LUNE 2021 For members of the CIOB

NET ZERO SKILLS TRAINING PROVISION NOT ADEQUATE, SAY CM READERS

WATES'S ZERO CARBON HOMES | BAM TACKLES FEMALE SAFETY | THE FUTURE OF CONSTRUCTION FUEL



architectural acoustic finishes

Designed by architects Dexter Moren Associates, the five-star Hilton London Bankside near Tate Modern & The Shard, represents the next generation of design-led Hilton hotels.

SonaSpray fc was used throughout the magnificent underground ballroom for its medium texture, speed of installation, superb acoustic performance & unrivalled environmental credentials.

Photo by Jack Hardy Photography.







06/21 Contents

Welcome

The built environment accounts for 40% of the UK's carbon footprint so it has a major role to play in the country's efforts to reach 'net zero' emissions in three decades' time.

Unfortunately, the required skills are somewhat lacking. A CITB study in March showed the sector needs the equivalent of 350,000 new roles in the next seven years to deliver the government's 2050 target.

And worryingly, a survey by Construction Manager this month finds that 86% of industry professionals consider current net zero training provision 'inadequate' (p16-17).

Some 79% of those polled said it was 'not easy' to find suitable net zero training, and of those that had taken courses, almost two-thirds said they did not deliver the skills required.

Respondents complained about a lack of "formally recognised qualifications" and that the training available "rarely delves deeply enough into the subject".

There are positives though. Almost half of those polled said their employers were supportive of net zero training, with one saying "my company is fully focused on sustainability".

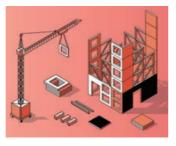
We asked a panel of sustainability experts about the skills challenge (p18-20), and one common sentiment, as Multiplex's Stephen Smith puts it, is the need to "embed net zero in all roles, not just specialists". "Everyone needs a good level of carbon literacy," adds Aecom's Robert Spencer.

Change is in the air. Wates is in partnership with Cardiff Council on a project that aims to make net zero homes more attractive and affordable to consumers (p22-26). The skills being learned and employed on this scheme may soon start to become commonplace around the industry.



Will Mann Editor,

Construction Manager and BIMplus



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▲ Tees Valley mayor visits freeport construction site

Tees Valley mayor Ben Houchen celebrated his re-election with a visit to GE's wind turbine blade factory site at the recently announced Teesside freeport. Houchen (right) met up with Robert Hall, director at local firm Hall Construction, which has just bought a £1m 90-tonne Volvo to support the project.

▲ Beard starts work restoring UK's oldest lido

Contractor Beard has started work to restore the Grade II-listed Cleveland Pools, the oldest surviving public swimming pool in the UK, built in Bath in 1815. Machinery, building materials and equipment will have to be carried upriver on a pontoon pushed by a barge because the site is only accessible by river.

► 454 hard hats laid out to represent construction suicides

A total of 454 hard hats were laid out at a building site to represent the number of construction workers who die from suicide each year. The exhibition, organised by IronmongeryDirect, marked Mental Health Awareness Week (10-16 May). Male construction workers are three times more likely to die from suicide than the average UK man.



SWNS

NEWS

Flannery apprentice Jessica Holmes at the new Operator Skills Hub in Birmingham, a joint venture between Flannery and Balfour Beatty. See Construction Equipment, p32



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

▼ Hard hat stickers to signal inclusion and mental health training

Ranbir Atwal, health and safety advisor at Fortel Group, displays hard hat stickers used in a new scheme that allows construction workers to display that they have undertaken training courses on issues such as inclusion and mental health. The Supply Chain Sustainability School and staff supplier Fortel Group have joined forces for the scheme.



▲ Perfect Circle helps build recyclable wildlife centre

Perfect Circle – a company jointly owned by Pick Everard, Gleeds and Aecom – has designed and engineered a £700,000 wildlife discovery centre using recyclable materials. The new centre in Essex's River Lee Country Park offers bird watchers 360-degree views of the surrounding area from the 5m viewing tower.





▲ Concrete and ice critical to South East Asia's tallest building

A Eurotec concrete batching plant plus a flake ice plant have worked in tandem to produce up to 200 cu m of high-quality concrete per hour for the foundations of the 644m Merdeka 118 tower in Malaysia's Kuala Lumpur. The flake ice maintains the temperature of the poured concrete within design limits required during the curing process.

◀700-tonne Tideway TBM removed by 1,800-tonne marine crane

A 700-tonne tunnelling boring machine (TBM) used to dig the Tideway London super sewer has been removed by an 1,800-tonne Matador 3 marine crane. The crane sailed up the Thames from Rotterdam for the lifting operation. The TBM was lowered onto a barge at Chambers Wharf before being taken away.

P40, Global Gleeds' Chris Soffe on rising contractual disputes post-pandemic



High-rise fire safety changes fast-tracked

Government sets out new requirements for high-rise residential buildings ahead of the Building Safety Bill

The introduction of new fire safety

requirements for planned high-rise residential buildings this summer has been welcomed by the Chartered Institute of Building (CIOB)'s quality commission chair, Paul Nash.

The changes (see below, right) will come into effect from 1 August 2021 and bring in a new gateway system for planning applications, which Dame Judith Hackitt had recommended in her independent review of Building Regulations and fire safety following the Grenfell tragedy.

The Ministry for Housing Communities and Local Government (MHCLG) said the new requirements under 'planning gateway one' would ensure fire safety matters which relate to land-use planning are incorporated at the planning stage for schemes that involve high-rise residential buildings.

The changes will be introduced by making amendments to the Town and Country Planning (Development Management Procedure) (England) Order 2015.

Planning gateway one is the first of three gateways through which developments and buildings must pass. Gateway two will make the Building Safety Regulator the only option of building control body for in-scope buildings. Construction will not be allowed to begin until the regulator has approved the building control application. Gateway three will provide a 'hard stop' at which the Building Safety Regulator



undertakes final inspections and issues a completion certificate.

All three gateways apply to multioccupied residential buildings of 18m or more in height, or seven or more storeys (whichever is reached first).

CIOB past president Paul Nash, who co-authored the CIOB Guide to Quality Management in Construction earlier this year, said: "The gateways are just part of the proposals for a new building safety regime that were set out in the draft Building Safety Bill published in July 2020. But as we saw with the introduction of a new national Construction Products Regulator earlier this year, the government is prepared to make changes to the building safety regime ahead of the bill to ensure that the residents of high-risk buildings are safe, and feel safe in their homes.

"As with the Construction Products Regulator, this latest announcement, and the clarity that it provides for our industry, is to be welcomed."

The Building Safety Bill is expected to be introduced later this year.

A new gateway system is to apply to high-rise homes

Fire safety – key planning changes

 Involve the Health and Safety Executive becoming a statutory consultee before permission is granted for high-rise residential developments;

Pequire planning applications to include a fire statement to ensure fire safety issues as they relate to landuse planning matters such as layout and access have been considered;

C Help inform effective decisionmaking by planning authorities so that those decisions reflect the needs of the local community. Building Safety Bill 'must align closely' with new Planning Bill

CIOB calls for clear timescale for legislation

Proposed government legislation to simplify the planning process should work in harmony with the looming building safety changes, says the CIOB.

The institution was commenting after the Queen's Speech last month (11 May), which introduced 30 pieces of legislation due to be passed this year, including the Building Safety Bill, Planning Bill, Procurement Bill, and Skills and Post-16 Education Bill.

The CIOB urged the government to work closely with the CIOB and other built environment organisations to ensure that its proposed bills interact effectively.

Eddie Tuttle, director of policy, external affairs and research at the CIOB, warned: "The success of the new regime is heavily dependent on how the new Building Safety Regulator is constituted and how it operates. We encourage the government to make clear its intended timescale for the bill, to ensure that the safety of our buildings and their residents is addressed as a matter of urgency."

He called for the Building Safety Bill to "align closely" with the announced Planning Bill, which is intended to create a simpler, faster and more modern planning system. And he expressed concerns that planned changes to permitted development rights (PDR) could "lock in unacceptable standard development" without safeguards.

Meanwhile, the CIOB welcomed the new Lifetime Skills Guarantee as part of the Skills and Post-16 Education Bill but said it would like to see a detailed strategy from government setting out how it plans to increase the numbers of young people joining overlooked sectors such as construction.

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METHVEN

P44, Careers How Willmott Dixon has achieved 27% female representation among staff



BAM addresses women's safety with new 'conversation cards'

Senior site manager Leanna Martin came up with the idea following the murder of Sarah Everard



Martin: "Call out harassment"

"It is key that we shouldn't feel uncomfortable having these conversations. Have the conversation. Don't avoid it just because it doesn't affect you directly – it affects us all" Leanna Martin, BAM Construct UK

BAM Construct UK is to create

'conversation cards' aimed at tackling women's safety and diversity.

The cards, produced in response to the murder of Sarah Everard and recent media focus on harassment and violence, are displayed on site and promoted through online channels, encouraging workers to start challenging conversations among project teams. Trialled on a King's Cross project and then across BAM's London region, the cards ask questions such as: "One in three women has been subject to physical or sexual violence in their lifetimes. What are your thoughts on this?"

Another card says: "Tell us about a time you may have done something to help make someone feel safer."

The cards are printed for use on site and in offices and shared through BAM's Yammer system.

Senior site manager Leanna Martin at BAM Construct UK, who came up with the idea for the 11 cards, said that the cards have been shared by the company's senior leadership teams, and diversity and inclusion resource groups. They will join BAM's other safety conversation cards, introduced in 2019.

Martin said: "The conversations have been broad and varied, but often included examples of where a female family member or stranger has had an issue and sought help and support. By opening up the conversation, it has given more light to the fact that unfortunately most women have been affected negatively by the behaviours or words of another person.

"It is key that we shouldn't feel uncomfortable having these conversations. Have the conversation. Don't avoid it just because it doesn't affect you directly – it affects us all."

Martin said negative behaviours addressed by the cards so far have included: 'mansplaining' – and how to avoid doing it or being subjected to it; loitering and 'group gathering'; leering and wolf-whistling; and avoiding making



The 'conversation cards' are displayed on site and shared online

women feel as if they are being followed, especially at night, by taking action such as crossing the road away from them.

The cards have also been published on the Considerate Constructors Scheme's Best Practice Hub, LinkedIn and Twitter, to raise industry awareness.

Martin added: "We should all be more aware about these widespread issues and be active allies in calling out any harassment and violence, as well as encouraging victims to report any incidents. As an industry, we have a great opportunity to educate and inform our colleagues and work together to make society a safer place for all."

CIOB Members' Forum

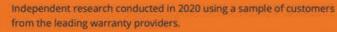
The CIOB's Members' Forum will take place virtually this year, from 21-25 June 2021. More information is at membersforum.ciob.org. The forum will, as usual, include the CIOB AGM on Wednesday 23 June 2021, which will be a virtual meeting. The president has called for a poll of members to determine the outcome of the AGM – details of an online poll will be sent to members in due course.



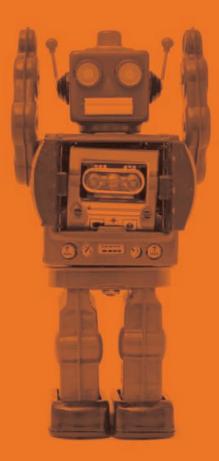
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Productivity and the post-pandemic recovery

Addressing construction's productivity puzzle is key to enhancing the industry recovery from covid-19, writes **Kris Hudson**



Measuring productivity is almost as difficult as improving productivity. Various methods (such as output per

hour, job or worker) are designed to gauge how efficiently resources are used. As pandemic restrictions lift and the UK economy unlocks, the ability to boost productivity is critical to support economic growth. This is particularly pressing given covid-19 and Brexit generated huge challenges around performance and resources – putting pressure on skills and availability of labour, supply chain capacity, project schedules and costs.

At a country level, the Organisation for Economic Co-operation and Development (OECD) reported that UK productivity was hit harder by the pandemic than any other G7 nation during 2020. GDP per hour worked fell by -19% from Q1 to Q2, significantly more than the next lowest – France – which declined by -11.2%. On an industry level, there was a similar trend in UK construction. Output per hour, measured by the Office of National Statistics (ONS), recorded a -7.9% drop in the sector's productivity growth over the same period.

Yet the construction sector's productivity recovery after Q2 2020 was notably improved, increasing by 9.8% from Q2 2020 to Q4 2020. Not only was this ahead of any other core UK sector, but it was even above pre-covid-19 levels. Some of this growth was due to increasing unemployment mixed with burgeoning activity following the first lockdown, but it doesn't devalue the industry's response to the pandemic – adopting new procedures and processes, and increasing resilience and planning on programmes.

The industry has shown that it can adapt and innovate – learning valuable lessons from the months of uncertainty and disruption – but a few periods of growth do not make a trend. Data from the Q1 2021 Royal Institution of Chartered Surveyors (RICS) UK Construction and Infrastructure Monitor suggest that productivity is currently -5% lower than prepandemic levels. While this could be a nuance of measurement, it's clear the long-standing productivity puzzle remains unsolved.

Construction needs to retain an innovative mindset to improve value and boost productivity – embracing digital transformation and modern methods of construction to drive higher performance. Once change is enacted, rather than postulated, only then will the industry be able to rise to meet the challenges it faces, and to achieve its environmental, social and economic goals.

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

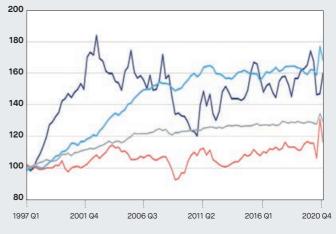
Productivity in core UK industries, output per hour

Index:1997 Q1 = 100 — Agriculture — Manufacturing — Construction — Services

This is up from 25% in Q4 2020.

