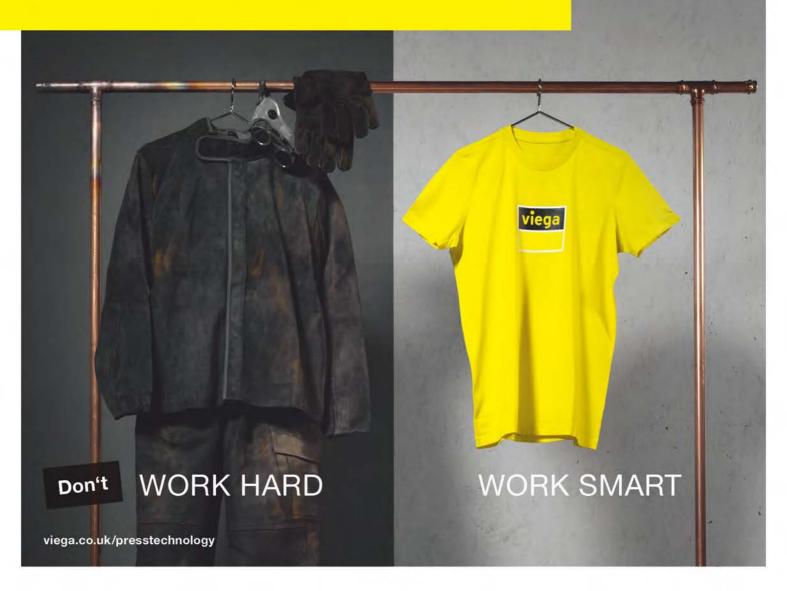


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09/21

Contents

Welcome

It's not often a CIOB member is at the heart of government.

Eddie Hughes, Conservative MP for Walsall North and an "enthusiastic cheerleader" for the Institute, as he puts it, was appointed minister for housing and rough sleeping earlier this year.

He took some time out from his government duties to talk to CM about both his career in construction and his ministerial brief (see p16-20).

Among his key responsibilities are the New Homes Quality Board, the New Homes Ombudsman (which will be introduced through the Building Safety Bill) and the Social Housing White Paper. All these new initiatives and legislation will have a significant impact on industry culture and the working lives of almost everyone in the built environment sector.

Since joining the industry in the early 1990s, Hughes has seen "massive change", but recognises that there are many areas where construction is still lagging behind other sectors, notably diversity, digital engagement and, of course, its ability to consistently deliver a high quality and safe product.

Hughes was previously chair of the All Party Parliamentary Group for Excellence in the Built Environment, so knows all about construction's shortcomings in this area - and the CIOB's work to drive up standards, which he praises

Now, with a raft of legislation on its way, a new era of tighter regulation and more demanding customers awaits the industry. Cutting corners on quality will no longer be tolerated.

As Hughes puts it: "All construction professionals must drive for better quality and safer buildings."



Will Mann Editor, **Construction Manager** and BIMplus









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News





▲ Artists Gilbert & George take inspiration from construction

Renowned artists Gilbert & George have referenced the Considerate Constructors Scheme in a new artwork created for the Folkestone Triennial art festival. The billboard, entitled Respect Road 2020, has been placed on the side of a building overlooking Folkestone's biggest construction site, where contractor Jenner is building seafront flats in the first phase of a redevelopment of the Kent coastal town's harbour area.

■ Recycled plastic sleepers first

Composite railway sleepers made from recycled plastics have been installed on Network Rail mainline tracks for the first time. The new technology has been installed across the weight-restricted Sherrington Viaduct, between Salisbury and Warminster. The track was previously fitted with wooden sleepers, as concrete would have been too heavy for the structure.



ESDAVIDSO

▲ £100m Holocaust Memorial wins planning permission

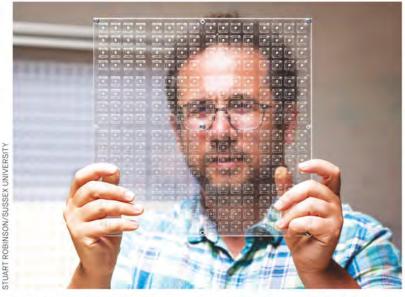
A £100m national Holocaust Memorial and learning centre is set to be built in London's Victoria Tower Gardens near Parliament after the project was granted planning permission. Construction work is planned to start in late 2021 ahead of completion in autumn 2024.



respirators incorporating

▼ 'Very different' modular builder Mark Farmer has welcomed the launch of a new and "very different" modular builder. Farmer, a government-appointed champion of modern methods of construction (MMC) in housebuilding, appeared at the official launch of the CoreHaus factory in County Durham on 30 July. (Left to right: Scotty Bibby of CoreHaus: Gaynor Tennant of Offsite

Alliance; and Mark Farmer).



▲ Plastic noise-cancelling panels face motorway test

A new plastic noise-cancelling panel with the same noise reduction as plywood but four to six times lighter is to be trialled in UK hospitals and beside motorways. The company behind the Sonoblind panels, Metasonixx, is a spin-out from the Universities of Sussex and Bristol.

▼ Bespoke propping helps Balfour repair Durham bridge

Monitoring technology and an unusual propping system from Mabey were vital to the renovation of Durham's New Elvet Bridge. Mabey used a bespoke truss system, made from Mabey Universal Bridging Panels to conduct the lift of a 490-tonne centre span bridge deck and enable the repair work to get underway.







▲ World's oldest Egyptian solar boat lifted to new museum

The Belgian Besix Orascom Joint Venture (BOJV) tasked crane firm Sarens with transporting a 4,600-year-old Egyptian solar boat 10km from the Giza Plateau to the new Grand Egyptian Museum in Cairo. Sarens installed a steel cage around the 43m-long boat and lifted it with an 800-tonne crane onto several self-propelled modular transporters.

CIOB to update on quality ahead of Building Safety Act

CIOB to maintain its focus on quality as industry faces 'crucial change' with the planned implementation of the Building Safety Act next year



The Chartered Institute of Building

(CIOB) is preparing to update its Construction Quality Code and Guide to reflect legislative changes brought about by the upcoming Building Safety Act, following their successful launches prior to the coronavirus pandemic.

The CIOB's Quality Implementation Group (QIG), launched in 2019 to oversee work to establish a culture of quality in construction, published its Code of Quality Management in September that year based on detailed research and industrywide consultation. That was followed in January 2021 by a new Guide to Quality Management, focusing on site production and assembly and aimed at site operatives.

The guide has since been downloaded by more than 360 companies and individuals, 351 of which are members of the CIOB, according to a review of 2020-21 by the OIG. It has also been sent to senior-level figures in the sector, with many circulating the document in supply chains. The CIOB said several universities have asked to include the document in their digital libraries.

The Building Safety Bill was introduced to the House of Commons in July and underwent its second reading that month. It is at the committee stage in the House of Commons and is expected to reach Royal Assent nine to 12 months after its introduction.

The QIG's review said it expected the need for further engagement with industry and government once the bill has been implemented, as the industry faces "crucial change" over the next few years as a result of its introduction. It added that there would be a particular focus on the

"CIOB will continue to support our members, wherever they work in the world, to ensure that the buildings we create, adapt and maintain are fit and safe for those who use them"

Paul Nash, Quality Implementation Group

building safety and quality agenda as well as the role of professions to ensure that competency is addressed.

Meanwhile, the QIG will work with the CIOB's clients' working group to continue to promote building quality and safety, with new CIOB president Mike Foy having identified working with clients as one of his presidential aims.

Paul Nash, past president of the CIOB and chair of the OIG, said: "I am proud of the work that CIOB is doing, and continues to do, to raise standards of quality and building safety in the industry, work that is central to our Royal Charter commitment to our members, to industry and to society.

"This is a global issue, and CIOB will continue to support our members, wherever they work in the world, to ensure that the buildings we create, adapt and maintain are fit and safe for those who use them." .

The QIG's review of 2020-21 can be downloaded from: www.ciob.org/ media/1021/download.

Training for the Building Safety Act

The CIOB has continued to develop new training to meet the requirements of the forthcoming **Building Safety Act.**

It has already launched a oneday 'Site Management - Quality Fundamentals' training course, developed by the CIOB Academy in collaboration with Martin McCabe,

as well as a Massive Open Online Course (MOOC) in Quality Management which went live in October 2019 and has attracted almost 3,000 participants.

In February 2021, the CIOB launched a Level 6 Certificate in Fire Safety in Construction and a Level 6 Diploma in Building

Safety Management, recognising the need for training for those undertaking the new dutyholder roles under the forthcoming act.

The institute said that it planned to develop further training courses for the other dutyholder roles under the Building Safety Act, such as the principal designer and principal contractor roles.

The training will be aligned with the work that is being undertaken by the BSI Built Environment Competence Standards (BECS) strategy group to develop Publicly Available Specifications (PAS) for these roles.



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Changing the Games: Engineers Against Poverty puts the spotlight on mega sporting events, p38-39



BAM Construct to release suicide awareness film

The contractor provides site for film to highlight the issue of suicide in construction, ahead of World Suicide Prevention Day on 10 September



BAM Construct is preparing to release a short film raising awareness about suicide in the construction industry.

The film is being produced by AKT Productions after BAM's construction director – London region, Ewen Hunter, approached the company about how the contractor could raise awareness of mental health in construction ahead of World Suicide Prevention Day on 10 September.

BAM has given AKT Productions access to a site to film in, as well as making a financial contribution towards the cost of the film. However, BAM won't make any unique claim to the film, so that it can be used by other construction businesses as they see fit.

BAM and AKT Productions are partnering with Ambanja Films to make the three-minute short, entitled *On the Edge*, which will highlight wellbeing issues that can lead to suicide in the construction industry.

Ambanja Films will undertake the filming free of charge. Shooting was scheduled on a site in the middle of August, with the film ready for viewing at the end of the month. Meanwhile, the Lighthouse Construction Industry Charity has offered to endorse the film.

AKT Productions' Marc Bolton said: "Once the film is finished it will be made freely available to the construction industry to act as a catalyst for some difficult but necessary conversations; the hope being that once people start talking about the elephant in the room, progress can be made, support given and lives saved."

Production of the film comes after a study by Glasgow Caledonian University, commissioned by the Lighthouse Construction Industry Charity found that the number of suicides per 100,000 construction workers rose from 26 to 29 in the four years to 2019.

The data shows no change in historical ratios, with those in the construction industry three times more likely to take their own life than in other sectors.

"Once the film is finished it will be made freely available to the construction industry to act as a catalyst for some difficult but necessary conversations"

Marc Bolton, AKT Productions

CIOB welcomes new mental health report

Research shows increased awareness and desire for change

Mental Health and Construction:



The CITB has drawn on CIOB research

The CIOB has welcomed the publication of a new report on mental health in construction.

The Construction Industry Training Board (CITB) Iaunched Mental Health and Wellbeing in Construction in August. It draws on research by the CIOB

prior to the covid-19 pandemic that found that 26% of workers thought about taking their own life in 2019.

The CITB's report found that construction still had some way to go on mental health, but that there was increasing understanding and awareness of problems faced by individuals, and a desire for change in the sector.

A significant challenge

Daisie Rees-Evans, author of the CIOB's report Understanding Mental Health in the Built Environment and policy officer at the CIOB, said: "CIOB are pleased that CITB have launched their new mental health report which has gathered examples of best practice across the sector to inspire companies to accelerate their activities in this area before we lose more lives.

"We are glad to see that our research has been utilised to further develop the case for addressing mental health in construction, particularly at a time where the covid-19 pandemic has had a significant impact on so many lives during the past 18 months.

"Tackling mental ill-health is a significant challenge that the industry, government and professional bodies must work together as a collective to address the underlying issues and improve workers' wellbeing."

The report is available from www.citb.co.uk.



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100,000

Drop in the number of construction industry workers from 2.32 million in Q4 2020 to 2.22 million in Q1 2021

Costs climb as domestic and global pressures hit

Brexit has added an extra dimension to covid-19 cost pressures, as demand collides with supply chain disruption, writes Kris Hudson



The UK economy is on high alert for inflationary pressure - and construction is particularly vulnerable.

The industry is one of the pillars the government is hoping will drive the economic recovery, but the increased demand is colliding with global supply chain disruption and labour shortages.

The pressure is borne out in the data. Turner & Townsend's recent International Construction Market Survey (ICMS) found that 'rising construction costs' has moved from ninth to third position of key industry challenges since the last report, with 'excessive lead times' moving from 13th to fourth.

The disruption from covid-19 is felt around the globe, but Brexit has added an extra dimension in the UK. Costs are rising across the country. London ranks as the eighth most expensive place to build in the world, with Bristol in 16th place and Birmingham at 18th. Manchester (24th), Newcastle (27th), Edinburgh (28th) and Glasgow (30th) come close behind - still above other key contenders such as Singapore.

