up to 4m per hour, the bridge was moved 165m in total.

◀ New lightweight exoskeleton launched

German Bionic has developed a new lightweight exoskeleton for industries such as construction where heavy lifting is a regular requirement. It says the 'Apogee' is more manoeuvrable, provides up to 30kg of support for the lower back per lifting movement and helps minimise fatigue.

Cutting carbon:
Noushin Khosravi from
the Mineral Products
Association on low
carbon concrete, p24



▲ Groundforce supports Swedish skyscraper

Groundforce has supplied 12 of its heavy-duty MP250 modular hydraulic props to support excavation of the foundations for the Swedish city of Gothenburg's first skyscraper. The 245m-tall tower excavation is 90m in length, and 90m wide, to a depth of 6m on a sloping site.

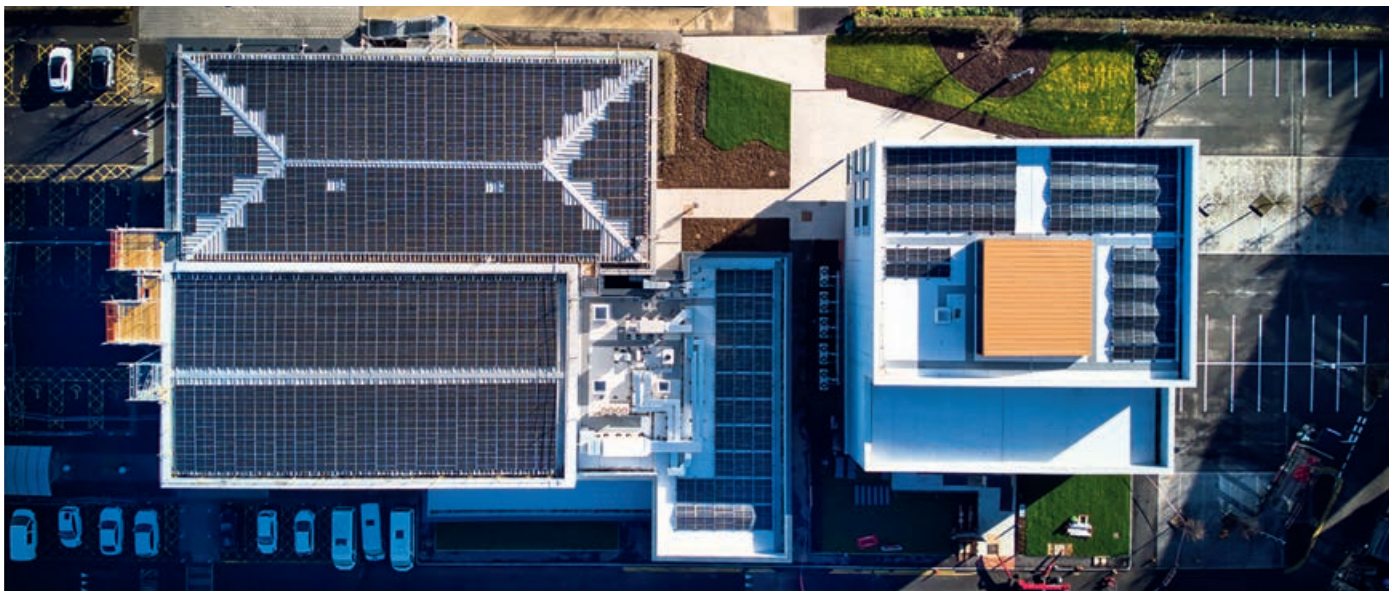


◀ Housebuilding scheme to recruit women site managers

Women can gain experience of what it's like to work as a site manager thanks to an initiative from the Home Builders Federation and not-for-profit Women into Construction. The programme features work placements, online opportunities, contributions towards childcare and training costs.

▼ Solar energy powers education

Burnley College's new £10m sports facility features rooftop solar tech from Shawton Energy. The 750-module system is forecast to reduce the college's carbon emissions by 61 tonnes a year and cut its annual electricity bill by £108,000 on current energy prices.





A route map to modern professionalism

The CIOB Corporate Plan for 2023 to 2028 sets out a new course for members and the wider construction industry. **Will Mann** hears from CEO Caroline Gumble, chair of trustees Steve Nitman and president Michael Yam about the thinking

The moral compass that will guide CIOB and its members over the next five years and beyond is here. The CIOB Corporate Plan for 2023-2028 provides, as CEO Caroline Gumble puts it, “a route map on a long-term journey, and the next five years are the first steps of that journey”.

The plan seeks to “elevate” the construction industry so that it becomes – literally and figuratively – a foundation for society and for communities around the world.

“We are here for public benefit,” Gumble says, “and the three focused themes we’ve selected for the plan – quality and safety, environmental sustainability, the skills gap – are the building blocks of that.”

“Overarching all the themes is what we’re calling ‘modern professionalism in construction management’. That means setting standards, behaving ethically, offering leadership – unlocking the potential of individuals, teams, the wider industry.”

CIOB has purposely given the plan a tight focus.

“We can’t do everything, and we felt it was important to pick issues where we were strong, where we could be relevant and make the greatest impact,” explains Steve Nitman, chair of CIOB’s board of trustees and commercial manager with Willmott Dixon.

“For example, CIOB and its members have already contributed to the work on building safety through our own quality commission, which started from Grenfell. We’re addressing the skills gap through the EDI charter. We were part of the CIC’s Climate Change Panel at COP26.”

Unlike the previous three-year edition, this Corporate Plan runs for five years, which its authors feel is a statement of its ambition.

“We believe the 48,000 CIOB members, operating in more than 100 countries across the globe, have the depth and breadth of experience and expertise to deliver the aspirations in the plan,” says current president Michael Yam.

There is a wealth of enthusiasm, knowledge, commitment and energy from people who have recently joined the sector, which I wanted to tap into

Caroline Gumble, CEO



We know we have a lot of members at small companies across the industry and we recognise that we need to bring them along on this journey too

Steve Nitman,
chair of trustees



The plan provides a blueprint for collaboration, leading, knowledge-sharing and modernising professionalism which hopefully will be adopted by the wider industry

Michael Yam, president



Creating the plan

Work on the plan has involved extensive research and member engagement.

"It was obvious to me that we needed to work with people who are new to the construction community," explains Gumble. "There is a wealth of enthusiasm, knowledge, commitment and energy around our global membership from people who have recently joined the sector, which I wanted to tap into and engage with."

"We set up the '2030 Vision Group' and tasked them with telling us what the construction sector would look like in 2030, or what it needed to look like. This working group of six people reached out to CIOB hubs around the world – so this is truly a global strategy – and came up with the three main themes that have gone into the plan."

The plan has been tested across a wide spectrum of the membership, explains Yam.

"The priority themes identified are not only relevant for the UK but across the global markets CIOB members operate in," he says.

"The regulatory environment varies greatly between one country and another. However, the many countries in which CIOB members are present do encounter the same common struggle of meeting the desired quality and safety, sustainability and skills outcomes."

Member representatives from around the world will now take local



▲ The Corporate Plan sets out CIOB's focus for five years

ownership, says Gumble. "There are some areas where it makes sense for hubs to localise the plan, for example in America, concerning the skills gap. But CIOB will retain the umbrella strategy."

Impact on society

One word that crops up repeatedly in the plan is 'society'. As the plan notes, "the construction industry has made huge contributions to society, [but] it has also created and contributed to serious issues", with "pressing issues around quality, sustainability, trust and responsibility".

"As a society, we love bad news – stories about poor workmanship, mould inside homes, leaking roofs," Gumble says. "There are unscrupulous people who do poor quality work and I hope they are in the minority in our industry."

"But there are good news stories. There are construction companies who are looking after their staff, creating an inclusive environment from an EDI perspective, investing in innovation, taking quality and safety seriously – and these companies are thriving."

They find work, they don't find it difficult to hire and retain people. The successful companies are the ones generally doing the right things."

Gumble wants society to value modern construction professionals more highly. And this means turning the spotlight on CPD. "If you visited your doctor and they told you they had not updated their skills for ►

The 48,000 CIOB members, operating in more than 100 countries, have the experience and expertise to deliver the plan's aspirations, says president Michael Yam

100



the last 20 years, you are going to feel a bit nervous!" she says.

"Among CIOB members, the mandatory CPD has always been there, but we've put it on steroids. We are focusing on key areas where members should have their skills up to date, such as ethics. If you are not taking quality and safety seriously, how can you possibly be doing your job properly?"

"We want to create more expectation among clients and across society that qualified professionals should be working on construction projects."

This is where Gumble believes CIOB's client engagement strategy is crucial. "If we can help

▲ Three focused themes run through the document

clients understand the benefits of engaging with qualified construction professionals, then our members will see the sense in investing in their own development," she says.

"And all the themes of our plan are important to clients. We're encouraging them to look at how they value their projects, not just about quality, but innovation and the whole life cycle, from design through to repurposing or deconstruction of the building. Thinking in the long term, not about the financial short term.

"When I am out meeting clients, the government, policy influencers, I sell the importance of working with professionals who are up to speed with issues like EDI, safety and sustainability, who are looking at new innovations, new practices, new materials, and I give a shout-out to those companies and individuals who already do that."

Implementing the plan

Rolling the plan out and reinforcing its messages is now the focus.

"A silver lining from the pandemic was the rise of online collaboration, which has made it easier for us to share information," says Gumble. "We can now deliver CPDs on a global stage, where we can bring together speakers on any topic, accelerating the speed of collective learning."

Nitman acknowledges that the step-up may be a challenge among members in smaller organisations.

"But we are creating more cost-effective pathways to professionalism for people who work in SMEs," he says. "That includes online training – small companies don't like to lose their staff from site for a full day. We can break the learning down into bite-sized chunks. CIOB offers a mentoring service to connect experienced members with someone just starting out on their journey to professionalism."

"We know we have a lot of members at small companies across the industry and we recognise that we need to bring them along on this journey too. However, SMEs do have a responsibility to deliver high quality work as well."

Nitman expects the next five years "will throw up new challenges that we have not foreseen" but has "every confidence" that the plan can and will adapt. "I look forward to watching our ambitions for this important industry be delivered by modern professionals across the built environment," he says.

Yam adds: "There is a long road ahead, but the plan provides a blueprint for collaboration, leading, knowledge-sharing and modernising professionalism which hopefully will be adopted by the wider industry."

And Gumble concludes: "The Corporate Plan will be central to my tenure as CEO, but the work we are doing will not end after five years: it's not a destination, it's the start of a journey. ●





Coming from CIOB, it means a lot – the institute commands so much industry respect for its work on people issues and it is one of the few professional bodies which employs an EDI lead

Rebecca Lovelace,
Building People



grow this network, amplifying voices and enabling collaboration. The recognition I have gained from winning the award has certainly helped in broadcasting our offer.

A key aim for 2023 is to get more support from the whole value chain – clients, contractors, suppliers. The conversation I have with them is different since winning the award because I have that extra credibility. Even the award logo in the email footer makes a difference. We are looking for leaders to drive EDI across the built environment – at a time when the industry needs to become more representative of the communities it serves – and I'm optimistic the CIOB recognition and validation will be a big help.

What you would say to encourage other people who are thinking of entering?

Do it. By entering, if nothing else, it gives you a reason to highlight and promote all the great work that you are doing and present it to a panel of judges who are themselves highly esteemed, experienced and connected individuals. So, it gets you noticed by people who matter. And then, if you get shortlisted and go to the awards night itself, your exposure increases even further. It's good fun too! ●

'Winning a CIOB award opens doors'

Rebecca Lovelace from Building People – an online hub that connects people from under-represented groups to career opportunities in construction – won the EDI category at last year's CIOB Awards. She tells **CM** how winning the award has made a difference to her career

What was your reaction on winning the award?

I was thrilled to bits. It was a huge shot of energy and confidence for me. I have been in the sector for over 20 years, seeking to help people from diverse and under-represented backgrounds get into this industry and then support them in their career – but this is the first time I have had any serious recognition.

And, coming from CIOB, it means a lot – the institute commands so much respect around the industry for its work on people issues and it is one of the few professional bodies which employs an EDI lead. So now I feel I have a genuine stamp of approval.

How has winning the award helped your business?

It has opened doors, undoubtedly, and given more credibility to Building People and all that we are seeking to achieve in delivering a hub for equity, diversity and inclusion in the built environment. I have had so many people congratulate me on winning – it really is a highly recognised and valued award. And such an honour to be the inaugural winner!

Building People has a network of 60 organisations that provide careers support to diverse and under-represented audiences. One of our goals is to significantly

▲ Rebecca Lovelace receives her award from Murray Scott of S&P Global Engineering Solutions and host Anita Rani



Consultation on care home sprinklers opens, after CIOB member campaign

Government also proposes second staircase for 30m-high residential buildings and changes to product testing. By **Will Mann**

The government has opened a consultation on whether the regulations concerning sprinklers in care homes should be changed.

The news follows a campaign by CIOB fellow Steven Miles and his wife Claire, whose mother died in a care home fire in 2017, to make sprinklers mandatory in all care homes (*CM*, January 2023).

There is currently no blanket recommendation for sprinklers in care homes within *Building Regulations Approved Document B* (ADB), which governs fire safety.

However, the Department for Levelling Up, Housing and Communities (DLUHC) has been undertaking a technical review of the document and says it is now “minded... to recommend sprinklers in all care homes, irrespective of

height”. DLUHC estimates the total cost of installing sprinklers into all new care homes at £161.5m.

The consultation, announced by Lee Rowley, minister for local government and building safety, also proposes mandating second staircases for new residential towers over 30m in height. The National Fire Chiefs Council (NFCC) has called for second staircases on all new housing blocks that are classified as ‘higher-risk buildings’ under the Building Safety Act – those more than 18m or seven storeys high.

