CIOB
The Chartered Institute of Building

CONSTRUCTION MANAGEMENT

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MAKING A SPLASH

HOW THE CONSTRUCTION MANAGER OF THE YEAR DELIVERED THE UK'S FIRST PASSIVHAUS LEISURE CENTRE

CIOB AWARDS | SUPPLY CHAIN ETHICS CPD | HEAT PUMP MYTHS DISPELLED

10/22

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McAlpine builds complex New College Oxford roof

Sir Robert McAlpine has started construction of a complex glulam timber roof structure at Gradel Quadrangles for New College Oxford, to be covered with tessellated aluminium tiles. The Gradel Quadrangles project involves the creation of a three-storey quadrangle of student accommodation, new school buildings, porter's lodge, and a 21.5m tower. It will feature a complex limestone and sandstone facade.

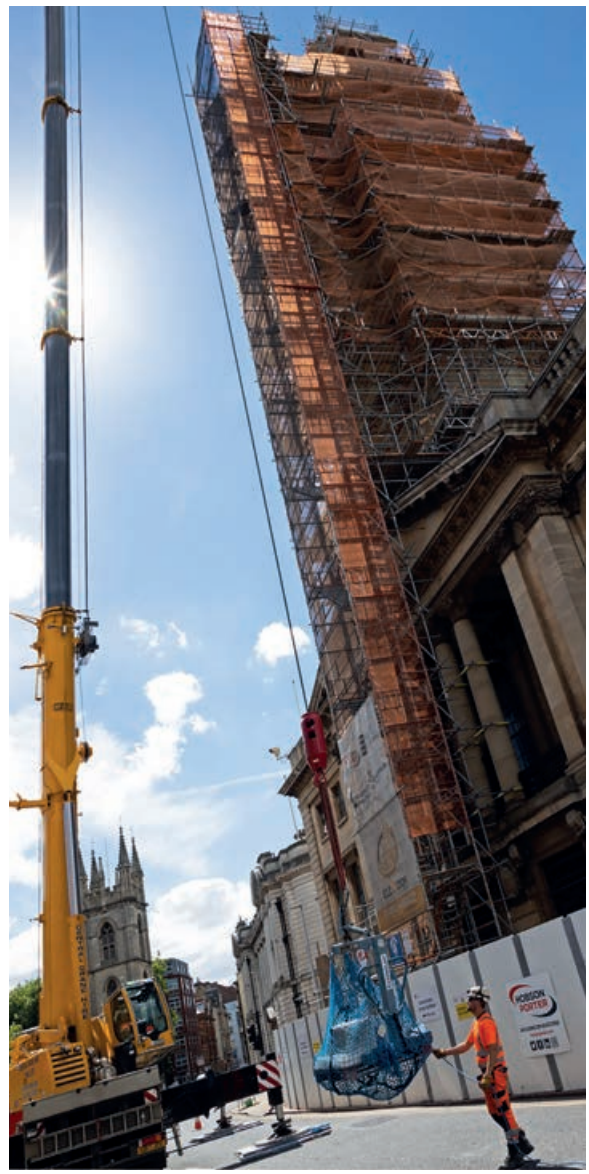
Carmen Vatsadze (pictured) is on the path to becoming a site manager with housebuilder Vistry Group, having joined the company last year as a Covid cleaner.

▼ Morrison Energy Services to upgrade pylons around Hinkley Point C

Morrison Energy Services is to connect new T-pylons near Bridgwater to Hinkley Point C, EDF Energy's new power station in Somerset. The work, part of National Grid's Hinkley Connection Project, will involve upgrading the existing 275kV overhead line near Stogursey and Shurton to 400kV.

▲ Wall-climbing robot shortlisted for innovation award

Jack Cornes, the co-founder of UK company HausBots, which manufactures wall-climbing robots, has made the shortlist of the 2022 COINS Grand Challenge. The competition encourages innovation in the construction sector. The robot is designed for the inspection and maintenance of the built environment.



DAVID LEE PHOTOGRAPHY

▲ 12 stone figurines lifted on to Hull's Guildhall

Construction firm Hobson & Porter has lifted 12 unique Portland stone putti (cherub figurines) into position on the historic Guildhall in Hull. Stonemasons from building restoration company Stone Edge have repaired or replaced each piece of stone. Hobson & Porter has already completed a major re-roofing programme at the Guildhall and is also restoring its time ball.

Construction Playbook gets Building Safety Act update

CIOB says playbook is vital in setting the standard for a safer built environment

▲ Building Safety Act changes are now included

***The Construction Playbook* has been** revised to take account of the Building Safety Act. This is the first revision to the playbook, which was published in December 2020. The revisions address carbon reporting, digital and offsite manufacturing technologies, and the Building Safety Act. They also provide access to more resources to aid client/contractor collaboration.

Fergus Harradence, deputy director for infrastructure and construction at the Department for Business, Energy and Industrial Strategy, said: "This is the culmination of six months' work, which has involved people from across Whitehall and the construction sector.

"It provides a clearer and more comprehensive approach, as well as practical resources that will help public sector clients and the construction sector manage and report on carbon emissions, and improve the environmental performance of projects and programmes.

"It emphasises the importance of using digital and offsite manufacturing technologies to deliver government-funded programmes, and the importance of data interoperability.

"[It also] updates the playbook to take account of key legislative developments, including the Building Safety Act 2022, and the Environment Act 2021."

Eddie Tuttle, director of policy, research and public affairs at CIOB, said: "This updated playbook, which is vital in setting the standard for a procuring safer and sustainable built environment, comes at a crucial point in the turbulent journey that the UK construction sector has travelled over the last three years.

"CIOB has been an active proponent of the Toolkit as it sets a framework for the industry to work to – whether that involves building safety or levelling up public procurement.