On the demand side, the UK market is warming up, fired by government interest in levelling up and investing in infrastructure. UK tendering conditions are described as 'lukewarm' to 'warm' - but with key regions set to warm up in the coming months and years. The ICMS shows that Birmingham, Leeds,

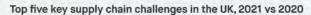
London and Newcastle are predicted to move from 'warm' tendering conditions to 'hot', while Manchester is expected to increase from 'lukewarm' to 'warm'.

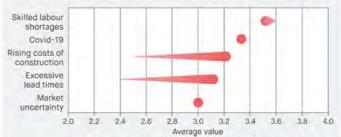
These conditions, combined with labour and material pressures, lead Turner & Townsend to forecast the UK becoming less competitive on costs compared to mainland Europe, Average UK construction sector costs were expected to rise by 3% in 2022 and 4% in 2023. Europe is only forecast to see 2.5% in 2022 and 2.4% in 2023.

Inflationary pressures could yet ease but would rely on a combination of supply-side constraints normalising and a tapering-off of demand potentially even driven by viability challenges caused by price escalation. In either case, in a pressured market, it is important to manage individual cost pressures to remain competitive.

Proactive organisations are developing new supply chain strategies and agreeing enlightened terms with suppliers. Digital tools can help make informed procurement decisions and targeted investment in productivity improvements can enhance efficiency - contributing towards offsetting inflationary pressures. Above all, the industry must meet inflationary challenges together, working collaboratively to alleviate ongoing risks.

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





Top five positions in descending order from right to left (movement left indicates falling importance, movement right indicates rising importance)

Defining market temperature in UK city regions



News in numbers

Dehydration of Japanese knotweed under lab conditions has a 100% success rate of killing it, an Aecom, **NUI Galway and University of Leeds** study has found.

Percentage of respondents to the RICS UK Construction and Infrastructure survey for Q2 2021 reporting that materials shortage is limiting construction activity.

respondents reporting longer wait times for materials deliveries, according to IHS Markit/CIPS survey.

Number of new home completions in Q1 2021, the highest figure for over 20 years.



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Opinion



Sir James Wates Wates Group

Paralympians can teach construction about inclusivity

Construction needs a culture where people feel free to talk about disability, says **Sir James Wates**. And Team GB's Paralympians can provide inspiration



Sir James Wates and Will Bayley, who is competing in the Paralympics

The construction sector is simply not

diverse enough. We are losing the war for talent, because huge segments of the population simply cannot picture themselves working in the construction sector. We are making some good efforts to redress our historical lack of diversity in terms of gender and ethnicity. But let's not forget disability.

The Paralympics helpfully shine a light on the courage and commitment that people

with disabilities bring to a challenge. They showcase the competitors' unique abilities – focusing on what they can do, rather than what they cannot.

Will Bayley represented Team GB at the Paralympics in table tennis. At the time of writing, I do not know if he was successful in defending his Gold Medal title, but I know that Will has already been a success at helping the Wates Group learn from

people with disabilities and make our company more inclusive.

We've been sponsoring Will since 2018. As part of the relationship, Will gets involved in some of our staff's charity fundraising efforts and our community outreach. He speaks with our staff and kids in local schools around the country. He is a crowd favourite, and a great motivator.

He shares my own restless desire for continual improvement. I talked with him before he travelled to Tokyo, and he told me that his past success meant nothing; he was solely focused on the next challenge.

While training for Tokyo, Will found time to participate in a Wates working group specifically about disability. This group is not just about making adjustments to our workplaces to make them more disability friendly; it is also about creating a culture of inclusion.

Will admitted to me that there was a time in his life when he was ashamed of having a disability. This unfortunately is not unusual. The 2017 Labour Force Survey showed that 58% of workers with disabilities feared that they would lose their jobs if their disability became known.

So in our companies, we need to create a culture where people feel free to talk about their own disability. We do this by celebrating their successes and promoting diversity as being a positive driver of business performance – improving decision-making and finding new ways of solving old problems.

In Wates, we have set up listening groups for people with disabilities to share their experiences. We've set up 'reversementoring' schemes, and we've recently introduced a set of Flexible Working Principles, which will help make us more inclusive for all.

There is much more work to do. But I hope that throughout the construction sector we can all take inspiration from the Paralympics and great competitors like Will Bayley, to continue making ourselves a more inclusive industry.

Sir James Wates is chairman of Wates Group.



Caroline Gumble

Engaging younger members

The CIOB is paving the way for the next generation of construction leaders to be heard, writes **Caroline Gumble**



Employee-owned Readie Construction encourages junior staff to develop careers with the business

"Through the work of the Inspiring Tomorrow's Leaders Project a strategy to address the need to build the pipeline of construction management talent has been delivered"

In my last column, I wrote about updating Members' Forum delegates on what we've accomplished in the past year or so. One of things that has come up at Members' Forum previously, and something I'm very supportive of, is how we can better engage

with younger members.

CIOB has undertaken a lot of work to bring together student members, younger members and those new to the industry.

Earlier this year the CIOB held its first Student Festival. I was impressed to hear so many students and young professionals driving innovation, speaking out about what matters to them and pushing for positive change. I'm pleased to confirm that we will hold another Student Festival next year – watch this space for further details.

Many of you will also know about our Novus community for individuals in the early stages of their career and the work we've done under the banner of the 2030 Visionary Project. We sought views on what the future of the industry will look like and how we can support those likely to be leading the industry in years to come. Through the work of the Inspiring Tomorrow's Leaders Project a strategy to address the need to build the pipeline of construction management talent has also been developed.

We're now starting to roll out some of the changes we're going to make, helping shape a positive and progressive future for the industry and those working in it. The first phase of introducing our Tomorrow's Leaders Community is underway, through the transition of our Novus representatives into this community.

Some of our younger members already demonstrate real leadership without having a formal leadership role, and many of them will be among the future leaders of the industry. I want voices from that community to continue to be an integral part of the CIOB – and to be heard by a wider audience. Integrating our younger members more closely into hubs and other governance structures will strengthen the hubs and allow the influence of our former

Build green and the profit will come

The construction industry wants to build carbon free but it needs clear direction from government, says **David Hampton**



Everyone wants carbon-free tomorrow. But the truth is we don't even have to wait until tomorrow, with top investment managers

like L&G and pension funds asking for carbon-free today.

Everybody wants carbon-free buildings. Everyone that is, apart from those who are still heavily invested in the fossil-fuel past. They must be ignored, for the future's sake. Landlords know greener offices attract higher premiums. Owners know greener buildings hold asset value. And occupiers demand better quality greener spaces.

Construction is keen to deliver carbon free too. It is asking government for clear direction, smart and binding regulation, and for the rules of the game to be crystal clear, from here to 2040.

No one wants to be told how to deliver solutions. But everyone needs to know that quality sustainable carbon-free construction will be valued and is something our political leaders are fully committed to. The industry doesn't want less red tape – it wants more, and better.

It's time for government to lead, and industry to build. Build green and the profit will come.

David Hampton is founder of Champions for Earth and former chair of the Chartered Institute of Building (CIOB) Sustainability Group.

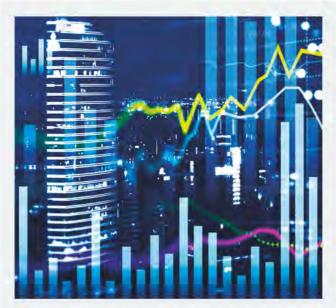
Novus representatives to be at the heart of our Tomorrow's Leaders community.

I look forward to introducing you to CIOB's Tomorrow's Leaders in the coming months. This is a group that will be crucial to the future of CIOB. It is important that the voice of the generation who will be leading the industry in and beyond 2030 is heard, represented and given a platform to share their vision.

Caroline Gumble is CEO of the CIOB.



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



O CM 13/07

The risk of 'uncontrolled value engineering'

A consultation shows the industry's strength of feeling

John Lyons

To state the obvious, value engineering should mean obtaining the best long-term benefit for the client, be they corporate or domestic. Too often it is engineering the price down to the client's budget.

We do need to ensure it contains full consideration of what we used to call cost in use, or lifetime costing.

Duncan Haxton

As a clerk of works, I always question why something has been value engineered, always downwards.

If it has been designed by a competent person, then please get another 'competent' person look at it, not someone who just wants to see a better end figure.

You accepted the price in the first place - make savings by being better!

George Tipping

I believe that value engineering has a role to play in construction. However, it should be performed as a full design team exercise, and not as a pure cost-cutting exercise.

The client is entitled to see value for money in the project while at the same time few individual building professionals have all the answers.

By coming together as a design team, the real value (or negative value) of a design solution is exposed and alternatives considered, all to the overall improvement of the project.

Chris Soffe

Value engineering that does not sustain or even improve function and performance is by definition NOT value engineering!

CM 16/07

Construction wages bounce back

Balfour Burrell

While it is good for labour costs to rise, let's hope this is for the long term and for the betterment of construction. This rise could encourage more youths to start a career in construction.

We need to commence a drive to upskill the youths for the future, and this should be our vision. We are facing a shortage of skilled labour and this is one of many factors driving cost especially for small firms.

Projects are taking longer to complete due to the workforce turnover. Small firms either pay higher wages or risk losing skilled labour. This means small firms have to face the client requesting more monies or hike the price for new projects.

With both material price rises and labour cost rises, construction needs a new narrative and direction. This will take a collective approach. But we need it fast.

CM 12/08

Dehydration kills Japanese knotweed

Paul Triggs

I think you will find dehydration will kill everything - it's not rocket science. They fail to mention how you're supposed to dehydrate something that's in your garden and will be hydrated every time it rains.

Mary Dahlheimer

I would probably place on a tarp and cover if inclement weather should arrive.

CM 02/08

BAM Construct to make suicide awareness film

Carl Wales

Excellent idea from the BAM and AKT Productions team, thank you.

Something we all need to get behind and promote. It has the potential to be a great tool in helping to create a suicide-safer construction industry.

Terry Madill

Long overdue. Construction can be a high-pressure brutal work environment, giving rise to many mental health issues. I have been there for 35 years, and it's hard to know where to start.

CM 05/08

Buyers report sluggish growth amid supply shortages

David Betts

Part of the problem has always been main contractors' buyers placing subcontract orders at the very last minute. This continues despite the shortages of materials and causes delays that are wholly avoidable if orders are placed earlier.

CM 27/07

Costain electric roads study

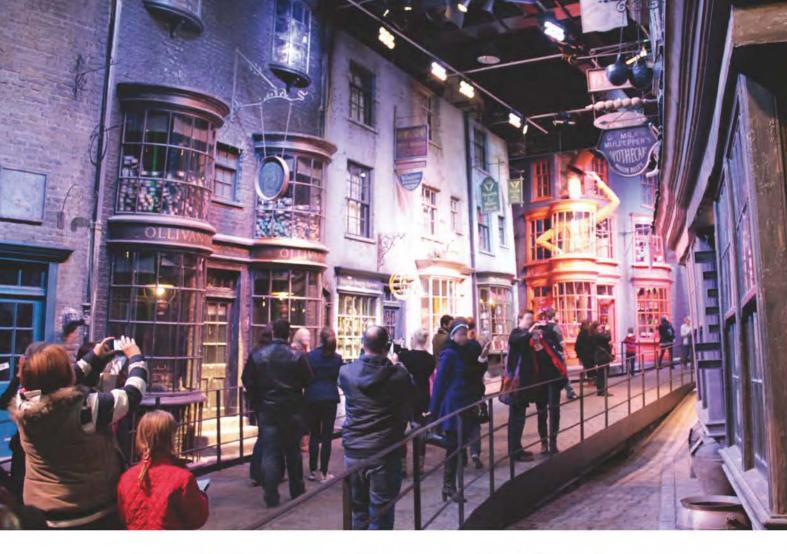
Sean Morgan

The cost to supply power is a consideration that doesn't seem to be talked about much. Where is the electricity going to come from? What safety measures will be in place in the event of a power cut?

What about the weather - for example, extreme heat in the summer, extreme winter weather, and especially wind?

There is a lot of research required and now is the time to start. The diesel engine's days are numbered. We must move on.

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



architectural acoustic finishes

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'CONSTRUCTION MUST DRIVE FOR BETTER QUALITY AND SAFER BUILDINGS'

HOUSING MINISTER EDDIE HUGHES IS AN ENTHUSIASTIC MEMBER OF THE CIOB AND BELIEVES THE INSTITUTE HAS A VITAL ROLE AT A TIME OF RAPID CHANGE FOR CONSTRUCTION. **WILL MANN** CAUGHT UP WITH HIM

Eddie Hughes has an anecdote about housing quality which arguably sums up many of the problems that have plagued the industry recently.

"Not long after joining parliament," recalls the housing minister and Walsall North MP, "I was chatting with then CIOB CEO Chris Blythe, and he showed me photos of his daughter's new-build flat. There was a carbon monoxide detector in it – but in the wrong place, the hall not the kitchen. And this struck a chord with me because I had just introduced a private member's bill, pushing for carbon monoxide alarms to be mandatory in new homes.