Other measures being considered in the consultation include removing references to the national classifications (BS 476 series) from ADB. This means the dual system currently in place will end and construction product manufacturers



This consultation is the next step in the department’s work to

improve building regulations

Lee Rowley, minister for local government and building safety



will be required to test their products to the British Standard version of the European Standards. The consultation closes on 17 March 2023.

DLUHC will also be undertaking a call for evidence on revisions to ADB covering materials and products used in external walls. In practice, this will seek views on what materials should be covered and how best to improve the clarity of the guidance provided.

Rowley said: “There are undoubtedly lessons still to be learnt from the Grenfell Tower tragedy and the Department for Housing is committed to working with the sector and residents to explore what more needs to be done to make new homes across the country safe. This consultation is the next step in the department’s work to improve building regulations and make sure they are as clear and effective as possible.”

Claire Miles lost her mother in the Newgrange Care Home fire in Hertfordshire, in April 2017. One other resident died in the blaze. The operator pleaded guilty to five fire safety offences, and was fined £175,000, but did not fit sprinklers in the rebuild of the care home.

The Miles family argue that all care homes should be classified as ‘higher-risk buildings’ under the Building Safety Act and that sprinklers should be mandatory. CIOB is backing the campaign. ●



▲ The Miles family’s campaign was featured in last month’s *CM*



architectural acoustic finishes

SonaSpray in 20 Water Street, London.

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



OSCAR
acoustics

Number of construction projects valued over £10m starting in 2023, the lowest since 2020

1,954

How past recessions affected construction

What lessons can we learn about previous economic downturns? **Kris Hudson** examines how the construction industry may be affected



There is no crystal ball to tell how deep or long the current recession will be. However, as the UK enters a new downturn, there are lessons to learn for construction from how the sector has fared in previous recessions.

In terms of what the 'typical' recession might look like, data can be analysed from the Office for National Statistics for every UK downturn from the 1950s to the Global Financial Crisis. Based on this, an average recession contraction lasts for approximately five economic quarters, with a GDP fall of 3.4% from peak to trough, followed by a recovery taking close to 11 quarters.

In all previous downturns where data is available, construction output growth has reduced ahead of recessions. It usually falls more than GDP but grows faster and further afterwards – often providing a key driving force to help sustain economic recovery. For example, in the 2000s recession, quarter on year growth of construction output fell to -19.0% while GDP dropped to only -5.9%. But in the recovery, fortunes reversed,

and construction grew to 15.6% against GDP's 3.1%.

The circumstances of the current recession are different. Pent-up demand – released post-pandemic – has delayed the slowing of construction output growth, which is now falling simultaneously with GDP.

This should not distract the industry from the evidence of previous recessions, as construction output growth is still likely to fall further than GDP. The Office for Budget Responsibility forecasts are that this recession could last just over a year, seeing GDP fall by 2.1% from peak to trough, and potentially recover to its pre-recession level in 2024.

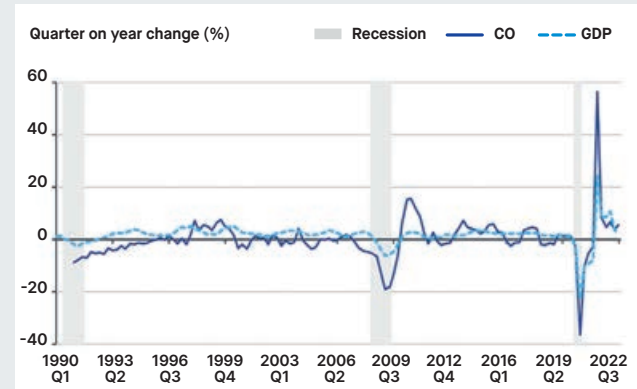
A further challenge is that the current structural problems around low productivity, supply chain disruption, high energy prices and rising interest rates may compromise the industry's ability to recover. However, firms that have focused on productivity gains in recent years will be well placed to weather the storm.

For those looking to manage the complexities of recession and build project resilience, there are three key areas to focus on. Firstly, take time to tender properly and secure reliable partners. Secondly, pragmatically apportion risk so it is balanced across the client and supply chain. Lastly, keep your supply chain updated with regular, open conversations to identify and mitigate risks.

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

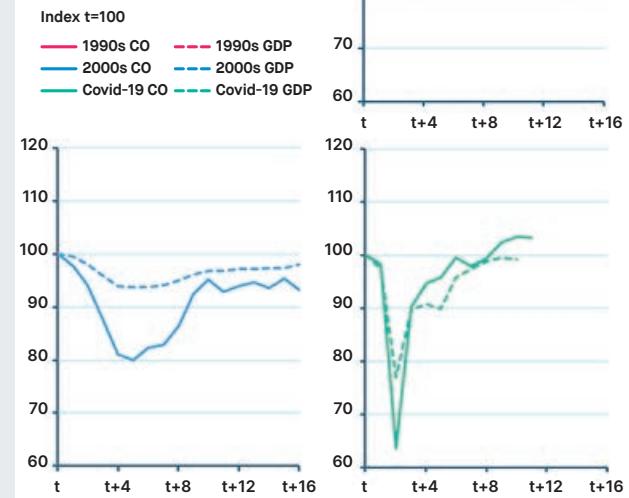
Construction output growth usually falls more than GDP but grows faster and further afterwards – often providing a key driving force to help sustain economic recovery

Construction Output (CO) and Gross Domestic Product (GDP) performance during recession, quarter on year change



SOURCE: OFFICE FOR NATIONAL STATISTICS

Construction Output (CO) and Gross Domestic Product (GDP) performance during recession, quarter on year change



Time period: t = quarter prior to first quarter of GDP contraction

SOURCE: OFFICE FOR NATIONAL STATISTICS



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

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Caroline Gumble
CIOB

Let's make construction the foundation for society

The new CIOB Corporate Plan seeks to elevate the construction industry and help members make positive change across the built environment, writes **Caroline Gumble**

As I write, we are planning the launch of CIOB's new corporate plan. This feels particularly significant to me, not just as it's the first CIOB corporate plan for which I was in post to help develop, but because this is much more than a simple document – it is the roadmap for the journey CIOB will take over the next five years.

We have real ambition – we want to lead the way in making lasting and positive change for our members and for all creators of our built environment.

Many CIOB members will be aware of how much work went into the process of consulting on and developing the new plan. It was important to me that members had

input as, in many ways, they will bring this document to life. It was also important to take the opportunity to see through the lens of our global membership on where the industry could be five years from now.

It is clear there is an appetite to help elevate the construction industry and find ways to support it in being the foundation – sometimes literally, also figuratively – for society and for communities around the world.

This is entirely in keeping with who we are as an organisation and our public interest remit. In committing us to those public interest ideals, while at the same time bringing focus to our ambitions, our new

▼ CIOB members had input to help bring the corporate plan to life

We have real ambition – we want to lead the way in making lasting and positive change for our members and for all creators of our built environment



plan is an evolution of the principles outlined in the previous plan.

The new plan, covering the period from 2023-28, has at its heart an examination of what modern professionalism means. I believe the professional approach of setting standards, understanding ethics and offering leadership unlocks the potential of individuals, teams – and maybe even the whole industry.

I would like to thank all the members who had input into the process, offering thoughtful and comprehensive feedback, helping us shape this important document.

I must also thank our Members' Forum delegates who attended a session in November to examine the plan and discuss how we can best put it into action. I was delighted at the level of support we had and humbled by all the enthusiasm and ideas among our delegates and their willingness to lead by example.

For those who may not have seen the new plan yet, I invite you to visit the CIOB website or look on our social media for links. ●

Caroline Gumble is CEO of CIOB.





Kingsley Clarke
Southern Construction
Framework



This technology can provide us with real-time, personalised reports of noise exposure accessed via an app ”

of their current levels and they are able to see at a glance if they need to put their hearing protection on.”

Michelle Gonnella, senior health, safety and environmental manager (south), explained how Willmott Dixon is consistently looking at new products on the market to help support the operatives carrying out noisy works.

“Where possible we look to eliminate the tasks that cause noisy works, but at times this is not always a practicable control measure,” she said. “Despite thorough training, we also see hearing protection and PPE often not being worn correctly or at all. This could be because it’s not suitable for the task, can be uncomfortable or incorrectly maintained.

“One solution that we’re currently trialling at one of our recladding projects is the Minuendo Smart Alert, which has continuous real-time monitoring of noise levels. When over-exposed, the alarm will sound and flash green, alerting the operative to insert their earpieces. Operatives can slip it around the neck when not being used, preventing them being dropped or misplaced.

“This clever technology can provide us with real-time, personalised reports of noise exposure accessed via an app. It can send out alerts to safety or building managers when certain operatives are being continuously exposed to noisy environments.” ●

Kingsley Clarke is operations lead at Southern Construction Framework.

How to tackle tinnitus on construction sites

Tinnitus is a serious condition affecting many in the construction industry, including **Kingsley Clarke**. Ahead of Tinnitus Awareness Week on 6 February, he explains how to take preventive measures

Tinnitus affects around seven million people in the UK, with exposure to excessive or long-term noise both identified as major causes. It is an issue that contractors take very seriously, ensuring safe practices and providing appropriate safety equipment as part of looking after their workforce.

It is also a personal issue for me as a tinnitus sufferer. A previous career as a commercial pilot was halted for not passing a medical largely due to my tinnitus, so I know first-hand how it can affect you in your everyday life.

With Tinnitus Awareness Week looming, contractors on our Southern Construction Framework have been sharing ideas at a health and safety forum on how they are keeping

operatives safe from damage to hearing. Here are two initiatives from one of our contractor partners, Willmott Dixon.

Steve George, regional head of safety, health and environment (north), told us: “A partner of ours started to employ equipment that warns people in the vicinity of excessive noise levels, and, as these can be intermittent, they employed the use of an automatic traffic light system, which is starting to be used more widely in the industry.

“This runs between green (below 80 decibels) to amber (between 80 and 85dB, where hearing protection is recommended) to red (above 85dB, where hearing protection is needed). The system informs people

▲ Tinnitus can be caused by exposure to excessive or long-term noise



David Partridge
Net Zero Carbon
Buildings Standard

Setting the standard for net zero

The Net Zero Carbon Buildings Standard aims to provide a single benchmark for addressing carbon reduction across the built environment. Its new chair, **David Partridge**, explains

Can all the built environment's industry bodies and stakeholders agree and adopt a common standard of measurement for net zero carbon buildings in the UK?

The UK Net Zero Carbon Buildings Standard (NZCBS) has been created to address both the operation of our built stock and the carbon embodied through our activities in building and refurbishing it. It has been put together by a task group of industry bodies including the Better Building Partnership, BRE, Carbon Trust and the UK Green Building Council.

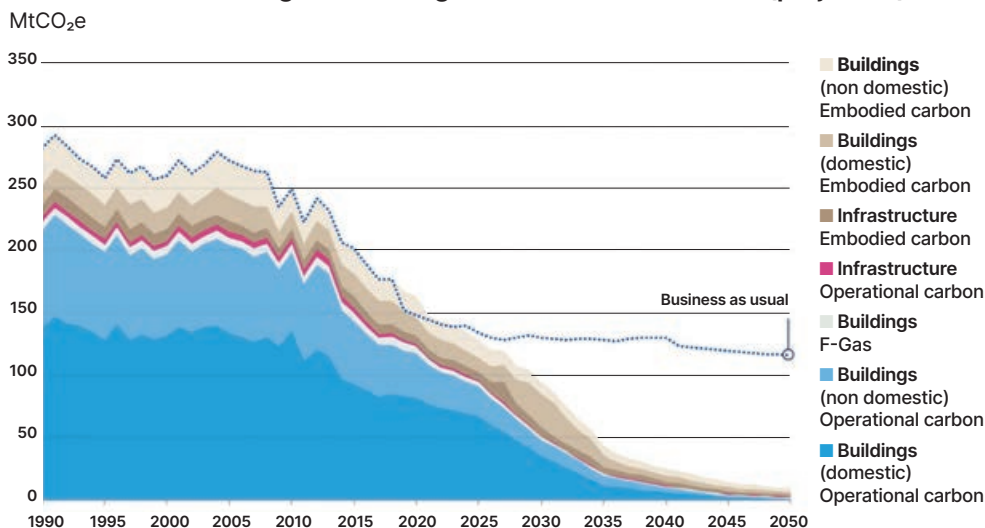
Without such a standard, the currently uncoordinated and myriad

definitions of net zero carbon risks creating confusion among all stakeholders in the built environment industry. If this sector of the economy, which is responsible for around 40% of all carbon emissions, continues to emit carbon through its activities at the same rate as it has historically, it would single-handedly raise temperatures by +3%, double the Paris Accord targets.

This is where the Construction Leadership Council's Construct Zero programme has a crucial role to play. Construct Zero is the sector's zero carbon change programme, supported by over 200 companies.

▼ Historic (1990-2018) built environment emissions (excluding transport), with business-as-usual projections to 2050

UK built environment greenhouse gas emissions 1990-2050 (projected)



SOURCE: NET ZERO WHOLE LIFE CARBON ROADMAP, UK GREEN BUILDING COUNCIL, 2021

My role as chair will be to ensure the NZCBS is robust and appropriate, and adopted by key stakeholders in the built environment, as well as aligned to the Construct Zero programme.

The buy-in of the following stakeholders is critical to its adoption:

- the owners of, investors in and funders of real estate and the valuers and accountants who will advise them;
- the contractors and their supply chain who will be responsible for both building and retrofitting our built estate; and
- the housebuilders who serve the non-institutional market, together with the banks who will provide mortgages to that market.

The NZCBS is not looking to reinvent the wheel on carbon measurement, but rather it will work closely with internationally accepted benchmarks such as CRREM (the Carbon Risk Real Estate Monitor) and the Science Based Targets Initiative. We will be working very closely with Construct Zero in the delivery and implementation of this work.

It is imperative that society – and business – agrees on clear, consistent, transparent and universally accepted metrics that measure the impact of all of our activities on the climate and mitigate the risks associated with those activities.