> **It emphasises the importance of using digital and offsite manufacturing technologies to deliver government-funded programmes, and the importance of data interoperability**
> **Fergus Harradence, BEIS**

Industry safety group urges vigilance on product safety

A key figure in construction's Industry Safety Steering Group (ISSG) has urged the sector to stay vigilant on product safety.

The call came after Kingspan's K15 Kooltherm insulation board was subject to a prohibition notice from the Office for Product Safety and Standards (OSSG) earlier this year.

Kingspan was forced to remove K15 from sale after concerns that a batch of the product manufactured between August and October 2021 did not meet the claimed fire safety standard. The product is now back on sale and Kingspan said it was confident there "is and was no product safety issue" since the batches concerned achieved Class C classification in large-scale ISO 9705 tests. It said: "We have introduced measures to ensure the issues will not be repeated."

Referring to the new national regulator for construction products established in 2021, Paul Nash, a member of the ISSG and past president of the CIOB, said: "The question remained, how would the regulator act when called upon and how would industry respond? That question has now been answered and it sends a clear message to other product manufacturers that the safety of those who use their products must come before profit."

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Wienerberger

Quarterly percentage increase in weekly construction wage from April to June 2022, according to the Office of National Statistics (ONS)

6.3

Construction must improve productivity to avoid stagflation

Construction can still avoid the perils of stagflation. But it needs to improve productivity and combat the skills shortage, says **Kris Hudson**

There are worries in some quarters that the UK economy is entering a period of stagflation – a combination of stagnation (low growth and high unemployment) and high inflation.

But the 'textbook' definition of stagflation has not been reached across the economy as a whole, nor in the construction sector.

UK inflation is certainly high. The Office for National Statistics has reported a 9.9% rise in Consumer Prices Index in the 12 months to August 2022. Construction tender prices are similarly high. Turner & Townsend's summer UK Market Intelligence report estimated an average tender price inflation of 8.7% in real estate and 8.0% in infrastructure in 2022.

Low growth, however, is mixed when assessing stagflation across the UK and construction. Economic growth in the UK, measured by Gross Domestic Product (GDP), fell by 0.1% on the quarter in Q2 2022. The Bank of England has also forecasted that the UK will enter recession in 2022. Given that slow GDP growth and potential recession often drag down construction output, another stagflation criterion could be fulfilled in the industry.

The figures may be cause for concern, but they don't alone signal a period of stagflation across the construction industry – for now at least. Construction output remains robust, rising in Q2 2022 by 2.3% on the quarter. In addition to this high output, unemployment is low, getting back to pre-pandemic levels.

Yet, construction activity is weakening. According to the Construction Products Association's summer forecast released in July, construction output is set to grow by 2.5% and 1.5% in 2023 and 2024 respectively.

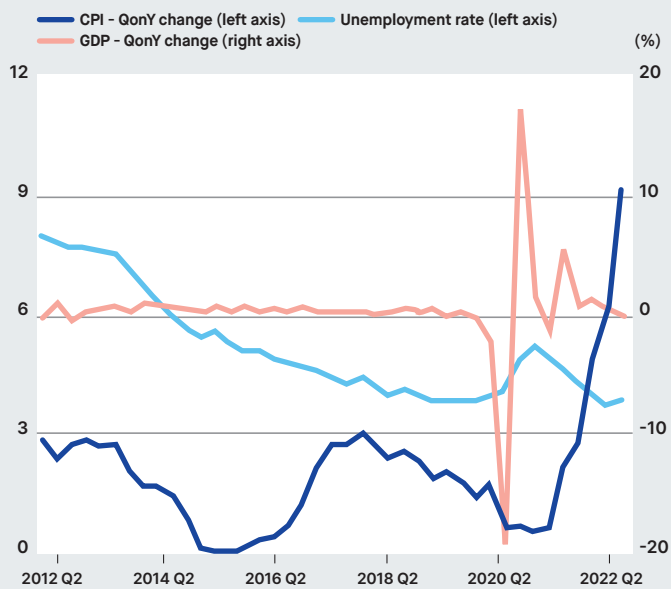
And, while the labour market may remain tight, low unemployment figures for the economy tell a nuanced story and are affected by reduced participation rates. Although low unemployment prevents a typical period of stagflation, UK construction is facing a skills shortage, in part resulting from an increase in workers leaving the workforce during Brexit and the pandemic. This in turn adds upward pressure on labour costs, further impacting inflation and potentially hindering the sector's output growth.

Construction has a role to play as an important engine of economic growth. Achieving this, while minimising risks to individual firms and mitigating rising costs, will require a laser focus on improving productivity and combating skills shortages with more training and investment.

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

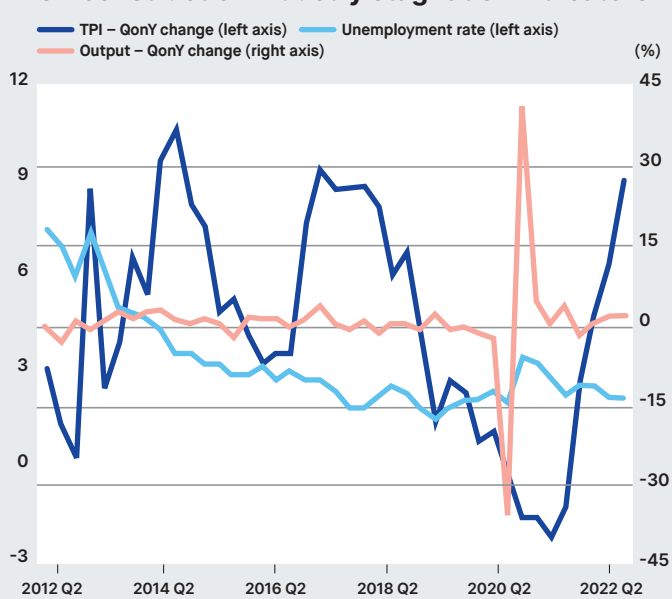
> **Although low unemployment prevents a typical period of stagflation, UK construction is facing a skills shortage**

UK economy stagflation indicators



SOURCE: OFFICE FOR NATIONAL STATISTICS

UK construction industry stagflation indicators



SOURCE: OFFICE FOR NATIONAL STATISTICS AND BUILDING COST INFORMATION SERVICE

Emma Crates
Marshalls

Virtue signalling isn't enough on Anti-Slavery Day

Construction businesses are starting to understand that they need to do more than simply pay lip service to the challenge of modern slavery, says **Emma Crates**

Taking a stance against modern slavery isn't morally complex. It's easy, for example, to condemn human rights violations in China's Xinjiang province, as recently confirmed by the UN, or the trafficking of Ukrainian citizens fleeing war.