"At Chris's daughter's flat, the site manager had ticked the box by installing it – but may not have known that it was serving no useful purpose. This feels like a metaphor for some of the things that have gone wrong in the construction industry due to dreadful quality assurance."

Hughes will be addressing these issues and plenty more following his appointment in January as minister for housing and rough sleeping. His background - he is a CIOB member, worked in social housing and chaired the All Party Parliamentary Group for Excellence in the Built Environment - made him an obvious candidate for the role. Since arriving in Westminster, he has been in regular contact with the CIOB and says the institute deserves great credit for "the work it has done to raise quality standards".

Consumer quarantees

Among his key ministerial responsibilities are the New Homes Quality Board and the New Homes Ombudsman. Provision for the ombudsman will be introduced through the Building Safety Bill.

"Developers have not paid enough attention to quality, or they have cut corners, or individual trades have," says Hughes bluntly. "That's one side of the problem.

"The other side is consumer rights. If you buy a new home, you should have the same kind of guarantee as when you buy something like a kettle. When people buy a new home, they've got a certificate that seems to offer a

Right: Eddie Hughes: "If you buy a new home, you should have the same kind of guarantee as when you buy something like a kettle" degree of assurance - but that can be false. People feel like they have more rights of redress than they actually do.

"This is where the New Homes Quality Board and the ombudsman come in."

The board was set up earlier this year and in June launched a consultation on its quality code. Developers signing up to the code will have to offer homebuyers greater protection, including an effective aftercare service to deal with any snagging problems customers may have. If buyers are not satisfied, they can refer their complaint to the voluntary ombudsman being set up by the board.

In addition, legislation is continuing its passage through parliament.

The Building Safety Bill includes provision for the ombudsman scheme which will, in future, be a legal requirement for developers to join.

The ombudsman will investigate and determine complaints and require developers to provide redress where complaints are well founded.

Developers may receive sanctions

Eddie Hughes CV

- Since January 2021:
 Parliamentary under secretary of state (minister for housing and rough sleeping), Ministry of Housing, Communities and Local Government
- 2018-2019: Chair, All Party
 Parliamentary Group for Excellence in the Built Environment
- 2017-Present: Conservative MP, Walsall North
- 2012-2017: Board member and chair, Walsall Housing Group
- 2014-2017: Asset director and assistant chief executive, YMCA Birmingham

Education:

- University of South Wales,
 Bachelor's degree, Civil Engineering
- Handsworth Grammar School



where they breach the requirement to be a member of the scheme when they build and sell new homes.

"It's important that people can buy a new home and have some faith in the quality of workmanship and know there is the opportunity for redress," says Hughes.

"Developers will have to sign up to the code, which sets standards for their behaviour and the quality of product they deliver. From the consultation on the quality code, I think the housebuilding sector is enthusiastic about this. Those builders who are currently producing a quality product feel maligned by those who are not."

Driving up standards

And for developers who continue to deliver an inferior product, are there sanctions available?

"If you are a developer persistently not meeting those standards you'd signed up for, your ability to develop would be restricted," answers Hughes.

"But the purpose of the ombudsman is not about enforcement, it is about driving up standards," he continues. "And I feel that when developers know all of their peers have signed up to this code, they will feel more pressure to comply.

"And there is a financial imperative here too, because if they get things right in the first place they won't have go back and fix them later."

Making the Building Safety Bill law is only "a first step towards implementation", Hughes notes, with secondary legislation to follow.

"It will be important the industry embraces the changes put in place through the legislation," he says. "And I see organisations like the CIOB at the forefront of that. Every construction professional needs to be aware of the legislation and the drive

Eddie Hughes on...



...Building safety

"Construction professionals need to be more appreciative of what happens when they leave the site and the building is then occupied. Understand the ramifications of refurbishment work. If a plumber is fitting pipes, and breaks the compartmentation, that area needs to be resealed. And we've all seen buildings where that's not been done."



...Digital

"Younger generations are more attracted to their smartphone than a trowel - but they appreciate diversity of opportunity. And with BIM and digital technology, we can give them career opportunities they might not have appreciated existed. Digital is going to be infused in everything across the built environment."



...Construction and education

"Colleges need to be more creative about promoting the benefits and stability of a career in construction. T-levels may be more appropriate for people going into construction. We need to be better at making that link better between what you're learning, technical thinking, and how you will apply that in the future."

for better quality and safer buildings for people to occupy in the future."

Also part of Hughes's brief is the Social Housing White Paper, which aims to give residents a greater voice, including on building work.

"Previously, housing repairs would involve a relationship between a few people at the registered provider and the construction company," says Hughes. "Now everything has to track back to the tenant. They should have the opportunity to input whenever construction or refurbishment touches their lives. For new-build homes, that will include involvement in design, layout, choice of materials.

"We also want tenants to have better information on the performance of the people who



carry out maintenance and repairs to their homes; tenants should expect anyone working in their home to treat them with respect. As a private homeowner would expect of any tradesperson in their home."

Do these softer communication skills come naturally for construction professionals?

"No!" replies Hughes with a laugh. "I say that as a civil engineer, by training. We naturally see construction as a series of problems to be solved rather than thinking about what's going to happen to the product once we've left. The process needs to be made more personable."

Changes in the industry

Social housing has been one of Hughes's passions, though he entered the sector almost by accident. He graduated in civil engineering in 1992, during a full-blown recession, when none of the major construction companies were recruiting.

"There was a housing site near where my folks lived in Birmingham, and I literally walked on to the site and asked 'Have you got any jobs going?"" Hughes recalls. "There was a theodolite set up and a guy said, 'Can you operate that?', and I said 'I certainly can'. He said, 'Come back tomorrow then'."

He went on to become chair of Walsall Housing Group and describes his work as construction director at the YMCA Birmingham - overseeing the building of 34 homes, a sports hall and conference centre - as the professional achievement which gives him the most pride.

Hughes has seen "massive change" during his time in the industry, noting "attention to safety on site is now paramount", but feels it remains behind in other areas: "Diversity has increased to a degree, but not substantially enough; the whole



industry needs to act as salespeople, encouraging females and anyone from minority backgrounds to believe they can have a career in construction."

Hughes voted for Brexit and believes construction now has to step up to address the its skills challenges.

"Previously, there wasn't the same motivation to invest in training, as building companies could draw in skilled trades from mainland Europe," he says. "Now, that responsibility sits squarely with the industry.

"Let's face it, construction is full of innovative and creative people who come up with solutions to the varied problems they face - this one shouldn't be insurmountable.

"I'm open to the industry approaching the government with an idea to promote construction careers. That's something I would love to do."

Hughes is an enthusiastic "cheerleader" for the CIOB and believes the institute has a vital role at a time of such rapid change for construction, with the building safety bill landing, digital change marching on apace, and resourcing issues.

"CIOB membership plugs you into a broad range of really useful information - whether it's net zero skills, new technology, health and safety, materials shortages - which is a way industry professionals can keep up with what's going on in the industry," Hughes says. "I also found that really useful as a backbench MP.

"Another of the benefits and requirements of membership is CPD," he says. "People need to appreciate the value of that, particularly in the context of building safety and other industry changes. It is one of things that has informed my career in construction since I joined the industry nearly three decades ago, and it should be part of how any young construction manager plans their career."

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Offsite



ENGAGING CLIENTS WITH OFFSITE

CLIENTS ARE OFTEN CITED AS THE BIGGEST BARRIER TO OFFSITE TAKE-UP. SO HOW CAN THEY BE PERSUADED OF ITS BENEFITS? WILL MANN ASKED THREE MODULAR SPECIALISTS

Top: Premier Modular's Desborough Road development in High Wycombe

"Architects don't know enough about offsite"



Nathalie Meunier Director, Premier Modular

We regularly talk to clients who are keen to pursue an offsite solution, but their architects and cost consultants can be resistant and put

up barriers. Many architects just don't know enough about offsite construction to produce drawings that work for manufacturing. There are probably only four or five architects in each sector with sufficient knowledge of volumetric systems to do this well.

Clients and contractors need to engage with an offsite specialist early, and prior to tendering, so we can set the right parameters for design and ahead of the planning process. RIBA Stage 2 is the best time. Engagement at this stage will be more efficient and more cost effective because you can maximise fitout off site. That will reduce work on site - an important issue on school, hospital, and city centre sites.

It is important that cost consultants appreciate when comparing tenders that costs for offsite construction are presented differently to in-situ construction, particularly if they don't usually work on offsite schemes.

Modular can be introduced at later RIBA stages but designs will need to be extensively reworked to fit a manufacturer's module sizes which adds to cost - or multiple module sizes will be needed, which removes the benefit of standardisation and is therefore far less cost efficient.

It is also likely to result in design clashes, for example between M&E services and structural steelwork. These issues would typically have to be rectified on site, incurring cost, increasing disruption, and removing the programme benefits.

We advise clients to engage with an offsite specialist and develop the design with them from the outset. Visit the factory, attend workshops and visit completed projects. And ask questions! Recognise that offsite solutions are different to in-situ construction, but with an open and transparent approach and working as a genuine partnership, the benefits are enormous.

"Manufacturing is different from onsite building"



Andy King

Deputy managing director of Wernick Buildings, and technical chairman for the Modular and Portable **Building Association**

To be successful in a modular project, clients really need to engage with their modular contractor as they would with their architect at RIBA Stage 1, and create a brief around a modular solution. With most traditional projects, the design is still ongoing when you start on site but achieving a design freeze prior to the commencement of manufacture is critical with a modular project.

If clients get to RIBA Stage 3 before they appoint a modular supplier, their designs often don't match the gridlines or the specific engineering of our building modules. This would mean we'd have to scrap a lot of the design work they'd done already, which would inevitably increase costs and take additional time.

The standardisation of modular products means that buildings are predesigned to be fully compliant, which allows for a smoother design process from a proven system. Any client-specific requirements can be easily added.

To use a modular approach effectively, clients should have a basic understanding of module size constraints and transport limitations, standard designs versus bespoke products and the impact

on cost and speed when using non-standard systems. Preferred M&E options can be different to those of traditional construction.

Manufacturing processes are different compared to onsite building. Clients will need to make quick and timely decisions as the modular method is a speedy process that can be let down by slow decision-making. It's worth noting that standard cost models and bill-of-quantity breakdowns for modular don't fit into standard formats. Clients should also have an understanding of vesting and payment schedules for work completed within the factory.

Modular building systems have evolved and despite there still being some misconceptions about their quality and permanence, they are able to easily respond to the needs and requirements of a range of sectors.

"The Construction Playbook is a great place to start"



Paul Ruddick Chairman, Reds10

The main obstacle we find with clients is a desire to procure MMC through traditional procurement methods and tier 1 contractors.

This stems from the misconception that the modular market is only capable of manufacturing certain elements of buildings and that other contractors are required to integrate the offsite





Wernick Buildings' Y-Twyni building, Swansea

elements. But this isn't the case and integrated modular contractors like Reds10 can design, build, finance and operate buildings.

Client-side project teams should appreciate how far modular technology has moved on and recognise that high-quality, low-carbon buildings with high architectural integrity are now possible.

Mindset and understanding play a large part in the success of any modular solution. Firstly, clients should identify which type of modular construction is most applicable for the project. The MMC definition framework provides a useful starting point.

Clients should strive for a deep understanding of the modular process and the benefits of MMC and open their minds to a new way of working. This includes locking down key design decisions and using technology to coordinate a design that can go straight into manufacture.

Modular works best when it is embedded from the start - Stage 0 (Strategic Definition) or 1 (Preparation & Briefing) - to optimise the outcome. Some clients fear that this could reduce their ability to engage the wider market, but it actually opens up the market, as it can be delivered using either MMC or traditional construction.

Adoption at later RIBA stages may lead to an inefficient frame solution, the need to include non-standard design details and the loss of architectural integrity. Some programme time will also be lost.

Clients looking for a better understanding of the offsite market will find the Construction Playbook from the government is a great place to start; it encourages them to embrace the skills and expertise of specialist modular contractors to deliver better outcomes.



MACE MANAGES UPWARDS WITH MODULAR

A THREE-STOREY ROOFTOP OFFICE EXTENSION IN THE CITY WAS DELIVERED WITH THE HELP OF PREFABRICATED FACADE PANELS. CM REPORTS



"The procurement costs of the MMC route can sometimes be higher, but that can be more than

offset by the reduction in site costs. It also reduces risk"

Michael Adams, Mace

Modern methods of construction

(MMC) are typically associated with new build but they have plenty of applications in refurbishment too, as Mace demonstrated recently on a City of London office revamp and extension.

The company's £58m Gresham St Paul's project for Stanhope and AFIAA Real Estate Investment is an example of how to achieve programme and quality benefits from prefabrication, with the project team pinpointing which elements of the build could be prefabricated during the planning stages.