From this level playing field, the market and government will be able to design the carrots and sticks which will be necessary to achieve true net zero carbon. It will also demonstrate how well this industry can work closely and collaboratively together, in the interest of society and the world. ●

David Partridge is chair of Related Argent and the Net Zero Carbon Buildings Standard.

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So chatbot, talk to me about construction...

Conversational chatbot ChatGPT has been used for everything from composing music to writing student essays. Could it have a role in construction? **CM** asked a panel of experts to pose questions to ChatGPT and test out its capabilities. Read on to find out how the chatbot responded, and what our panel thought of its answers





Charles Tincknell, efficiencies and systems lead, Willmott Dixon Interiors



Sam Stacey, CEO, Stacx International, and senior advisor, Construction Leadership Council

CT

Tell me how the construction industry could benefit from ChatGPT in 100 words



ChatGPT is a variant of the popular language model GPT, designed to be able to perform tasks through natural language conversations. In the construction industry, ChatGPT could be used to help automate various processes, such as answering frequently asked questions, scheduling appointments or tasks, and providing real-time updates on project progress. Additionally, ChatGPT could be used to assist in the design process by generating detailed specifications and plans based on high-level input from architects and engineers. Overall, ChatGPT has the potential to greatly improve efficiency and accuracy in the construction industry by enabling the automation of tasks and providing accurate and detailed information.

CT

I think the real advance that ChatGPT offers is as a first draft generator for virtually any output that requires a written response. The answers are OK to good, to make them great will be down to the user and the quality of the follow-up interactions with the tool.

ChatGPT is also learning so the answers and outputs will also improve. However, the huge leap ChatGPT brings is that it is incredibly easy to use and this means the power of AI is now really available to all. Best of all, it's currently free to use, so the only barrier to entry is your own time and inclination.

SS

What is pre-manufactured value in construction?



Pre-manufactured value in construction refers to the value that is added to a product before it is shipped to a job site for final construction or installation. This value includes the cost of materials, labour, and overhead associated with manufacturing or fabricating the product in a factory or other controlled environment. Pre-manufactured value can be a significant component of the overall cost of a construction project, especially when using prefabricated or modular components. By manufacturing these components off-site, it is often possible to reduce labour costs, improve quality control, and reduce the overall construction schedule.

SS

The purpose of building information modelling (BIM) is to provide the right information to the right people at the right time. A useful tool would be a digital assistant that could provide instant answers to questions as they arise – in other words, a chatbot.

Recent work by ChatGPT has made some progress, providing sensible responses to generic queries. Where the real value will come in is complex project-specific queries. These might need real-time answers such as to 'When will panels XYZ arrive on site?' Or geometry-related queries such as 'Show me the setting-out for the light switches in room ABC.' Use of this sort of AI will require processing of information from common data environments and from dynamic sources such as sensors.

The user interfaces would ideally be more than just text – for example, augmented reality. Through the Transforming Construction Challenge, we sponsored some impressive work led by University of West of England, Conversational-BIM, which addressed some of these demands.



Emma Hooper, head of R&D at Bond Bryan Digital, and Government and Industry Interoperability Group (GIIG) workstream member



Neil Thompson, director, digital integration & delivery, Atkins

EH What is IFC in construction?


 In construction, IFC (International Finance Corporation) is a set of standards and guidelines for the design, construction, and operation of buildings and infrastructure projects. The IFC standards are used to ensure that projects are designed, built, and operated in a way that is sustainable, environmentally responsible, and economically feasible. The IFC standards cover a wide range of topics, including site planning and design, materials and resources, indoor environmental quality, and energy and water efficiency. These standards are often used in conjunction with other industry standards and guidelines, such as LEED (Leadership in Energy and Environmental Design) and BREEAM (Building Research Establishment Environmental Assessment Method).

EH The definition provided by ChatGPT is not accurate. IFC stands for Industry Foundation Classes and is governed by the single standard, ISO 16739. It is an off-the-shelf standardised data model and schema specification providing a digital representation of a building or infrastructure facility.

Chatbots work from spotting patterns in information and piecing it together, a bit like how the human brain does. Unlike humans they cannot think laterally, and it can only be as good as the information it has access to.

Like everything in digital construction, we must get the underlying information organised, which will help accelerate accuracy. Data standards, including IFC, are imperative to provide a starting point for a machine to make sense of what it is being asked. AI is not magic; it is all based on logic. If we skip the information part and move on to the next buzz technology – as we often do – and start believing what we read from chatbots without questioning it then we're going to find ourselves in a dark place.

NT What is the relationship between data and information in the context of digital twins?

 In the context of digital twins, data is the raw material that is used to create the digital twin, while information is the processed and organized form of that data. A digital twin is a virtual representation of a physical object or system, and it is created by collecting and analyzing data about the object or system. This data can come from a variety of sources, such as sensors, monitoring systems, and other data-gathering devices. The data is then processed and organized to create the digital twin, which provides information about the object or system that it represents. The information contained in the digital twin can be used to understand the object or system in greater detail, predict its behaviour, and optimize its performance.

NT I wanted to see if we can get a meaningful answer that captures the essence of data and its difference to information. It's given a soundbite, but not something I think will hold water in technical communities. Although, if this bot can reference its sources, I would be happier.

I feel a sense of irony, asking a machine learning system to provide a commentary on the difference between data and information, as it processed data to give me information on my questions.

In summary, I think this helps the layperson and can aid in marketing. Interestingly I can see a path to how one could manipulate the system to provide answers to specific questions! Which is a worry if it is not going to tell you its data sources.



Professor Jacqui Glass, vice dean research for The Bartlett Faculty of the Built Environment, University College London

JG

What are the benefits of self-compacting concrete?



Self-compacting concrete (SCC) is a type of concrete that has a high level of workability and is able to flow and compact under its own weight. It does not require mechanical vibration to achieve full consolidation. There are several benefits to using self-compacting concrete:

1. **Improved productivity:** Because SCC does not require vibration to consolidate, it can be placed and finished more quickly than conventional concrete, leading to increased productivity on the construction site.
2. **Enhanced durability:** SCC has a denser structure than conventional concrete, which can improve its durability and resistance to chemical attacks and freeze-thaw cycling.

3. **Better surface finish:** SCC can produce a smoother and more uniform surface finish than conventional concrete, as it is able to fill and consolidate around complex reinforcement and formwork without leaving voids or honeycombing.

4. **Increased design flexibility:** SCC can be used in a variety of applications and has the ability to flow into and around complex and irregularly shaped formwork, allowing for increased design flexibility.

5. **Improved energy efficiency:** The production of SCC requires less energy than the production of conventional concrete, as it does not require vibration for consolidation. This can lead to reduced greenhouse gas emissions and improved energy efficiency.

JG

It was my first time using ChatGPT and I was impressed. Its answers were not 100% perfect, but the speed, succinctness, broad-brush coherence, and match to what I was expecting were genuinely remarkable.

My first queries featured straightforward terms like project management which elicited some reasonable, although rather unsophisticated, responses.

My final choice was a well-established technical term (self-compacting concrete), and I think this demonstrates well the kind of answer it will provide to a basic question. Here's the 'pinch of salt' moment though: ChatGPT answers the question, but it won't 'school' you. If you look at point five, you'll see that it only notes energy savings through less vibration and does not suggest that you might like to think about the carbon consequences of SCC's higher cementitious content.

The next time I need a speedy take on a subject, I'll be happy to use AI to supplement my usual go-to wikis. ChatGPT is not quite capable of taking my job, yet AI tech like this is causing huge ripples in education right now, as we try to come to terms with both its potential to support learning and its unfortunate deployment as a weapon of mass plagiarism.



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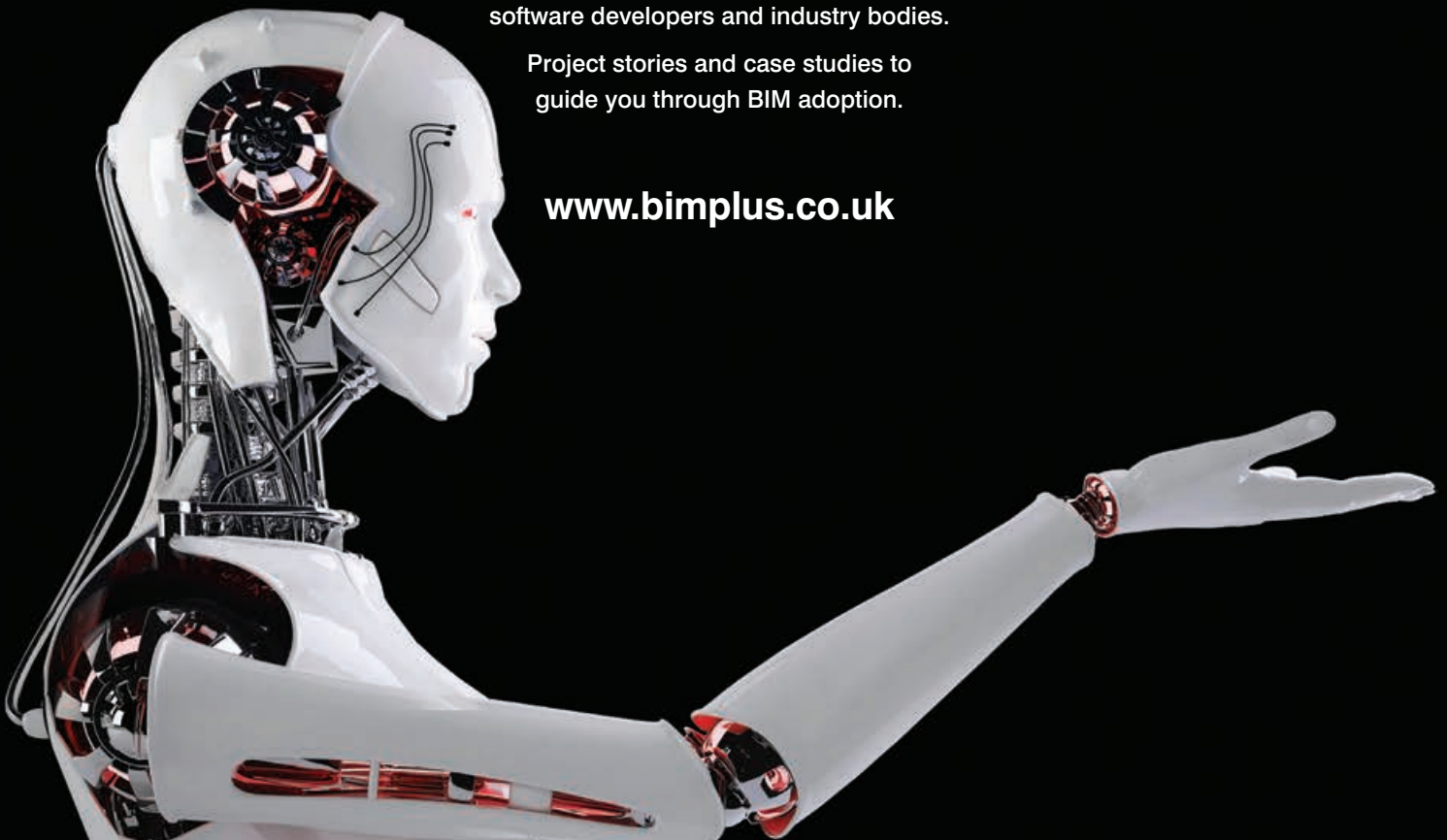
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► Investment in lowering concrete's carbon emissions is underway

Low-carbon concrete: separating greenwash from reality

Tales of low-carbon concrete abound, but what exactly does that mean? **Kristina Smith** looks at what's in the mix

In September 2022, HS2's Euston station site saw the UK's largest ever low-carbon concrete pour: a 232 cu m temporary slab that will support polymer silos for piling works.

Depending on how you look at it, the mix used – Earth Friendly Concrete (EFC) from Capital Concrete – has saved either 75% or 50% of embodied carbon, compared to a 'standard' mix. The press releases have, of course, gone for the former, but the question is whether a standard mix is one that contains 100% Ordinary Portland Cement (OPC) or one that contains a mix of half OPC and half ground granulated blast furnace slag (GGBS).

"Some of the big concrete suppliers are referring to concrete with 50% slag as 'lower-carbon concrete', but that's an everyday concrete in London," says specialist concrete consultant Charles Allen, director of OTB Concrete, who is an advisor to Capital Concrete. "I have been using 70% slag in foundations for 30 years."

Materials such as GGBS and pulverised fuel ash (PFA) are often used to replace some of the OPC in large-volume concrete pours to reduce the heat of hydration. This in turn reduces the chance of cracking and can allow the amount of reinforcement to be reduced.

We need to get far more specific in our definition of low-carbon concrete, says the Low Carbon Concrete Group. In its *Low Carbon Concrete Routemap*, the group says that different strengths of concrete should be given an embodied carbon rating graded from A++ to G, similar to energy efficiency ratings for appliances. And the baseline should be calculated from contemporary industry values.

The other challenge is that concretes that use GGBS and PFA are not a long-term fix. There are already limited supplies – which will diminish as steel-making processes change and coal-fired power stations become fewer.

"Slag and GGBS are transition technologies," says Noushin



Some suppliers refer to concrete with 50% slag as 'lower carbon', but that's an everyday concrete in London
Charles Allen,
OTB Concrete

Khosravi, sustainable construction manager at the Concrete Centre, which is part of Mineral Products Association (MPA). "We need to invest in longer-term solutions at the same time."

One of MPA's current projects is to look at what type of UK clay would produce the best calcined clay – another alternative cementitious material which could be in greater supply than PFA and slag.

How low can we go?

Producing cement, or rather clinker which is the main constituent of cement, delivers a double whammy of carbon emissions. First burning fuel to heat up the limestone releases carbon dioxide, and then the chemical reaction itself releases it too.