However, as we approach Anti-Slavery Day on 18 October, businesses face significant challenges in addressing the issue. The International Labour Organization, Walk Free and International Organization for Migration (IOM) estimate that of the 28 million people trapped in forced labour globally, 86% are in the private sector. Countless victims of exploitation, including millions of children, are hidden in global supply chains.

The onus is falling on the private sector to explain how it is seeking out and remediating these problems. This is being driven by legislation, from US import bans on goods made with forced labour, to the EU's corporate sustainability due diligence directive, to the UK's redrafting of public procurement laws and introduction of a new Modern Slavery Bill in the Queen's Speech. Ratings agencies and investors are also ramping up their scrutiny.

> **I'm encouraged by the increasingly close attention paid by our customers and investors who are looking for detailed evidence of supply chain systems, processes and remediation**

Until recently, ESG (environmental, social and corporate governance) reporting was weighted towards environment. Developers and contractors have rightly been striving to meet carbon targets to ensure that their projects are commercially viable over the long term. Intertwined with this trend is a growing emphasis on the human rights provenance of building materials.

I'm encouraged by the increasingly close attention paid by our customers and investors who are looking for detailed evidence of supply chain systems, processes and remediation. This adds to the momentum. Marshalls has a long history of working with suppliers and we're building up activity as our team expands. One example is a project with the IOM in Vietnam to investigate the effect that the pandemic has had on natural stone suppliers and to understand how we can support the sector as it recovers.

Our long-term goal is to help supply chains build capacity, knowledge and resilience to align with international standards. These are challenging times, and there is no substitute for getting out into the regions and developing understanding with high-calibre partners. That's why we will continue to collaborate with organisations and experts across many sectors.

This is a pre-competitive space; businesses now understand that they need to do much more than achieve basic legal compliance. Marshalls remains committed to upholding and supporting human rights and will continue to work with others to do the same.

Emma Crates is business and human rights manager for Marshalls.

Caroline Gumble
CIOB

A great life, well lived

The Queen played an important role in the history of CIOB. **Caroline Gumble** shares in the deep sorrow of her passing and explains why she held Elizabeth II in such high regard

JOEL ROUSE/ MINISTRY OF DEFENCE

I had already written my column for this month's magazine – but as I type this, it has been just a matter of hours since we heard the announcement that Her Majesty Queen Elizabeth II has died and I find myself unable to focus on celebrating our achievements at a time of such loss.

There will be time for CIOB's community to come back together and look to the future but what is right for now is to respect the period of national mourning and reflect on a great life, well lived.

I hope members saw our expression of sadness and grief, issued on the day. Reflecting on events in my professional capacity, I noted the hugely significant role the Queen played in the history of the institute. It was under her reign, in 1980, that our Royal Charter was granted. Specifically, the objectives as defined in the CIOB's Royal Charter are:

- The promotion for the public benefit of the science and practice of building and construction.
- The advancement of public education in the said science and practice including all necessary research and the publication of the results of all such research.

> **She touched the lives of so many people, the thousands she met in the course of her duties every year, but also the countless others to whom she was a role model and an example of leadership**

These principles on which so much of our work is founded really matter and have made me reflect on a more personal level on why I held Her Majesty in such high regard. Our public interest remit is just one of many hundreds, or possibly thousands, of deeds expressing a deep commitment to public service.

Regardless of your feelings about the royal family as whole, the Queen's life was a source of inspiration for many – her very visible and constant commitment to a life of public service, her hard work, her devotion to duty are all qualities I admired greatly. She touched the lives of so many people, the thousands she met in the course of her duties every year, but also the countless others to whom she was a role model and an example of leadership, consistency and humility.

Once again, on behalf of the CIOB community worldwide, I share our deep sorrow at the loss of Her Majesty and offer heartfelt condolences to the royal family.

We now turn our thoughts to the future, with the forthcoming accession of a new monarch. As the crown passes to His Majesty King Charles III, we offer him our loyalty and support.

Long live the King.

CIOB Awards

TIM PESTRIDGE

Legacy for leisure

Kier Construction's Joe McConnell is 2022's Construction Manager of the Year, with a project for our time: an ultra-energy efficient leisure centre for Exeter City Council. Find reports on all the winners over the next 18 pages

Winner
Joe O'Connell MCIOB, Kier Construction

Project: St Sidwell's Point, Exeter
Scope: Construction of Passivhaus leisure centre, completed in 171 weeks
Client: Exeter City Council
Contract: JCT, design and build
Value: £36m

With 40 years in the industry, and 20 years as a senior manager, Joe McConnell certainly understands how to motivate and manage teams. And that skill was vital for St Sidwell's Point in Exeter, which is now the UK's very first Passivhaus-compliant leisure centre.

In fact, so dedicated is Joe to the spirit of teamwork, that he entered the team at St Sidwell's Point into the 'Team of the Year' category – and won that too (see page 22).

Even without the Passivhaus requirement, this is a complex building on a difficult city centre site. There are four pools – three for swimming and one in the luxury spa – which had very technically demanding waterproofing requirements for the reinforced concrete, together with a gym and exercise studios, creche, soft play area and cafe.