The project involved the transformation of a seven-storey office building on Gresham Street in the heart of the City, delivering a Cat A, BREEAM Excellent development. Designed by Wilkinson Eyre, it included a three-storey rooftop extension with engineered stone cladding to complement the Portland stone facades of the original building.

The Mace team was keen to consider how the benefits of a precisionmanufactured cladding system could be maximised as a modular installation to drive buildability advantages for both cost and programme management.

"We had previously taken a unitised module approach to the facade installation at a similar project, working with the same facade specialist, GIG Fassaden," explains Michael Adams, facade lead (commercial offices) at Mace. "We were confident that the same approach could deliver comparable

advantages in terms of quality, consistency, programme management and cost reduction for this project.

"We knew close collaboration between our team, GIG Fassaden and manufacturer Shackerley would be central to a successful outcome for this element of the project."

Drivers for modular

Among the key drivers of a modular approach were the advantages provided by striking the scaffold as early as possible. The scaffold was necessary for upgrading the retained facade. Removing it early and craning prefabricated cladding modules into place for the high-level extension had both cost and operational benefits.

"Our approach to prefabrication is always to consider the whole project benefit: the procurement costs of this route can sometimes be higher, but that can be more than offset by the reduction in site costs," Adams explains.

"It also reduces risk, because it gives us more control and consistency. With a conventional cladding installation, if just one component is missing from a delivery, it can cause a delay, but with this project we knew every module arriving on site was complete and installation ready.

"That was a major benefit of working with Shackerley because they have ISO 9001-accredited UK factories, so we were able to visit them several times and ensure that their QA processes were aligned to the exacting tolerances required on site,"

The facade design specified Shackerley's SureClad engineered stone system in a creamy beige 'Valpolicella' with a sandblasted finish for the additional storeys, to reference the materiality of the lower storeys and answer planning requirements.

The cladding system for the new storeys also had to work within the loading parameters of the original structure and the large format 3050 x 1240mm SureClad panels were just 30mm thick, providing a lightweight solution.

Facade contractor GIG Fassaden designed the modular installation and fabricated the aluminium frames for the unitised modules. The initial plan was for Shackerley's SureClad engineered stone panels to be shipped to the facade specialist in Austria then delivered back to site in London, However, there were considerable cost, programme management and sustainability benefits to having the modules built at one of Shackerley's UK factories.

Thomas Thaller from GIG Fassaden explains: "It was clear that Shackerley had the technical expertise and manufacturing capabilities to fabricate the modular units to our design. This provided an ideal solution that fits with the sustainability goals of the BREEAM Excellent project by reducing embedded carbon, while allowing close co-ordination of each aspect of the fabrication in a single, quality-assured factory."



Above: 3D visualisation of one of the facade modules Left: Engineered stone with a

sandblasted finish

was utilised for the

rooftop extension

Project team

Project: Gresham St Paul's Value: £58m Programme: 24 months Client: AFIAA Real Estate Investment/ Stanhope Architect: Wilkinson Eyre Engineer: Waterman Main contractor:

Subcontractor:

GIG Fassaden

Working closely with GIG Fassaden and Mace, Shackerley fabricated 400 modular facade units. The custom-designed modular units utilise Shackerley's undercut anchor and bolt fixing system, but the panels were secured directly onto the frames supplied by GIG Fassaden, creating 4m columns, each with 35 sections of engineered stone, including front panels and side returns.

Thaller continues: "It was a technically complex requirement but the Shackerley team worked with us on the design and produced a sample so we could trial the solution and provide an accurate costing for both materials and fabrication."

The bracketry for the system was also designed and manufactured by GIG Fassaden and fixed to the building.

"When each engineered stone module arrived on site, it was craned into position and bolted onto the substructure," Adams says.

"With a conventional installation, a typical bay would have taken around a fortnight to install, but each bay could be completed in a day using this approach. It not only reduced the programme but made it more predictable because we knew the modules were installation ready and accurately aligned."

The project articulates the benefits of collaboration across the supply chain. "The benefits are not only clear in the programme," Adams adds, "but also in the finished facade with the absolute uniformity of the panels." .

HOMEGROWN TIMBER'S MMC ROLE

COP26 WILL SHOWCASE THE FIRST HOME BUILT FROM SCOTTISH-SOURCED CROSS-LAMINATED TIMBER, DEVELOPED BY CONSTRUCTION SCOTLAND INNOVATION CENTRE. INNOVATION MANAGER SAM HART EXPLAINS MORE TO CM



CM: Historically, timber has been used more widely in Scotland than other parts of the UK - why is that? SH: Partly it is to do with local availability - another influence is local design. Around 85% of new-build homes are built with timber, which is three times more than in England and Wales. Scotland has forest and woodland covering around 19% of land - equivalent to 1.46m ha - and growing through the support of the Scottish government's Forestry Strategy. CM: Why should other parts of the UK embrace timber? SH: Timber products are generally manufactured off site in modern facilities, making the process

reducing the UK's carbon footprint? SH: There is high demand for timber products, yet in 2018 the UK was the world's second largest net importer of forestry goods, behind China. Timber is a naturally renewable, low embodiedcarbon material and removing the need to transport it from abroad could cut its carbon footprint even further. CM: Is homegrown timber currently used for any construction purposes? SH: It has largely been restricted to non-structural applications in construction - broadly speaking, repair, maintenance and improvement, along with fencing materials and pallets. But Edinburgh Napier University's Centre for Offsite Construction and Innovative Structures has proven that with drying

CM: What impact can timber have on

The COP26 demonstrator was constructed at CSIC's specialist facility using the only vacuum press of its kind in the UK for processing CLT panels and glulam/ GLT panels



"With the right design, specification and fire safety engineering, timber is as safe

as any other structural building material"

Sam Hart, CSIC

and processing Scottish timber can be used in MMC applications. CM: What potential is there for homegrown timber's use in MMC? SH: We are currently working on a project to trial homegrown timber in a live environment. The initiative has manufactured the first Scottishsourced cross-laminated timber and nail-laminated timber housing unit at our innovation factory, where we have the UK's only vacuum press. The home will be presented at the United Nations' COP26 climate change conference in Glasgow later this year. CM: What about fire safety concerns with timber-frame buildings? SH: With the right design, specification, and fire safety engineering, timber is as safe as any other structural building material. There are significant research and development projects being undertaken in Scotland and England to address these concerns. CM: What do you hope will come from the show home at COP26? SH: The project will demonstrate the benefits of using timber in housebuilding and its suitability for high-value products in construction. Although it is just one piece of a much bigger puzzle, we hope it will eventually lead to the mainstream adoption of homegrown timber in the UK. It could also lay the foundations for the development of Scotland's first engineered timber manufacturing plant, by proving the investment case for this type of facility.

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MODULAR AND GROUNDWORKS: ALIGNMENT ISSUES

CIVILS FIRM O'KEEFE HAS BEEN TRIALLING NEW TECHNOLOGY TO ENSURE OFFSITE MODULES LINE UP WITH GROUNDWORKS, EXPLAINS ROSS HALLIDAY

One of the many benefits cited by

modular construction advocates is the enhanced quality and precision that comes from the factory building environment. But this can give rise to problems when the modules arrive on site. This is where the close tolerances of factory precision come up against the inevitable approximations of traditional site methods. It is not

O'Keete on site at Copperas Street in Greenwich, the first modular residential build-to-rent scheme in London

uncommon to take delivery of a factory-made module only to find some misalignment of service penetrations or even foundation elements.

The basic issue is not so much site operations mismatching the precision of the manufactured module, but the need for collaborative coordination between the factory and the site.

This was demonstrated on a project where O'Keefe provided the groundworks and constructed the bases for a row of new homes built using a modular system.

As the first unit was craned into position, it became apparent that services did not line up and installation had to be temporarily suspended while onsite adjustments were made.

Once the problem had been rectified, the project continued as planned, but we started to think about how we could prevent this from occurring again. This was not a BIM project, and in any case, we find BIM models are not widely shared by our offsite manufacturer partners due to intellectual property concerns. Nevertheless, we decided the answer was to create point cloud surveys of the site as built.

Using proprietary design software (BIM 360 and Navisworks) we can produce images that the modular manufacturer can overlay on top of their drawings to ensure complete compatibility.

Just as modular buildings are repeatable to a very high level of consistency, we considered that some method for replicating our substructures would help to ensure compatibility with offsite modules.

We have to date experimented with several options, comparing traditional brick and blockwork with alternatives such as reinforced concrete upstands. The latter was expected to deliver benefits from the use of reusable steel formwork.



"Using BIM 360 and Navisworks we can produce images that the modular manufacturer can

overlay on their drawings to ensure complete compatibility"

Ross Halliday, O'Keefe

But although this seemed a logical extension of the modular concept, it proved expensive and unwieldy in operation, and we are now preparing to demonstrate with a precast option. In truth, there will probably always be the need to have a variety of options for this foundation connection.

But back to BIM. The use of the technology can help with sequencing as well as design compatibility. For example, it can help decide the extent of hard and soft landscaping to complete before modules are installed. In an ideal world, all landscaping, footpaths and flowerbeds would be finished in advance of the modules arriving on site. But careful consideration for the modular deployment and lifting logistics needs to be front and centre for any decision-making.

We started searching for solutions to this problem around 18 months ago. Since then we have started working as the civils contractor on numerous modular-led projects. On the latest one in south London, we are putting into practice what we have learned. Early collaboration with the offsite manufacturer and the project lead - whether developer or contractor is a priority and point cloud surveys are being produced and supplied directly to all parties.

We are pleased to say that our recommendations and findings are now turning into actual savings both in time and money.

Ross Halliday is a regional director at O'Keefe.



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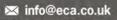
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UNDERSTANDING MULTI-SENSOR POSITIONING SYSTEMS

THE SHEER NUMBER OF POSITIONING SYSTEMS AVAILABLE TO CONSTRUCTION COMPANIES CAN BE DAUNTING. BUT MULTI-SENSOR SYSTEMS CAN OFFER A COMBINED SOLUTION TO GIVE CONTRACTORS THE BEST OF BOTH WORLDS. THIS CPD, IN PARTNERSHIP WITH TOPCON POSITIONING GB. LOOKS AT THE NEW TECHNOLOGY

Topcon's GT Series robotic total stations can perform as a hybrid positioning solution

The face of construction is changing.

The sheer number of positioning solutions available to construction firms – whether new independent contractors just starting out, or established businesses, can be daunting. It can be difficult to understand when to use more traditional optical equipment, like total stations, or when to use more recent innovations like GNSS (GPS) positioning. What should you choose to get the best in efficiency, usability and value for money?

In the past, this was a difficult question to answer. Often, a compromise would be involved. Optical total station solutions have traditionally been great for accuracy,







"A hybrid system allows users to switch to the GPS reading instantly, surveying the stockpile with no line-of-sight issues"

but provide challenges when working on a national OS grid or on a large site with numerous obstructions. A GNSS solution doesn't give quite the same level of accuracy as optical, but gives increased flexibility to work easily on national or local coordinate systems and on large sites without being blocked by obstructions.

Now, however, multi-sensor systems, like Topcon's Hybrid Positioning system, utilise optical robotic total stations (RTS) and GNSS receivers in a combined solution to give the best of both worlds.

Optical and GNSS positioning systems

Total stations are generally used on a local coordinate system, so a small construction site of 10 houses could have, for example, 1,000m east by 2,000m north applied to the site. In basic terms, this places both the site and total station onto a single, local independent coordinate system with each feature on site having its own related coordinate.

A GNSS system is another method often used; most commonly opted for is a network rover, and this is the main reason why people are using GPS more frequently. Over the last 10-15 years national Ordnance Survey coordinates have been used more in general construction rather than just for specialist requirements.

GNSS can work on a national or local coordinate system. A new housing estate, for example, can



Information can be accessed on site by Topcon's FC-6000 field computer

be mapped over existing mapping, such as OS maps, or even Google or Bing maps, to show exactly where you are in the UK, allowing design and planning to take into consideration the wider environment and its impact on the eventual build. GNSS is simple – within minutes you can be operational and surveying basic points.

Each system has its own benefits, but also drawbacks. Optical solutions can be time-consuming for larger projects, and having a clear line of sight to targets can be challenging on more complex sites. However, they can also work indoors, which is especially important for projects such as tunnelling or renovation works.

The accuracy of GNSS systems can be improved, and the more satellite constellations that the system accesses, the more likely the data is to be precise. For example, Topcon's HiPer SR solutions can access GPS and GLONASS constellations, and some more advanced solutions, like the HiPer VR and HR, can access even more, including Galileo and BeiDou.

The downside to these systems is their inability to be used indoors or where the satellite signals are obscured and blocked – in which case a RTS system would be needed to obtain the information.

Hybrid systems are an amalgamation of the two – offering the strengths of both approaches in one package. Historically each item would be purchased and used individually, but using two different systems can be costly and time consuming.

One example of the benefits of a hybrid system in action is when measuring a large stockpile on site. Traditionally, the use of an optical total station would require operators to traverse around the stockpile to measure multiple points from its entire surface.