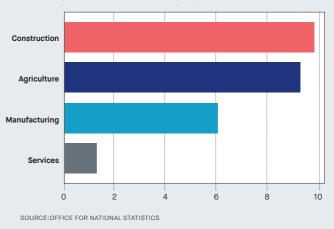
Percentage of respondents to the Q1 2021 RICS Construction and Infrastructure Monitor who

reported labour shortages in the trades in 2021.



SOURCE: OFFICE FOR NATIONAL STATISTICS

Productivity in core UK industries, output per hour: 2020 Q2 - 2020 Q4



News in numbers



Number of new skyscrapers which will appear in the City of London by the mid-2020s, should applications recently approved by the Corporation be built.



Percentage of construction firms reporting increased or unchanged turnover for Q4 2020 from the usual rate at this time, according to ONS. 90

Percentage of heavy side manufacturers reporting an annual rise in materials costs as of Q1 2021, according to the CPA.



Percentage fall in furloughed construction workers in March 2021, according to HMRC, bringing the total down to 196,000.



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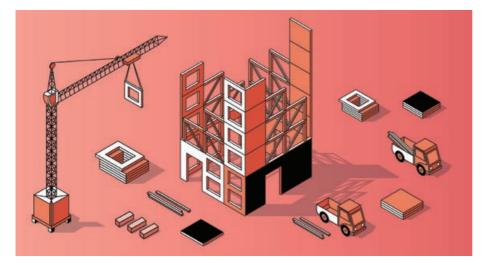
🔘 Opinion



Zoe Price

P-DfMA and the role of tier 1s

Understanding platform-DfMA and what it means for our organisations could be key to transforming the construction sector, says **Zoe Price**



The Construction Playbook shows that the government sees modern methods of construction (MMC) as a central plank in its strategy to create better outcomes from its annual £37bn investment in construction.

One prominent MMC methodology is platform design for manufacture and assembly (P-DfMA) – a standardised approach to construction components. Understanding what this means for our own organisations, and where we all fit within the new P-DfMA universe is critically important to efficient implementation.

So what does P-DfMA mean to you? Is it a product or a service? Coming from a tier 1 contractor, I'm firmly in the 'service' camp: we see our role as the integrator, interrogating the customer's requirements in a collaborative forum of expert partners, including consultants, manufacturers and assembly teams. The expertise main contractors bring to every project is that big-picture realisation of client vision translated into built reality, managing programme, budgets and risk, and providing guidance and action on operational, sustainability and social-value considerations. Bringing together teams in the pursuit of innovation and efficiency is central to all high-performing contractors – so P-DfMA as a service seems a natural fit for tier 1s.

The P-DfMA service we provide to customers uses this skill set to bring together the best supply chain partners to collaborate in a 'manufacture first' mindset. P-DfMA methodology is linked to digitalisation and data-driven decision-making, so requires contractors and supply chain partners to upskill talent and identify future recruits, who may come from manufacturing and technology backgrounds. "Tier 1s will have an influential role to play driving positive behaviours relating to materials and circularity principles as we look towards the 2050 net zero target"

P-DfMA operates around repeatable and consistent quality achieved through factory manufacture and the reduction of waste, inefficiency and unsafe practices via swift onsite assembly. Tier 1s will have an influential role to play driving positive behaviours relating to materials and circularity principles as we look towards the 2050 net zero target.

We've adopted a 'solution-agnostic' approach to P-DfMA at ISG. We're not product or manufacturing experts, so why box in our supply chain with preconceived notions. We are looking for innovation and creativity, so it makes sense to ask our supply chain how we can collectively achieve the goal.

This is the way we also counter the argument that P-DfMA will create identikit buildings and is the central theme behind our participation in the Construction Innovation Hub's Platform Design Programme as an 'integrator' and our standard component design programme with the Department for Education (DfE). Standardising and optimising repeatable spaces – figures suggest 70% of the public pipeline can be standardised – frees up capacity to enrich those unique spaces that create the character of a building.

The Construction Playbook draws together a template for smart construction procurement in the 21st century. Knowing where our expertise fits within this framework means we can exploit the possibilities for operational and delivery excellence that will transform our sector, and the performance of our built assets for generations to come. Zoe Price is chief operating officer for UK construction at ISG.



Caroline Gumble



The CIOB's visual identity reflects its place in a changing industry

Leading the industry's cultural shift

The CIOB's new look reflects how we engage with a younger, more inclusive, global community, writes **Caroline Gumble**

You may have noticed something different

about us recently – and it's not just the new haircut. The CIOB has had something of a makeover and I'm delighted with our fresh new look.

As my colleague Kate Macbeth outlined in last month's *CM*, we wanted our visual identity to help us stand out from the crowd and help create clarity and consistency when communicating our message.

If you haven't seen the new look yet, please do visit the website or check out CIOB's social media. You'll see new styling, a different approach to our use of photography, a refreshed colour palette and typography.

As Kate said, the CIOB identity is "so much more than a logo... it is the anchor to who we are and what we do. The single most important way for audiences to recognise the brand and the stamp on anything we do."

From a more personal point of view, this project was always more than a brand refresh. As an institute, we have a clear purpose and a mission. We have ambitions for our organisation, our membership and for the future of the built environment. Our new branding reflects who we are more clearly. We're proud of our heritage and our Royal Charter. We've continued to reflect that in the look and the logo – and we still have the lion to stand alongside the logo when used on our official correspondence.

We also now have an updated identity, more impactful and clearly signalling that we know construction is changing and we intend to help drive that. You'll probably be aware that we have talked about the moral compass of the construction industry – a look which acknowledges we will be at the forefront of the cultural shift is important.

Another important part of the new look is to reflect how we engage with a younger, more inclusive global community. Many of you will have heard me talk about these things – about bringing new talent into the industry and helping create a more diverse community. A visual identity reflecting a clearer, more forward-thinking, international brand was one of the things at the heart of this work.

As ever, my thanks go to the members who've participated in this process – which took more than a year – and to all my colleagues who are bringing our new look to life.

Caroline Gumble is CEO of the CIOB.

Three events shaking up construction

Mark Beard reflects on a tumultuous time for the industry



On 23 June, my 12 months as president of the CIOB concludes – 33 years after I became a member. The CIOB, construction

and society are very different from when I joined the institute, but the pace of change today makes it difficult to predict the shape of our industry in 33 years' time. However, I thought it would be interesting to consider how our world and the CIOB may evolve over the next third of the century.

Three seismic events over the last five years give us a strong clue about the likely direction of travel.

First Brexit, and then covid-19, mean over 30 years of globalisation has gone into reverse. As an industry, we need to become far more self-sufficient regarding labour, materials and building components. The relative lack of cheap immigrant labour will force our industry to modernise and pre-manufactured building elements will likely become common in all building types.

Meanwhile, the Grenfell Tower tragedy and subsequent inquiry has not shown our industry in a good light. Society will expect us to construct buildings that are safe and of a high quality. We will have to demonstrate that what we have built is right, not just to the approved specification.

So how should the CIOB respond to these challenges?

Firstly, we need to constantly remind ourselves of our purpose, defined by our Royal Charter, and our unique role within the industry.

Secondly, we need to collaborate more with other organisations, creating mutually beneficial relationships, being part of one industry voice to government.

Thirdly, we need to increase the research we carry out on behalf of our industry, making sure it is relevant to a fast-moving world, and using it to influence policy.

Finally, we must remember it is CIOB members who pay for everything the CIOB does. We need to keep listening to their needs, adapt our service to a changing world, and, above all, ensure their hardearned qualification is recognised as the gold standard in our industry.

It has been an interesting year, being the 'first virtual president' in the CIOB's 187-year history, but I hope I have made a small positive impact on our industry. Mark Beard is chairman of Beard Group and president of the CIOB.



Louise Priestman

How do we balance heritage with net zero?

Arup's **Louise Priestman** on the challenge of marrying conservation and sustainability goals



Arup worked with BAM and Heatherwick Studio on Coal Drops Yard at King's Cross, using roof slates from the original quarry

Heritage and sustainability are both key

issues on the built environment agenda – yet when the two meet, opposing priorities often clash.

Sustainable techniques are designed for thermally efficient and well performing new builds. Meanwhile, historic buildings are designed to 'breathe' and be permeable. Once you take that away, you compromise the integrity of the structure.

Both issues are of great importance to our collective social wellbeing – so how do we marry heritage and sustainability goals?

The Net Zero 2050 target presents a major challenge for heritage buildings. Achieving zero carbon in a historic building

can lead to permanent damage to historic fabric. Most recently, cavity wall insulation grants led to thousands of buildings suffering unnecessary damp and moisture problems. Yet there are still grants to install non-breathable insulation into historic fabric.

Adapted buildings are a different story. There should be an honesty in expressing new elements while maintaining a sense of scale or identity with the original building.

An example of this is Arup's recent renovation of Coal Drops Yard at King's Cross in London: while the building's striking pitched roof was clearly a contemporary intervention, by using slates from the original quarry, a relationship was created between the new and old.

Historic buildings need their own version of adaptability, which means recognising the needs for each building individually. Every heritage building is different. There is no 'one-stop shop' solution. A tailored approach is required for our historic fabric. It is important to understand the needs of the building and the behaviour of its users.

It is the responsibility of designers and engineers to unpick the nuances of each building and find a solution that can mitigate some of the challenges of installing 'sustainable' products. While there are inherent challenges in this, they can be tackled with creative thinking combined with rigorous research.

This is why Arup puts significant investment into researching new technologies, digital solutions and material advancements to meet the challenges in maintaining valuable heritage buildings while meeting crucial sustainability goals. When doing so, our starting place is always to acknowledge that the heritage significance, condition, construction and use of the building are the foundations on which a carbon reduction programme must be built. • Louise Priestman is conservation architect at Arup.

Feedback

A selection of readers' comments about news and issues from **www. constructionmanagermagazine.com**



CM 30/04

Government consults on cladding remediation tax on developers

Peter Brooker

Putting the cost solely onto developers misses two key parts of the supply chain that should be contributors to any remedial costs. While everyone is focused on the cladding and therefore the material supplier, what about poor installation, particularly missing firebreaks in the cladding and around windows and any poorly installed fire detection and suppression systems? This is defective construction and should be borne by the contractors and, if they are no longer in business, perhaps the warrantors.

Stewart Craven

Why doesn't the government make the cladding manufacturers pay up for this debacle? You will always get installers who don't come up to scratch and lack knowledge. Stop making the 'customer pays' philosophy the norm. A radical rethink needs to happen.

CM 05/05

Workers urged to open up over stress

Name and email address supplied I believe that I suffered from being overworked and blamed for things that were out of my control, as well as being verbally abused on site by a worker. This had been going on for over six months, sometimes in front of my line manager, and nothing was done about it so I decided to document the abuse in writing. Unfortunately I let a work coach from head office know this fact and within two weeks I was paid off, citing a lack of trust. Since then, I have been in and out of work but would really like to leave the industry and do something completely different - in other words, less stressful.

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FOUR IN FIVE CONSTRUCTION PROFESSIONALS SAY NET ZERO TRAINING 'INADEQUATE'

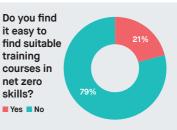
A CONSTRUCTION MANAGER SURVEY INDICATES THERE IS A HUGE SHORTFALL IN NET ZERO SKILLS TRAINING PROVISION ACROSS THE INDUSTRY



Do you receive adequate net zero skills training currently? • Yes • No The scale of the built environment's net zero skills challenge has been laid bare by *Construction Manager* research which found that 86% of industry professionals consider current training provision 'inadequate'.

The research follows a CITB study which shows the sector needs the

"At the moment the schemes we are involved in do not require it" "Everyone is waiting for legislation/technical standards to use as justification for training"



equivalent of 350,000 new roles in the next seven years to deliver the government's promise of net zero emissions by 2050.

But some 79% of those polled said it was 'not easy' to find suitable net zero training, and of those that had taken courses, almost two-thirds said they did not deliver the skills required.

"We need formally recognised qualifications following rigorous training on what net zero means in practice," said one respondent.

Courses on traditional (pre-1919) buildings and retrofit were seen as the weakest, with 35% and 29% respectively of respondents describing training they had taken as 'not useful'.

Specialist or private training providers are the course deliverers of choice (72% of those surveyed), with product manufacturers (41%) a distant second.

One respondent said "This type of training rarely delves deeply enough into the subject to get a full understanding" while Retrofit

Traditional buildings (pre 1919)

Building envelope

Other onsite energy, eg solar PV

Whole building

performance

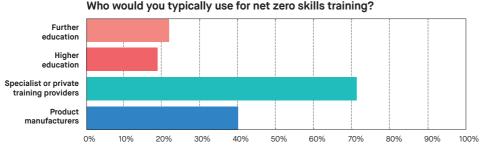
Quality of

0%

10%

installation MMC/offsite manufacturing

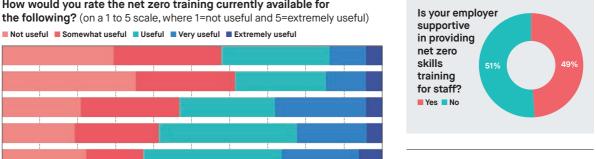
Heat pumps



How would you rate the net zero training currently available for

■ Not useful ■ Somewhat useful ■ Useful ■ Very useful ■ Extremely useful

"There are plenty of tools online and CPD sessions if you are interested in finding them"



"This type of training rarely delves deeply enough into the subject to get a full understanding"

another complained "There does not seem to be consistency across the provider market".

30%

40%

20%

Another said they would be more likely to book net zero training if it "works for all, not just the big boys".