The Passivhaus standard is an exacting one, requiring ultra-high levels of airtightness to reduce the energy required to heat a building. And no less exacting is the process of certification from the Passivhaus Institute; ensuring that all the relevant aspects were identified, correctly executed and evidenced was a major task in itself. Joe reports that some of the inspection processes developed on St Sidwell's Point are now being rolled out on other Kier projects as part of their quality processes.

Involved from the second stage of the two-part tender, Joe engaged early with all of the potential key suppliers to identify the many risks associated with the project and to develop a risk mitigation strategy. His approach was to provide as much information as possible to would-be suppliers so that they understood the implications of the Passivhaus requirements.

Through developing a series of bespoke training modules, Joe looked to instil an appreciation of Passivhaus principles and standards in all those who worked on the project, no mean feat considering there were 71 trades and consultants and over 2,500 people working on site. Each half-day session involved a bespoke presentation followed by a practical workshop where appropriate. The training underlined the importance of each individual's role and why it was important to the overall scheme and, says Joe, instilled a sense of pride in the project.

Sponsored by

Overall Winner Public & Leisure

Airtight strategy
Because the building's airtightness could not be tested until very late in the programme, Joe opted to develop a number of building facade mock-ups in order to test and then refine the facade design and components. This led Joe to instruct membrane manufacturer Wraptite to develop an adhesive with which to fix insulation retaining ties to the membranes, rather than using ties which would have penetrated the airtightness line. This exercise eliminated over 5,000 penetrations.

The Passivhaus airtightness requirement for the leisure centre was an air permeability of $0.4m^3/(hr.m^2)$ at 50 Pascals. Joe achieved a certified $0.3m^3/(hr.m^2)$, which he reports has not been achieved on any other Passivhaus leisure centre to date.

Achieving the Passivhaus standards for St Sidwell's Point has implications far beyond the certification – though that is to be celebrated. It sets the bar for other leisure facilities elsewhere. Requiring 70% of the energy a standard centre would require, this building will cost less to run and help Exeter City Council towards its carbon reduction goals; all those who worked on the project have new sustainable construction skills; and the people of Exeter have a new facility which is healthy and comfortable to use.

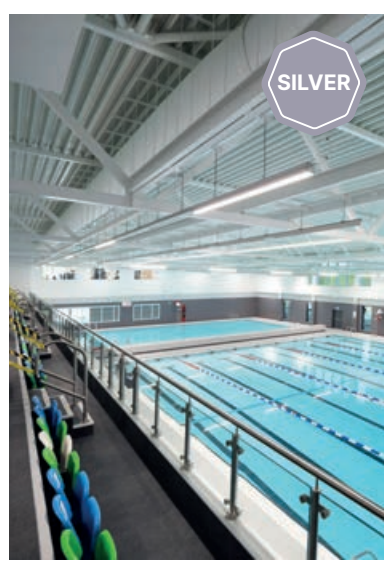
Winner
Colin Tilley MCIOB, Willmott Dixon

Project: Aspire @ the Park, Pontefract, West Yorkshire
Scope: Construction of 22,000 sq m leisure centre, completed in 98 weeks
Client: Wakefield Council
Contract: NEC
Value: £19m

With experience of a previous leisure centre scheme for the client, Colin Tilley brought lessons learned with him to this one, particularly useful for the two pools in this scheme. He focused on getting the concrete pour sequencing for the water tanks right and mastering the logistics. He also cast the balance tank and backwash tank in advance of both the pools' main walls.

His innovation came from suggesting direct lighting instead of traditional and unsightly uplighters and mirrors. Colin found a direct lighting solution that did not create safety issues through glare on the water, and which offered great aesthetics and far lower running costs.

The client liked Colin's honesty, passion and insistence on quality. Just as importantly, he ensured community relations with the neighbouring racecourse and residents never soured.



Other finalists

Nigel Griffiths
Jenner Contractors, F51 (Urban Sports Park), Folkestone

Nick Hamersley
Kier Construction, Fitzalan High School Enabling Works, Cardiff

Martin Keys
McLaughlin & Harvey, Alexander Stadium Redevelopment, Birmingham

Mark McCormick MCIOB
McAleer & Rushe Contracts UK, Hampton by Hilton Hotel, Bath

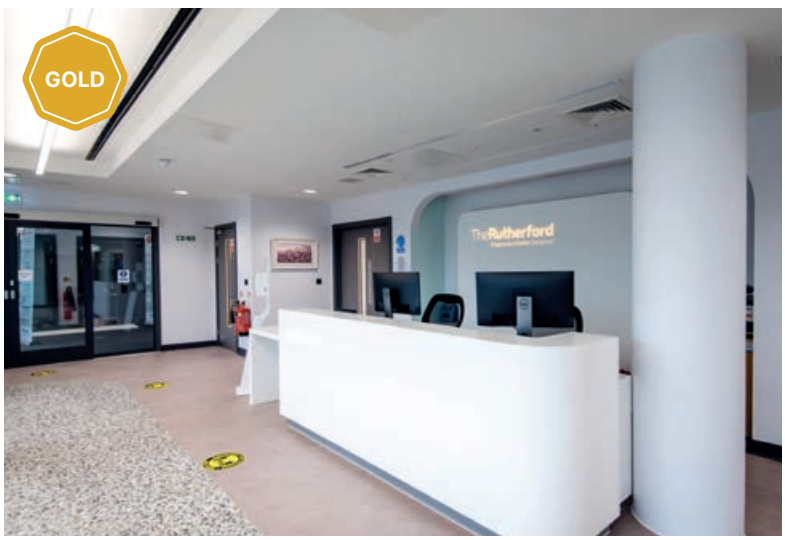
Stephen McDermott MCIOB
Willmott Dixon, Warwick Arts Centre, Coventry

Steve Morris MCIOB
McAleer & Rushe Contracts UK, North Wharf Gardens, London W2

Mital Patel MCIOB
Willmott Dixon Interiors, One Gallery, London WC2

Jessica Spain MCIOB
Mace, HMP Five Wells, Wellingborough

Healthcare



Winner
Daryl Parker MCIOB, Kier Construction

Project: Taunton Diagnostic Centre
Scope: Refurbishment of fire HQ as diagnostics centre, completed in 40 weeks
Client: Rutherford Diagnostics
Contract: JCT 2016, design and build
Value: £4.6m

Daryl Parker had 40 weeks to transform a fire control centre building, unused since it was constructed in 2007, into a diagnostics centre. Starting on site six weeks after a tender interview for which he'd had two days' notice, he was subsequently asked to move the handover date forward by two weeks when he was mid-way through this challenging and ambitious programme.