The oft-quoted statistic is that cement contributes to 7% of the world's carbon emissions. However, MPA says that in the UK concrete and cement account for just 1.5% of emissions. "From 1990 we have reduced our absolute emissions by 53%, which is faster than the ►



12

Using low-carbon cements and concretes can only drive down emissions by 12%, says MPA



overall economy, mainly by improving energy efficiency at the plants,” says Khosravi.

Using low-carbon cements and concretes can only drive down emissions by 12%, says MPA, due to its limited and reducing supply. Other factors that will reduce emissions are decarbonising electricity, transport, fuel switching and carbon capture, usage and storage (CCUS) which MPA says will have to contribute over 60% of the reduction needed to reach net zero.

There are some clever ideas out there for using concrete itself to capture and store carbon. Companies such as US-based CarbonCure are injecting carbon dioxide into concrete where it undergoes a mineralisation process to become embedded in the concrete. Closer to home, startup company Seratech is developing a technology to sequester carbon which – in the lab at least – can already produce zero carbon concrete (see box).

One difficult issue for the UK cement and concrete industry is



“Slag and GGBS are transition technologies – we need longer-term solutions

Noushin Khosravi,
The Concrete Centre

that, if other countries are less stringent with their carbon-reducing regulations, we may end up increasing our imports of cement from overseas because it is less expensive to produce. Currently imports account for around 20%.

Alkali-activated concretes

While we wait for the grid to decarbonise and CCUS technologies to develop, concretes such as EFC are at least available today. Other similar concretes currently on trial in the UK include Cemfree from the DB Group and Exegy from Vinci. All contain some combination of slag, possibly PFA and an alkali activator.

Collectively, concretes which use slag, PFA, calcined clay or other waste materials which are high in aluminosilicates are called alkali activated cementitious material (AACM) concretes. Geopolymer concretes are a sub-group of AACMs, containing PFA and slag.

The secret to the performance of such concretes is the alkali ►

◀ HS2's Euston station site saw the UK's largest ever low-carbon concrete pour

▼ The HS2 pour used the Earth Friendly Concrete mix from Capital Concrete



Seratech – a new concrete frontier?

Two researchers at Imperial College London have joined forces to produce zero-carbon concrete



HELENE SANDBERG

▲ Sam Draper (left) and Barney Shanks founded Seratech in 2021

It's stronger than the fly ash mix and getting close to CEM I in strength

Sam Draper, Imperial College London

It took the Covid lockdown for Imperial College London researchers Sam Draper and Barney Shanks to find time to talk to each other about their research projects. When they did, an amazing opportunity emerged.

"Sam spotted this silica material I am working on and asked whether it worked in normal cement," recalls Shanks. That was back in November 2020. Today the pair, working in their company Seratech, which they founded in 2021, have found a way to produce zero-carbon concrete.

At the time of the initial conversation, Shanks was working on a magnesium-based cement derived from olivine, a magnesium silicate mineral. His PhD was investigating how the commonly occurring material could be used for

concrete, splitting it into magnesium and silica and then recombining them with water to form a new bonding phase similar to cement, but without carbon dioxide being created.

Magnesium-based cements are in their infancy and don't work well enough yet to be interesting to industry, says Shanks. However, they found a way of combining the two separated elements Shanks was producing with carbon dioxide to create a cement replacement material similar to fly ash.

"Because the magnesium component is very reactive, we don't have to purify or liquify the carbon dioxide, we just take it directly from flues and pass it over the magnesium to form magnesium carbonate."

Shanks and Draper then experimented with a couple of mixes, replacing 20% and 35% of the cement with the new material, to correspond to CEM IIA and CEM IIB cements. Due to the carbon sequestered, the 35% replacement mix leads to zero-carbon concrete.

And it performs well too, says Draper: "It has good compressive strength performance, 40MPa-plus," he says. "It's stronger than the fly ash mix and getting close to CEM I in strength. Its early-age strength is good too because the silica is very reactive."

The potential of the Seratech process, which is currently progressing through the patenting process, has already been recognised. It has won awards and attracted grant funding.

The next step is to transform the laboratory process into something that can be applied to cement plants. The goal is to create a system that can be easily retrofitted to any cement plant, or to another process that produced carbon dioxide, such as steel manufacture or energy production. If all goes to plan, they could have a pilot facility in operation in late 2023 or early 2024.

Early this year, the company plans to scale up production to allow more comprehensive testing. "After that we would look to do a couple of carefully selected pilot projects," says Draper.



◀ Alkali-activated Cemfree was used in a concrete pour at the M25 Woodford West Viaduct by Jackson Civil Engineering

The issue of standards is already in hand, says Khosravi. MPA, with the government, has invested in research on multi-component cements so that they can be incorporated into a new version of BS 8500 Concrete which will be out this year, according to Khosravi.



AACM concretes can be difficult in cold weather. You might have to use hot water to help it react because it does not generate much heat at all

Charles Allen,
OTB Concrete

Definitions of low carbon concrete

There is a long way to go in terms of defining what low-carbon concrete is, and in carbon accounting and reporting generally. However, the drive to reduce carbon is shining a light on construction materials and their complexity. Construction professionals will need to engage with materials technology on a deeper level.

“With more different types of mixes coming through, and modern technologies we need to be careful that we are using the right technology,” cautions Khosravi. “The key is early engagement and collaborating to find out what the best approach is.” ●

activator used. This important ingredient impacts on early-age and long-term strengths and the rate of strength gain; these differ considerably between brands.

AACM concretes perform differently to OPC ones, which should be considered in both the design and installation phases. For instance, Allen says that EFC has a higher flexural strength, which means that it may be possible to reduce both the depth of a slab and the amount of reinforcement.

From a workability perspective, there should not be an issue. “It is thixotropic, so it looks

different, but it flows. It is not difficult to work with,” says Allen of EFC.

However, temperature at the time of the pour can be a consideration. “AACM concretes can be difficult in cold weather,” says Allen. “You might have to use hot water to help it react because it does not generate much heat at all.”

There are barriers to the wider use of AACMs: the limited supply of materials, as already explained, a lack of standards and the cost of the alkali activator which could make the price of an AACM concrete between 30% and 40% higher.

Further reading

UK Concrete and Cement Industry Roadmap to Beyond Net Zero
https://thisisukconcrete.co.uk/TIC/media/root/Perspectives/MPA-UKC-Roadmap-to-Beyond-Net-Zero_October-2020.pdf

Low Carbon Concrete Routemap
www.ice.org.uk/engineering-resources/briefing-sheets/low-carbon-concrete-routemap

Low carbon multi-component cements for UK concrete applications (for revision of BS 8500)
<https://assets.foleon.com/eu-west-2/uploads-7e3kk3/48218/mpa-ieea-case-study.ec647164973e.pdf>

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Academy award

Palmina Whelan MCIOB has just been elected to US built environment 'hall of fame' the National Academy of Construction. **Rod Sweet** caught up with her



In October 2022, veteran aviation construction manager Palmina Whelan MCIOB was inducted to the National Academy of Construction (NAC) in the US. A 'hall of fame' for the US industry, the NAC recognises people for their achievements and makes its reservoir of expertise available for public benefit. She joined an exclusive group of some 400 industry leaders elected to the academy since its inception 24 years ago.

Whelan couldn't have predicted the honour when she left high school in her native New York City because, at the time, she was determined to get away from

construction, having grown up in a contracting family.

Before setting up her own advisory practice during the pandemic, Whelan spent over 15 years in a senior leadership position with American Airlines (AA), as its managing director of real estate. During her tenure, she managed airport expansions, redevelopments, new construction, and renovation work for AA's portfolio throughout most of the US – including Dallas-Fort Worth (DFW), New York City and Boston – and Canada.

Rod Sweet: You tried to escape construction. What happened?

Palmina Whelan: It's funny. My father's a contractor so I grew up

▲ Whelan's consultancy is working on the JFK Airport Terminal 1 project in New York

in construction, though at the time I was not exposed to any females in the construction environment. Growing up, I had no interest in design and construction, so I pursued a degree in communication arts to get away from it.

Then, a friend of mine at the retail group J Crew mentioned that the vice president of real estate was looking for someone to help assist her; the task turned out to be reviewing leases for new potential retail locations. Although this position wasn't focused on design and construction, it did help that I had a foundational comprehension in reading blueprints and a rudimentary idea of how buildings were built.

It was a huge help having the CIOB designation because it quantifies one's global thinking, because the CMAA is US-based, while CIOB is international
 Palmina Whelan, Palmina Whelan Strategic Solutions



▲ Palmina Whelan: "It has been an incredible journey to work on some of the most dynamic projects in the world"
 ▼ Whelan was previously American Airlines managing director of real estate

When I got the job, I ended up working with her side-by-side, negotiating the leases and planning development locations. Then the market shifted, and J Crew began downsizing its flagship stores. At that point a contractor we knew asked me to help him set up his first office in New York and I thought it would be exciting to help launch an organisation in a sector I was developing more touchpoints in.

RS: And from there to AA?

PW: No. After departing from J Crew, I moved into general contracting and, from there, construction management, first with the firm O'Brien-Kreitzberg & Associates, frequently referred to as the founding fathers of construction management. Years later, I joined STV and Carter Burges. While at STV, and with its support, I joined the Construction Management Association of America (CMAA) Metro NY/NJ Chapter, as board member. It was the first organisation I had ever joined, and now I'm a fellow.

I joined American Airlines in 2004. An important part of my job was to interpret what the airline needed and to lead the planning, design, construction, logistics and operation of facilities. In the six years before Covid, the airline was very active, and I managed

five terminal rebuild programmes. When the pandemic hit, ridership crashed almost and capital programmes were cancelled.

I took a pause and evaluated my career. I decided it was time to try something different, so I took the leap to start my own consultancy practice, Palmina Whelan Strategic Solutions (PWSS). It has been an incredible journey to be my own boss and continue to work on some of the most dynamic projects in the world. For instance, PWSS is working on the \$9bn JFK Terminal 1 project and the DFW Terminal C project.

RS: How did you come to the CIOB?

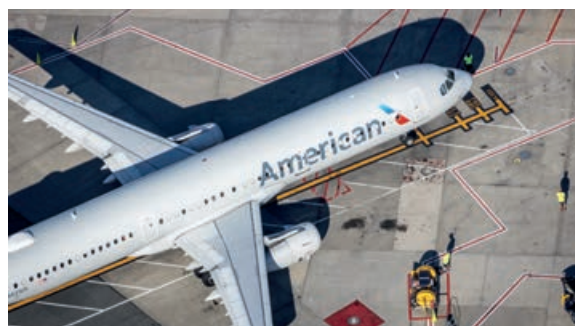
PW: At the CMAA I got to know CIOB fellow Porie Saikia, who is now head of environment, energy and sustainability at the Metropolitan Transportation Authority of New York. She was interested in the idea of an international division of the CMAA to

raise awareness of the construction management sector internationally, so she and I, as well as a few others, formed a CMAA committee to do that, and to see how the CMAA and CIOB might support each other.

At the time, with AA, I was involved in trying to integrate British Airways into JFK Terminal 8. It was a huge help having the CIOB designation because it quantifies one's global thinking, because the CMAA is US-based, while CIOB is international.

RS: Finally, what do you think about being elected to the NAC?

PW: I was absolutely stunned. I'm a humble person. Membership is by invite only. You have to be nominated by a member, then you go through a rigorous interview process and the nominating committee must vote unanimously for you to be elected. I felt blessed just to be nominated and am extremely excited to help carry the torch for so many accomplished leaders in the built environment. ●





www.globalconstructionreview.com/global-construction-summit

In association with **CIOB** **PlanRadar** **GCR** GLOBAL CONSTRUCTION REVIEW

A global plan for net zero

This year's Global Construction Summit focuses on the environment, with the headline session bringing together sustainability experts from around the world to discuss construction's net zero challenges



Sustainability and the road to net zero top the agenda at this year's Global Construction Summit on 21-23 February.

The summit is the key annual event for built environment professionals seeking to understand the latest trends, learn best practice and uncover innovations from across the world.

Produced by the Chartered Institute of Building and *Construction Management's* sister website *Global Construction Review*, the summit comprises webinars, all of which feature high-quality speakers drawn from across the global built environment sector. Partners are PlanRadar, CIOB and *Global Construction Review*.

Confirmed speakers so far include the likes of architecture firm Hickok Cole, the Metropolitan Transportation Authority of New York and Vinci Construction.

The headline session will cover 'Navigating the journey to net

The Global Construction Summit comprises webinars, all of which feature high-quality speakers drawn from across the global built environment sector

zero in the built environment'. Other sessions will focus on implementing new digital technology and tackling the skills gap. Plus there will be a comprehensive programme of content on *Global Construction Review* throughout the week of the summit. The summit webinars are free to watch and each one qualifies for an hour's CPD credits.

Last year's summit attracted nearly 1,500 construction professionals, and included speakers from the USA, Australia, the Middle East and the UK. ●

Go to globalconstructionreview.com/global-construction-summit to find out more and to register.

Headline session

21 February, 2pm GMT

Wherever you are in the world and whether you're a client, designer or contractor, sustainability must be at the top of your agenda. This session will focus on the process of sustainability – carbon measurement and its impact, and the need and benefit of carbon skills.

Speakers:

● Guilherme Almeida, director of sustainability and high-performance design at architect Hickok Cole. He led design on the net zero renovation of the American Geophysical Union headquarters in Washington DC – the first such headquarters renovation in the greater Mid-Atlantic region of the US.

● Porie Saikia FCIOB, head of environment, energy and sustainability at the Metropolitan Transportation Authority of New York, which is responsible for moving eight million people a day. Her task is to develop strategies to meet the authority's commitment to the Paris Agreement's Science Based Target Initiative. She was awarded the Nelson Aldrich

Rockefeller Excelsior Award, given once a year to a public architect.

● Victoria Burrows and Matthew Black from the World Green Building Council (WorldGBC). WorldGBC promotes the uptake of sustainable built environments through a network of more than 70 Green Building Councils around the world.