More positively, almost half (49%) of respondents said their employers are "supportive" of equipping staff with net zero skills. One said: "My company is fully focused on sustainability, net zero emissions and the environment as a whole."

80%

90%

100%

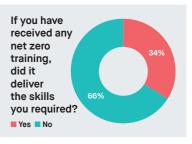
70%

Another commented: "There are plenty of tools online and CPD sessions if you are interested in finding them."



"At the moment the schemes we are involved in do not require it," said one.

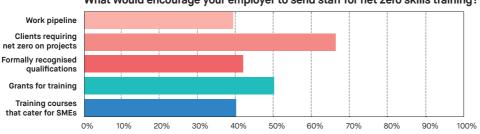
Over 150 construction professionals responded to the survey last month on CM's website.



What would encourage your employer to send staff for net zero skills training?

50%

60%





HOW CAN CONSTRUCTION UPSKILL FOR NET ZERO?

FOR CONSTRUCTION TO DELIVER ON ITS NET ZERO GOALS, THE SKILLS GAP MUST BE ADDRESSED. **CM** ASKED A RANGE OF SUSTAINABILITY EXPERTS HOW THE INDUSTRY SHOULD PREPARE ITS WORKFORCE FOR THE ENVIRONMENTAL CHALLENGES AHEAD

"A lot of small changes will add up"



Julia Barrett Chief sustainability officer, Willmott Dixon

The most important thing is for everyone in the industry to understand the part they can

play in delivering a net zero economy. A lot of small changes will add up. We are going to need a lot more skills in terms of automation, big data, offsite construction, sustainability, change management, project management – things that people don't always think of when they think about construction. We need to promote careers in the industry better, making it more accessible and more aspirational.

When we talk about net zero, we are talking about timescales that are not tomorrow. They might be 2030 or 2050. The problem with long timescales is there is always something more urgent to do today. We need to create a problem that is immediate and needs a reaction.

Willmott Dixon is involved in the Supply Chain Sustainability School, which provides free learning, advice and support. We have a portal, a bit like a personal carbon calculator, that calculates fuel use in the supply chain and helps companies to reduce their carbon footprint.

We are also involved in the Aldersgate Group. It's an alliance of leaders from across business trying to drive change for a sustainable economy. In October last year, we launched a skills briefing calling on government, businesses, and education providers to collaborate on boosting the supply of skills across the low-carbon economy.

"Everyone needs a good level of carbon literacy"



Robert Spencer Director, sustainable development, Aecom

If you are going to get contractors, design engineers and architects all working together on net zero, then

you need a common language and that language has to be carbon. We have been working in Aecom for the last year or so with a net zero emissions buildings taskforce to look at this exact challenge.

We have not got a skills shortage within Aecom but we have got a need to bring everyone up to a good level of awareness of carbon literacy. It is about being able to understand what the carbon implications of your design are. And that then can drive your design principles for how you actually build assets out going forward.

There are areas where you can get some very quick wins in terms of carbon. In the built environment, the carbon required for energy and heating and lighting is not as significant as the carbon you embed in the projects during the capital works. So if you can come up with design solutions that are going to reduce that embodied carbon then you are onto a winner.

You might be able to use the existing foundations on a brownfield site, rather than building a new corporate headquarters on a greenfield site, for example. If an existing building is in such a bad state that you need to take that building down, you could still use some of the foundations, plus you could use a modular or prefabricated approach.



"Embed net zero in all roles, not just specialists"

Stephen Smith

Executive director SHEQ Europe, Middle East and Canada, Multiplex

We recently launched One Decade to Act: Our Net Zero

Carbon Pathway, which sets out our plans for how we will become net zero by 2050, including supply chain emissions.

While acknowledging that we don't yet have all the answers, the cornerstone of our approach is to champion cultural and behaviour change within our business, our clients and supply chain, to find solutions together. We have already started a campaign to educate our staff on the climate emergency and the impact of the construction industry.

The next step will be to provide each role in our business with specific actions they can take to eliminate carbon from our projects. We will be establishing specific green skills and jobs targets for our business for 2022, 2025 and 2030.

We will embed net zero skills into all current roles, ensuring every person has the required skills, knowledge, experience and behaviours to help the business transition to net zero. Action cannot be isolated to a few specialist roles.

"Every course needs to be net zero compatible"



Jean Stevens Managing director, Duprez Consulting

We need to act now and set out milestones for net zero because the pace of action required

means we need to be absolutely clear on what will happen and by when. 2050 sounds far away but we need shorter-term, harder targets.

Net Zero 'greening' of existing housing stock needs to be undertaken in a timely fashion, scheduled in with existing housing repairs and improvement plans, so as to be more cost effective, more productive and cause less disruption to residents.

Communication is the single biggest barrier to improving training for net zero skills. With no clear policy direction emerging and policy not being informed by specialists, the information coming out is woolly and inconsistent. Every educational course needs to be made 'net zero compatible' quickly. We are already churning out the new workforce without the relevant skills required to achieve net zero.

I am working with The Skills Centre, who will be delivering skills for retrofit, green new build and specialist green occupations. We have recently developed 'Greening London Construction' which supports a range of green interventions including L1/2/3 gualifications, personal support, job entry and in-work support. Staff have the opportunity to obtain a net zero qualification and we are promoting business mentoring across the supply chain to improve understanding of the green agenda.

"We need more skills across the life cycle"

Alastair Mant



Director of business transformation. UK Green Building Council

Construction companies need to identify the role of their

organisation, themselves and their employees in achieving the targets. The industry and individuals don't currently know what net zero actually requires.

They also need the time to identify and then fill the skills gap. We need more skills across the life cycle. It needs to become part of all professionals' work and development.

And it's not just technical skills that are required but also different ways of thinking and acting. That is why we run a number of courses which focus on leadership, purpose, storytelling, systems thinking and innovation methods.

We have led the creation of the Net Zero **Carbon Buildings Framework Definition and** try to provide clarity through documents such as our guidance on renewable energy use and carbon offsetting.



"Empower and mobilise the carbon pioneers"



Andrew Mather

Associate - strategic sustainability, Ramboll UK Closing the green skills gap will be transformative and must be prioritised by the sector,

government, educational systems, and investors. Green skills can be broken down into two

parts: a baseline green skill set or 'carbon literacy' and a more advanced, innovative green skill set or 'carbon pioneer'. Both have different hurdles.

Carbon literacy is well established within sustainability teams across the industry but often does not extend far into organisations, in particular contractors and the supply chain. Embedding it into everyday conversation across the construction industry is the first step and can be easily actioned by good leadership at project, company, and industry levels.

The bigger challenge is empowering and mobilising the 'carbon pioneers'. These people, in emerging new roles, will challenge the status quo. They need support and funding to develop the new materials and processes.

"Industry and education should work together on relevant content"

Luke Osborne



Energy and emerging technologies advisor, ECA

Construction employers should understand the gravity of the situation ahead of us

and the fact that each and every part of the industry will need to play its part.

Having an awareness of the direction of travel and the scope of works to be installed will be essential. Workers should be supported through relevant training and qualifications needed to deliver the works.

The obvious are things such as heat pump and EV chargepoint installation training - but there are many more things to consider. Smart controls, building automation and control systems (BACS) and energy storage will also be key players.

The biggest issue is in ensuring that there isn't a sudden knee-jerk reaction leading to the creation of numerous courses that do not actually address the requirements. It is important for industry to work together with education providers on relevant content and a commonality of standards. Existing apprenticeships should be re-evaluated and new skills and requirements incorporated.

"Retrofitting existing buildings is the biggest challenge"

Ingrid Berkeley



Senior sustainability consultant and partner, Max Fordham

Retrofitting existing buildings to make them net zero carbon is

the biggest challenge the construction industry will face in meeting the UK's goals.

The industry needs to invest in training in how to construct and retrofit buildings to Passivhaus standards and use of heat pump technologies. Training will be required not only for installers but also occupants in terms of the new technologies required - changing from gas boilers to heat pumps is a big change in mindset and is not as simple as simply taking out a boiler and replacing with a heat pump.

It is crucial that a fabric-first approach is taken using methods like Passivhaus to reduce the energy demand of buildings before changing their heat source to electric.

A set of practical design and specification interventions for designing for longevity and lower embodied carbon also needs to be developed.



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BUILDING NET ZERO HOMES THAT BUYERS WANT

A GROUNDBREAKING HOUSING PARTNERSHIP BETWEEN CARDIFF COUNCIL AND WATES AIMS TO SHOW THAT NET ZERO HOMES ARE WORTH MORE. **KRISTINA SMITH** FINDS OUT HOW

Would you pay £6,000 more for a

low-carbon home? That is the question that the Eastern High housing development in Cardiff is asking.

Cardiff Living – a partnership between Cardiff Council and Wates Residential – is developing a mixture of affordable homes and homes for sale which promise significantly lower energy bills and a trajectory to net zero carbon by 2035, when grid decarbonisation is factored in. To do this, the homes will be equipped with a raft of low-carbon technologies and an innovative energy management system which pushes and pulls electricity from the grid at the optimum times.

However, it isn't the technology that will be the biggest hurdle on this development, according to Stuart Jones, Homes at Eastern High in Cardiff will benefit from an energy management system which pushes and pulls electricity from the grid to achieve the lowest cost and lowest carbon energy principal design manager at Wates's Cardiff office. It may be unusual to use so many low-carbon elements at this scale for general-needs housing, but there's nothing that is not proven.

"The new element is the marketing and sales. Will it demonstrate that we can realise enhanced sales values to pay for the cost of the uplift in energy performance?" says Jones, who has been involved since the scheme's inception.

Eastern High will be a testing ground for a new green mortgage from Monmouthshire Building Society which, for the first time, takes into account the lower energy bills these homes will have (see box, p24). This could have wider implications for both new-build and retrofit projects in



establishing that low-carbon homes are worth more than those with more standard energy consumption.

Rising energy performance

The 214-property development, on the former site of Eastern High School off Newport Road in Cardiff, is part of the 1,500 homes that Wates is delivering for Cardiff Council, from concept through to delivery. It comprises a 44-apartment Community Living scheme for older people, 21 two- and three-bed council houses and 149 properties for sale.

Improving energy efficiency has always been part of Cardiff Living's remit. Phase one schemes are being delivered with a 17% uplift in energy performance compared to current Building Regulations. Phase two, which includes Eastern High, must go further. So, as well as an improved fabric that delivers the 17% uplift, Eastern High homes will benefit from ground source heat pumps, smart thermal storage, PV panels, batteries and electric vehicle (EV) charging.

Project team

Eastern High, Cardiff Client: Cardiff Living (Cardiff Council-Wates Residential partnership) Contractor: Wates Value: £61m Contract form: JCT D&B Energy management service: Sero Energy Ground source heat pumps contractor: . Thermal Earth Groundworks: Randalls Start on site: December 2020 Completion: 2023

Construction

development

The clever bit is the low-carbon 'brain', a home energy management system provided by low-carbon housing specialist Sero (see box, p26).

"We run energy in residents' homes on their behalf and they get a lower energy bill, without them needing to do anything," explains Andy Sutton, Sero's founder and design and innovation director.

"We run the homes to get the outcomes that the residents want, such as hot water, the right level of heating in each room, EV charging, and we do it at the lowest possible cost and the lowest carbon footprint." Monthly energy bills could be between £30 and £40.

Part of the additional cost of the low-carbon technology and grid management software will be paid for via a grant from the Welsh government's Innovative Housing Programme (IHP). Wates and Sero - which hooked up for the scheme because they happened to be co-located in the same building - worked together on a funding bid which resulted in a £4.1m grant ▶

Construction manager CV: Stuart Jones



Uplift in energy

performance for phase one compared to **Building Regulations.** Phase two will go further

> Stuart Jones is principal design manager for Wates's Cardiff office, with responsibility for the region. Before joining

17%

Wates just over three years ago, Jones was development director for Morganstone and before that Greenhill Construction, Previously, he spent nearly nine years as technical director for Leadbitter. Having gained a Geography degree at the University of Wales, his career began in the social housing sector with jobs at Hendre Housing Association, Lovell Partnerships and Kier Partnerships.

"The supply chain was trying to build what they have always built, but our QA system picked that up" Stuart Jones, Wates





which will cover all the technology costs for the affordable housing and some of those for the properties for sale.

Challenges on site

With enabling works underway in early 2021, Wates planned to start work on its first show home in April. Construction of the Community Living block was due to start in August, in parallel with the first few phases of general needs low-rise housing. The whole build-out is scheduled to take until 2025.

Jones foresees few problems with installing the low-carbon technology. Care needs to be taken with setting out the borehole arrays for the ground source heat pumps - three boreholes to feed between four and five houses - due to future easement issues, and once installed they must be protected. But this is established technology, he says, installed by specialists.

On the other hand, site management must keep an eagle eye on the standard trades – these houses are traditional brick and block – to make sure the thermal bridging details are right.

"We have had the odd glitch on earlier schemes," says Jones. "We Eastern High includes a 44-apartment Community Living scheme for older people

"Typically, someone would commission the boiler, someone else the MEV heat recovery. Now all the systems need to be commissioned together" Stuart Jones, Wates

have bespoke thermal bridge details which are not radically different from standard ones, but they are a little bit different. At times, the supply chain was trying to build what they have always built, but our QA system picked that up and many of our supply chain work on multiple repeat sites, so the same mistakes are avoided next time."

The most challenging stage in terms of the technology will be its commissioning, says Jones.

"Typically, someone would commission the boiler, someone else the MEV heat recovery. Now all the systems are interlinked and need to be commissioned together: grid management software, PV, battery, hot water storage, ground source heat pumps. It needs more

Green mortgages for net zero homes

New finance models are recognising the value of energy reduction in the housebuying process

Homebuyers on the Eastern High development will be able to take advantage of the first-of-its-kind mortgage from Monmouthshire Building Society.