Despite many stakeholders considering this to be unachievable, Daryl's focused, logical and intelligent leadership delivered this major and complex scheme to create a diagnostics centre within the whistle-stop timeframe. He commissioned equipment and scheduled high-impact activities such as floor laying, ceiling closure and high-pressure pipe testing out of hours.

Even though good existing service information was unavailable before site start, he was able to contain the budget by identifying many reusable power, water, data, ventilation and drainage elements. He also identified credible and intelligent solutions for installing specialist services – medical gases, nurse call systems, AV equipment, uninterruptible and isolated power supplies, and chilled water for the MRI scanner – into the very small spaces of the building.

The risk was enormous. If the services weren't ready for teams from Europe to install the scanners on the scheduled date, it could have delayed the facility becoming operational for up to six months. But Daryl aligned the re-engineering of the building to the installation of the client's specialist equipment – x-ray, ultrasound, CT and MRI scanners – and hit that 'impossible' deadline.

Winner
Matt Davis MCIOB, Kier Construction

Project: Royal Brompton Hospital Imaging Centre, Chelsea, London
Scope: Construction of four-level diagnostic unit, completed in 143 weeks
Client: Royal Brompton and Harefield NHS Foundation Trust
Contract: NEC, design and build
Value: £28m

To create this new diagnostic unit, Matt Davis had to construct a new building with four storeys, two of them underground. With the basement sandwiched between two existing buildings, Matt had to support live hospital buildings and the hospital's sole access road while constructing it.

An existing building had to be partially demolished before the new build could link to it. When the portion requiring demolition grew, Matt brought forward the piling and pile caps so that a new steel portal frame could take the load of the existing building.

Matt also had to contend with a flood less than a week after the installation of three MRI scanners. He calmly led a recovery plan which saw all 33,000 litres of standing water removed and a remediation programme under way within an hour.

Other finalists

Matthew Adams
Willmott Dixon, Pears Building, London

Kieran Legg MCIOB
Willmott Dixon Interiors, Conquest Emergency Department Hastings

Colin McCullough
McLaughlin & Harvey, Chelsea and Westminster ICU and NICU Expansion, London

Bob Swindle
MPMH Construction, Ward 2a Children's Cancer Treatment Centre, Glasgow

Daron Walker MCIOB
Sir Robert McAlpine, Airedale Barn Theatres, Keighley

Andrew Witnall
BAM Construction, NHS Nightingale Hospital Exeter

Residential & Accommodation

Winner
Stephen Pedro MCIOB, Telford Homes

Project: Stone Studios, Hackney Wick, London
Scope: Construction of five blocks with 120 apartments, completed in 67 weeks
Contract: JCT
Value: £38m

A barrage of complaints from worried neighbours about odours released during the groundworks phase of this project forced Stephen Pedro to rethink the design of the attenuation tank. The smell was due to benzene and naphthalene – mothballs – coming from the former metalworking site.

Stephen got the works moving again by reducing the depth of the attenuation tank dig and spreading it over a wider area. With no further need to excavate deep below the water table, there were no more unpleasant odours and the community calmed down. Avoiding the groundwater meant there were buildability advantages too.

Stephen had to make other changes to keep the project on track. Part of the retained facade for one block had become unsafe, so he elected to take it apart piece by piece and rebuild it with a blockwork inner skin. When the combustibility of iroko timber fins for the facade made installing them a concern, he switched to iroko-coloured aluminium fins.

Stephen drove value by replacing precast concrete coping stones and cladding panels with glass fibre-reinforced units. Substantially lighter, they delivered cost savings and were easier to install. Likewise, his introduction of no-joint CLP piping in the 120 apartments made for easier, faster, safer installation.

Other finalists

Martin Bennett MCIOB
Willmott Dixon, Ashton Rise, Bristol

Jon Kelly MCIOB
Storey Homes, Haymarket Rise, Bedfordshire

Robert Lanson MCIOB
Eric Wright Construction, Atelier, Salford

John O'Neill MCIOB
Drew Smith, August Fields, Newhaven

Stephen Sidebotham MCIOB
Willmott Dixon, Blackfriars, Salford

Jason Sims MCIOB
Caddick Construction, Hudson Quarter, York

Winner
Kevin Larkin MCIOB, JJ Rhatigan

Project: Lu2on phase 1, Luton
Scope: Construction of 11-storey block with 401 apartments, completed in 127 weeks
Client: Strawberry Star
Contract: JCT 2016
Value: £63m

On his first project with JJ Rhatigan, Kevin Larkin delivered a lucrative large-scale development to a high standard in a short space of time.

His use of BIM was effective and extensive, from design to quality assurance, with site managers and subcontractors taken along through the use of a BIM dashboard.

Changing the precast concrete lintels to lie flush with the scheme's 1,200 windows, rather than protrude above and below, achieved buildability savings of £1.2m. Kevin's decision to make 489 bathroom pods off site eased the critical path, saved time and cost and raised the quality bar.

The success of the project has seen the client award phase 2 – a £100m scheme with 565 apartments – to Kevin.