● Michael Yam, president of CIOB.



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Futurebuild takes a stand for a better built environment

Next month sees Futurebuild return at London's ExCeL.
CM provides a preview of what you can see at the show



Futurebuild 2023 is set to provide contractors, specifiers and developers with the ideas, inspiration and innovative solutions that will help them create net zero buildings faster, more safely and more efficiently.

Taking place at ExCeL London from March 7-9, the event will focus

on our most pressing challenges to accelerate the shift to a net zero built environment.

Sustainability remains at the core of this year's show and is why Futurebuild 2023 is urging the industry to act now and 'take a stand' on an issue it believes will help propel the industry towards building a better future.

▲ Futurebuild will focus the industry towards a more sustainable future

Conference is 'taking a stand'

This year's conference programme brings together an outstanding line-up of speakers who are distinguished experts in their field to deliver the best possible understanding of what collectively we all need to do to meet our climate challenges.

Futurebuild is pleased to have two notable sponsors of this year's conference: SNRG and Hub Brussels. Day one will focus on 'Looking Forward' and why we need to develop the foresight necessary to break out of our mindset, with a fantastic Activism session entitled 'Act Now, or Face Extinction', chaired by Ben Goldsmith, chief executive at Menhaden and member of the Conservative Environmental Network Board.

On day two, the conference will explore the nature of 'Changing' and especially behaviour change. Dr Viktoria Spaier, associate professor in sustainability at the University of Leeds, will chair a discussion on the 'Big Issue of Changing' how we do things in our professional and personal behaviour to live within planetary boundaries, which features Dr Niamh Murtagh on the panel.

Day three will move on to 'Taking Action', hearing from those who have been doing just that and exploring plans that can take society and the construction industry forward.

in association with **futurebuild**
the future of the built environment

This year's conference programme brings together an outstanding line-up of expert speakers to deliver the best possible understanding of what collectively we all need to do to meet our climate challenges



Show sections and new spotlights

Futurebuild will be curated into eight show sections: Buildings (sponsored by Steico); Digital (sponsored by Zutec); Energy (sponsored by Kensa Group); Interiors; Materials; Offsite; Retrofit; and Sustainable Infrastructure (sponsored by ACO).

The newly expanded Retrofit section, sponsored by Elmhurst Energy and in partnership with The Retrofit Academy CIC and Osmosis, will be showcasing the best solutions, technologies and services that together can unite and strengthen the delivery of whole-house retrofit at scale. It will examine the current housebuilding model and ensure we do not generate a legacy of problems for the future.

The event will also feature three new spotlights: Lighting, in partnership with KNX UK; District Energy, in partnership with UKDEA; and FutureX Innovation, in partnership with the Department for Business, Energy & Industrial Strategy (BEIS).

Platform for innovation

Futurebuild will continue to be the industry platform for innovation and features a wealth of opportunities to showcase the most innovative technology, products and services. At the heart of this is the return of the renowned



Innovation Trail, providing a showcase for 15 Innovation Partners and a range of International Pavilions.

The trail will give visitors the opportunity to explore revolutionary products, solutions and materials and meet the leading thinkers behind these innovations.

The Big Innovation Pitch will also return, offering exhibiting companies the chance of being crowned winner in 2023. ●

Futurebuild 2023 will take place from 7-9 March at London's ExCeL. For more details, visit www.futurebuild.co.uk. Visitor registration is now open.

- ▲ Futurebuild 2022 drew visitors from all sectors of construction
- ▲ Talks and seminars highlighted the route to net zero



Share the knowledge

Futurebuild's seminars bring the industry together

Curated and delivered by over 90 industry-leading partners and featuring a stellar line-up of over 300 speakers, Futurebuild's expanded seminar programme is bringing the whole industry together to debate and learn from each other.

The programme features practical and actionable CPD accredited sessions so visitors can gain many CPD points in one visit and at the same time acquire the knowledge and skills that will help them in their day-to-day role.

Industry-leading partners and associations taking part include CIAT, The Good Homes Alliance, BRE, Passivhaus Trust, RIBA and UKDEA (District Energy Association) to name but a few.

Standout sessions from across the ambitious programme include masterclasses with Bill Dunster, architect and founder of ZedPower; Duncan Baker-Brown, co-founder of BBM Sustainable Design; Zerlina Hughes, founder and creative director of Studio ZNA; Dr Tom Woolley, architect and academic, and David Cheshire, sustainability director at AECOM.

They will explore and tackle some of the industry's most critical topics from 'zero bills' homes to material use, lighting design to bio-based materials, and building a circular future.

More than 15,000 professionals from across the entire supply chain will come together to discover these solutions and find new ways of delivering quality buildings more sustainably, while meeting and exceeding regulatory and compliance requirements.

Everyone in the supply chain has a solution that can make a positive change. Futurebuild 2023 will provide the ultimate stage to showcase that commitment to the creation of a better building industry and achieving net zero.



In depth: Hilti's new Nuron cordless battery platform

CM takes an in-depth look at Nuron, Hilti's new cordless battery platform. Launched alongside a range of 70 new tools, Nuron promises a combination of better performance, greater efficiency on construction sites, and enhanced worker safety and sustainability

Using handheld tools on a construction site can be a confusing business. A range of different tools running on different platforms can mean a mess of cords, cables and chargers. Batteries go missing or aren't compatible with other similar tools. In the worst case, tools and batteries can end up

being thrown away if one or the other ceases to work.

It was partly in order to address this problem that Hilti has created its new Nuron cordless battery platform, launched at the same time as a range of 70 tools designed to run on it. But the Nuron platform offers more than just practicality: Hilti claims it also improves the

▲ Hilti's Nuron TE 2000-22 cordless breaker at work on site

tools' performance, enhances worker health and safety, and offers construction the opportunity to save money by reducing the number of tools needed on site.

Until recently, Hilti had two main battery platforms to run its cordless tools – a 22V platform and a 36V platform. It also offered a range of tools that run on petrol or cords.

"The vision behind Nuron is that we wanted to get rid of all that," says Sebastiaan Groenhuijsen, head of product management for Hilti in northern Europe. His aim is to be able to offer customers the option to have a fully cordless jobsite.

This journey continues in 2023, with 25+ more products expected to join the Nuron range this year.

Performance

The 22V Nuron battery has a new interface with power connections and a data connection sandwiched in the middle. But how was Hilti able to get enough power out of

70 The Nuron cordless battery platform was launched with a range of 70 tools designed to run on it

In association with **HILTI**

22V batteries to power such a large number of tools of varying sizes?

“Compared to what we used to have, this new battery is like night and day. The power that I can draw out of this battery – the watts – is two and a half times as much. That sounds relatively simple. In reality, the heat you create and the materials engineering required to get that to happen is probably the coolest part of this innovation,” says Groenhuijsen.

“In the past, to get enough power to run a larger tool, I needed to up my voltage from 22V to 36V. Now, with the capability to draw more amps out of Nuron, I can kill 36V and do everything on 22V. Nuron has taken more time and effort but we wanted to build a singular platform



Compared to what we used to have, this new battery is like night and day. The power that I can draw out of this battery – the watts – is two and a half times as much

Sebastiaan Groenhuijsen, Hilti



that can deliver the full range of power required on site.”

There are five different batteries, running from 55Wh (watt-hours) for the smallest (watt-hours measure battery capacity and run time), up to 255Wh at the top end for the larger tools. Meanwhile, the cylindrical internal battery cells receive plenty of protection from chunkier bumpers, while batteries can actively recognise if there is something wrong and essentially shut themselves off.

“Things get dropped on construction sites,” says Groenhuijsen. “So we did everything we could to make the batteries as safe as possible when it comes to preventing thermal runaway. We have also made Nuron batteries even better at resisting any kind of exposure to moisture.”

Data-driven services

In the event that there is a problem with a Nuron battery, the platform’s new data-driven services provide peace of mind there too. The batteries are capable of downloading information from every tool they are paired with during that charge cycle.

One battery can remember more than five sets of information during a single charge, storing it on a memory chip. The data port on the battery can relay all of this information to the charger, which itself can remember 80+ sets of information and can upload the data it receives to

the cloud via an inbuilt SIM card running on the Edge network.

As a result, for customers on Hilti’s fleet management programme, the battery can automatically alert Hilti to any damage to the battery. Hilti will send out a new battery to the customer as well as a box for the customer to send the old battery back for repair.

The data also helps Hilti to diagnose any potential faults with tools to allow for their early repair. Not that Hilti is expecting its batteries to break. Some of Hilti’s Nuron tools are on a 60-month fleet cycle, and Groenhuijsen expects the batteries to last throughout that cycle.

Health and safety

The Nuron range of tools sees technologies to keep workers safe on site brought to more tools. They include Adaptive Torque Control (ATC), Active Vibration Reduction (AVR) and Hilti’s Dust Removal System (DRS). But new to some of Hilti’s angle grinders on the Nuron platform is SensTech. SensTech involves putting pressure sensors in the grip of the tool. If the operator loses their grip on the angle grinder for any reason, it shuts off.

Hilti has also used the Nuron launch to refocus on dust management, and now has more dust removal systems available than ever before. This includes an M-class rated cordless vacuum cleaner, a first for the manufacturer.

Groenhuijsen sums up: “Nuron is one platform, with the vision to not only phase out our existing 22V and 36V batteries but also to phase out cords, gas, any other power source in the future. Nuron is the foundation for our vision for a fully cordless jobsite. That vision is now officially starting to become a reality.” ●

▼ The DSH 600-22 battery cut-off saw can cut concrete, metal and masonry

▼ The saw can be used in both interior and exterior work environments





Carbon impacts of timber in construction

Can timber be used to reduce construction's overall embodied carbon and, if so, how should the carbon impacts of timber be assessed? This CPD, in association with PEFC UK and Timber Development UK, explains how. By **Charlie Law**

We are in a climate emergency, and with buildings and construction responsible for around 43% of global carbon emissions (15.8GtCO₂), we must act.

The energy use of buildings accounts for around 28% of global carbon emissions (10GtCO₂), and these emissions are being significantly reduced through energy

efficiency and decarbonisation of the energy grid.

However, carbon emissions from the construction process and manufacture of construction products, known as embodied emissions, are only now being taken seriously – and rightly so, as they amount to around 15% of global carbon emissions (5.8GtCO₂). Around 12% of global carbon emissions (4.6GtCO₂) are

▲ When trees are felled and processed the biogenic carbon stays locked away in the timber fibres

driven by cement, aluminium and steel manufacture for construction alone. So how do we reduce our reliance on these materials?

The UK government has set a target of net zero carbon emissions by 2050, which is now enshrined in legislation. Within the construction industry, many organisations are setting their own net zero by 2050 targets and are calling for embodied carbon targets to be incorporated into the Building Regulations, most notably the Part Z initiative. With this in mind, architects are looking at timber to reduce embodied carbon. So how should we account for timber when carrying out a carbon assessment of a building?

Carbon and timber

To explain this, we first need to go back to basics. Trees remove CO₂ from the atmosphere during their growing cycle, storing it as biogenic carbon. For most timber, half the dry mass is biogenic carbon, so for example 1m³ of Swedish spruce contains 200kg of biogenic carbon,

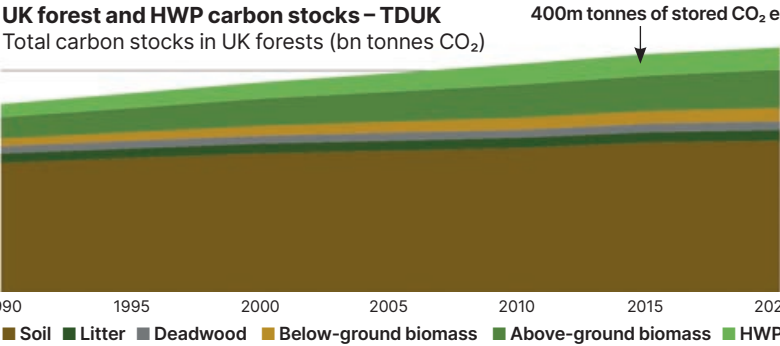
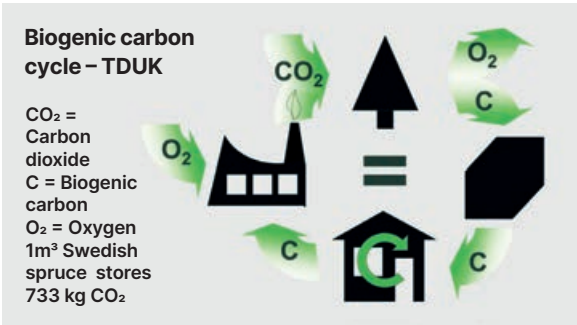


having sequestered and stored 733kg of CO₂ from the atmosphere.

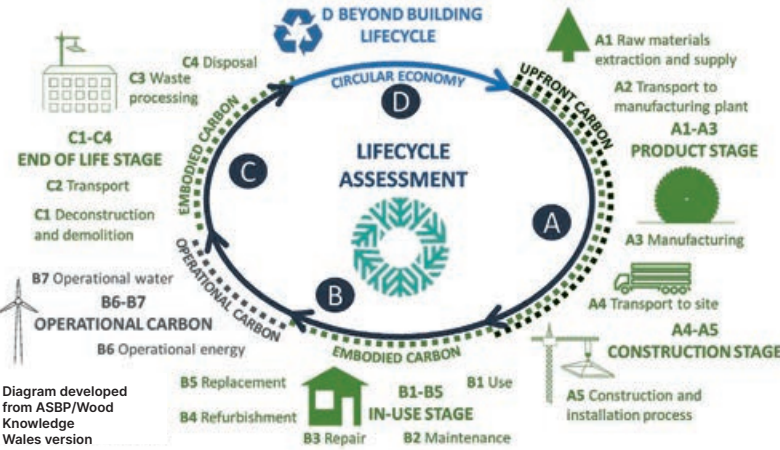
Planting trees, and using the timber in construction, creates a long-term carbon capture and storage (CCS) solution. When the tree is felled and processed into products the biogenic carbon stays locked away in the timber fibres, and remains so when the material is reused or recycled into other products such as chipboard. It is only released either through combustion or decomposition. We must therefore ensure we keep timber products in use for as long as possible, by adopting circular economy principles and reusing, refurbishing, remanufacturing or recycling at the end of its service life.