"The society has developed a tool that recognises the efficiency of owning a higher EPC (energy performance certificate) property," explains Monmouthshire Building Society's lending operations manager Graham Sumsion. "As such, it lowers the contribution you make to energy costs as part of the affordability calculation and enables a higher amount for the borrower versus a lower rated property."

This mortgage represents a significant step forward for housing valuation and green mortgages, an issue Sero's Andy Sutton pursued in a previous role at BRE Wales. There, he led a project called LENDERS (Levering Economics for New Drivers to Energy Reduction and Sustainability) which proposed a system to better reflect energy costs in mortgage applications.

"One of the problems is that net zero typically costs more in capital construction cost," says Sutton. "But the person who pays typically is not the one who pays the energy bill."

Monmouthshire Building Society will also be offering the mortgage at a development in Parc Eirin in Tonyrefail, where the second tranche of housing is about to be put on the market. This 225-home development – a partnership between Pobl, Tirion Homes and Sero Energy – also benefited from an Innovative Housing Programme (IHP) grant to the tune of \pounds 7.6m, which paid for a much higher proportion of the low-carbon technology on the homes for sale.

The first phase of Parc Eirin sold out before the green mortgage was ready for market. Eastern High, where an additional £6,000 will be added to the properties for sale to part-fund the low carbon technology, could be the real testing ground.

An alternative finance model at Eastern High could see an arrangement where the homeowner does not pay the additional £6,000 uplift cost. Instead, Sero will pay the cost and take payment over a 10-to-15-year period, using some of the energy bill savings each month. So, the householder would still pay less for their energy, but not as little as those who had paid the £6,000 extra upfront.

There is still a question mark over how this alternative model might be received by potential buyers, says Jones: "Is that going to introduce another level of complexity and uncertainty?" Wates also wondered whether buyers might baulk at signing up with Sero to manage their energy, but they don't have to and it hasn't been an issue at Parc Eirin, reports Jones.

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"Residents have to be enjoying a better quality of life at a lower cost. The ultimate goal is for energy bills to be south of £50" Andy Sutton, Sero



Sero's Whole Home Survey app is being used to assess homes as part of a retrofit programme with 26 social housing providers

work and that needs to be factored into the programme."

Sero will oversee the commissioning, with Wates planning fact-finding missions to some of Sero's other developments – including Parc Eirin at Tonyrefail and another scheme at Ely Mill, Cardiff, where just three houses are getting the low-carbon treatment.

Though Sero is 'agnostic' when it comes to hardware suppliers, it has been forced to play a closer role in sourcing the home control systems which monitor energy use and send signals to the batteries or EV charger. "There are a couple of small-scale providers, but not many," says Sutton.

When *CM* spoke to Sero, it was about to sign a deal with a large electronics hardware manufacturer to ensure robust and warrantied control systems are available for the new-build and retrofit homes it plans to service.

Is it worth it?

It remains to be seen whether the Eastern High scheme will prove that low-carbon homes are worth more than bog-standard ones. Without the IHP grant, the additional cost added to each for-sale property would be far higher than £6,000.

However, the cost of low-carbon technology is falling fast, according to Sutton. "For the very first schemes, the uplift was £30,000. Now, it is just under £20,000. Next April we expect the cost to be under £10,000 and potentially around £5,000," he says.

Cardiff Council isn't convinced. On subsequent developments for Cardiff Living, the plan is to use similar low-carbon technology combinations for the affordable housing but not for the homes for sale. "We are looking at a scaled-down version on the houses for scale. When Cardiff looked at the uplift, they decided it was too big an impact on their sales value," says Jones. Perhaps Eastern High will change their minds.

Construction work on Sero's low-carbon development at Parc Eirin, Tonyrefail



The net zero evangelist

Sero founder Andy Sutton is setting out to convert the housing stock in Wales



Andy Sutton's ambitions aren't modest: he's out to decarbonise the whole of Wales' housing stock – and that's just for starters. An architect by profession and in the early part of his career, he spent 10 years with BRE Wales before founding Sero in 2017, where he is director of design & innovation.

Sero is part developer, part low-carbon technology consultant and part energy management mastermind.

Sutton says: "Our mantra is reduce, balance, generate. Reduce means a fabric-first approach and getting the right kit in a home. Balance is drawing the right energy from the grid at the right time. Generate sees some energy generation on, if possible, combined with technology that can turn housing developments into 'virtual power stations'."

On new housing such as Eastern High, Sero is working with the developer to advise on the low-carbon elements of the build and to supply its energy management service. Customers can interact via an app or customer services team, with Sero helping to set heating and hot water patterns to optimise comfort.

Meanwhile, Sero also minimises energy cost and carbon footprint by controlling where energy comes from and when – for instance EV charging could be switched on to take advantage of a blustery night at a wind farm. "Residents have to be enjoying a better quality of life at a lower cost," says Sutton. "The ultimate goal is for energy bills to be south of £50."

Sero will be adding 500 new homes that are starting on site this year to its books and 2,400 existing homes, many via the Optimised Retrofit programme. With £13m of Welsh government funding, Sero is working with 26 social housing providers and other partners on **Optimised Retrofit and has** developed a Whole Home Survey app for professionals to use to assess homes. Data from this will feed into Pathways to Zero app that will work out the best way to decarbonise that property.

The idea is to get away from single element retrofit programmes which don't make carbon sense, such as fitting super-efficient condensing boilers into draughty, singleglazed homes.

To test its concepts, Sero is also carrying out its own developments. Parc Hadau in Pontardawe is one: 35 homes built around a central community space with cars limited to its boundaries. Extensively landscaped with 'gold standard' SuDS, the homes will have crosslaminated timber (CLT) walls, concrete floors for thermal mass and – if they stack up financially – blue-green roofs.

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ADDRESSING THE CARBON WITHIN

TO REDUCE EMBODIED CARBON IN CONSTRUCTION, YOU NEED CARBON CALCULATORS – AND THREE HIGH-PROFILE TOOLS HAVE RECENTLY BEEN LAUNCHED. **CM** REPORTS





"If you've never done a carbon calculation in your life, within two minutes of using the tool

you can work out the carbon footprint of a beam or column" Will Arnold, IStructE

Carbon reduction targets are scary: to avoid the catastrophic effects of a 1.5 deg C of global warming, the UN's Intergovernmental Panel on Climate Change suggests that humanity must curb its carbon emissions by 49% by 2030 and achieve carbon neutrality by 2050.

To cut carbon, we must first measure it wherever we can find it – and there's a lot of carbon to be found in the built environment (see UK Green Building Council definition, box).

In recent months, three highprofile carbon calculators have been revealed: Balfour Beatty's AutoBIM Carbon Calculator and the Costain/ Winvic tool are both in testing (see boxes), while the Structural Carbon Tool from Elliott Wood and the Institution of Structural Engineers (IStructE) was launched a month ago and is already in the hands of more than 1,400 people.

The Structural Carbon Tool is free to everyone: you don't have to be an IStructE member to download it. It's an Excel-based tool, aligned with BS EN 15978, BS EN 15804, and is based on Elliott Wood's in-house carbon calculation tool, reconfigured to interpret IStructE's *How To Calculate Embodied Carbon* document.

Will Arnold, head of climate action at IStructE, says: "It's designed to be universally applicable to any size of project, to any size consultancy anywhere in the world. The idea is that if you've never done a carbon Digital story for CM or BIMplus? Email will.m@atompublishing.co.uk

calculation in your life, within two minutes of using the tool you can work out the carbon footprint of a beam or column. And within half an hour, you can measure a basic structure if you've got the quantities to hand."

The user keys in the material specifications and the quantities; the tool then multiplies the quantities by the relevant carbon factors and outputs a raft of information designed for the user to understand where carbon hotspots are in a project and target those hotspots for alternative approaches either in design or material specification to help reduce the carbon. This includes the Structural Carbon Rating Scheme (SCORS).

The tool's output includes an 'equivalence' function that generates a simple real-world comparison for how much carbon is embodied in a project – for example, its carbon could be equivalent to 1,400 one-way flights from London to New York.

Arnold says: "It's quite important that we try to retain an aspect to this tool that enables the engineer to speak to the client in terms that they understand.

"It's always worth bringing it home and highlighting to the client that if they pick option A instead of option B, it's the equivalent emissions of 1,000 cars being driven around the UK for a year or whatever."

Arnold notes that the UN-affiliated Global Status Report For Buildings And Construction reported the



d carbon (tCO,e)

The IStructE calculator estimates embodied carbon for structural elements by material type and provides a real-world comparison of the savings

manufacturing, transport and installation of structural materials accounted for 10% of energy-related CO_2 emissions in 2019. In a call to the wider industry, he adds: "The industry lacks data on the carbon emissions from site activities, such as the use of plant and equipment. We would love to hear from contractors who are collecting such data on site."

Defining embodied carbon in construction

The UK Green Building Council defines embodied carbon thus:

"Embodied carbon is the total greenhouse gas emissions (often simplified to 'carbon') generated to produce a built asset. This includes emissions caused by extraction, manufacture/processing, transportation and assembly of every product and element. "In some cases (depending on the boundary of an assessment), it may also include the maintenance, replacement, deconstruction, disposal and end-of-life aspects of the materials and systems that make up the asset. "It excludes operational emissions

"It excludes operational emission of the asset." 49%

The UN's Intergovernmental Panel on Climate Change suggests that humanity must curb its carbon emissions by 49% by 2030

Balfour's 14% savings

Balfour Beatty is set to roll out a carbon calculator after initial tests showed potential embodied carbon savings of up to 14% achieved through betterinformed design choices.

Currently in its beta testing phase on four Balfour sites, the AutoBIM Carbon Calculator automatically links BIM data to embodied carbon data from the Inventory of Carbon and Energy database, an online source that provides energy and embodied carbon information for construction materials.

In addition, the calculator also allows users to input information from environmental product declarations sheets, verified and registered documents that provide transparent and comparable data about the environmental impact throughout the life cycle of a product or material.

Following a phased rollout across Balfour Beatty's projects over the next four months, the AutoBIM Carbon Calculator will be available to the wider industry within the next 12 months, with plans to expand the remit of the calculator to measure the energy performance of products and materials post completion.

The calculator was developed by Balfour in collaboration with Innovate UK, Leeds Beckett University, Hertfordshire University and White Frog Publishing.

Costain and Winvic learn from the past

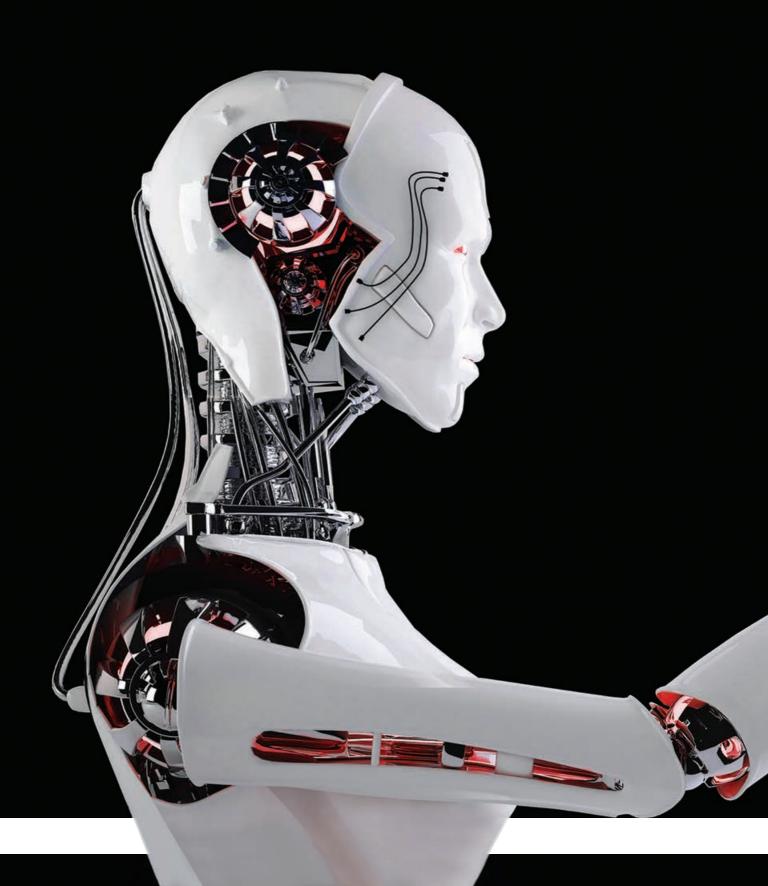


Costain and Winvic are helping the University of the West of England (UWE Bristol) to develop artificial intelligence (AI) and machine learning technology to combat embodied carbon.

UWE Bristol's Big Data Laboratory is leading the two-year, £800,000 project with funding from Innovate UK. The project team is completed by Edgetrix, which specialises in cloud and AI solutions. Determining which low-carbon materials to use on a project can be timeconsuming: the new software will use machine learning to make that calculation and save time, UWE Bristol claims.

Dr Lukman Akanbi at UWE Bristol, who is leading the project, which started late last year, says: "We are going to collect embodied carbon data from previous projects, and machine learning models will be developed to learn the patterns from this data. The system will then be able to come up with alternative materials quicker.

"For a large-scale project for example, instead of taking five to 10 hours to work out alternatives, it could initially take only one to two hours, and further down the road, once more data is gathered, just a few minutes."