With GPS added to the optical solution, there is no need for this; a hybrid allows users to switch to the GPS reading instantly, surveying the stockpile with no line-of-sight

"Another of the key benefits of a hybrid system is that it is scalable - you can add in different elements as needed for your projects"

issues, and potentially saving hours of work moving the instrument around for multiple setups.

Why go hybrid?

The modern construction site and its requirements is changing. The days of being able to do everything on a local grid are disappearing, and national OS coordinates are becoming more important. Certain construction site standards also now require a national coordinate system.

Topcon's Hybrid Positioning system places a lightweight GNSS receiver on top of the prism and allows the total station to reacquire prism lock in a matter of seconds. Users can select safe, convenient locations and define the unknown point of their instrument from GNSS measurements.

Some tools, like the HiPer VR from Topcon, offer a TILT (Topcon inertial levelling technology) function traditional location equipment has always required the use of a levelling bubble but this system allows the user to survey in a non-level position such as a building corner.

The TILT system allows for positioning up to 15 degrees from level and still records accurately, which is very useful when trying to measure difficult to reach positions in tricky environments, such as the edges of buildings.

Another of the key benefits of a hybrid system, especially with



the Topcon system, is that it is scalable - you can, for example, buy the RTS and add GNSS later and add in different elements as needed for your projects.

What's stopping hybrid adoption?

Despite the wealth of benefits that multi-sensor systems offer, there is still a lack of adoption of new technology like this from many within the industry. Younger generations can be more tech-savvy, yet there is still some reluctance towards even the easiest-to-use solutions that can accelerate productivity and efficiency for the better.

Many are either still unaware of the technology or choose to use outdated and inaccurate methods and legacy systems because they are familiar and within comfort zones, but they simply won't deliver the same results. In fact, it's still not unheard of for some sites to be set out with string lines, tape measures and a theodolite.

Topcon's HiPer VR offers a TILT function, which enables it to measure difficultto-reach positions

Some are still reluctant to invest in digital tools, as it can be difficult to see any ROI. However, multi-sensory systems, such as Topcon's, not only reduce the costs in comparison to the need of having two separate solutions, but also reduce the need to spend money rectifying any mistakes or inefficiencies in the first place. This means these investments are less about ROI and more like insurance policies.

There is also still a misconception that these systems require extensive training and can be seen as complex. The reality couldn't be further from this - many systems, particularly those from Topcon, are designed for ease of use and simplicity, so require little training for operators to begin using.

There is a need for the application of both systems for hybrid to be of benefit to a project- and many in the industry do not see a need to invest. However, given the increasing demands of government legislation and procurement and tender processes, the benefits that >



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multi-sensory systems offer are invaluable. Moreover, the need to digitalise is now more important than ever, and the wider adoption and understanding of the technology across the industry can provide improvement to accuracy, efficiency and productivity in the long term.

Leading manufacturers in the industry are highlighting the benefits of these new technologies to workers in the sector. Those using digital solutions also need to become advocates, supporting upskilling within their businesses.

Topcon's GT

operator

stations can be

used by a single

Series robotic total

Contractors should look to focus on training their staff and implementing new workflows, and also investing in solutions which will not only provide increased productivity and profitability now, but also future proof their business.

The software to support

For all modern survey and construction positioning systems to work to their full potential, they require the support of design, processing and field software, such as the MAGNET software suite from Topcon. This allows for full control of the job from initial site survey, to design, to stake-out and as-built reporting.

Also, all job data can be shared remotely between the office and site using inbuilt cloud technology. The speed and cost effectiveness gained from removing the need to travel between office and site is a huge bonus.

Using the software and technology efficiently can help to improve productivity, accuracy and accessibility through effective workflows across the site and teams and can help to avoid stoppages.

Multi-sensor positioning systems are also a great tool for future

workers in the industry and are excellent for both learning and teaching. Adopting and learning to use systems such as these, as well as encouraging their use to your colleagues, will stand you in great stead for working on the construction sites of the future.

With the need to use more digital tools prevalent across the industry, companies must explore the newest innovations to keep up with trends, legislation and competition.

By implementing simple yet powerful tools like multi sensor systems and modern user-friendly software, the industry can take a big step towards embracing digital.





CPD Questions

1: What best

describes the difference between total station and GNSS surveys? a) Total stations are traditionally based on local coordinates while **GNSS** works mainly on national coordinates but can access local coordinates when needed b) Total stations are only ever for small projects while there's only ever a need for GNSS on complex sites c) Both are the same, there are

2: True or false: RTS systems do not require a clear line of sight to targets?

no differences in

the coordinates

they provide

a) True b) False

3: Which of these is a downside to only using GNSS systems?

a) They still require reflector points, which isn't always possible on more complex sites b) They are outdated and the technology is often inaccurate c) They require line of sight to the sky and cannot be used indoors

4: True or false: certain construction site standards now require a national coordinate system? a) True b) False

5: Which of the following is not a reason that construction sites need to adopt digital tools and workflows? a) To keep up

construction site requirements b) To improve accuracy and efficiency c) To reduce the need for skilled workers in the

industry

with modern

To test yourself on the questions above, visit www.constructionmanager magazine com/cpd-articles.



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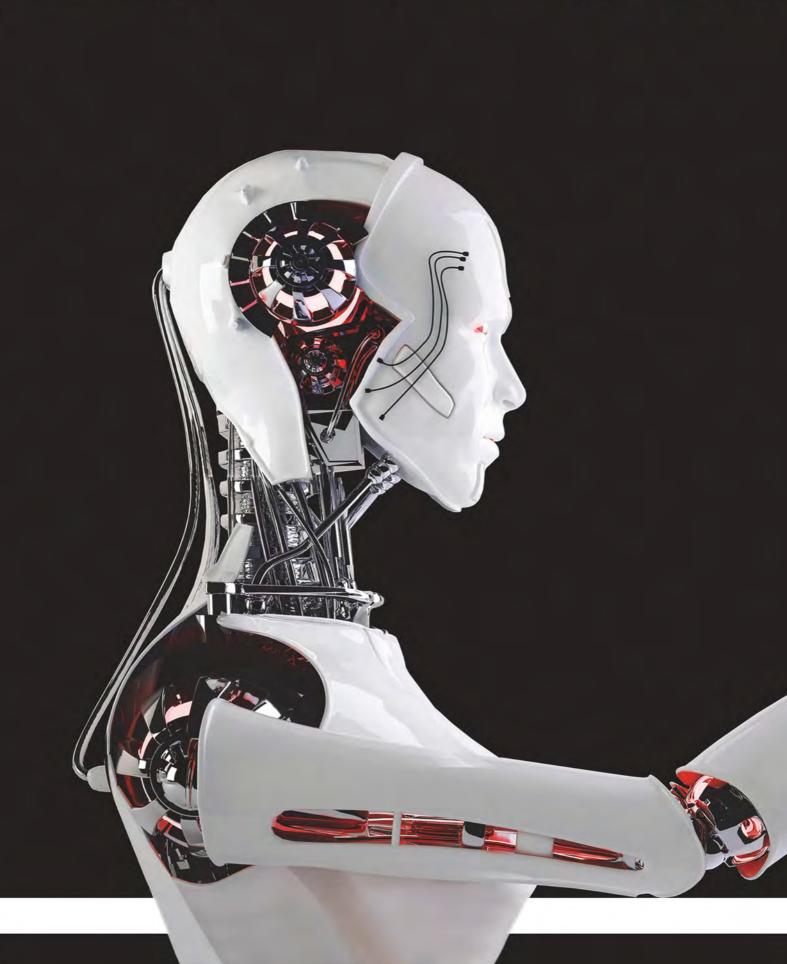
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CHANGING THE GAMES



There is a reason the International Olympics Committee (IOC) and FIFA, football's world governing body,

are based in Switzerland, argues advocacy group Engineers Against Poverty (EAP).

Swiss law allows such organisations

to be incorporated as non-profit associations, which means that even though they make billions selling broadcasting rights, corporate sponsorship, tickets and licensing, they are not subject to the same scrutiny that normal businesses are. They don't, for instance, have to disclose financial compensation paid to staff and leadership teams the way listed companies must reveal this

information to shareholders.

The Tokyo Olympic Village under construction. This vear's Summer Games will be the most expensive in history

It is, says EAP, part of a matrix of non-accountability in the mega sporting event business that makes events like the Olympics and the World Cup ruinous for cities and nations. They make lavish promises to win hosting rights, usually without genuine public consultation, and then disburse vast amounts of public funds to prepare for and run the events with citizens left footing the bill for expensive and often useless assets.

Big stadium, no football team

"When decisions are made in haste and citizens left on the sidelines. we continue to see white elephant projects and a huge waste of public funds in addition to poor quality infrastructure and a lack of trust in delivery authorities and governments," says Maria da Graça Prado, author of a recent EAP paper calling for greater accountability in the mega-event business model.

The paper, Changing the Game: A critical analysis of accountability in mega sport event infrastructure delivery, lists a few of the many examples of white elephants.

The 10 stadiums built for the 2010 FIFA World Cup in South Africa are not used by the local population, the paper says. Four cities in Brazil where arenas were constructed for the 2014 World Cup - Manaus, Cuiabá, Natal and

Russia spent \$10bn on road and rail links for the 2014 Sochi Winter Games

10bn



Brasília - have no major football teams active in relevant leagues. For the Sochi Games, the government of Russia spent US\$10bn on road and rail links, with tunnels and bridges, connecting the coast to the mountains; there is little demand for this infrastructure now, even though taxpayers must spend a reported US\$1.2bn a year on their operation and maintenance.

Politicians collude

The sporting bodies who profit from mega events are not accountable to the citizens who must pay for them; they are accountable only to their members. In this way, da Graça Prado argues, the opacity sporting bodies cloak themselves in as non-profit membership organisations reaches into host countries. Bids are put together without consent or scrutiny, with officials free to put the rosiest spin possible on costs and benefits.

Governments collude in the secrecy. The bid for the 2014 World Cup never became public and the promises made by the Brazilian government to FIFA still remain unknown.

Organisers of the Boston candidacy for the 2024 Olympic Games "failed to publicise any of the pre-bidding preparatory works, to the point that most residents only learned about the bid on the day the city was selected by the US Olympic Committee as a potential

host - almost two years after the preparatory works had started," the paper notes.

Ahead of the 2000 Olympic Games in Sydney, access to information was denied from the outset, with the Cabinet imposing a general ban on Freedom of Information requests related to all Olympic documents, and companies taking part in preparations having to sign a confidentiality agreement.

"Despite this degree of separation crafted by the legal structure, the interests at stake remain public and citizens are the ones to bear the costs and consequences of the decisions of member associations and international sports organisations," the paper notes. "It will be the citizens, for example, who live with any poor-quality infrastructure left after the events."

Waking up

With Tokyo now setting the record as the most expensive Summer Games in history, as well as facing strong opposition from citizens,

"When decisions are made in haste and citizens left on the sidelines, we continue to see white elephant projects and a huge waste of public funds" Maria da Graca Prado, EAP

Top left: Brisbane's Gabba cricket stadium will be refurbished for the 2032 Olympic Games

Below: Taxpavers spend a reported \$1.2bn a year on the road and rail links built for the Sochi Winter Games

there are signs that the sheen of the Olympics, in particular, has worn off.

The IOC has struggled to find cities willing to bid. When Krakow held a referendum on hosting the 2022 Winter Olympics, 70% of respondents said no, and the city withdrew. Oslo also bailed out, irked by the IOC's "pompous" demands. The 2022 Winter Games will be held in Beijing.

The IOC has relented in recent years, ratcheting down its demands for shiny new venues. The 2032 Summer Games in Brisbane might set a record for being the most spartan, with some 84% of venues already built or under construction. But EAP believes more needs to be done to ensure accountability.

The paper calls for complete transparency. Bids to host events should include a requirement for infrastructure contract documents to be published, and restrictions on the rights to information laws must be removed.

It says mega sports events should also receive consent from citizens. Infrastructure planning forums would ensure citizens' concerns on issues such as value for money and the impact of the construction on their everyday lives are heard. Community groups could be trained to evaluate and monitor infrastructure projects to strengthen oversight.

And it turns the light back on bodies like the IOC and FIFA. "Sports organisations," it says, "should lead by example by changing their non-profit status, which, among other things, will ensure they abide by broader information disclosure obligations."

Changing the Game is available from engineersagainstpoverty.org.



🚺 Health & Safety



POWER PROTECTION

POWERCAPS - LIGHTWEIGHT AIR-PURIFYING RESPIRATORS WHICH PROTECT WORKERS AGAINST DUST INHALATION - HAVE BEEN TRIALLED BY KIER STAFF. NEIL GERRARD REPORTS

Kier workers have given their seal

of approval to new air-purifying respirators that incorporate motorsport technology to provide the highest possible level of protection against dust and other airborne particles. Kier has been trialling JSP's PowerCap Infinity on various projects for around 18 months.