Forests and carbon

Although some areas of the world are in a state of deforestation, mainly due to forest clearing for farmland (beef and soya) rather than timber production, in many areas the amount of forest is increasing. For Europe, from which 88% of UK timber is sourced, an average annual balance of 570MtCO₂ has been added to the forest carbon sink each year over the last 10 years, taking into account removals and emissions. In the UK alone it is estimated that over 4GtCO₂ is locked away in forests, with 400MtCO₂ in harvested wood products (HWP), such as timber in buildings.



Whole life carbon assessment - TDUK



Assessing carbon in an EPD

An Environmental Product Declaration (EPD) is a document that records environmental impacts for a construction product, including ozone depletion, acidification and eutrophication potential, as well as the global warming potential, where we assess the CO₂e impact.

These must be produced in accordance with recognised standards, eg, BS EN 15804:2012+A2:2019 or ISO 14025:2010. The impacts are assessed at various stages within the product system. There are five key stages:

- A1-A3 product stage
- A4-A5 construction stage

- B1-B5 use stage
 - B6-B7 operational carbon stage
 - C1-C4 end-of-life stage.
- There is also a stage D, which assesses the end-of-life scenario, but these figures are not included in the overall global warming potential calculation. BS EN 15804:2012+A2:2019 requires modules A1-A3, C1-C4 and D to be assessed as a minimum.
- The most important question to ask when assessing a timber product is the source. If the timber is from a sustainably managed forest, then the biogenic carbon sequestration should be considered as part of the assessment. ►

For cross laminated timber (CLT) manufactured from spruce and pine, the whole life carbon impact is only 116kg CO₂e/m³

116



For reuse, recycling and incineration, the sequestered carbon is deemed to be passed on to the next product system

Alongside the biogenic carbon data, the EPD includes CO₂e impacts from fossil fuels, land use and land transformation, in the global warming potential section. This will show a net positive figure for the product's carbon impact over all modules.

However, compared to other building materials, whole life carbon impacts of timber are much lower. According to an EPD from Stora Enso, for example, cross-laminated timber (CLT) manufactured from spruce and pine, the whole life carbon impact is only 116kg CO₂e/m³ (recycled at end of life). This is far less than an equivalent steel and/or concrete element to support the same loads.

The easiest way to confirm your timber is sustainably sourced is to ensure it comes with a full chain of custody from a recognised forest certification schemes, such as the Programme for the Endorsement of Forest Certification (PEFC), the Forest Stewardship Council (FSC) or Grown in Britain (GiB).

In the case of verified, sustainably sourced timber, the sequestered carbon is considered to enter the system when it is harvested and is reported as a negative figure within module A1 of the EPD (raw material extraction) under the biogenic carbon heading. The sequestered carbon is then deemed to exit the system within module C3 or C4, depending on the end-of-life scenario.

As the end-of-life scenario is not usually set by the manufacturer, an EPD will normally state figures for different scenarios, such as reuse, recycling, incineration and landfill.

For reuse, recycling and incineration, the sequestered carbon is deemed to be passed on to the next product system, and a positive figure is entered under the biogenic carbon heading in module C3 (eg, if timber is recycled into chipboard, the biogenic carbon benefit is passed to the new chipboard product system and can be deducted in module A1).

For the landfill scenario, the sequestered carbon is deemed to transfer to nature, and a positive figure is entered under the biogenic carbon heading within module C4.

▲ Homerton College Dining Hall in Cambridge was designed by Feilden Fowles using PEFC timber

Assessment of carbon in buildings

When assessing the carbon impacts of a building, these must also be produced in accordance with a recognised standard, eg, BS EN 15978:2011. The calculation should use the data included within the EPD for a product wherever possible. Definitions must be understood to ensure the right information is included:

- **Embodied carbon:** CO₂e emissions associated with the material, construction, maintenance and demolition processes throughout the whole life cycle of an asset (modules A1-A5, B1-B5, C1-C4).
- **Operational carbon:** CO₂e emissions arising from energy and water consumed by an asset in use,

► Timber Development UK published its *Net Zero Carbon Roadmap* in January 2023



as projected or measured, over its life cycle (modules B6-B7).

● **Upfront carbon:** CO₂e emissions associated with materials and construction processes up to practical completion (so product manufacture, transport and construction) (modules A1-A5).

● **Whole life carbon:** Sum total of all asset-related CO₂e emissions, both operational and embodied over the life cycle of an asset including its disposal. Whole life carbon = operational carbon + embodied carbon (modules A1-A5, B1-B7, C1-C4). The potential benefit from future energy recovery, reuse and recycling (module D) is reported separately.

A whole life carbon assessment is the preferred option, and this is the approach being championed by the Part Z initiative, the RIBA 2030 Climate Challenge Guide and the Low Energy Transformation Initiative (LETI). However, the RICS professional statement on whole life carbon assessment of the built environment recognises that the information needed is not always available from EPDs, so allows an upfront carbon assessment as an alternative.

In a whole life carbon assessment or embodied carbon assessment of a building, where the timber is from a sustainably managed forest, then the biogenic carbon sequestered should be considered as part of the assessment. However, if only an upfront carbon assessment is undertaken (ie, only modules A1-A5), then the biogenic carbon sequestered in the installed timber products must not be included in the result, but be stated as a separate 'stored carbon' figure in the report.

Timber components inherently have a lower embodied carbon impact. Therefore, designers should

incorporate timber in place of higher embodied carbon materials wherever possible. To ensure the carbon remains locked in the timber for as long as possible, circular economy principles should ensure timber components are designed for reuse wherever practicable.

Net zero carbon roadmap

Although timber is a low embodied carbon material, we can see from the EPDs for timber products that there is still an amount of embodied carbon within them. Therefore in 2022, the industry body Timber Development UK set out its intentions to be net zero by 2050.

It subsequently embarked on a net zero carbon roadmap project that brought together the timber supply chain to establish a route to net zero by 2050. This roadmap, published in January 2023, highlights key areas where the timber industry can make a difference, including:

- Improving efficiency of production and distribution of materials immediately;
- Moving to electric-powered vehicles for transportation of products and hydrogen for harvesting as the technology becomes available;
- Moving over to biomass CHP, and other renewable energy forms, during production;
- Working with the overseas supply chain to reduce imported embodied emissions.

By working together, the timber industry can assist the UK construction industry in meeting its 2050 net zero targets, and ensure it plays a key part in reducing global CO₂e emissions. ●

Charlie Law is sustainability director at Timber Development UK and founder and managing director at Sustainable Construction Solutions.

Further reading

● For more information on assessing carbon impacts of timber in construction, see the Timber Development UK technical paper *Assessing the carbon-related impacts and benefits of timber in construction products and buildings*

● For more information on timber circular economy principles, see the previous CPD on Timber and the Circular Economy (*Construction Management* November/December 2021) produced in association with PEFC UK

● Timber Development UK: www.timberdevelopment.uk

● PEFC UK: www.pefc.co.uk

● Sustainable Construction Solutions: www.susconsol.co.uk

CPD Questions

1. Approximately how much of a tree's mass is made up of biogenic carbon?
a) 25% b) 50% c) 75%
2. What modules must be assessed in an EPD produced in accordance with BS EN 15804:2012+A2:2019?
a) Modules A1-A5 only
b) Modules A1-A3, C1-C4, and D
c) Modules A1-A5, B1-B7, C1-C4 and D
3. Where is sequestered carbon accounted for within an EPD produced in accordance with BS EN 15804:2012+A2:2019?
a) Global warming potential – biogenic
b) Global warming potential – land use and land transformation
c) Global warming potential – fossil
4. What standard should be referred to when assessing the environmental impact of a building?
a) BS EN 15804:2012+A2:2019
b) BS EN 15978:2011
c) ISO 14025:2010
5. When can sequestered carbon in timber be taken into account when assessing the carbon impact of a building?
a) When the timber is sustainably sourced, and an upfront carbon assessment is undertaken
b) When the timber is sustainably sourced and an operational carbon assessment is undertaken
c) When the timber is sustainably sourced and a whole life carbon or embodied carbon assessment is undertaken

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

To ensure the carbon remains locked in the timber for as long as possible, circular economy principles should ensure timber components are designed for reuse wherever practicable



Laura Lintott
Watson Farley
& Williams

'Our client says we haven't reached practical completion'

This month's contract clinic question comes from a frustrated contractor whose client insists practical completion hasn't been reached. **Laura Lintott** responds

THE QUESTION

We have a project which we believe has reached practical completion under the contract, but our client is adamant it hasn't. There is nothing left to do but a final builder's clean – what can we do?

THE ANSWER

Practical completion (PC) is a topic that affects several different parties to a construction project. Sadly though, it can lead to arguments over what PC is, and whether it's been achieved. This sounds like the destination for your question: what is PC, and how can we avoid disputes?

There is no statutory definition in law of what PC is. One could say that it is when works under a building contract are complete, except for minor defects. It could also be said that it is when a building project is capable of beneficial occupation and use. Or it may be after certification by an architect or contract administrator.

The existence of latent defects cannot prevent PC. As for patent defects, there is no difference

between an outstanding item and an item of defective work that needs remedying. Snagging lists can identify both types of items without distinction.

Most standard forms of construction contracts leave the term PC undefined. JCT contracts give the contract administrator discretion to make a subjective judgement on the achievement of PC. NEC contracts are more prescriptive in what is required for the achievement of PC. Sometimes parties agree a bespoke definition that adds more complexity. This in turn can lead to conflict with other parts of the contract.

So we can see there is a lack of clarity as to when PC occurs. The certification of PC nonetheless acts as a trigger event for several parties.

As a contractor, you are likely to want PC certified as soon as possible. It will likely trigger the release of retention funds and limit your liability for liquidated damages. PC also passes responsibility for the site and the works to your employer.



There is no statutory definition in law of what practical completion is

Your employer may want to take possession as soon as possible to generate income or limit financial charges. However, they will not want the certification of PC where works are incomplete, unsatisfactory or if there is an absence of statutory approvals.

Funds, tenants and purchasers will typically require that other conditions are met before the obligation to complete arises. Tenants and purchasers may insist on inspecting the works before PC. They may want to make representations to the contract administrator about the state of the works. They may wish to refer the question of whether PC has occurred to an independent third party.

Ongoing obligations

A developer could be in a position where its contractor has handed back the site. All that remains is to deal with snagging, so the contractor is no longer liable for liquidated damages for delay. However, the tenant or purchaser may not yet be obliged to complete the lease or sale of the property. This leaves the developer stuck in the middle, having to deal with ongoing financial obligations, insurance of the works, site security and so on.

Whenever there is a dispute about whether PC has occurred, it is often not about works. More often it is driven by one of the parties seeking

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

to avoid or delay the consequences of PC. While disputes about whether or when PC has been achieved are common, they can be avoided.

Dispute prevention measures include checking that the building contract is clear on when PC occurs. It is also advisable to keep a paper trail documenting acceptance of possession, partial possession or agreement for early access. As has been noted in this column before – records, records, records are key.

Crucial point

PC is a crucial point in time in a project when disputes can arise. Whether it has been achieved will depend on the nature of the works on your project and whether they have been substantially completed or are capable of use. It sounds from the description in the question that PC has been achieved, but negotiations can be difficult.

While it can be stressful, PC is also an exciting point in time when the true purpose of a project can start. However, it is always worth ensuring you understand the contractual terms relating to PC on your project before you start work. In the case of your question, it sounds as though PC should have been achieved, but much will depend on the detail of the contract and the specific issues holding up certification. ●

**Laura Lintott is of counsel at
Watson Farley & Williams.**





Job spotlight

Louise Townsend

Head of social value and sustainability,
Morgan Sindall Construction

All together now

Collaboration and working with experts is how Louise Townsend progresses her role and, she says, it's the way forward for the industry too

What is a typical day in your job?

There is no such thing as a 'typical day'. Daily tasks can range from reporting and analysing performance statistics, supporting new project proposals, networking, helping my team with opportunities and challenges, to working with our senior team to set the company's future landscape.

Overall, my role focuses on empowering our stakeholders to

make a measurable contribution to improving the environment and enhancing the communities that we operate in.

Social value and sustainability are growth areas for the industry. How do you keep your knowledge up to date?

My network is key to this. By being surrounded by knowledgeable, forward-thinking experts, I can constantly learn and advance my understanding. In addition, I am part of multiple industry working groups and government panels, which ensures that I stay informed on the national agenda.

For the construction industry to evolve, we must look at ourselves from the outside in. Being curious about the world beyond the built environment sector is key, as it can provide a different, and often highly valuable, perspective.

What are the challenges you face?

The construction industry is a complex ecosystem and advancing the sustainability agenda requires many different stakeholders to work together, which often determines the speed at which progress is made.

Today's industry faces myriad challenges when it comes to improving our social value and sustainability performance, such as perceived cost hikes and access to products that aren't on the market. These will mainly be overcome by changing the mindset and behaviours of the stakeholders across the industry's supply chain.

The Circular Twin R&D project we undertook at Morgan Sindall Construction is a great illustration of how this can work in practice. It proved that a dramatic reduction in embodied carbon doesn't have to cost

Seeing people select the more environmentally friendly and socially beneficial pathway is incredibly satisfying, especially when you see them reap the rewards

Louise Townsend,
Morgan Sindall Construction

the earth, as it just requires a simple change of mindset and approach.

And what are the rewards?