Higher Education

Winner
Christopher Purchase, Willmott Dixon

Project: South Wales Police Learning Centre, Bridgend, South Wales: redevelopment of headquarters building as a learning centre, completed in 208 weeks
Client: South Wales Police
Contract: NEC option A
Value: £49m

On a difficult brownfield site, Chris Purchase scored the big victories in the ground. Pockets of contaminated land meant either removing 19,000 tonnes of subsoil or covering the pockets with a geomembrane and capping them. That was until Chris suggested a cheaper and easier alternative: sustainable reuse.

By planting more than 20,000 low-maintenance native trees, shrubs and bushes, he was able to have the land certified as a site of importance for nature conservation, allowing the soil to be remediated and retained.

Similarly, he eliminated a piling operation to deal with voids under one of the buildings. He excavated the fractured rock, crushed it and returned it as fill, along with crushed rubble from the demolition works. It saved the client £750,000 and advanced site start by two months.

Exploiting his extensive experience of heavy civil engineering works, Chris developed a cut solution to create construction plateaus in ground that was extremely dry in summer but awash with springs during the winter rains.

His drainage solution of trenches with perforated pipes at the base of the escarpments and gabions planted with sedums along them saved time and money.

Other finalists

Paul Barrowcliffe MCIOB
Sir Robert McAlpine, Henry Daysh Building, Newcastle

Kevin O'Brien
Galliford Try, University of Birmingham

Christian Parton MCIOB
BAM Construction, Centre for Student Life, Cardiff

Martin Roberts
Willmott Dixon, Brunel Building, Bristol

Paul Southgate
Willmott Dixon Interiors, University of Westminster CSE, London W1

Winner
Mathew Friedmann MCIOB, Eric Wright Construction

Project: Manchester Met Institute of Sport
Scope: Construction of research block, completed in 68 weeks
Client: Manchester Metropolitan University
Contract: JCT, design and build
Value: £14m

Repurposing this 1960s-built student union as a turnkey state-of-the-art research facility required extensive refurbishment. Located a few feet from an elevated dual carriageway and involving large-scale demolition on a live campus, the risk was substantial. Matt Friedmann reduced that risk by retaining much of the existing structure.

The original plan was to demolish the masonry facade and replace it with a steel structure to support the new cladding. But after exhaustive testing and exploratory works, Matt fixed the support brackets directly to the existing masonry, giving the

same appearance and performance for less cost, time and risk.

Matt's leadership of this project was so effective that he finished 10 weeks ahead of programme – time he spent perfecting the finishes and thoroughly de-snagging.

Secondary Schools

Winner
Ed Dwight, Kier

Project: Addington Valley Academy, Croydon
Scope: Construction of two-storey special needs school, completed in 71 weeks
Client: London Borough of Croydon
Contract: DfE
Value: £14.2m

Built on the plot of an old community centre, this new-build school faced considerable risk with the construction of a new community centre alongside it. With delays in the centre's construction raising the spectre of blockages on his scheme's site access road, Ed Dwight acted fast.

He presented the client with three viable alternatives for resolving the looming difficulties. The choice was made and the project got under way with the deadline for the pupil intake in the coming academic year de-risked.

Ed then delivered programme and cost certainty by proving that the projected power demand could be serviced by the local grid, eliminating the need to install a new electricity substation and the associated infrastructure.

His power calculations were based on the introduction of a range of energy-efficient appliances and systems. They included daylight sensor-based lighting and natural ventilation and heat recovery that employed 'peak lopping' to allow a reduction in the size and power of the fan units.

And when the steel frame was to be erected in winter rather than summer, he protected his cost and programme gains by finding a way to spray fire-protection paint on to the frame on site in lower temperatures. By deploying temporary sheeting and heating, he raised the temperature of the cold-rolled steel-frame sections.

Winner
Mark Turner MCIOB
Willmott Dixon

Project: Royal Liberty School, Romford, Essex
Scope: Refurbishment of Grade II*-listed building, and construction of standalone sports hall, completed in 122 weeks
Client: Department for Education
Contract: JCT 2011, design and build
Value: £22m

As always with listed-building refurbishments, there were plenty of unwelcome surprises here. Thanks to Mark Turner's calm, open and honest leadership, the client always knew what was going on, and that Mark had the best possible options for remedying the situation.

Among the issues uncovered in the 18th-century main hall were lime plaster walls and slate roofs that were in far worse condition than expected. Mark also advised opening up the flat lead-covered roof over the main hall's feature staircase and found that the timbers supporting a large rooflight had deteriorated badly, also threatening the historic mouldings inside it.

Though such news can poison a client relationship, Mark had established trust and gained full acceptance for proposals to replace the timbers and create new mouldings.

Other finalists

Jess Barrett MCIOB
Inside Out Developments, Matthew Arnold School, Oxford

James Cooper MCIOB
Willmott Dixon, Tunbridge Wells Grammar School for Boys Annexe

Ernestas Kupcikevicius
Morgan Sindall Construction, Amersham School extension, Buckinghamshire

Ryan McGreevy
Farrans Construction, Charlton Park Academy, London SE7

Thomas Prince MCIOB
Willmott Dixon, Christ Church, Church of England Secondary Academy, Birmingham

Junior & Primary Schools

Winner
Amy Griffiths MCIOB, Kier Construction

Project: Ysgol Gynradd Gymraeg Tan-y-lan, Swansea
Scope: Construction of single-storey school for up to 600 pupils, completed in 24 weeks
Client: Swansea Council
Contract: NEC3, option A
Value: £8.2m

In building this 600-pupil school in under six months, Amy Griffiths upended the typical handling of the landscaping works. Rather than treating them as low-value non-critical operations for the final months, she prioritised their early completion. Her strategy led to delivery ahead of programme, a high-quality build and a very satisfied client.

Having completed the enabling groundworks, piling and steel early, Amy persuaded the client to spend the provisional sums on ensuring that the key water and power supplies were put in swiftly, at a time when utility providers were focusing on 'emergency works' during lockdown.