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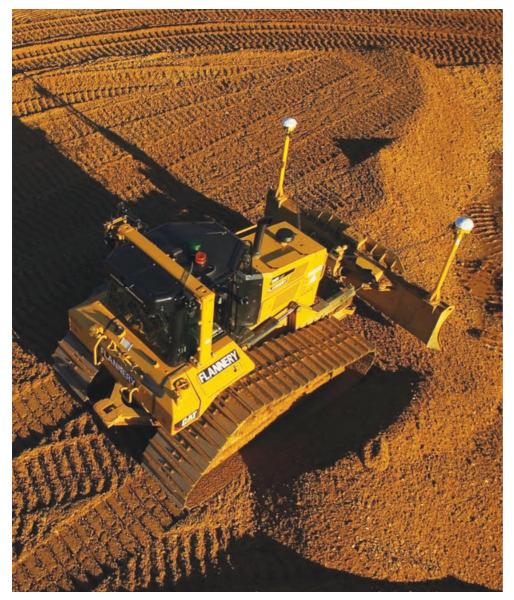
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PIPELINE PUSHES PLANT'S NET ZERO INNOVATIONS

WITH RECORD-BREAKING ORDERS, THE CONSTRUCTION EQUIPMENT SECTOR IS PUMPING INVESTMENT INTO DIGITAL AND ECO TECHNOLOGY. **PETER HADDOCK** REPORTS



Yards are empty, JCB has just signed its biggest ever deal worth £65m with hirer Sunbelt Rentals UK and the scramble for new construction equipment has even seen the import of machines from Europe and beyond. With HS2 and housebuilding filling the pipelines, manufacturers are enjoying demand not seen since the motorway boom era of the 1960s.

The recent market stats from the Construction Equipment Association (CEA) put this into perspective with a 30% jump in sales of new equipment in Q1.

However, in the backdrop, regulatory changes are pushing the sector towards greener machinery and greener fuel, including the end of the subsidy on red diesel next year (see p34). This month also sees another low emissions zone introduced, in Birmingham.

"Net zero is dominating everyone's agenda," says CEA CEO Rob Oliver. "One of our members applied for a loan recently and the bank wanted to see their sustainability policy before they'd approve it. So it has moved from the theoretical to the actual."

Hydrogen and electric power

New eco-friendly machines include a hydrogen-powered digger from JCB and an electric excavator and wheel loader from Volvo Construction Equipment.

Skanska has promised that all plant on its sites will use hydrogenated vegetable oil (HVO) **Below:** JCB's 20-tonne 220X hydrogen-fuelled excavator



and Laing O'Rourke has even bought an electric crawler crane.

Moving to a more sustainable industry is also about exploiting digital technology, such as data from telematics systems.

Andy Wright, CEO of Sunbelt Rentals UK, says: "The industry is demanding more fuel-efficient, EU Stage V emissions compliant machines and electric plant. A key part of this strategy is using data from machines to share information with our customers about idle times, fuel usage, emissions and health and safety alerts.

"We have now designed our own cloud-based portal that takes data from the JCB LiveLink telemetry system, displaying relevant information to our customers. It also means we can provide a better service by monitoring equipment health, as uptime is more important than ever."

Flannery Plant Hire, which supplies heavy earthmoving kit on major projects like HS2, is also employing telemetry solutions. It is



"The industry is demanding more fuelefficient Stage V and electric plant" Andy Wright, Sunbelt Rentals

Far left: A Flannery dozer with GPS machine control technology on the Lincoln bypass **Right:** Leica machine control on a Kobelco excavator with SMP tiltrotator using software and hardware from technology provider MachineMax to monitor equipment performance and fuel usage for its mixed fleet of machines on site.

30%

Chris Matthews, strategic manager at Flannery, says: "The biggest single, yet variable, carbon emitter on site is the fuel.

"If you take a fuel-based overview of the project, over its whole life cycle, you can set targets for the project team of say 15% on fuel savings. From this total project viewpoint, it is then clearer how to achieve these by drilling down to the people, plant and technology to be used on site.

"A lot can be achieved from fleet matching, integrating with the design team using 3D machine control and planning out the programme to remove bottlenecks. Other simple things like the selection of buckets and attachments can also make a difference.

"By carrying through learnings from other projects like how different equipment performs in different The Construction Equipment Association (CEA) has reported a 30% jump in the sales of new construction equipment in Q1 of 2021

situations, you can also create a sharing team culture that understands the importance of fuel. Yes, of course, productivity, quality and efficiencies are important, but everyone can input when you focus on the fuel. You can even reduce fleet numbers on site."

The push to reduce worker numbers on site accelerated during the pandemic and this is one aim of the Connected and Autonomous Plant (CAP) group, which includes major clients and contractors and seeks to encourage emerging technologies like 3D machine control.

Mark Lawton is the head of engineering, surveying and GIS at Skanska, and plant and earthworks community representative to Highways England. He has long been frustrated by the "trenchlike" technology gap between the earthworks sector and the rest of construction.

"Bridging that gap and sharing ideas is what CAP is all about," he says. "The most positive change has been mandating 3D machine control on all Highways England sites. ►





New electric skid steer from Koveco

It has created momentum, which has led to the 2035 CAP roadmap, which includes 25 commitment statements.

"These statements have support from clients like HS2, Highways England and the Environment Agency, so we are going to see them written into future procurement documents.

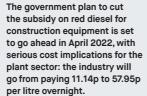
"For example, one focuses on 'investigating the possibilities for early installation of permanent communications for connectivity of 4G and 5G to enable a connected worksite'. On completion of this work, we could then ensure that all plant can connect to the cloud and back again. ►



Leica's 'school with a sandpit' trains operators and managers to use surveying and machine control tools

The future of construction fuel

Electric, hydrogen, vegetable oil – or will diesel still have a role to play? **CM** looks at how construction plant will be powered over the coming years



While the sector continues to lobby against this change – CEA CEO Rob Oliver describes it as a "tax raid" – the government clearly sees it as a 'stick' to accelerate adoption of green fuels.

One is hydrogen. Already JCB has launched its first hydrogen-powered excavator and Hyundai is partnering with its sister car manufacturer to develop the technology.

"The All Party Parliamentary Committee on Hydrogen says that hydrogen will play an important part in achieving net zero and the Department of Transport has invited us to look at how hydrogen power for vehicles and plant would work in practice, in terms of the supporting infrastructure," reveals Oliver.

Meanwhile, Skanska has announced it will mandate the use of hydrogenated vegetable oil (HVO) fuels on all its sites. Adam Crossley, director of environment, says: "While our ambition is to move to hydrogen or electrification for construction plant as fast as technology allows, HVO is a major step in the right direction on our journey to net zero carbon."

Skanska is being supplied with Green D+ HVO by Green Biofuels, whose CEO William Tebbit estimates that moving to HVO will equate to a 90% saving in CO_2e and an 85% reduction in other emission particulates for the contractor.

"With Green D+, you would have to run 10 machines for every one running red diesel to emit the same amount of CO₂," Tebbit says.

New electric machines launched recently include Volvo Construction Equipment's 2.7-tonne EC25 excavator and the 5-tonne L25 wheel loader, plus Kovaco's Elise 900 skid steer, which comes with a removable phone control unit that can act as a remote control. These machines promise more digging power and 'full shift' battery capabilities.

However, Oliver is not convinced green technology has all the answers. "Electric doesn't provide enough power for the heavier earthmoving kit our members supply to the industry," he explains.

"With hydrogen, there is a question over its power capability currently – we're watching that space to see how the technology develops. "It's good that there are competing fuel technologies out there, but diesel has become cleaner and shouldn't be written off.

"We definitely see diesel as part of the mix till 2050."

Oliver recognises that continued use of diesel means looking at how to offset the emissions elsewhere on site.

"Increased automation and more efficient machines are already reducing the carbon footprint," he points out.

"Generators on sites are increasingly using green electricity. And there are now lighting towers with solar panels."

Meanwhile, a consequence of the red diesel subsidy ending could be a rise in fuel theft. "We're hearing from utility contractors that thieves are more likely to raid fuel bowsers if they contain 'white' diesel," he says.

"With our CESAR Datatag scheme, we developed a chemical marker for red diesel – effectively a DNA – which could trace who owned it. But the Home Office wouldn't allow it because of their own red marker. Now the red marker is coming out, we may revisit that for ordinary diesel."



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Digital to the fore in plant training

Plant operator training is increasingly focusing on machine control and other digital systems

"One thing I am looking forward to in 2021 is taking the first and important next step to test remote piloting of construction machinery."

With a huge work pipeline, many in the plant sector feel the time is ripe for innovation. As Niall Fraser, director of earthworks contractor CA Blackwell, says: "We are entering a boom time for the sector and with it a key opportunity to invest for its future. Obviously, since the last boom of the motorway construction era, a lot has changed, but the fundamentals are still the same. We need to manage the movement and placement of the earth in the most efficient way possible."



"Diesel has become cleaner and shouldn't be written off" Rob Oliver, CEA



Flannery apprentice Jessica Holmes at the new Operator Skills Hub in Birmingham



Tenstar training simulators at the Operator Skills Hub

With the adoption of digital technology in the plant sector, there has been an explosion in demand for training and upskilling.

Leica Geosystems recently introduced its 'school with a sandpit' to train operators, managers, and engineers to use surveying and machine control tools. It even has hidden utilities in a mock-up of a road, grass area and footpath for training in the use of ground penetrating radar. There is a dig area for an excavator equipped with the latest semi-automatic MC1 machine control system and a specialist tiltrotator attachment.

Meanwhile, hirer Plantforce has developed the industry's first internationally recognised plant operator BTEC level 2 diploma in GPS machine control, which is now being rolled out across the industry.

Plantforce digital plant manager Dale Hawkins has been responsible for its creation: "GPS machine control is not something you can train in a day: it's a vast subject. You are not just asking operators to follow a satnav in a car; you are asking them to embrace high-tech engineering tools.

"We have been working on this vocational qualification with Weston College for two years, making it available to other training organisations since March."

Plantforce is also letting its apprentices use top of the range



Plantforce apprentice Ted Powell using Leica machine control on a Kobelco excavator

equipment on site. Ted Powell is currently on a major warehouse project operating a Leica Geosystems semi-automatic Kobelco SK210 excavator with SMP tiltrotator.

Another training facility is the Operator Skills Hub in Birmingham, a joint venture between Balfour Beatty and Flannery, which has a bank of three Tenstar simulators. These are helping to train new operators like Jessica Holmes. She swapped a career in the police to become one of its first 'trailblazer' apprentices.

The hub will help train operators for the vast HS2 earthworks operation. Mark Thurston, CEO of HS2 Ltd, says: "The Operator Skills Hub will play a vital role in ensuring local people have the opportunity to upskill in readiness for employment opportunities on Britain's new railway."

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HOW SUDS ARE SET TO IMPACT THE BUILDING INDUSTRY

WITH THE RISK OF FLOODING MOUNTING ACROSS THE UK, SUSTAINABLE DRAINAGE SYSTEMS LOOK SET TO BE A KEY COMPONENT IN TACKLING THE NATION'S EXCESS WATER PROBLEM



Floods are now occurring four times more frequently than they did in the 1980s, according to the European Academies' Science Advisory Council. Meanwhile the Environment Agency states that 2.8 million UK properties are now at risk of surface water flooding alone. With weather expected to worsen in the coming years, it's becoming clear that sustainable drainage solutions (SuDS) will be key in tackling the UK's urgent drainage problem.

What are SuDS?

SuDS work by providing an alternative to the direct channelling of surface water through networks of pipes and sewers to nearby Above: Landscaping manages water flow in a residential area **Top right:** Modular drainage solution components are fitted watercourses. They are specialist drainage systems designed to mimic nature, collecting and managing stormwater at source, allowing it to be released back into the environment at a reduced rate.

There are many different kinds of SuDS available. 'Soft' SuDS, for example, use green landscaping, such In partnership with Wavin



"SuDS can help significantly reduce the risk of flooding. Not only that, but elements such as air quality, biodiversity and water quality can also be improved"

as swales and soakaways to manage water within a site. Soft SuDS are ideal for holding back water for later release, but can take up considerable space, often limiting their viability.

On projects with restricted space and urban developments, like towns and cities, 'hard' or 'engineered' SuDS components can work in tandem with the surface-based solutions.

These components often consist of tanks that are buried underground and are capable of supplementing the water storage potential offered by the surface systems, without taking up valuable (and often simply unavailable) room on the surface.

Collected stormwater is directed through the landscaped components and into the tanks and then released back into the surrounding soils through infiltration, collected for reuse or released at a controlled rate into the drainage network or local watercourse.

SuDS can help significantly reduce the risk of flooding. Not only that, but elements such as air quality, biodiversity and water quality can also be improved, as well as the systems creating community amenity. They achieve this by lowering flow rates, increasing water storage capacity and reducing the transport of pollution to the water environment.

Prevention vs cure

When it comes to flooding, the 'prevention vs cure' conversation can be traced back to the Pitt Review published in 2008, which examined the widespread flooding in England in June and July 2007.

A total of 55,000 properties were flooded. Some 7,000 people had to be rescued and 13 people died, with the flood causing over £3bn worth of damage. The report into the catastrophe led to the Flood and Water Management Act 2010, which mandated that flooding shouldn't just be something to accept and react to, but something for which measures should be put in place to prevent.

Waves of change

One major concern for contractors and developers has always been around: who is responsible for the maintenance of SuDS after construction is complete. However, the *Design and Construction Guidance*, which came into force in April 2020, categorised some SuDS as adoptable by water companies, meaning they will be accountable for them along with traditional foul drainage, alleviating this concern.

Ensuring a sustainable future

In recent years, there has been real progress in helping drive sustainable drainage by government bodies, manufacturers and suppliers. With the help of the *Design and Construction Guidance*, SuDS are no longer be seen as a special consideration but instead as an integral and standardised component of building projects.