Embracing ESG cannot be done alone. The most rewarding moments come when educating clients and stakeholders, allowing them to take ownership of the decision-making process. Seeing people select the more environmentally friendly, carbon-reducing and socially beneficial pathway is incredibly satisfying, especially when you see them reap the rewards.

What are your work values and goals?

Our team motto is 'If you want to go fast, go alone. If you want to go far, go together'. To tackle the climate crisis and evolve as an industry, we need to work together. In many ways, this chimes with the saying that 'In the middle of every difficulty lies opportunity', which has been my mantra throughout my career as wherever there is a negative there also has to be a positive. In general, I believe that through tenacity, surrounding yourselves with brilliant people and a common purpose, anything is possible. ●

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CIOB Community



The new technology opens the door more fully for the students to think outside the box, but will also test their analytical skills

Kate Macbeth, CIOB



Kate Macbeth, CIOB's director of marketing and digital.

The platform is currently used by a range of universities, for subjects from engineering, creative industries to business, to build employability and enterprise skills. It is also used by corporate clients for employee skills development and business innovation activities.

The GSC has seen teams of students from around the world vie for the coveted top spot for nearly a decade. The competition asks students to create a virtual organisation and tests team skills on a challenging construction project.

Teams that reach the final will go on to present to a panel of expert judges online. The winners will receive an all-expenses paid trip to the CIOB Members' Forum to test their ideas in the real world in front of some of the world's finest construction professionals – and gain feedback that they can learn from.

The winning team will also receive a £2,000 cash prize. ●

<https://gsc.ciob.org>

GSC gets underway using new online platform

New technology will enable competitors to push their limits

The CIOB 2023 Global Student Challenge (GSC) is on its way – with the competition operating this year with a new online platform.

This year's student teams, who registered in January, will start the process this month using the ideas platform SimVenture Validate. The new technology will deliver

an even more valuable experience for students, helping them to develop creative thinking, business planning, entrepreneurial spirit and communication skills.

"It opens the door more fully for the students to think outside the box, but will also test their analytical and technical skills too," said

▲ SimVenture Validate is used by universities and corporate clients for skills development

CIOB issues guide to new quality standard for SMEs

New Technical Information Sheet will support businesses with BS 99001

CIOB has produced a Technical Information Sheet to assist its SME membership base with BS 99001: Built Environment Quality Management.

The TIS explains quality planning and the standards and legislation.

The new standard replaces ISO 9001 and is welcomed by the

industry but CIOB was aware that small businesses would need support.

"This was the driver for us to produce this Technical Information Sheet to help our SMEs and micro companies who do not have a specialist quality planning department to integrate more quality planning in

projects, understand and identify risks to take actions," said Dr Gina Al-Talal, head of technical and standards development at CIOB.

CIOB's construction quality framework aims to raise awareness of the factors influencing quality management for projects.

To download the TIS, visit www.ciobacademy.org/publications.

Midlands site tours take in both heritage and high-rise

The Nottingham and Birmingham hubs are offering two contrasting but equally interesting site visits in March

On 2 March Heritage Lincolnshire is offering members a site visit to England's oldest surviving friary building – Greyfriars, Lincoln – dating from the early 13th century.

The team will talk about the 'Re-Imagining Greyfriars: 800 years of stories in the making' project, which aims to repair the Grade I-listed building and bring it back into use as a multi-use heritage destination (see p48).

On 9 March, join Quantem and Wates Construction for a tour of the new 30-storey South Central residential scheme in Essex Street, Birmingham, designed to echo the city's terracotta heritage. The 98m tower will deliver 166 apartments,

a ground floor commercial unit and a rooftop sky garden.

During this visit you will have the opportunity to look at the site and hear from the project team about the work underway and the challenges faced during this complex build. ●

To book a place search CIOB Events for CIOB site visit: Re-Imagining Greyfriars, Lincoln CIOB or Essex Street, Birmingham.

“ The new 30-storey Essex Street residential scheme in Birmingham has been designed to echo the city's terracotta heritage

▼ The new South Central tower will feature a rooftop sky garden

Student Festival returns

Virtual two-day event promises advice and inspiration



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, opinions, and wisdom 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.
- Register now at www.ciob.org.



Funding secured to give new life to Lincoln's Greyfriars

National Heritage Lottery Fund's £2m will bring building back to life as an events space with a cafe for the community



City of Lincoln Council and Heritage Lincolnshire have secured the necessary funding to bring the iconic Greyfriars building in Lincoln back to life. Greyfriars is set to welcome visitors again in 2025 thanks to a successful bid for funding from the National Lottery Heritage Fund and partner organisations.

City of Lincoln Council, in partnership with Heritage Lincolnshire, a CIOB training partner, has announced that the funding will enable the iconic historic building to realise new potential. Following the announcement of £2m funding from the National Lottery Heritage Fund, works will begin to repair and

redevelop the building to create a fully accessible multi-functional space for weddings, conferences and education, as well as a cafe space for the community.

It is hoped that this mix of new uses will ensure that Greyfriars, which will be run by Heritage Lincolnshire when the works have been completed, is eligible for removal from the National 'At Risk' Register.

Heritage Lincolnshire will work with neighbouring partners GLL at the Central Library as well as Linkage Community Trust, University of Lincoln, Bishop Grosseteste University, local schools and colleges, volunteers and other groups to deliver activities and events to celebrate the history of Greyfriars and provide learning opportunities for adults and children. CIOB has organised a site visit for members in March (see p47).

A Grade I-listed scheduled monument dating from around 1230, Greyfriars is thought to be the oldest surviving Franciscan friary building in the country and has also served as a Free School, a house of correction, a mechanics' institute and the county museum.

Matt Bentley, senior manager (conservation and heritage) at Heritage Lincolnshire, said: "We are incredibly privileged to be a partner in the saving this internationally important building and can't wait to move forward with the project." ●

We are incredibly privileged to be a partner in the saving this internationally important building and can't wait to move forward with the project
Matt Bentley,
Heritage
Lincolnshire

◀ The Franciscan friary is a Grade-I-listed ancient monument

CIOB Assist: here to support members in tough times

Please reach out if you need our support

For 30 years CIOB has been working to support its members and their families when they need a helping hand.

CIOB Assist helps hundreds of members who find themselves facing unexpected challenges. It can be anyone from early career starters to retirees, with problems as diverse as health

issues or financial concerns. And, without someone to turn to, their future is uncertain.

We're all united in a passion for our industry, but CIOB is also passionate about the people who make up this community. Which is why it offers support on everything from financial concerns, to mental health

issues and training help. It's as important as any other aspect of our work and touches every corner of our membership community.

If you need our support please reach out to us. And if you can support us, we want to hear from you.

See <https://assist.ciob.org>.

Yorkshire offers a hands-on taste of construction

CIOB sponsors event at Wakefield College



▲ CIOB's Michael Brearey and Debbie Lee from Wakefield College

Nearly 250 students in the Wakefield area enjoyed a taste of construction recently thanks to a Wakefield College event sponsored by CIOB West Yorkshire Hub.

The annual Give Construction A Try event inspires young people in

West Yorkshire to consider a career in construction and highlights how exciting a career in the construction industry can be.

Thanks to over 22 employers and in-house experts, students had hands-on experience with various activities and heard about the diverse range of roles and opportunities available.

Michael Brearey FCIOB, chair of West Yorkshire Hub, who jointly opened the event, said: "The industry has allowed me to be involved in some life-changing projects while working with some truly inspiring people and being able to be part of an event which promotes this to the next generation of construction individuals was extremely humbling.

"The various exhibitors allowed the students to get a hands-on experience in a safe environment of the various different elements within the building sector so that they were able to get a real understanding of all the opportunities available to them." ●

Students keen to get involved with Tomorrow's Leaders

CIOB representatives visit Oxford Brookes



CIOB representatives recently engaged with built environment students at Oxford Brookes University.

Antonia Lanyiova, qualifications liaison manager at CIOB London and South, and Laurence Pateman, a CIOB Tomorrows Leaders (TL) representative, talked to first year undergraduate students studying varied disciplines. Max Muncaster MCIQB, senior lecturer at Oxford Brookes, was also present.

"They were super engaged and very keen to become student members, joining the TL community," said Lanyiova. ●

▲ Antonia Lanyiova talks to the students

CBC staff work with pupils to inspire young people into the industry

Henry Riley partners with Inspiring the Future to empower a new generation

Construction and property consultant Henry Riley, which is a CIOB CBC, has partnered with Inspiring the Future, a programme from charity Education and Employers to help inspire young people to see a future in construction.

Inspiring the Future works with pupils to help to broaden their horizons and raise aspirations, challenging stereotypes and boosting motivation, and future prospects.

It works hard to change views and mindset of young people, especially those from disadvantaged backgrounds who have a limited understanding of the opportunities open to them. Research shows that children from the age of seven often have stereotypical views about the jobs people do based on their gender, ethnicity, and socio-economic background.

Companies partner with the charity and their staff sign up to be part of a team which works with schools and colleges, taking part

in sessions in person or virtually. Volunteers can choose activities that interest them and benefit from resources and support.

"This work is incredibly important," said Shaun Henderson, associate director at Henry Riley. "Employees have reported that they enjoy this work, it enhances their wellbeing, increase satisfaction, and helps strengthens connections to their local communities.

He added: "Doing this work is also necessary when looking to increase diversity in the industry, and while there have been positive changes in the industry over recent years, construction is still not as diverse as other industries like finance or law. We all need to put the work in now to be more progressive and diversify the next generation of construction professionals."

www.inspiringthefuture.org

▼ Staff volunteers work in schools and colleges



Step
Forward

CIOB Awards 2023

No other awards in construction are regarded as highly as the CIOB Awards, an annual celebration to recognise and celebrate the accomplishments of exceptional individuals and companies who influence and shape our built environment.

Now is your time to step forward.

Enter today awards.ciob.org





CIOB Construction Manager of the Year



CIOB Client Award



CIOB Equality, Diversity & Inclusion Awards:
Company and Individual



CIOB Rising Star Award



CIOB Sustainability Award



CIOB Team Award



CIOB
Awards

New Peterborough campus set to broaden talent pool for local construction industry

Anglia Ruskin University's new campus welcomed by built environment employers



◀ The new ARU Peterborough campus offers built environment degrees and apprenticeships

Anglia Ruskin University, a CIOB accredited university, opened its Peterborough campus to students at the start of this academic year.

The vision is for it to be a high-quality employment-focused university for the city and region. The curriculum has been led by student and employer demand, as

well as developing opportunities in the technological, scientific and business areas.

Plans for a second teaching building and interactive public science centre have been given the green light to open in 2024.

In Peterborough, low skills levels have historically limited wages,

progression and quality of life. Before the completion of phase one, Peterborough was one of the largest cities in the UK without a university. This meant higher education felt inaccessible and irrelevant to many people, and low aspirations entrenched poor outcomes.

ARU Peterborough delivers built environment degrees in construction management, quantity surveying and building surveying. These are offered as full-time and part-time courses as well as higher and degree apprenticeships in construction management and quantity surveying.

The promotion of the industry is a priority for the Built Environment Team at ARU Peterborough. Ollie Crofts MCIOB, senior quantity surveyor at Burmor Construction, a CIOB CBC based in Peterborough for over 40 years, is delighted the campus has been built.

"We were extremely excited when ARU Peterborough finally came to fruition," he said. "Not only does it give us direct access to a pool of local talent, but it encourages communication and an amazing opportunity to work with ARU through employer advisory groups."

He added: "The groups provide a platform for local employers to feed back to the university on the attributes and experience that construction companies look for when hiring graduates." ●

CIOB recognises excellence of Sheffield students

Chris Jones of South Yorkshire Hub presents certificates at ceremony

Chris Jones, chair of the CIOB South Yorkshire Hub, was a member of the platform party for the School of Social Sciences & Arts from Sheffield Hallam University for the Department of Natural and Built Environment.

Jones joined the platform party in recognition of

the South Yorkshire Hub's involvement with the school and the department supporting students through built environment degrees.

At the ceremony he presented students with CIOB's Certificate of Excellence for high-achieving students.



▲ Chris Jones presents Edwin Kay with his Certificate of Excellence for Building Surveying

▼ Cordage View overcame challenges to become an award-winning project

NORTH EAST LINCOLNSHIRE COUNCIL



Tank fuelled learning

John Pomfret MCIOB talks us through a £2m+ build of specialist flats for young adults with learning and physical disabilities

Cordage View offers independent living opportunities to meet the area's adult social care needs. The project, for North East Lincolnshire Council, started in April 2020 and was completed in February 2021.

It consists of 15 one-bed apartments, a communal area and nurse station, and is 'futureproofed' to enable easy apartment and wheelchair access in all flats, wet rooms, with tracking concealed in pelmets to support future installation of hoists. Other features, such as electronic entry and monitoring systems, make the scheme ready for adaptations.

As a company we take pride in supporting the development of young people within the industry, and Cordage View was a fantastic

opportunity to partner with another local firm, Orchard Training & Education, which provided nine local learners to work on the project.

The apprentices gained relevant work experience as part of their construction traineeship programme. Facilitating this experience on a live site meant that five learners went on to progress in apprenticeships.

The project was nationally successful, winning the Best Partnership award at the 2021 Inside Housing Development Awards in London, and was shortlisted in the Chartered Institute of Housing (CIH) Northern Awards – Working in Partnership award. The nomination commended it for its innovative thinking and partnership working.

Be prepared to challenge boundaries to make the most cost-effective and least disruptive decision in the best interest of all stakeholders

John Pomfret,
Heritage Lincolnshire



John Pomfret CV

- 2013-present Managing director, JC Pomfret Construction
- 2012-2013 Construction director, TDM Construction and Design
- 2001-2012 Self-employed builder
- 2000-2001 Construction director, GF Interiors, Brighthouse West Yorkshire
- 1998-2000 Director, J&A (Northern), Grimsby
- 1993-1998 Self-employed Builder
- 1988-1993 Pomfret and Shepard Design and Build (Partnership)
- 1983-1988 Self-employed Bricklayer for various companies in the Grimsby area
- 1979-1983 Indentured apprentice, Ashby and Horner Humberside
- 1978-1979 Junior Leaders Regiment, Royal Engineers

Lessons learned

We faced challenges, like most building projects. However, the most significant one stopped the entire build in its tracks before it even started!