The PowerCap Infinity provides protection against dust and other airborne particulates, giving users an Assigned Protection Factor (APF) of 40, the highest possible level (as defined by standard EN 12941:1998 + A2: 2008).

It combines head, eye, face and respiratory protection, with the option of adapting the unit to offer Above: JSP's PowerCap Infinity provides all-in-one protection

Right: Kier workers use the PowerCaps on site hearing protection with Sonis helmet-mounted ear defenders.

JSP worked with motorsport aerodynamicists to use computational fluid dynamics to develop a twin impeller system that controls the airflow through the head top to maximise user comfort and optimise energy efficiency. The twin impeller motor unit delivers a minimum of 160 litres per minute of filtered air and uses real-time diagnostics to deliver the optimum airflow for the wearer.

Meanwhile, its polycarbonate impact visor, which can be flipped up when not required, conforms to EN 166 optical class 1 and offers B grade impact protection. The EVO5 industrial safety helmet offers head protection to EN 397.

The modular system also monitors both the level of the battery, which runs for about eight hours between charges, and the filter condition, with audible and heads-up display notifications. Key components such as the filters, visor, helmet, turbo drive unit and battery pack are all independently replaceable.

Mark Starling, safety health and environmental manager at Kier Construction, is keen to see wider adoption. He says: "If you go to HS2 or Tideway, they are more common but in more traditional construction projects, these things are not out there because they cost around £700.

"But there are significant advantages - a disposable mask is £2.50, so if you go through a load of those in a year, you will save money by getting a PowerCap. You also don't need a face fit to use them and they offer all-in-one protection.

"They are heavy but when it is hot I can walk across the site and be perfectly cool with the PowerCap on. For me, it is the perfect gear for carpenters and bricklayers. In instances where we have given these to workers to try, I can't get them back off them afterwards.

"We need to make people more aware of the longer-term cost benefit as well as the benefits to their health. Anyone who is going to wear one who does make a lot of dust is never going to go back." .

What are PowerCaps?

The PowerCap Infinity has been designed by JSP's research and development team, with feedback from the Chartered Institute of Building's safety special interest group (SIG) and Kier workers.

In the course of its research, JSP determined that wearers of existing air-purifying respirators found that they would underperform when under pressure, as well as being heavy and complex to use. Many existing models involved a waist-mounted filter unit, which workers reported restricted their movement.

It was this feedback that encouraged JSP to produce a fully integrated solution combining head, eye, face, respiratory and hearing protection.



The modular PowerCap system measures air pressure, orientation, battery voltage, motor current, exhaust pressure and remaining battery charge twice a second to help maximise airflow.

The company subjected the PowerCaps to hundreds of hours of human treadmill tests conducted in a purposebuilt salt dust chamber to optimise mass, balance and sealing elements.



Dr Mike Webster MPW R&R

TEMPORARY WORKS: HOW TO CUT COSTS AND IMPROVE BUILDABILITY

TEMPORARY WORKS CAN IMPACT PROJECT COSTS BUT A NEW TECHNICAL INFORMATION SHEET FROM THE CIOB SHOWS HOW EFFICIENT DESIGN, MANAGEMENT AND INSTALLATION CAN RADICALLY IMPROVE PROJECT DELIVERY, DR MIKE WEBSTER EXPLAINS



Most construction work requires

some form of temporary works (to support excavations or to support tower cranes, for example). These can represent a significant part of the process and can also have a significant impact on cost (sometimes 50% or more), time, quality and safety.

Temporary works need to be properly managed to improve project delivery, and their management is defined in BS 5975:2019.

The CIOB has just published a Technical Information Sheet, Managing Temporary Works (www.ciobacademy. org/product/managing-temporaryworks). This provides an overview of the key parties involved, management controls and how the temporary works coordinator manages the works.

Temporary works can represent a significant part of the construction process

"Even for simple schemes, efficient design, management and installation will radically improve project delivery"

Dr Mike Webster, MPW R&R

Even for simple schemes, efficient design, management and installation will radically improve project delivery. To gain those efficiencies, temporary works need to be considered early in a project. Dr Mike Webster is director of consulting, forensic engineering and expert witness services company MPW R&R.

Eight ways a client could obtain efficiencies

Appoint temporary works design consultants precontract

They can provide early consideration of temporary works issues including whether temporary works are actually required.

Appoint a designated individual

BS 5975:2019 states that every organisation that has an involvement with temporary works should appoint a designated individual (DI) to prepare, maintain and implement the organisation's procedure for the control of temporary works. Having a DI in place early ensures that there will be someone senior in place in each organisation who has a responsibility for temporary works.

🔞 Include an initial temporary works register in tender documents By developing an initial temporary works register for inclusion in tender documents the key temporary works items can be planned and priced for.

The preconstruction information should consider temporary works designers Temporary works designers (TWD) need information to carry out efficient designs. By obtaining that information early, TWDs can assess what the best design options are well in advance of construction.

Permanent works designers (PWD) should consider the implications of their design on temporary works PWDs should provide an indicative construction sequence, showing how their design can be built

safely. Attention to detail and decisions taken during the permanent works design process can have a significant impact on how easy and safe a structure is to build and the requirements for temporary works.

Decisions made about the design of the permanent works have a fundamental impact on the need for and amount of temporary works. PWDs should not be put off by the title, as BS 5975 recognises that temporary works need to be managed within the context of CDM 2015.

Early contractor involvement is encouraged Contractors can input ideas at an earlier stage, enabling more effective communication, improving design and simplifying construction. The Temporary Works Forum has published examples of projects where the benefits of early contractor involvement has been achieved.

Carry out formal constructability reviews If constructability and temporary works are not considered from the outset, the structure may be very difficult and/or impossible to build, as well as too expensive.

A quick review very early looking at how a proposal can be built, testing its feasibility for construction and identifying the need to buy land to facilitate construction can have a significant impact.

Planning is key The simplest way to ensure the safety of construction and correct estimating of cost and time is by having a fully planned construction sequence considering all temporary works.

Legal

The government is determined to

make the shift to modern methods of construction (MMC) happen. It wants a construction industry that is more flexible, more sustainable and more consistent.

However, while the arguments about the benefits of moving construction offsite have been well documented, there remain concerns about its adoption, chief among them the lack of standards to which MMC must be graded and assessed.

It's a catch-22: standards can't be set until sufficient work has been done to establish what is and isn't achievable. But because standards haven't been set, there remains a barrier to investing in greater volumes of MMC work. The onus (and risk) has so far fallen on pioneering independents, as well as the social housing sector, to lead the way while the volume builders watch with interest.

Finalising standards

The BSI is currently looking at offsite construction, saying: "Well defined standards can help to maximise the benefits of offsite construction, and BSI is working with the industry to identify the necessary measures to ensure the correct standards are in place."

It is working on updating standards, such BS 5606 Accuracy and Tolerance in Design and Construction, for prefabricated buildings. However, these and other standards will take some time to be finalised.

In the meantime, best practice industry guidance - even perhaps a voluntary standard - needs to fill the gap.

One of the core tenets of MMC is that defects will be ironed out at the factory stage and never reach the site. Even so, we need consistent, industrywide warranties that will protect the eventual buyers from the costs of possible defects. Indeed, most lenders and mortgage providers will insist upon them.

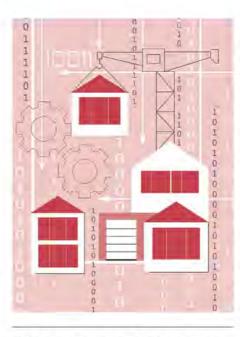
Warranty providers currently use different standards for their assessment



Ian Atkinson Womble Bond Dickinson

MMC: Time to set the standard

Buyers of factory-built homes face a reduced choice of lenders and unfavourable conditions – which is why we urgently need an industrywide MMC standard, argues Ian Atkinson



"We need consistent, industrywide warranties that will protect the eventual buyers from the costs of possible defects"

of homes, making it difficult to know what these homes have been tested for.

An industrywide standard warranty would go a long way to providing reassurance to those buying these properties that there is no greater risk in purchasing a house with MMC elements than purchasing one built using only traditional methods of construction.

Industry bodies including the National House Building Council (NHBC) recently signed a memorandum of understanding agreeing to work towards a shared standard for assessing homes built using MMC.

It is possible that even if there were a greater (perceived) risk in buying an MMC property, this would become more palatable to buyers if there was a standard, affordable insurance available. But insurers are naturally risk averse, and would need to see MMC coming through faster and in greater volumes, so they can understand the risks involved and then create appropriate insurance products.

There is no industry standard between lenders for mortgages on homes built using MMC, though many still have concerns over long-term build quality. Most residential lenders will lend only if properties have the benefit of a prescribed list of warranties or latent defects cover.

NHBC accreditation

The NHBC now offers an 'NHBC Accepts' accreditation, applied to a small number of already-available products and systems, which shows that a product or system has been rigorously assessed and that the NHBC considers that it meets its robust standards.

For now though, any buyer of a home built using MMC will face a reduced choice of lenders, and additional conditions – including potentially less favourable terms – compared with those available for traditionally built homes.

lan Atkinson is a partner at Womble Bond Dickinson.





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This much I know John Gray Chairman, Diamond Build Group

'Health and safety is so important'

John Gray tells CM about how he got started in construction, what he learned along the way and the advice he would give someone starting out



What made you go into construction?

By chance, I lived near a lady whose son was a quantity surveyor. To be honest, he was earning a lot of money and I wanted to do the same!

What do you remember from your first project?

I was working on a major new build project in Blackfriars in 1961. It was only my second week of work and the carpenter was involved in a fatal accident when a steel fixer dropped a bolt from the top floor. This incident made an indelible impression on me and is why health and safety is so important in everything we do.

What was the best advice you were given?

Never take anything for granted.

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

My original partner, Patrick Joseph Diamond. He came off a farm in Ireland to live in the UK in the 1970s. He learned to be a plasterer, how to control building trades and run small jobs. I was a surveyor manager and we worked for the same firm.

In 1977, we started a company together doing small conversion works and then built up a business which I now run carrying out many different types of work under the Diamond Build Group umbrella.

"You can only learn so much from courses, books and the internet. Nothing really compares to working full time on a construction site with experienced construction professionals"

John Gray, Diamond Build Group

Which project you worked on are you most proud of?

Our first ever development. Thinking of the idea, employing 25 specialist consultants plus a multitude of specialist trades to deal with the whole process and achieve completion, is something I'm still really proud of.

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

Get an apprenticeship which enables you to go to university part time over five years, or a trade apprenticeship allowing you to progress through the NVO route. ensuring you earn while you learn.

What one thing would you change to make careers in construction more appealing?

The way we talk about construction and the opportunities it offers. A career in construction is the chance to work in a modern. high-tech industry where every job and every day is different. Those messages don't always come across.

We also need to stress the opportunities for management degrees which enable people to work anywhere in the world.

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

You can only learn so much from courses, books and the internet. Nothing really compares to working full time on a construction site with experienced construction professionals.

Do you have a motto that applies to your work and if so, what is it? Building quality on time with health and safety in mind.













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Job Spotlight

Jayne Carabott

Assistant site manager, Orbit Homes

Never under the weather

Jayne Carabott became Orbit Homes' first female assistant site manager this summer. She will be based at the housing provider's upcoming Felix Park development in Soham



Describe a typical day in your job.

A cup of tea and welcoming the trades is my typical start to the day. This morning routine is a good way to ensure that everyone's inducted, and it gives the trades the opportunity to ask questions. Being approachable is key to my role, and I've found this approach quickly builds relationships and is a great way to ensure everyone is clear on what's needed.

After the morning briefing, much of my day is spent walking the site, supporting the team and ensuring health and safety procedures are in place and being followed.

You have a wealth of experience in housebuilding. What are the challenges housing site management poses? Much of my role is about forward planning

and foreseeing issues. There are many

factors that can affect build schedules. The biggest challenge is nature, mainly the weather, which can have big health and safety implications and impact on build progress.

I monitor the weather forecast closely to ensure the trades and materials are lined up when doing the work is feasible and safe.

It's obviously key to ensure we have the skills and materials on site to deliver the work needed at that time. Trades not turning up when arranged or material shortages are big problems across the industry at the moment, with off-the-shelf items not always available.

We can't help unforeseen circumstances but rearranging trades can take a lot of time and affect the build programme. To try and avoid this, I closely check all material deliveries, keep an eye on the team's performance and welfare, and monitor the build progress to ensure everything is aligned to deliver the work planned for the next few days.

What skills/attributes are essential for a site manager in property building?

An understanding of the end result is super important - these are people's homes.

Having a trade is also a bonus. It enables me to understand some of the problems and challenges subcontractors may face.

Banter is important; having a laugh and joke during breaks keep the morale going. This has been especially important over the past 18 months with the pandemic. I think it's essential to be able to let off a bit of steam - but it also means the trades will want to come back to work with you on site.