Sustainable drainage in action: Hatfield station

Measures were put in place to protect against storm flooding disruption to rail travel

Hatfield railway station is a busy commuter hub, with two regular services into the capital each day and direct links as far as Cambridge.

Over the last few years, the station has undergone a huge refurbishment costing over £9m. Part of this included improvements to infrastructure and the construction of a large multistorey car park. When such big structural changes are made to a site, one of the biggest and often overlooked issues is possible surface water flooding caused by ineffective drainage systems.

Keeping people moving

With so many people relying on the smooth operation of Hatfield station every day, it was important that improvements didn't pose any long-term risks to train services, and this included possible disruption from unexpected flooding due to excess rainwater.

Flooding, especially in urban areas, is a growing problem amid the impact of climate change. The UK is experiencing more rainfall than ever before, with winters becoming 12% wetter in the last decade alone.

Nationwide Engineering, the engineering consultant managing the project, needed a holistic, bespoke and effective surface water drainage system that was not only intelligently designed, but would also be installed in an efficient and reliable manner.

Wavin's StormForce service brings the entire process of implementing stormwater management systems under one roof, with Wavin handling the design, supply and installation of SuDS from start to finish, including a five-year warranty post-completion.

The StormForce design team quickly identified that Hatfield station needed a solution with a below-ground attenuation tank. These systems are able to store large amounts of water and release it at a controlled rate, helping to prevent flash flooding and keep everything moving above the surface.

Quick and easy installation

By using StormForce merchant partner Keyline, the StormForce installation team was able to complete the entire installation in just two days, keeping disruption to a minimum.

Stewart McKechnie, site agent for Nationwide Engineering, said: "Our source supply and surface water management are totally sorted, so we can get on with the rest of the build. The service was fast, compliant, sustainable and top quality." For more information about Stormwater solutions from Wavin visit www.wavin. co.uk/stormwater.

Hatfield station's installation was completed in two days







'CONTRACTS SHOULD ADDRESS PANDEMICS FAIRLY'

CHRIS SOFFE IS RESPONSIBLE FOR GLEEDS' NEW INTERNATIONAL DISPUTE ADVISORY GROUP. AS HE TELLS **ROD SWEET**, THERE ARE PLENTY OF BIG QUESTIONS ABOUT CONTRACTS IN THE AGE OF PANDEMICS AND CLIMATE CHANGE

With some 50 years in construction management and dispute resolution, Chris Soffe has seen a lot, but nothing like covid-19.

Past president of the Chartered Institute of Building (CIOB), supervisory board member at Gleeds and vice chairman of the US operation, he believes the US industry has been "grown up" in adapting to the pandemic. But with disputes likely to increase in number amid the fallout, he worries that existing forms of contract do not adequately account for the complex situations that pandemics present to construction projects. Contracts need to take into account complex project issues caused by pandemics He is responsible for Gleeds' new International Dispute Advisory Group, drawing in experts from around the world to advise parties facing disputes, although he insists the group was not set up to profit from conflict, but to help bring about fair and equitable solutions.

"Covid-19 really was a once-in-ageneration occurrence, and I think the industry overall has responded very well, being grown up and dealing with it because, as we've discovered, many contracts don't address pandemics very well in terms of resolutions, risk allocation and available remedies," Soffe says.

"Contracts will be looked at hard over the coming years and this will have to be factored in because this probably isn't going to be the last pandemic."

Inconsistency among contracts

He thinks big questions remain over compensability and excusability (for extended delivery) in pandemic situations.

"Untested still is whether, if you're going to be late, you can get more time and be let off the hook for liquidated and ascertained damages," Soffe says. "And, if you're going to be late, can you also get the full suite of overheads to cover you as well?

"Those are the key issues that seem to arise, and different contracts address them differently, so there's inconsistency among FIDIC, the AIA and the JCT. Often the word 'pandemic' isn't even mentioned.

"At the start of the pandemic you saw a lot of analysis saying it fell into a *force majeure* situation, but then as things went on, you had clients just shutting sites down because they thought they should, but if they were in an area where it wasn't mandated by local authorities, they could be

Time was the dominant issue in contractual disputes, according to 80% of the professionals surveyed by Gleeds in April

80%

hit with an interference claim, which involves time and money.

"T'd like to see contracts address declarations of pandemics explicitly and allocate risk fairly, keeping compensability and excusability in mind.

"Some big claims are still playing out in courts, so we'll have to wait and see how particular contracts are tested in relation to the pandemic, assuming parties elect to fight it out through the courts."

Regulatory conflicts

From a contractual point of view, the situation was made more complex in the USA by the country's enormous patchwork of regulatory regimes.

"You had various, vague shutdowns called by city, county and state governments, sometimes clashing with each other, with a not particularly clear regulatory regime," Soffe says, adding that the federal government also stepped back and played hands-off, which failed to give clarity.

"Maybe because of that, somewhat surprisingly, the response of the sector here in the US has not been very litigious," he reasons. "On many projects, teams sat down, rolled up their sleeves and hammered out agreements. Most people over here know disputes cost so much money when they get going.

"In one project we worked on, where there were delays and material shortages, the team got round the table and agreed the contractor could have several more weeks, but not more money. A lot of people adopted that solution, which made sense because nobody had been subjected to this situation before.

"There are different cultures around the world when it comes to disputes. In the Middle East, covid exacerbated an already quite litigious



"Parties should try and be fair and reasonable and not use covid as a pretext to further their interests" Chris Soffe, Gleeds culture. In South America, especially in Peru where we have a significant assignment, it seems they always want to have a skirmish at the end of a project!"

Meanwhile, the industry is bracing for more claims, post pandemic. Gleeds surveyed UK professionals in April and responses showed that 54% of respondents expected a greater number of contractual disputes coming up, with some 80% stating that time was the dominant issue.

"That's why we set up the International Dispute Advisory Group, not to chase claims but to try and resolve them, to help sort the situation out and allow the industry to move on," he says. "We very much believe that both parties should try and be fair and reasonable and not use covid as a pretext to further their interests."

Soffe says Gleeds had been thinking about setting up the International Dispute Advisory Group before the pandemic, but that covid-19 accelerated its establishment.

"For years we've had Gleeds people working on significant disputes all over the world, but in silos," he says. "The whole Zoom/Teams phenomenon helped us unite and exchange ideas and share resources."

Soffe believes the pandemic showed the industry to be considerably more resilient than many projected at the outset.

"We knuckled down, figured out how to work the sites, how to get materials in, social distancing and testing," he says.

But looking ahead, it's far too early to tell what the future holds for covid and construction, Soffe says.

"India and Brazil tell us the pandemic is far from over," he reports. "Here in the USA, the first good vaccination push is slowing down because we're coming to the end of the people who want to be vaccinated and we're getting to the sizeable chunk of the population who don't.

"So covid will continue affecting how we organise sites and offices. We're following the Center for Disease Control's guidelines on how to organise events and offices for both vaccinated and unvaccinated groups, and it's quite complex."

'The polluter pays': contracts and climate change

Chris Soffe and Gleeds' new International Dispute Advisory Group also have an eye on how climate change will affect construction litigation.

"One thing that interests me is the potential for climate change to be a leading cause of disputes, based on the principle of 'polluter pays'," he says. "Will climate-related disasters be seen as acts of god, or acts of people?

"Think of the fires that ripped through California and Australia. Plenty of active construction projects will have been halted and severely impacted because of them. Then there are hurricanes, tsunamis and more tornadoes to consider."



🐠 Legal



Helen Mitcheson Trowers & Hamlins

Clearing the air

Increasing air quality risks and a wave of impending legislation could change how the built environment sector operates, writes **Helen Mitcheson**

Recent judgements and policies have

brought air quality to the fore and are likely to have a significant impact on the construction industry.

In late 2020, London Inner South Coroner's Court concluded that poor air quality near Ella Kissi-Debrah's home made a "material contribution" to her death, aged nine, in 2013.

Kissi-Debrah lived close to the South Circular Road in Lewisham and the coroner's inquest recorded that she had been exposed to traffic emissions in excess of World Health Organisation (WHO) guidelines and "air pollution was a significant contributory factor to both the induction and exacerbation of her asthma". She became the first person in the UK to have air pollution listed as a direct cause of death.

In April 2021, the coroner's 'Report to Prevent Future Deaths' said the government should set legally binding targets for particulate matter in line with WHO recommendations.

In March 2021, the Court of Justice of the European Union (the ECJ) held that the UK had not complied with the ambient air quality limits of the EU Air Quality Directive, had "systematically and persistently" exceeded the annual limits for nitrogen dioxide in major urban areas since 2010, and had failed to take action to ensure limit values were exceeded for the shortest period possible.

The UK government is therefore under pressure to improve air quality. The Environment Bill sets out new legal frameworks, including for air pollution. It also establishes a watchdog – the Office for Environmental Protection – to hold public bodies to account.

The bill, currently deferred until autumn 2021, will require the government to set air quality targets for fine particulate matter by October 2022. This has prompted much

Construction projects and air quality – five key questions

 Is the proposed development in an Air Quality Management Area or a Clean Air Zone? If so, the developer must show it is consistent with the local Air Quality Action Plan, as set out in the National Planning Policy Framework. 2 What will be the likely impact of the proposed development, given any recent air quality monitoring data? For example, is the development likely to lead to changes in vehicle-related emissions in its immediate vicinity or further afield? 3 Throughout the construction phase, what will be the impact of heavy goods vehicles and machinery?

In terms of the scheme design, where will the sources of air pollution be located? If the development introduces new sources, such as incinerators or heating and cooling systems, where could they be located to mitigate impact? 6 Given the likelihood of air quality impacts from all new development, how might these be offset, or even used as an opportunity to improve air quality, whether through construction management and logistics plans, traffic and travel management strategies or provision of greener infrastructure?



criticism, as there is no legally binding target set in the bill itself, only a target to set a target.

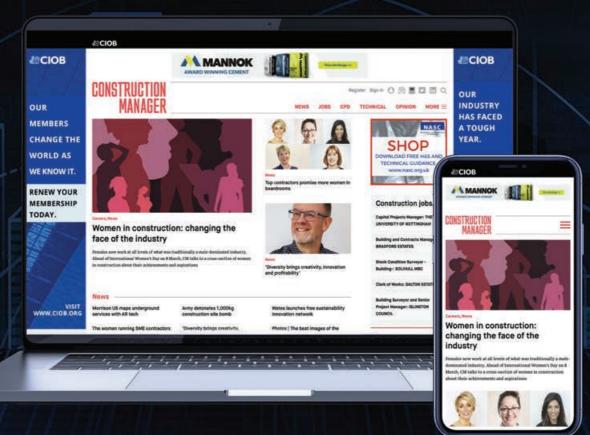
Future development schemes and infrastructure projects will have to be considered against these targets, plus the backdrop of the inquest into Kissi-Debrah's death, and a growing body of human rights law that remains unaffected by Brexit.

Construction projects will need to navigate an increasingly complex web of air quality legislation and policies, which will have to take place at an early stage (see box). The current momentum around air quality is not likely to dissipate, particularly when the eyes of the world focus on the UK and COP26 in November.

Helen Mitcheson is a solicitor at Trowers & Hamlins.

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What's it like working at... Willmott Dixon

Topping the polls

Willmott Dixon consistently places in the top five of the Sunday Times Top 100 companies to work for. Chief people officer Rick Lee, who was made an OBE this year for services to business and equality, tells **CM** why



Apprentice India Cormack on site in Barking

What are your USPs as an employer?

We care about our people. We want them to start and end their careers with us. Our purpose as a business is for our people to live well and work well. We like to have that independently verified: Rick Willmott was voted people-focused CEO of the Year by *HR* magazine; we came top among UK contractors in the 2020 *FT* Diversity Leaders list, for the second year running, and have recently been placed in the *Times*' Top 50 Employers for Women, for the third consecutive year. Other important benchmarks include being awarded a Platinum Investors in People standard and having a Best Companies three-star accreditation for extraordinary levels of people engagement.

How do you develop staff?

We hold one-to-one meetings regularly to discuss development. Our learning team has converted courses online and added new courses on technical issues and leadership topics which can be accessed anywhere, at any time.

We also have a personal learning fund. People who have reached five years' service receive £750 to spend on vocational or non-vocational learning. Past examples include people learning to sky dive, to play the piano, to learn ballet or calligraphy.

How important are professional qualifications, such as CIOB membership, for your staff?

Membership of the CIOB is not only beneficial for networking and keeping skills fresh but it demonstrates a high level of confidence in the competence of our people. And that assurance is independently assessed: in our research, 80% of our customers rate our people nine out of 10 or higher, and they highly value the professionalism of our people.

How are you trying to boost diversity?

In the construction industry as a whole only 13% are women but at Willmott Dixon that figure is 27%. We have an ambitious diversity target to have a 50:50 male/ female workforce by 2030.

We have launched a Women's Leadership Development programme, developed by Cambridge University, as part of our aspiration to achieve gender parity. It's aimed at nurturing a new generation of women leaders for our



"The industry can't be sustained for the future if it doesn't represent all of society. Our people want to work for a company that takes a

leadership position on the key issues" Rick Lee, Willmott Dixon

company over the next five to 15 years. The good thing about the programme is that it's open to our supply chain too.

We have rolled out flexible working across the company and we have introduced a home working allowance this year. We aim to create an inclusive culture. Our conscious inclusion campaign is called 'If in doubt call it out'. We empower people on site and the office to call out any inappropriate or insensitive behaviour. We have demonstrated how best to do that sensitively in different circumstances.

We are getting our men to act as agents of change too.

The *Financial Times* diversity leadership list scored by its readers voted us the highest performing construction company in the UK for two years running.