She then surfaced the building perimeter at the earliest opportunity so that all the external works – structural framing system, curtain walling, brickwork – were undertaken from a clean and level surface. Coupled with early installation of the permanent car park, it meant muddy boot prints were never tracked through the building.

By completing much of the external works early, Amy swiftly closed the boundary of the 15,000 sq m site. That meant she could then focus on achieving the highest-quality internal finishes possible on the 2,200 sq m-footprint building. Her approach helped keep the client satisfaction score at 10/10 from precontract through to mid-term and completion.

Winner
Adrian Mills MCIOB, ISG

Project: Llancarfan Primary School, Rhoose, South Wales
Scope: Construction of two-storey school, completed in 58 weeks
Client: Vale of Glamorgan Council
Contract: NEC
Value: £4.9m

Adrian Mills put his environmental and sustainability qualifications to good use on this replacement school project which is the client's first educational facility that is net zero in use.

To achieve the net zero target, Adrian installed air-source heat pumps, solar panel arrays and solar battery storage. By ensuring all members of the team had specialist training, he ensured BREEAM targets were hit – and in some instances bettered. He also reduced the carbon footprint during construction by sourcing an electrically operated forklift truck, wheeled dumper and hybrid 360 excavator.

Adrian also reduced the two-piece design of the outer sheets of the standing seam roof to a single element, value-engineered the structural steel frame and optimised the purlin layout to exploit the single roof-sheet installation.

Other finalists

Neil Branchflower, ISG, North Hulme SEMH School, Manchester

Blake Lennan, Greendale Construction, Bishops Waltham Junior School Scola Recladding

Refurbishment & Restoration

Winner
Bill Taylor MCIOB, Beard Construction

Project: St Peter's College Chapel, Radley College, Abingdon, Oxfordshire
Scope: Extension and reordering of Grade II*-listed chapel, completed in 112 weeks
Client: Radley College
Contract: JCT 2016
Value: £4.2m

The multiple subcontractors for the bespoke design were smoothly assembled by Bill Taylor into a collaborative team. The interfaces were many and complex. Take the new sanctuary's marble floor, for instance, which lines up with the hand-made bricks of the wall, which slots between stone arches that line up with the intricate timber ceiling, which fits the glass lantern precisely, which in turn is surrounded by hand-made 42kg lead tiles.

Bill had the new sanctuary's octagonal roof made off site, using BIM to coordinate the design with the concrete frame and brickwork. Made in timber to complement the hammerbeam trussed structure of the existing chapel, the new roof was tied together with a stainless-steel strap around the perimeter.

He altered the detail of the sanctuary's vaulted ceiling and arches from traditionally built brick vaults and solid stone to a lightweight brick-slip system supported by secondary steel. This reduced costs by £200,000 and improved buildability. He also devised temporary support to leave a huge stained-glass window in place, as the wall beneath was manually removed to make the opening into the new sanctuary.

Other finalists

Azir Ali
Wates,
Royal College of Surgeons England, London

Thomas Biggins MCIOB
Conamar Building Services, 16 Chart Street, London N1

Robert Brazier MCIOB
Pexhurst, Unit A, Woolborough Lane, Crawley

Patrick Coyle
McAleer & Rushe, Everards Printworks, Bristol

Ruslan Khisamutdinov MCIOB
Durkan, Lisgar Terrace phase 5, London W14

Winner
Francisco Javier Fernandez Nuevo MCIOB, Knight Harwood

Project: British Academy of Film and Television Arts, London W1
Scope: Refurbishment of Grade II-listed building and addition of fourth storey, completed in 66 weeks
Client: BAFTA
Contract: Design and build
Value: £30m

On this scheme to refurbish a Grade II-listed building built in 1883 and add a new storey, Javier Fernandez Nuevo repeatedly showed the power of innovative thinking.

His biggest win was to change the lifting methodology for the existing steel frame supporting two heritage rooflights. He jacked up the rooflight frame from below, using the existing internal birdcage steel for bracing, rather than hanging the frame from a temporary steel structure before lifting it into place. He also avoided the need to redesign the services by rotating the metal grid to support the plasterboard for the ceiling.

A collaborative manager and an excellent communicator, Javier hugely impressed the client.

Team of the Year

Winner
Kier, St Sidwell's Point

St Sidwell's Point in Exeter is the UK's first leisure centre to be built to Passivhaus standards. Comprising four swimming pools, a gym, exercise studios, spa, play areas and cafe, the building will save 70% of the energy compared to one complying with current Building Regulations.

Passivhaus principles, developed in Germany in the early 1990s, aim to create comfortable, healthy buildings that will cope with the rigours of climate change.

One of the most challenging aspects of any Passivhaus scheme is achieving the very high airtightness standards required to prevent heat loss. To do so, Kier engaged early with its supply chain to understand the sequencing, interfaces and time required for inspection, snagging and logging evidence.

With 2,500 people working on the delivery of the £42m building, Kier created a system to educate everyone about Passivhaus principles and how they applied to each role. Anyone who worked on the project had to achieve a 'Passivhaus Passport', gained through Passivhaus induction and training, specific to each trade.

The training included information on the benefits of Passivhaus to building users and the environment, as well as alerting each tradesperson to a range of risks connected to their tasks on site. The knock-on effect of this approach was a positive quality culture and pride in the project, reports Kier, with tradespeople posting photos of their work on social media.

Beyond the provision of a healthy and highly energy-efficient facility for the local community, the St Sidwell's Point scheme has left other positive legacies for Exeter. The project provided 925 hours of employment skills support, 34 placements for T-level students, a programme to share experiences of career changes into construction and site visits for over 1,000 people.

Perhaps the most significant legacy of this project is the upskilling of so many people. Now everyone who has worked on the project can take their Passivhaus understanding and skills on to other jobs in the area.