Knowing that you don't know all the answers and probably never will, it's really important to be able to ask the trades or contractors questions and for their advice.

Finally, try to enjoy what you do.

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Call to arms

Steve Turner urges his peers to take action in helping shape the next generation of construction professionals



As someone who has now clocked up in excess of 40 years in construction. passed my practical (medal winner of CMYA 1996) and

theory (medal winner of the CMX exams 2006), I am of a mind that I want to give back to the next generation and am really proud to be heading up learning and development in the company that I am a director of, As an SME in Kent we punch above our weight, but it is challenging with limited resources to make connections and know where to start to help others.

Connecting with schools We are lucky that Kent County Council has put resources into Guild groups to enable industry to engage with schools and colleges. But it is down to us as industry players to make those connections, to let them know what a varied and exciting world construction can offer young people. We are up against a perception that construction is only open to those that are good with their hands, and it is disappointing to hear both parents and teachers steer the 'underperformers' towards construction rather than the bright high-performing achievers.

Putting BIM on the curriculum Two years ago I was offered the opportunity to assist a leading London university as an external examiner. I was unsure of what was required of me and how I could help out - especially working remotely during the pandemic.

But the head of department made it all sound straightforward when he said: "We are trying to make sure that the students leave university 'oven ready', Steve."

So it was interesting reading the first year's course modules, which sounded so out of touch with what we in industry find significant. There was no mention of today's issues: BIM, biophilic design, modern methods of construction.

I shared my views and the year two syllabus is much more aligned with industry issues. It felt very rewarding to have made a difference.

So, if you too are feeling you want to give something back to our industry, don't do it sitting down - you have to get involved at a personal level. Well, what's stopping you?

Steve Turner is contracts director at Baxall Construction.



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Global Student Challenge

New Zealand team scoop 2021 Global Student Challenge

Massey University's Wonders see off student rivals to take home a £2,000 cash prize



A team called Wonders from Massey

University in New Zealand were crowned the 2021 Global Student Challenge (GSC) champions this summer, taking home a £2,000 cash prize and the cachet of winning the toughest student competition in the industry.

The students saw off competitors from the UK's University of Greenwich, the Wellington Institute of Technology in New Zealand, Chongqing University in China and the University of Indonesia.

The annual competition allows construction management students from around the world to apply what

Above: Wonders, the winning team from Massey University

they learn in lectures to a real-world scenario. They are tasked to run a virtual firm using the international construction business game Merit.

Teams of four are given data and graphs to help them analyse company performance - including client information, value of contracts, company financials, share price, investments, turnover, profit, value, overheads, staff and agency, capacity and training costs.

The challenge takes place over four stages starting in March, with the final in June. The 2021 GSC finals took place virtually, alongside the 2021 CIOB Members' Forum.

CIOB Assist helps members in need

New service builds on the work of the CIOB Benevolent Fund

The CIOB has launched a new member service, CIOB Assist - a revision and broadening of the Benevolent Fund.

Created by members 30 years ago to help members in financial need, the fund has helped thousands of members and their families over the years.

Emma McKay, who is managing the new service, says it is more than a name change and reflects more accurately how the CIOB assists its members.

"We have always faced the challenge of getting people to come forward and ask for help but the look, name, imagery and even our language has changed, to encourage members to come forward and to make the CIOB accessible to all and to show we are not here to judge we listen and we assist," she said.

Assistance ranges from financial help to advice with debt, housing or employment issues. Confidential mental health support is available via the CIOB partnership with Anxiety UK.

All members globally, past or present, can access CIOB Assist: over 530 members asked for help in 2020. To contact CIOB Assist, email assist@ ciob.org.uk or call (0)1344 630733.

Technology

CIOB launches member app

CIOB Connect offers CPDs, news and connections



App: sharing ideas

The CIOB has launched a new mobile app. CIOB Connect, after more than a year of research by the institute's digital team.

Available for Android and Apple, the first version of the app will focus on key areas in which members have expressed interest.

These include: a library of video-based CPDs; a personalised newsfeed from CIOB magazine titles; a place to share ideas and engage with other members; the ability to

stay in touch and chat directly; and a place to access the latest policy from the CIOB and industry research.

"We took lessons learned from surveys and workshops with hundreds of members and non-members to see how we could deliver the greatest value," says Tim Cawood, the CIOB's head of digital.

The next phases will include events and a membership directory.



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



LEEDS TO HOST MENTAL HEALTH CONFERENCE

The Leeds Hub of the CIOB is organising a conference focusing on Mental Health Within Construction Post Pandemic at Leeds Town Hall on 19 October.

With leading industry specialists and personal stories, the event aims to provide construction professionals with the tools to support colleagues and themselves.

CBC to restore and revamp City University's Great Hall

Gunning London's refurb aims to restore the lost beauty of the space while introducing full data connectivity

Gunning London, a Chartered

Building Company specialising in refurbishments for the higher education sector, has been awarded the contract to renovate City University's Great Hall, part of its Grade II-listed College Building.

Built in the 1890s, the Great Hall has survived intact to the present day, in spite of post-Second World War reconstruction and a fire in 2001. The interior is now being reconfigured to maximise space and equip the facility with the latest technology.

Matthew Nash, business development manager at Gunning London, says the project will restore some of the Great Hall's lost beauty while bringing it into the 21st century.



City University's Gollege Building (top) and a visualisation of the restored Great Hall (above)

"To recover some of the grandeur of the space, we will accentuate the strong visual impact of the existing wooden design but at the same time students will be able to learn in a modern environment with state-ofthe-art tech and full data connectivity to every seat," he says.

"This project blends the best of heritage and high tech."

"To recover some of the grandeur of the space, we will accentuate the strong visual impact of the existing wooden design"

Matthew Nash, **Gunning London**

Webinar puts the focus on dyslexia

Free CIOB event explores challenges in construction



The CIOB is hosting a free live webinar on Dyslexia in the Construction Industry on 6 October. Member Luke

Birkett (pictured) has campaigned to raise the issue based on his own experience (see Construction Manager July/August).

The webinar will start with an introduction from the BDA, which will explain what dyslexia is, signs of dyslexia and how to support dyslexic employees or colleagues.

Three CIOB members with dyslexia - Luke Birkett, James Nolan and Kirsty Ainsworth - will then share their experiences and talk about having a successful career in the construction industry despite having dyslexia, the challenges they have faced and how they have overcome any obstacles.

There will be time at the end of the webinar to answer any questions and registrants will be sent a link to the webinar 24 hours before the event.

Dyslexia is a neurological learning difference that is often poorly understood. It primarily affects reading and writing skills, but is actually about information processing; dyslexic people may have difficulty processing and remembering information, which can affect literacy and organisational skills.

According to the British Dyslexia Association (BDA), 10% of the population are believed to be dyslexic. Studies have shown that practical roles, such as those in construction, attract a larger proportion of people with dyslexia and Dyslexia Scotland estimates that around 20,000 people in the construction industry are dyslexic.

There are positives to thinking differently and many dyslexic people show strengths in areas such as reasoning and creative fields. With the right support, the talents of dyslexic people can really shine and neurodiversity can be a significant asset to an organisation.



New Training Partner launches embodied carbon calculator

Macclesfield company offers innovative emissions tracker

Macclesfield-based estimating

business Proquant Estimating has become a CIOB Training Partner (TP).

Started nine years ago to provide a residential estimating service, the Macclesfield-based business has grown to carry out over 50,000 estimates throughout the UK for more than 7.000 customers and 600 merchant branches. Above, left to right: Proquant Estimating directors (top row) Donald Campbell, Justin Wilcox, Oliver Wilcox, (front row) Matthew Boyle, Grant Lithgow

It recently launched an embodied carbon emissions calculator with carbon offsetting service.

Oliver Wilcox, director at Proquant, says becoming a TP is part of the firm's aim to provide a high standard of estimating service.

"Comprehensive training of our estimators has been essential. We have put over 20 estimators through our existing training scheme, which typically takes six to 12 months," he says.

"The partnership with the CIOB is a natural fit for us, and not only does this strengthen our training programme, but it also offers our staff and company valuable industry accreditation."

As part of its growth business mindset, Proquant has developed its carbon calculator. Using various studies, it has been able to establish the embodied carbon emissions of building materials and labour and plant tasks, and converts them into relevant units of measurement to quantify the embodied carbon footprint.

Proquant then offers customers the opportunity to offset the embodied carbon emissions through the planting of trees. The feedback from customers has been positive.

"This innovative move by Proquant has not only blown me away as an individual but is very appealing to our prospective and current clients," says John Newland-Jenner, managing director of JNJ Building Solutions.

CIOB

Members needed for the Professional Standards Committee

Apply now for volunteer posts relating to industry and education

Following the recent implementation

of the new governance model, the Professional Standards Committee is seeking volunteer members to drive forward the CIOB's strategic objectives in relation to education and professional standards.

The committee reports directly to the Board of Trustees. It requires two industry members and one member from an educational environment.

Applicants should be current, practising Chartered Members or Fellows (MCIOB or FCIOB) and have a strong interest in education, skills and professional behaviours.

The committee meets three to four times each year either remotely or in person at the central London office. Applications from UK and overseas members are welcome. This is a voluntary unpaid role but travel expenses will be reimbursed. Candidates should send a CV and covering letter by email to Lyndsey Montgomery, head of qualifications, at: Imontgomery@ciob.org.uk. For further information, call +44 (0)1344 630808.

Wakefield scoops Leeds Hub Student Challenge

College nabs top two podium spots

Wakefield College students celebrated placing first and second in the CIOB Leeds Hub Student Challenge this summer, with a presentation from Sam Dibaj, chair of the Leeds Hub.

In June, students from across Yorkshire came together to compete in the student challenge - a virtual challenge for level 3 built environment students - which took place over two weeks.

Each team was asked to submit a quality-assessed tender for the role of principal contractor for a real-life project. The project aimed to extend an existing three-storey building by constructing a new fourth-floor rooftop boardroom on the existing roof area.

Suzanne Black, head of curriculum for construction at Wakefield College, said: "After a challenging year in education, to have our learners achieve the first and second awards is a credit to our students - and we are proud to see them being recognised for their ability and hard work."



CBC's year of celebration gets underway

SDC commemorates 50th anniversary with a year of fundraising events

Chartered Building Company SDC will be celebrating 50 years in business in September 2022.

To celebrate this milestone and mark the occasion, the Bedfordshirebased main contractor will hold a series of 11 events throughout its 50th year to raise £110,000 for local charities and community groups. The events kick off this September with a 10k race and fun run.

As well as sponsoring charities through individual events, SDC is also proposing to support the Bedford Foodbank throughout the year.

After donating a van, SDC employees have continued to provide food donations for collection each month. Further collections will be carried out at each of the events

"Each event will support a charity nominated by our staff, with a minimum donation of £10,000 going directly to the given charity"

Adam Knaggs, SDC

to provide the ongoing support the charity needs.

SDC began life in 1972 but in 2004 it became a group of companies operating under the umbrella of an employee benefit trust (EBT) - the first of its kind in the British construction industry.

This means instead of being owned by shareholders, the future of the company is protected by a Board of Trustees which is responsible for safeguarding the long-term prosperity of SDC and sharing any profit among members of staff and the wider community.

Adam Knaggs, deputy managing director and past chair of the CIOB's Cambridge Hub, says it is the intention for participants at the year's events to include as many of the company's staff, clients and suppliers as possible.

"Each event will also support a charity nominated by our staff, with a minimum donation of £10,000 going directly to the given charity," he said.

The 10km race and fun run will be held at Bedford Aerodrome on 26 September. The charity nominated for this event is Team Bex, a local running group which raises money for Bowel Cancer UK, in the memory of Rebecca 'Bex' Griffiths.

Other events include a poppy assault, football tournament, quiz evening, auction evening, go-karting, sponsored walk, cycle ride, family day, water sports and a golf day.

To find out more, visit the dedicated events website at www.sdc50.co.uk.

DOUBLE EVENT TO COVER STAFF RETENTION & MODULAR **BUILD TOUR**

The CIOB is planning a double event on 30 September in the South region.

The CIOB Employer Engagement team is hosting an event for existing Chartered **Building Companies** and Training Partnerships across the south, as well as new employers interested in finding out more on company membership.

An interactive session, on attracting and retaining quality, skilled staff in today's competitive market, will be led by Amanda Pilgrim, associate director - acquisition, with case studies from employers.

There will then be a tour of Stoneham Park Primary Academy in Eastleigh, a modular build by Morgan Sindall which opened in September 2020.

Places on a firstcome basis. Contact Caroline Benjamin: cbenjamin@ciob. org.uk.

Education

Welsh college to boost CIOB membership

Coleg Cambria builds links



CIOB skills boost: Karl Jackson and Gemma Booth of Coleg Cambria

The CIOB has been working with Coleg Cambria in north Wales to raise the profile of the institute among students and employers. It will be holding CPD events at the college for the students, and also for CIOB members located in north Wales.