We are also working with the CIOB on a diversity and inclusion (D&I) report. We want to be proactive, to push the agenda across the whole industry. The industry can't be sustained for the future if it doesn't represent all of society. Our people want to work for a company that takes a leadership position on the key issues.

How do you look after staff wellbeing?

We have a number of benefits. We launched Thrive, an NHS -approved app to support people's wellbeing. We offer free health checks and employees have access to a 'virtual GP' 24/7.

We have 300 mental health first aiders and we also introduced wellbeing time: one hour in the middle of the day which is blocked-out time, when no meetings are allowed to be booked.

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The new era of statutory control

Construction professionals will soon face a tougher regulatory backdrop, writes **Christine Gausden**



Fundamental changes to legislation are pending by virtue of the draft Building Safety Bill. Together with the existing Fire Safety Bill and

fire safety consultation, this bill will improve building and fire safety, leading to safer occupancy. These changes are important to be aware of as they will have an impact on our industry and affect how we build and maintain our buildings.

Those responsible for the safety of residents will be accountable for errors and will need to adapt quickly or face serious consequences.

The building safety regulator will be overseeing safety and standards of all buildings, especially those deemed higher risk, and they will seek to improve the competence of responsible parties managing and overseeing works. High-rise residential buildings will be subject to a more stringent set of rules with more clarity as to who is responsible for managing risk and enabling the 'golden thread' of information, gathered over the life of a building.

Amendments to the existing Fire Safety Order will include unlimited fines for anyone obstructing or impersonating a fire inspector and the requirement for fire risk assessments to be recorded for all buildings and undertaken by a 'competent' professional.

It's worth noting that another change coming – albeit quite slowly – is in the form of two standards: the Future Homes Standard and the Future Buildings Standard. Both outline plans to address and find solutions for reducing carbon emissions within the built environment by almost a third. They will enable the provision of more efficient domestic and non-domestic buildings, futureproof our buildings and seek to enhance the wider environment.

It is critical to understand the implications of these changes, to be aware of these requirements and to be prepared for any changes required before they come into force. As someone who teaches the next generation of construction professionals, I welcome these changes and I am supportive of any action which will make our buildings safer and better managed. I would urge anyone reading this, who works within the built environment, to educate yourself as to these changes. Christine Gausden is the new MSc Construction Management programme leader at University College of Estate Management (UCEM). To find out more about her programme visit www.ucem.ac.uk.

Job spotlight Sajedah Maka-Ismail

Managing director, Miles Consult & Construct



Going solo

Sajedah Maka-Ismail graduated in building surveying in 2001. She joined Lancashire County Council, rising to district surveyor and then moving into project management. In February this year she started her own business, Miles Consult & Construct

Describe a typical day in your job

I start my day checking emails. Some days can be spent only responding to emails, which can feel unproductive but it determines my focus and how I plan. I will have at least three to four meetings planned for the day – either on site or on Teams, with contractors or clients – to discuss schemes or briefs.

I will aim to spend at least an hour or two producing marketing material and posting on social media, which plays a big part in any new business.

Having my own business means I have the flexibility to check on my mum, who is disabled.

I will wind my day down by updating my diary and completing my 'to do list'.

What prompted you to strike out on your own? It's risky but rewarding?

Absolutely! After the death of my father in 2019, I met my husband. Soon after getting married, I decided to give up my work to focus on the care of my disabled mother and married life.

I have always wanted to start up on my own, but I never had the confidence. I still wanted to excel in my career, so I built a team of 10 support workers to help with the round-the-clock care for my mother.

My husband was the inspiration to set up Miles Consult & Construct. He has been a great support in the drive to make my dream into a reality.

It has its ups and downs, but you learn from your mistakes and, as the business is so young, there is still a lot of work to put into it. It is a case of getting the word out and promoting the business.

In 2013 you told *CM* you wanted to see the industry work harder to become more diverse. Do you feel it has made progress? What more would you like to see happen?

There have been some amazing changes made but progress has been slower than anticipated. The industry is trying extremely hard to bring diversity to the forefront of employment and skills though and I have noticed a dramatic improvement in the Middle East, especially in Dubai at the Expo this year. I would love to see more events being held in the UK like the Expo, with ambassadors from diverse areas and backgrounds.

I would love to see the government provide funds and support smaller firms to promote diversity. This would allow them to raise awareness and set up training and coaching programmes.



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Awards

CMYA introduces two new categories

Clients and teams will be recognised for the first time in the 2021 awards



The CIOB has introduced two new categories for the 2021 Construction Manager of the Year Awards (CMYA), following the new Rising Star Award category in 2020.

'Client of the Year' and 'Team of the Year' will make their debut at the CMYA ceremony at London's JW Marriott Grosvenor House Hotel on 29 September 2021.

Election

Three new CIOB Trustees elected

Battye, Strathearn and Brant to take up roles on 23 June

The Client of the Year award is for organisations that have led the commissioning of construction projects. It is open to all UK-based organisations. The nominated organisation can be a client of a CMYA entrant company (this year or previous years), and submitted evidence will be for project(s) procured or project(s)

The CIOB Board of Trustees' election results for 2021 have been announced. All votes have now been verified and counted. A total of 3,350 voters took part (15.2% of the electorate), with no spoilt papers. Each voter was able to cast a maximum of three votes. The results are as follows:

CANDIDATE

CANDIDATE	VUIES
Craig Battye FCIOB	1,940
Jamie Strathearn MCIOB	1,585
Ian Brant FCIOB	1,561
Jean Stevens-Duprez FCIOE	1,334
Phillip Beaumont FCIOB	1,258

VOTES

"The CIOB

been an

important

part of the

construction

leadership and

management

landscape for

Caroline Gumble,

more than

40 years"

CEO, CIOB

Awards have

In accordance with the Bye-Laws, the three candidates with the

in progress during the period from January 2020 to date, providing examples of the latest best practice in construction project implementation or planned implementation.

Team of the Year is open to teams comprising a minimum of three persons and must operate within the built environment. The team is to be working for a single organisational entity.

The award is open to all UK-based teams. The nominated team can have worked for a CMYA entrant company (this year or previous years) and the judges will look at achievements deserving of recognition that have been made during the period from January 2020 to date.

Caroline Gumble, CEO of the CIOB, said: "The CIOB Awards have been an important part of the construction leadership and management landscape for more than 40 years now. I'm therefore delighted that we are opening up the awards to highlight and celebrate the achievements of more of the talent in our sector and now able to acknowledge more of the innovation and best practice taking place across the UK."

The deadline for these categories is Friday 18 June 2021. They are free to enter and open to members and non-members.

To nominate, please see here: www.cmya.co.uk/ciob-awards.

> highest votes are deemed elected from the close of the AGM.

Craig Battye, Jamie Strathearn and lan Brant accepted the positions and will be duly elected to the Board of Trustees for tenure of three years from the close of the AGM.

The AGM takes place on 23 June 2021, at a time to be confirmed.

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

Heritage

Conservation conference highlights climate challenge

April's CIOB virtual event showcased the best in thinking around heritage issues



April's CIOB Conservation Conference was a success, with more than 300 people joining the virtual event.

The conference, on the theme of Balancing Heritage and Sustainability, explored achievements in sustainable construction in the heritage sector and the future of environmental performance of heritage and traditional building stock. Speakers from different fields showcased best

Above from left: Charlotte Morley, Rob Woodside and Sarah Staniforth

Below: The wall collapse at Hurst Castle, Lymington practice, retrofit standards, science and the latest research.

Sarah Staniforth CBE, president emeritus at the International Institute for Conservation of Historic and Artistic Works and an English Heritage Trustee. showed how the impact of climate change can be hard to anticipate.

She discussed how heritage organisations have shifted from a focus on protection from fires to a focus on flood events, and reflected that recent experiences are, however, seen as learning opportunities, rather than losses or disasters.

Rob Woodside, conservation and estates director at English Heritage, said that it feels like English Heritage is in the eve of the storm with the recent collapse of part of the wall of Hurst Castle near Lymington, Hampshire, built in Tudor times by Henry VIII.

Charlotte Morley, sustainability manager at Sir Robert McAlpine, the event's sponsor, gave an overview of some of the challenges and positives of working on historic buildings and heritage refurbishments, while also picking up on how it can be part of a package of best practice.



Ireland Sector may fail to meet demand

Report explores problems facing the Irish industry

When covid restrictions end and building is finally allowed to recommence, Irish construction may not be ready to meet the pent-up demand. This is one of the themes explored in a new report entitled Job Quality in the Irish Construction Sector, produced by TASC, the Thinktank for Action on Social Change, in partnership with the CIOB.

The report points to the sector's boom and bust cycle as a root cause of many of the problems it faces in areas including productivity, labour shortages and job stability. This, it suggests, could have serious implications for Ireland's house and infrastructural building strategies leading to increases in house prices and delays in provision in other areas.

Earnings in the Irish construction industry are, on average, good and construction is good for social mobility, according to the report. Pay is close to, but still below, the national average - putting Ireland slightly above most other EU countries.

However, there are significant variations between occupational groups. Professionals like engineers, architects and directors are, as a group, very well paid in Ireland while less-skilled manual workers are paid below EU norms.

The report also finds that solo self-employment remains a significant issue, accounting for one in five construction workers, double the rate of the rest of the economy.

"The reputation for cyclicality in the construction industry in Ireland is holding back the sector and its output," said Joseph Kilroy, Ireland policy and public affairs manager with the CIOB.

"Historically career guidance counsellors have been reluctant to send students into the sector due to its unpredictability, leading to a shortage in professional and craft skills and a lack of diversity in the sector," he explained.

"Compare this with countries like Germany, for example, where there is positive emphasis on the value of trades and practical work. We have to tackle job quality and stability if we want the sector to be able to deliver on future demands."



Australia

Members down under get on board Sydney Metro

Laing O'Rourke demonstrates its work on new metro platforms beneath Sydney's busiest rail station

CIOB members were treated to an exclusive behind-the-scenes tour of Sydney Central Metro Station with

Laing O'Rourke in the spring. As part of the Sydney Metro, Australia's biggest public transport

Australia's biggest public transport project with 31 stations, the build has many complex facets, encompassing

aspects of an infrastructure build, sustainability, design for manufacture and assembly (DfMA) and heritage restoration. Safety must also remain paramount for customers using the Sydney Central rail station. • Find out more about the project at www.sydneymetro.info.

Above: CIOB members visit Laing O'Rourke's work in progress

Networking Karting fun in Kent

Maidstone Novus calls for entries for the return of its annual friendly competition event in September

Maidstone Novus will be hosting its

popular Kent Construction Karting Cup on 23 September.

This annual competition will take place at the Bayford Meadows Karting Circuit in Sittingbourne, considered to be one of the leading competition kart circuits in the country.

The evening networking event involves friendly competition with colleagues on one of the UK's premier outdoor floodlit kart circuits.

The competition is an endurance race, with entries from individuals or teams of three very welcome. A meal will be served between races. Thanks are given to event sponsor Teampol. **To book, contact Beverley Lawrence at blawrence@ciob.org.uk or online at events.ciob.org.**





Election

New Novus chair for Sheffield

Stacey Clasper takes up the reins

Stacey Clasper, a trainee technician with Henry Boot, has been elected as the new chair of the Sheffield Novus group.

Clasper (left) has already begun her work as chair by organising an event in collaboration with G4C, interviewing BBC's *The Apprentice* finalist Michaela Wain about her career path and her work for Women in Construction. Novus is also working with G4C on a twopart webinar series with Sheffield City Council.

"I am really pleased to have been voted in," said Clasper. "I'm looking forward to the committee working together arranging webinars and CPD events. We have a really exciting year ahead!"

Abdul-Majeed Mahamadu Meet a member

Abdul-Majeed Mahamadu, senior lecturer, University of the West of England

Contract CBC secures high-rise cladding contract

ASD Build will supply cladding for residential towers in Cardiff Bay

Chartered Building Company

ASD Build has been awarded a £2m contract for remediation cladding works across two high-rise social housing buildings in Cardiff Bay.

ASD Build has been appointed by Cardiff Community Housing Association (CCHA) to replace existing timber cladding on Aquila House and Galleon House – both over 18m in height.

RSL organisation CCHA was awarded £2.6m in a capital grant from the Welsh government's High Rise Residential Building (HRRB) Safety Fund, which enabled it to engage with ASD Build to deliver the contract over 12 months.

Delivery will include an insured contractor's design to full

installation of the replacement cladding system. ASD's design complements the existing material while achieving full compliance. Mark Hennessey, managing director with ASD Build, said: "This

is the first social HRRB build, said: "This is the first social HRRB building in Wales to receive support as part of the UK Building Safety Bill and we are extremely pleased to have been entrusted to deliver this contract.

"The backbone of ASD Build's DNA is professionalism; it's what we strive for every day. High specification products are perfect for us to implement our high technical ability in design and build.

"It's what we are renowned for and justifies our role in the construction industry as a reputable contractor."

"The backbone of ASD Build's DNA is professionalism; it's what we strive for every day" Mark Hennessey, ASD Build



Do you know what digital twin modelling is? Do you know how a digital twin can be used within an organisation?

Mark Arnold. head of technical strategic assets at Thirteen Group, will deliver an overview of the concept of a digital twin, and the different methods that can be used to develop it, on 23 June from 1-2pm. Arnold will explain the benefits and restrictions of each format and the potential uses within an organisation. He will be joined by Dan **Riley, founder and CEO of Spearhead** Interactive to give a practical demonstration of the T2 model they have developed in partnership. **Register for the**

Register for the event online at CIOB Events.