To commence with building works, we had to achieve a land validation certification. Unfortunately, we located an old fuel tank under the ground site which belonged to a service station on the site years before. This was despite extensive investigative work including ground penetrating radar (GPR).

Leaving the fuel tank in situ and having it decommissioned was breaching North East Lincolnshire Council's policy for sub-terrain tank removal. However, we challenged this on the grounds that removal would cause significant disturbance to the community, lengthen the build process and increase the cost drastically. Thankfully, after a lot of research and seeking authority higher up the industry chain, we were given the go-ahead to proceed with the decommissioning.

The process equipped me with a whole new understanding of the complexities of fuel tank removal. The experience also allowed me to always be prepared to expect the unexpected. And be prepared to challenge boundaries to make the most cost-effective and least disruptive decision in the best interest of all stakeholders. ●

John Pomfret MCIOB is managing director of JC Pomfret Construction.

▼ Living heritage: The Circus in Bath



If your organisation works within the heritage sector, you may wish to get noticed by key stakeholders by either presenting a sponsor case study or exhibiting at the CIOB Conservation Conference



Support options

If your organisation works in the heritage sector, perhaps carrying out work on historic buildings or supplying specialist products for conservation or restoration, you may wish to get noticed by key stakeholders by presenting a sponsor case study or exhibiting at the conference. Sponsoring one of CIOB's heritage activities is a perfect way to raise the profile of your organisation – putting it at the heart of conversation and demonstrating an alignment with CIOB values.

You may wish to get noticed in one of the following ways:

- Gold sponsors enjoy a plenary presentation as part of the main conference agenda. Delegates particularly enjoy case studies that bring the topic to life, or a more detailed technical piece might inspire the audience with new ways of working. Speakers are also invited to participate in a live discussion panel. The opportunity to exhibit in a prime location is included, as well as five day delegate passes, for £7,500+VAT.
- A silver sponsor has a place on the conference discussion panel, to debate, share ideas and views on issues that are important to the heritage sector. Other benefits include branding across the event and two free delegate passes, included in the cost of £3,500+VAT.
- There are also limited spaces to exhibit at the conference, designed for companies whose products and services are relevant to this audience. This bronze sponsorship at £1,000+VAT gives the opportunity to showcase with a tabletop exhibition stand, along with two free delegate places. ●

Further details can be found at www.ciob.org/sponsorships.

Conference addresses costs and conservation

Opportunities now available to support annual CIOB heritage sector event

One of the key dates in the CIOB Events Calendar is the annual CIOB Conservation Conference. Each year for more than 15 years the conference has addressed key topics affecting the heritage sector for those that have an interest in and are working in this area.

This year's event will be held for the first time at the beautiful Grade II-listed One Moorgate Place, in the heart of the City of London, on 25 April. This year's theme is balancing conservation needs against rising costs. It aims to share knowledge to provide valuable awareness and the tools to help generate efficiencies in such difficult 'climates' and times.

The conference has been designed to appeal to and benefit a wide audience. This ranges from homeowners to anyone

involved with historic or traditional buildings – including contractors, craftspeople and heritage consultants – within the UK or wider afield.

We have drawn on renowned speakers from the UK and Europe to bring together examples that share experiences with different types of historic buildings and structures. This will enable delegates to make informed decisions in workplaces and homes to help tackle the crisis.

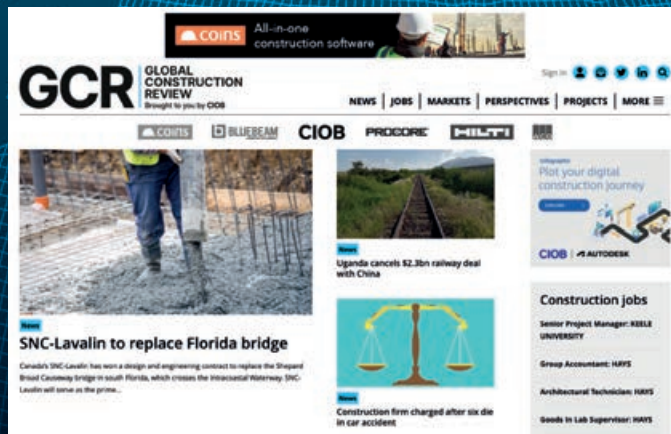
Through a variety of talks, discussion panels and case study presentations there is plenty of opportunity for delegates in the audience to participate in discussions and ask questions. Conference refreshments are served in the exhibitor hall, with the opportunity to network and share thoughts and ideas.



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CIOB President's Award presented to longstanding CIOB Awards judge

Thirty years of being a 'driving force behind the scenes' recognised in award



The CIOB President's Award was presented by Mike Foy, CIOB past president, to Chris Richards.

The award is given in recognition of an individual who has made a significant impact on the industry. Richards is a longstanding judge of CIOB awards as well as an honorary life member – awarded for his contribution to the industry.

"The industry knows just how credible and comprehensive our judging process is," said Foy in his presentation speech. "Judged by leading industry experts and former winners. Each of our judges will spend days visiting the entrants, asking the difficult questions, with the knowledge to know what the right answers are."

▲ Mike Foy, Chris Richards and host Anita Rani at the CIOB Awards



He has boosted the careers of hundreds of people, giving them the confidence to progress their own careers
Mike Foy, CIOB

For over 30 years the President's Medal winner has been a driving force behind the scenes of these great awards. Back when it was Building Manager of the Year, through to Construction Manager of the Year and now CIOB Awards.

"He has quite simply boosted the careers of hundreds of people who have entered over the years," said Foy. "Giving them the confidence to progress their own careers in directions they previously wouldn't have believed was possible. Some have gone on to become judges themselves. In doing so, his work has had a larger impact – it has shown what is possible. It has recognised the best of this industry and encouraged others to join it."

Foy continued: "He has led the judging process that has scrutinised the people behind some of the biggest projects in the UK, from The Shard in London to the Senedd in Wales and the rebuilding of Windsor Castle, among many, many others. Billions of pounds' worth of infrastructure have passed through his oversight during his time."

Richards has been involved in many areas of the CIOB – including as chair of the Liverpool Centre over 40 years ago – and has many years of real-world construction experience including working for major Liverpool-based contractor Tysons. ●

Over 40 years of celebration

Since 1978, CIOB has thrown a spotlight on the industry's finest

The CIOB Awards, formerly the Construction Manager of the Year Awards, first started in 1978 and celebrate the individuals behind construction projects of all sizes, including residential buildings as well as those used for education, business, healthcare and leisure.

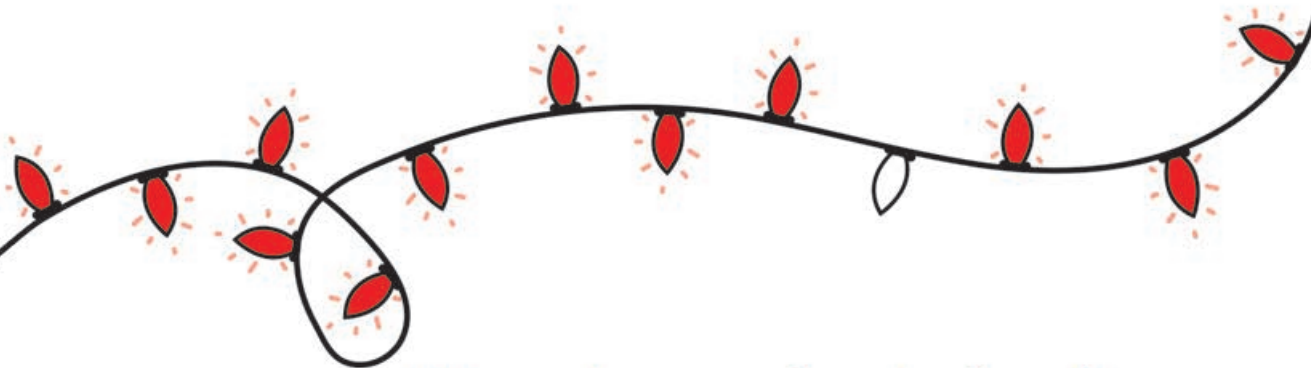
The awards celebrate the achievements of those who inspire, lead and enable the very best delivery of a project and produce buildings that have a positive impact on those who use them. They embrace the breadth of the construction process, from inception through completion and into reuse, recognising teamwork, clients and new talent in addition to construction managers.

The CIOB Awards evening really is a night to remember. The Construction Manager of the Year Award (CMYA) category is the most prestigious of all. For over 40 years it has shone a spotlight on the most talented construction managers across the UK.

Around 600 guests gathered at the Grosvenor House Hotel in London last year, where awards were presented to more than 20 individuals and organisations responsible for some of the most challenging construction projects including new schools, leisure centres, offices and homes.

For the first time awards were given specifically for sustainability and equality, diversity and inclusion (ED&I), reflecting two of the biggest challenges faced by the industry.

To find out when entries open for the 2023 CIOB Awards register your interest at <https://form.jotform.com/213555228312046>.



Thank you for bringing light to people's lives

The CRASH 2022 Christmas Card Appeal has been a great success. The generous donations from these companies will help CRASH refurbish and construct places that care for people when they are at their most vulnerable, supporting homelessness charities and those who need hospice care.

A special thanks to our Christmas Champions who donated £2,000 or more...

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Diary dates

Highlights of the CIOB Calendar for the coming month

Modular Matters 2023

► 7-8 February, 9-5pm, Birmingham

The 2023 Modular Matters Conference and Exhibition will take place at the National Conference Centre (NCC) in Birmingham.

Modular Matters features the latest developments, innovations, and investments in the volumetric modular sector. Modular technology is ever evolving and to help keep pace with this fast-moving sector, Modular Matters demonstrates how to tackle industry challenges through project case studies, innovative architecture and building design, together with net zero.

The event will cover topics such as DfMA, Skills & Supply Chain, Zero Carbon, Digital Platforms, Collaborative Design & Social Value and Designing for Modular. It represents a great opportunity to gain industry intelligence and network with those at the forefront of the volumetric modular sector. **Tickets are £145. Book through www.modularmatters.co.uk.**

What Everyone Fears the Most: Missing something critical in the tender

► 8 February, 6.30-7.30pm, online

This virtual CPD will look into the most critical points of the tender landscape and provide seven steps to help reduce the risk.

Join the CIOB London Tomorrow's Leaders and guest Gari Nickson, who has started his own successful technology company which focuses on the post-contract.

Nickson will be sharing his extensive knowledge and experience from his previous roles as a freelance estimator to main contractors and subcontractors.

This CPD will cover what estimators fear the most and will also explain, step-by-step, how to reduce the stress and risk with tendering. There will also be an opportunity at the end for a Q&A. **Contact: pfrith@ciob.org.uk**

The Future of Hydrogen: Where does it fit in a new sustainable industry?

► 16 February 6.30-8pm, Cambridge

Join Andrew Snipe, director at AS Engineering-Energy Services, for an introductory overview of the generation, use and cost of hydrogen.

During the presentation Snipe will discuss:

- Introduction to hydrogen
- Pure hydrogen as a fuel
- Emissions/decarbonisation
- Generation/formation of hydrogen
- Generation of green/brown hydrogen
- Sustainability
- Safety/protection
- Potential uses
- Mixing of fuels
- Domestic/industrial uses
- Conversions/adaptations – case studies
- Costs/availability
- Development.

Contact: sshort@ciob.org.uk

CIOB Coffee Break – February

► 24 February, 10.30-11am, online

A great opportunity to break from our monitors, phones and desk to connect with other members for a chat or catch-up.

This is a chance to meet and chat to some of our members from the London Hub. It also gives a break away from the working day. **Contact: pfrith@ciob.org.uk**

CIOB Site Visit: Re-Imagining Greyfriars, Lincoln

► 2 March, 9.30-11am, Lincoln

Heritage Lincolnshire will host this site visit to the oldest surviving friary building in England, dating

back to the early 13th century. This is a fantastic opportunity to explore this exceptional historic building and hear about its future plans.

The 'Re-Imagining Greyfriars: 800 years of stories in the making' project aims to bring the Grade I-listed building back into use as a multi-use heritage destination. (See p47 and p48 for more details.)

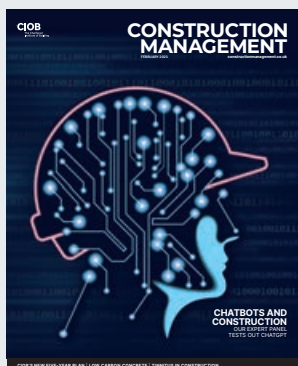
Heritage Lincolnshire is the most active building preservation trust in the East Midlands and, in partnership with the building owner (City of Lincoln Council), has developed proposals for a highly accessible and inclusive venue in the heart of the city.

The scheme has been supported by The Architectural Heritage Fund, National Lottery Heritage Fund, the Town Deal and Pilgrim Trust.

The Greyfriars was built soon after Franciscans arrived in the city in the 1230s. The friary and church were completed by the 1280s and a stone-vaulted first floor was added soon after. It was used by the religious order until the Dissolution of the Monasteries in 1538 and has since been used for many other purposes.

Contact: gflloyd@ciob.org.uk

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



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Circulation: Net average 31,416

Audit period: July 2021 to June 2022

Subscriptions: To subscribe or

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Construction Management

Published for the Chartered Institute

of Building by Atom Media Partners,

26-27 Bedford Square, London

United Kingdom. WC1B 3HP

[construction-management@](mailto:construction-management@atompublishing.co.uk)

atompublishing.co.uk

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