The college is applying to be a CIOB Accredited Centre, for its level 6 degree programme -**Bachelor of Science with Honours** in Construction Management in Housebuilding - with the first cohort expected to graduate in July 2022.

The site has now created a dedicated place for all CPD events at the campus, encouraging staff and students to become Chartered with the CIOB, to enable events and training at the Coleg.

Gemma Booth, MCIOB and Liverpool Hub committee member, recently moved from construction into teaching and will be integrating CIOB student membership into her teaching modules and conveying what a professional career in construction means.

"Coleg Cambria is a CIOB TP and plans to develop the qualifications and skills of the existing workforce through the appropriate routes to Chartered Membership, promote a qualifications culture throughout the construction and built environment sectors, supported by industry and promote lifelong learning," she says.

"Coleg Cambria has signed up to this to enable all the above for our staff as well as our students to have the opportunity to become Chartered."

700

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Maidstone Hub

Outstanding students achieve recognition

Three construction professionals top their study with the icing of a CIOB award







Three construction management professionals have been awarded 2021 Maidstone Hub's Outstanding Student awards.

All three women attended London South East Colleges and passed with distinction, while juggling work and complex life issues.

Becki Sinclair from Claritas Group completed her BTEC HNC Construction Management from Bromley College: while Faith Rukiat Abudu and Rajinder Basra, an associate director project controls at Mace, studied for their HNDs in Construction Management at Bexley College.

Basra chose to study to advance her career. "My current role is very process and controls based. I felt that I would like to have the technical ability to understand what takes place on the ground," she says.

She hopes to move into project management and also to continue property development, an interest she has cultivated outside work and which her HNC helped with.

As a role model in D&I, she thinks that the industry is listening, however the turnaround to

"It goes to show my hard work, perseverance and determination paid off and didn't go

Faith Rukiat Abudu, **Bexley College**

unnoticed"

implement meaningful change is taking too long. "I truly believe it comes from the top down and I continue to look forward to help drive these changes within the industry," she says.

Abudu said on LinkedIn on news of her award: "It goes to show my hard work, perseverance and determination paid off and didn't go unnoticed. A friend of mine said to me: 'A black woman in construction? It's going to be really difficult; it's hard enough being a woman in construction'. My answer now: bring on the challenge, I have proved to you with hard work, anything is possible. (Black woman or not)."

She told Construction Manager that she loves being part of the housing shortage solution and wants to work her way to project manager.

Sinclair, who has her sights set on becoming MCIOB and design manager, says her study helped her understand the construction process more widely than her design role allows.

She is also keen to share her positive experiences of working in construction. "I have always felt valued and treated fairly both as a female, and a working mother... I think its hugely important that women and other minorities within the industry promote their positive experiences in construction to younger people so it's seen as an inclusive industry when deciding on career choices."

Left from top: Faith Rukiat Abudu; Becki Sinclair; Rajinder Basra

Obituary John Macmillan **FCIOB**

Memories of well-known construction character



JohnMacmillan was a well-known character in construction and spent his latter career working for

Bovis and Mace in London.

He was particularly proud of his involvement with Broadgate, Cable & Wireless's HQ in Red Lion Square and Waterloo/Liverpool Street Stations. The Fleetwood wine bar in Broadgate at the time was nicknamed 'The Fleetwood Mac' as the favoured watering hole for John and his colleagues.

He was a proud Scot, member of the Caledonian Club, a lover of jazz and fond of painting. One of

his greatest achievements was raising over £1m for the children's services at St Bart's Hospital in London through the generosity of many who attended the Trade Contractors Burns Suppers.

John died in November 2020 aged 83 and now rests peacefully with his wife Betty in Rippingale.



Me and my project

All fired up

Matthew Stowe was project manager for the ground-breaking Rolls-Royce Testbed 80, which opened this year. He shares his experience of creating the world's largest and smartest indoor aerospace testing facility

Testbed 80 is an incredible project. What was the construction experience like?

Projects like Testbed 80 for a client like Rolls-Royce don't come around often. Although challenging along the way, it was incredible to be part of such a prestigious project and one that means so much to the people of Derby and for the future of Rolls-Royce Aerospace.

With it being the first of its kind around the world, it was a learning experience for everyone involved. As a construction team, we first had to learn and understand about the function of the facility and the importance of its design, before we could enter the construction phase.



Above: Matthew Stowe, project manager

Top: The facility can test the world's largest aero engine Right: Exterior of the completed

testing facility

It carried out new experimental developments – what challenges did that present? Any technical issues that had to be overcome? Any innovations to share?

The way the facility was going to be used certainly brought its challenges. One of the biggest elements to the facility was its capability to run the largest aero engine in the world and to use X-ray imagery to test it.

We had to secure an engine loading dock to the ceiling of the test room, which meant casting in around 40 holding-down bolts through a 1.1m ceiling slab, with less than 1mm of accuracy. This was to ensure no movement of the engine as it produced 155klbf thrust – enough power to launch a Boeing 747 with one (huge) engine.

The next challenge was to ensure Rolls-Royce could carry out X-ray testing without affecting the surrounding area of the test bed. Whereas previous test beds had to have a one-mile radius 'no go' zone during testing, Testbed 80 was designed with two thick concrete walls with Z- shape penetrations cast into the inner 1.2m

thick wall, to ensure X-rays would not penetrate the facility. This was a new design concept to the industry.

The sheer scale also brought challenges. The indoor area is bigger than a Premiership football pitch.

The walls are made up of a 1.2m inner skin and a 0.9m outer skin using over 3,000 tonnes of steel and 17,000 cu m of concrete; enough to fill seven Olympic-sized swimming pools. Even the X-ray door to the testbed weighed 380 tonnes and had to be craned into position.

What did you learn from it?

Every project is different; personally, I have built prisons, schools, sports facilities, offices, distribution centres, and more, but never have I experienced building something like Testbed 80.

You always learn and never stop in construction. Testbed 80 taught me not only new methods of construction but what it means to deliver such an important project to the client. One of the biggest achievements was the construction of the exhaust tower, a 42m high concrete structure with 0.8m thick reinforced concrete walls, which were poured 24/7 over 11 days.

The engine was tested successfully earlier this year and, from talking to staff at Rolls-Royce, I understand all were extremely impressed and proud of the moment it fired up. A proud project for all to be involved with.

A time lapse of the construction can be viewed at www.youtube.com/watch?v=a8-xFwDdHZs.



Partnership





Building diversity

Jane Dackiewicz, head of HR at SCAPE, reports on its work with Willmott Dixon and the CIOB to produce a diversity and inclusion charter

From boardroom to building site, the construction industry is no stranger to the topic of diversity, and it is widely recognised that steps must be taken for the sector to become more inclusive.

As the industry continues to tackle significant skills and labour shortages, it is vital for all involved to send out a strong message that a career in construction represents a viable, attractive and entirely rewarding opportunity for people from all backgrounds.

The figures speak for themselves, Today, only 13% of active construction roles are occupied by women, with just 2% of these being site operatives. When it comes to ethnic diversity, the industry average is fewer than two in 10 (13%), while only 3% of



Jane Dackiewicz, head of HR at SCAPE

construction managers in the UK represent a minority background.

The industry is acutely aware that it needs to act – not only to attract the talent of tomorrow but to help deliver projects that drive positive change within all communities. But working out how, from such a low base, is not straightforward.

This makes the work of Willmott Dixon and SCAPE with the CIOB to produce a diversity and inclusion charter an important step along this journey, as it will clearly define the actions the industry needs to take to get moving in the right direction.

Reflect the community

Ensuring the construction workforce represents and reflects the communities it operates in is a critical part of tackling the diversity agenda and driving positive change within society. Naturally, project delivery will be enhanced if the knowledge and understanding of the community it seeks to serve is around the table from the outset.

To help people better connect with the full story of social value we need deeper, more meaningful engagement with communities – part of which can start with the design of the workforce itself.

The power of frameworks

Frameworks can empower public sector clients to use their projects as catalysts for change and offer platforms for their delivery teams to showcase their progress.

For example, as part of the PQQ stage across SCAPE's suite of construction, consultancy and civil engineering frameworks, partners must submit their diversity policy and action plans. Within this, clear measures to promote diversity both across the workforce and during project delivery must

"We need deeper, more meaningful engagement with communities – part of which can start with the design of the workforce itself"

Jane Dackiewicz, SCAPE

be plainly evidenced. Through our proactive management of frameworks, actions are measured and challenges addressed – not just over the course of individual projects but throughout the lifetime of the framework.

Compelling reasons

McKinsey's 2018 report *Delivering Through Diversity* showed that companies in the top quartile for gender diversity on their executive teams were 21% more likely to have above-average profitability than companies in the fourth quartile.

Diverse teams breed success. They promote higher levels of performance and make the office or site a more enjoyable and productive place. The ground-breaking charter proposes to act as a building block that will help make our industry thrive.

Willmott Dixon is walking this path. It became the first construction company to publicly commit to achieving gender parity at each job grade by 2030. Under Rick Willmott's leadership, the team has also taken bold decisions to deliver a workplace that supports diversity, such as agile working in offices and sites, without comprising on its ethos of always recruiting the best people for the role.

The construction industry is never afraid to tackle challenges head on. Recognising the need for a more inclusive and diverse sector to drive forward real change is the first step – but now we need more concrete action to be taken.

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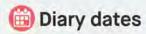
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Highlights of the CIOB Calendar for the coming month. All events are online webinars unless otherwise stated

CMYA 2021

29 September, 7-11.45pm Mayfair, London

For over 40 years the Construction Manager of the Year Awards (CMYA) have been celebrating extraordinary individuals who go above and beyond to deliver buildings that make a positive impact on the lives of the people that use them.

Be a part of this prestigious evening at the JW Marriott Grosvenor House Hotel in London's Mayfair and see the individuals who are destined to be future leaders of our industry.

This black-tie evening promises an exceptional three-course meal with a fantastic host and inspiring stories. For full details of the finalists and the event, visit www.cmya.co.uk.

Sky Studios: Hemel Hub site visit

15 September, 5.30-6.30pm Visit the site of the new state-ofthe-art TV and film studio BAM is constructing at Elstree Studios in Hertfordshire

The £190m development represents a significant new investment in the UK and European creative economy and will be home to Sky in partnership with sister company NBCUniversal.

Work began on Sky Studios Elstree in November 2020 and is due to be completed by August 2022. The project, which aims to be the world's most sustainable film studios, has already created five new apprentice opportunities for local young people.

PPE equipment will be required for the visit.

Contact: ABernal@ciob.org.uk.

Combating the Comfort Zone -Martial Arts Stress Relief

22 September, 6.30-7.30pm In this session, architect Priya Aiyer from Mace will demonstrate basic moves from different martial arts, such as boxing, kickboxing, tae kwon do, karate and muay thai.

She will demonstrate at an introductory level how to use the correct technique when carrying out martial arts moves, as well as working different muscle groups, followed by exercise drills to music.

Participants should wear

comfortable clothing and are not required to have any equipment, apart from a bottle of water, sweat towel if required, and space to move. Registration on the CIOB events page.

Construction: a career choice to take you where you want

22 September, 6-7pm

Join our live webinar to hear from three CIOB members - president Mike Foy FCIOB, Mike Smith FCIOB and Graham Tuthill MCIOB - who entered the industry from school, have had successful careers in construction and have a globally recognised professional qualification.

They will share tips on how to climb the construction career ladder. CIOB director of education and standards Ros Thorpe will also give a quick overview of some qualifications you can take once you have entered the industry in order to progress. Contact: bmilton@ciob.org.uk.

Termination of Construction Contracts - How to Survive?

23 September, 12.30-1.30pm

This online seminar will cover the characteristics of contractual termination and common law repudiation, and the differences between them. Speakers from HKA and Mills & Reeve will investigate some of the current standard forms of construction contracts and how they deal with termination. Experts in the fields of quantum and delay will review the consequences of termination from the financial side including programme/schedule. Contact: gfloyd@ciob.org.uk.

Maidstone Novus Construction Karting Cup

23 September, 6-9pm, Sittingbourne, Kent

This popular competition is once again taking place at the Bayford Meadows Karting Circuit in Sittingbourne. Network with colleagues while competing in a friendly (although hard fought!) race on one of the country's premier outdoor floodlit kart circuits.

The event will commence with a drivers' instruction briefing at 6.30pm. There will be ample opportunity to network and a meal will be served during the evening. Individual entries or teams of three are very welcome. To book visit the CIOB events page.

Communication In a Virtual World Breakfast Webinar

30 September, 8-9,30am

In association with Knowmium, CIOB Belfast Hub is organising a breakfast training webinar for CIOB members.

Knowmium senior consultant Robert Kienzle, who has 15 years experience of business and education training, will be presenting from Hong Kong. He plans to deliver a customised training programme relevant to our global community. Further information to follow. Register interest online.

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

CIOB atom



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