ASD Build will install the cladding for Aquila House



Why did you choose construction as a career? Simply because of my immense interest in building

'things'. I found that it offered me the opportunity to contribute to the building of facilities and infrastructure which make a difference to society and environment by supporting the way we live.

You have made BIM your area of expertise. Why?

My interest developed while undertaking a PhD study into BIM implementation within the supply chains of some major construction firms in the UK. This revealed to me the great potential of BIM from case studies of early adopters including BAM Nuttall and Laing O'Rourke. Furthermore, my personal desire is to be part of the construction transformation agenda which hinges on digitisation and automation, both of which are facilitated by BIM.

What changes would you like to see in the industry?

I would love to see a more inclusive and diverse construction workforce especially in terms of gender. Some of my recent research and innovation projects have also highlighted continued reliance on traditional and inefficient approaches to production in construction when compared to other industries.

My belief is that construction should evolve through the adoption of more automation and digitisation underpinned by effective and real-time data mining for performance monitoring. Central to this will be adoption of BIM and robotics as well as personalised and wearable computing towards a more smart and safe construction site.

What do you do in your spare time?

I love to travel and watch documentaries from a wide range of topics from science to nature. I am also a keen follower of international football and also enjoy playing basketball and cycling in nature.



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Course CIOB coaching course delivers management skills

Dave Stitt's techniques promote staff engagement



The CIOB has launched a unique new management course for young construction professionals. Coach for

Results, created by CIOB Fellow Dave Stitt, is delivered via the CIOB Academy.

The flexible 10-week course teaches how to incorporate coaching techniques into management style – enabling people in a leadership role (or heading for one) to become more effective managers and to guide teams to better results.

"I believe the command-andcontrol model, in which I was steeped as a young project manager, increases stress, stifles initiative and erodes engagement, with negative consequences for people and productivity," says Stitt.

"A coaching approach fosters engagement, excitement and initiative as people take control of their performance and grow in confidence." See Dave Stitt's blog at

http://orlo.uk/nqnmW for more detail.

Education

Penrith garden is still growing strong

A CIOB school project set up in 2001 keeps on teaching pupils about the environment

A sustainability project funded and organised by the CIOB 20 years ago has passed its test of time by still going strong today.

Ian Johnstone, then vice-chair of the Cumbria and Lancashire Branch was involved with the creation of a sustainable 'Jungle Theme' garden for Brunswick Road Primary School in Penrith in 2001. The initiative set out to connect industry and community, raise the profile of the CIOB and support the schoolchildren's learning.

With pupils forming project management teams, the space enabled them to understand the environment and its delicate balances though a range of learning objectives.

It also allowed the CIOB to show students, parents, teachers and others something about how the construction industry improves and sustains the environment, as well as the knowledge and skills the industry requires, the job opportunities it presents, the challenges it faces and how those are met through teamwork.

The Jungle Theme Garden project was officially opened by television

environmentalist Dr David Bellamy and a few weeks later CIOB's then president, Professor John Bale, visited to hear from children, teachers and volunteers about the stimulus the project had created and how the garden was being used.

Some 20 years later, the garden continues to look great and is part of the long-term curriculum.

"The school staff have confirmed the project an educational success, and it was a real joy for all of us who helped to realise it," says Johnstone. "It has proved to be a truly sustainable project, and along the way it has helped to raise the profile of the CIOB in Cumbria."

MASTER'S DEGREES GET CIOB ACCREDITED STATUS

Pupils worked on

Brunswick Road

Primary's Jungle Theme Garden

Two courses at Queen's University Belfast have achieved CIOB accredited status. Construction and Project Management HLA and BIM Project Management HLA master's programmes can now be used by graduates as part of their route to become MCIOB.

Learning CIOB Yorkshire holds first education forum

University and college representatives meet up to discuss new approaches CIOB Leeds, Sheffield and York joined together in April to host their first Education Forum.

Nine education institutes, including CIOB-accredited universities and local colleges, joined together for a virtual meeting with committee members and local staff. The forum provided a chance for colleges and universities to hear

colleges and universities to hear about developments from the CIOB

Education Team and the Inspiring Tomorrow's Leaders project. They also offered their opinions on how the CIOB locally is working with them and areas where the industry and the institute can improve.

"The conversations were lively and inspiring and provided a clear vision of construction education across the county, including where we are going next and lessons learned from the pandemic," said Kat Seymour from the CIOB.

"Attendees had a chance to network in smaller groups and discuss how blended learning is working. Following this session, we will be looking at a more joined-up approach to our guest lecturing and employer/education links."

The next forum is planned for the autumn term.

The research project is based at the Thomas Ashton Institute, University of Manchester



Coronavirus

Research

Manchester covid research welcomes member views

Tier 2 and 3 contracting organisations and clients will be focus of second phase of research

CIOB members from the University of Manchester have investigated the impact of the covid-19 pandemic on the UK construction sector.

Their research report - Keeping the UK Building Safely - brings together evidence of the pandemic's impact, experiences of contractor and client responses and views from a trade

Members raise

interesting building

control questions

Blackburn dissertations

singled out for praise

union and HSE inspectors to inform the covid-19 National Core Studies programme led by the government chief scientist, Sir Patrick Vallance.

The research focused on tier 1 contracting organisations but the next phase will involve detailed studies on tier 2 and 3 contracting organisations and their clients. The team is working with the CIOB and welcomes members' participation.

The work is conducted by Dr Richard Kirkham, past chair of the Liverpool CIOB Hub, Dr William Collinge MCIOB, lecturer in project management, and Professor Neil Bourne.

The research focused on five key workstreams identified through engagement with HSE and industry stakeholders: transmission of covid-19; the use of technology as a shield: data and simulation to model transmission on sites; leadership; and construction project delivery.

Evidence was collected in the form of survey and interview data gathered from four principal contractor organisations.

The study revealed six global themes and 18 sub-themes that highlight practical challenges facing the sector as it prepares for the reopening of the UK economy.

The six areas are: the context of the construction sector; organisational culture; communication; best safety practice and technology use; contractual partnerships; and multilevel challenges in responding to covid-19. Keeping the UK Building Safely was about to be published as Construction Manager went to press. If you would like to receive a copy, contact ashton@ manchester.ac.uk. If you are interested in contributing to the second phase of the research contact the team at ashton@manchester.ac.uk.

CIOB GETS ACTIVE ON STRAVA

CIOB members and staff keen on keeping fit and active and want to make new connections can join the CIOB virtual fitness club on the popular Strava platform.

By joining you can log your cycling, running swimming (or other) activity and help support other members along the way. It is free to join the club: http://orlo. uk/ojQWh.

'interesting questions', according to Bill Rowland, programme leader HNC and BSc Construction.

The research covers consistency with planning and rural barns, and inconsistencies in the application of the approved documents when dealing with fire safety in loft conversions. It is available to view online from the end of May.



Work from two CIOB student members has been singled out by their course leader from the CIOB accredited University Centre at Blackburn College.

Brandon Allison and Andrew Beardsworth, both building control officers completing their BSc in Building Surveying part time, have produced dissertations that raise

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COMMUNITY

Below: The school is Scotland's largest to be built with a CLT frame Below right: Sustainable materials in the school interior



SCHOOL PHOTOS: JOHN PAUL PHOTOGRAPHY

Me and my project Making the grade

Robertson's Finlay Black led the build of Merkinch Primary School and Family Centre – Scotland's largest sustainable school build

Robertson – one of the largest

family-owned construction, infrastructure and support services businesses in the UK – has delivered the new £16.7m Merkinch Primary School in Inverness.

It is the first school in the Highlands, and largest school in Scotland, to be built using a cross-laminated timber frame (CLT), which is more sustainable than traditional construction methods.

Procured through Scape Scotland for The Highland Council, the project is being delivered in two phases. In phase one, the new-build school has been created adjacent to the existing primary school and includes 14 new classrooms, ancillary teaching area, three-room nursery, nurture rooms,



Black: Pupils' delight makes it worthwhile

Project team

Location: Inverness, Scotland Project manager: Finlay Black, Robertson Client: The Highland Council Value: £16.7m Programme: 86-week a four-court games hall and an external multi-use games area.

All construction works were carried out while the school remained operational – with modular accommodation, situated on the former playing fields, providing additional classrooms.

The school's design was changed from a steel frame with precast concrete/lightweight steel infill panels to a hybrid glulam and CLT frame after consultation with the council.

Black says: "We reduced the project's whole-life carbon by 60% – compared with the original design. This resulted in lighter foundations (supporting reduced embodied carbon), an improved project programme, better thermal performance, and a superior internal environment."

The project generated just 437kgCO₂e/m² of embodied carbon over its life cycle, exceeding the target metrics for non-domestic buildings set by the *RIBA Sustainable Outcomes Guide* for 2030.

"The site also achieved an outstanding target of zero waste to landfill through donating excess materials to local startup companies and partnering with Northern Recycling Solutions so waste materials that could not be recycled were converted into energy through thermal and biological means, or used in landscaping," he explains.

Now in phase two, the former school building, a Category B listed Victorian building built in 1876, is currently being refurbished to provide a new dining hall and family centre for the wider Merkinch community. A covered walkway links the two buildings.

"There has been a culture of collaboration and transparency from the beginning of this project with "For me, the success of any construction project rests not only with quality, cost and on-time delivery, but how well the building performs and the impact on its occupants"

Finlay Black, Robertson

the excellent relationships formed carrying over into phase two.

"Phase two is due to complete in the coming months, with the pupils already enjoying their new modern school," says Black. "For me, the success of any construction project rests not only with quality, cost and on-time delivery, but how well the building performs and the impact on its occupants.

He adds: "A school environment should always improve the quality of life for its occupants and by taking pride in our individual and collective inputs along with delivering high quality work, we have produced a successful delivery.

"This project hasn't been without its challenges, working in a live education environment and throughout the pandemic with covid-19 Safe Operating Procedures in place, but seeing the delight on pupils' faces when they entered the new facility and when we gifted each pupil a new school t-shirt to mark completion makes it all worthwhile." • Finlay Black is operations manager at Robertson.



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📋 Diary dates

Highlights of the CIOB Calendar for the coming month. All events are online webinars unless otherwise stated

Promoting Mental Health and Wellbeing on Site, Sussex 8 June, 6-7pm

Join a live webinar to learn about the Sussex Wellness Action Group (SWAG) and what you can do to support the mental health and wellbeing of the workers on your sites.

Supported by many main contractors, subcontractors and consultants, SWAG is a charity in the community set up in order to support a consistent approach to mental health and wellbeing on local construction sites.

Although SWAG was originally set up for companies in the Sussex area, it has generated interest from other areas and any construction company is welcome to get involved.

During the webinar, founders Jason Wickenden, operations director for Chartered Building Company Cheesmur, and Ian Pickard, managing director of IDP Safety Services, will cover the importance of mental health, spotting the early warning signs and the role of mental health first aiders – as well as how to get involved. **Contact: bmilton@ciob.org.uk**

Modern Approach to Construction Design

15 June, 12.30-1.30pm We are now familiar with the knowledge that the built environment is a 40% contributor to the climate and ecological crisis we witness unfolding around us.

Against this backdrop, Martin Brown, founder of sustainability consultancy Fairsnape, will explore how design and construction can contribute in the climate and ecological emergency and become 40% of the solution rather than remaining 40% of the problem.

This session will explore the shift in approach that will be necessary as well as the frameworks that allow us to move to a built environment that is not only sustainable but socially just, ecologically robust and culturally rich. **Contact: blawrence@ciob.org.uk**

South Region: Welcome Introduction to the CIOB 21 June, 6-7pm

Are you a new member of the CIOB? Come along and join our welcome to the South Region and find out about the benefits of joining as well as the routes to Chartered Membership and the support available to help you get there, plus the further tools and resources available to you.

South regional manager Julie Putman will be joined by committee members of the CIOB South hubs to answer any questions.

Contact: bmilton@ciob.org.uk

Routes to Chartered Membership, Leeds 22 June, 1-2pm

Have you recently graduated or are you graduating soon? Are you a young professional or an experienced professional looking to become chartered with a professional body?

Join us for a one-hour webinar where we discuss the benefits of becoming a Chartered Member of the CIOB and the pathways available to help you achieve this. Through this webinar you will gain an understanding of the Professional Review process and the Professional Development Programme and will be able to decide which pathway is most suited to your needs. **Contact: kbarker@ciob.org.uk**

The Nightingale Hospital Exeter – Design and Build, Exeter 23 June, 4-5.30pm

This CPD looks into the recent build of the Nightingale Hospital, Exeter. The event will be hosted by Exeter Hub chair Adam Crichton, who will be joined by speakers James Laughlin, regional director at SDS; Katherine Archer, business support manager, SDS; Rob Faro, director, TClarke; and James Hannaford, commercial manager, Ward Williams Associates.

The speakers will take you on a journey through how this amazing project was completed and there will also be a Q&A session. Contact: Estreames@ciob.org.uk

Specifying Sustainable Concrete, Leeds

29 June, 1-2pm

Join us for a one-hour webinar with Elaine Toogood, the head of architecture at the Concrete Centre.

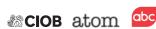
This seminar will provide guidance for specifying sustainable concrete including design and construction considerations for buildings with low whole-life carbon.

This will include responsible sourcing, use of low-carbon cements, recycled aggregates, and tips for achieving material efficiency.

The webinar will also include a summary of how these strategies, combined with use of thermal mass, can assist with scoring credits in BREEAM New Construction. **Contact: kbarker@ciob.org.uk**

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

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Our new white paper covers the benefits of using multi-layer systems, how the switch to these materials has and is happening; and why companies such as Geberit are embracing the technology to benefit projects, installers and the built environment. It is important now, more than ever, to recognise those technologies created to help with making building projects and the built environment the best it can be.



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