Other finalists

CMF
Metalwork package on Battersea Power Station

Tracey Brothers
New South West College Erne Campus, Enniskillen

Client of the Year

Other finalists

Annabelle Young
Quintain

Ian Grimes
University of Hertfordshire

Winner
Toby Ward, Sheffield Hallam University's Estates Team

When the Covid-19 pandemic forced Sheffield Hallam University's Estates Team to rethink its £720m Campus Plan, developed in 2018, it decided to go for a completely new approach to procurement. So, in 2020 it formed The Hallam Alliance and became the first higher education institution in the world to use the NEC4 Alliance Contract to deliver its new campus masterplan.

The Hallam Alliance joins the university client, designer, contractor and facilities management provider together in a single delivery vehicle. Decisions are made on a 'best for project' basis under a clear governance structure, with formal cooperative boards which require unanimous agreement. The board consists of four people, one from each partner organisation.

Benefits of this approach include early involvement of the main contractor and subcontractors to ensure designs are buildable and affordable; early FM engagement to reduce lifecycle costs; shared management of risk, with risk allocated to the appropriate party; and standardisation of designs, components and details.

The alliance also sees upfront agreements of fair margins and payment terms, with the university reporting that 98% of subcontractor invoices are paid within 35 days.

In its first year, the alliance's achievements include creating designs for the first £135m of the Campus Plan and securing £70m of external investment; three emergency interventions in very short timescales; and a £17m atrium refurbishment delivered on time and under budget.

Targets for the future include halving carbon emissions; reducing the timescale for the whole plan by 10 years; reducing capital investment by £300m; reducing operating costs by £5m a year; and addressing the backlog of maintenance.

With the Campus Plan a vital element of the regeneration of the Sheffield City Region, the university has set contractual social value targets linked to job creation, training and local spend, some of which the alliance is already exceeding. An Innovation Fund, with seed funding from partners and a share of any scheme underspends, will be used to investigate new ideas.

Sponsored by JRS Training & Assessment — Building Careers, Transforming Lives.

Rising Star

Winner
Sophie Leake, Speller Metcalfe

With a degree in Industrial and Product Design, Sophie Leake came to the role of site manager via an unconventional route. Spells with an office furniture company and as a designer and project manager at design consultancies led her to take on the role of assistant design coordinator with contractor Speller Metcalfe in 2018. In 2021, she became a site manager.

With an ability to connect with office and site teams, Sophie's previous roles allow her to contribute across projects. For instance, she is responsible for corporate social responsibility (CSR), soft landings and BREEAM requirements as well as site management on her current project. She also hosts design meetings and workshops with designers and subcontractors – as well as leading daily activity briefings with Black Hats on site.

Sophie has been recognised for her innovative approaches to raising awareness about health and safety issues, through internal awards and by the Considerate Constructors Scheme. Aiming to increase engagement with toolbox talks, she came up with quizzes such as the Working at Height wordsearch and Silica Dust matching word game and has designed an app which is now being trialled on a Speller Metcalfe project at the New Model Institute for Technology and Engineering (NMITE).

With an interest in sustainable construction, Sophie was a member of the Industry Working Group that designed the Timber Technology, Engineering and Design competency framework. She has helped shape the curriculum that will be delivered by the Centre for Advanced Timber Technology (CATT) at NMITE and has delivered a CPD workshop on 'Timber on Site'.

As well as demonstrating passion for the project and people she works with, Sophie is highly active outside her day-to-day role. She is heavily involved in outreach to young people, sits on the committee for the Hertfordshire and Worcestershire Constructing Excellence group and co-chairs Speller Metcalfe's equality, diversity and inclusion group.

Having encountered hurdles at school to studying the A-level subjects she needed for a career in project management, Sophie is a keen advocate of Speller Metcalfe's Adopt a School initiative. "If I had been 'adopted' by one of these programmes, I could have been captured into construction much sooner," says Sophie.

As well as giving construction lectures at the University of Wolverhampton, creating training interviews and volunteering for careers fairs, Sophie is also part of CIOB's Tomorrow's Leaders group.

Other finalists:

Jack Bennion
Redrow

Gary Dearden
Willmott Dixon

Reef Hillary
Morgan Sindall Construction and Infrastructure

Suzie McNicholas
Consilium Academies

Stephen Martin
House of Commons, UK Parliament

Cameron Sanghera
Aecom

Office

Sponsored by Glodon

Winner
Conor O'Keeffe MCIOB, Kier Construction

Project: 80 Grosvenor Street, London W1
Scope: Construction of block and Cat A fit out, completed in 160 weeks
Client: Frelene (Grosvenor Street)
Contract: JCT 2016
Value: £24m

"It is an honour to work with someone who puts all his efforts into something he loves," said the client of Conor O'Keeffe. Conor delights in challenging projects because they test his ability to find the right solution, as was entirely evident here.

By sheet-piling the basement box with a vibrationless rig, he avoided excess ground displacement that would have affected nearby sewers. He also avoided road closure costs by creating a ramp to bring the rig on site, rather than craning it in.

Conor eliminated the expensive oversail licence required for a standard luffing jib by finding a raptor crane with a folding jib. And his solution of casting 12mm-thick rips of plywood into the concrete lift shaft gave enough tolerance to install standard 900mm lift doors rather than an expensive bespoke set.

His finessing of the permanent works installation to get around the clashes posed by another contractor's temporary works for the party walls was impressive. It got the contract signed in the first place and accelerated the structural frame.

With a client based in America, Conor held weekly online meetings to keep the client up to date and help reach crucial decisions to keep the project flowing.

Other finalists

Tom Arkley MCIOB
Willmott Dixon Interiors, Edmonton Green Housing Hub, London N9

William Chambers MCIOB
ISG, HMRC Regional Centre, Birmingham

Andrew Hill MCIOB
ISG, Shoreditch Village Phase 2, London E1

Colin Patterson MCIOB
Henry Brothers Midlands, Sherwood Lodge, Joint Police and Fire HQ, Nottingham

Stephen Rafferty
McAleer and Rushe Contracts UK, The Ewart, Belfast

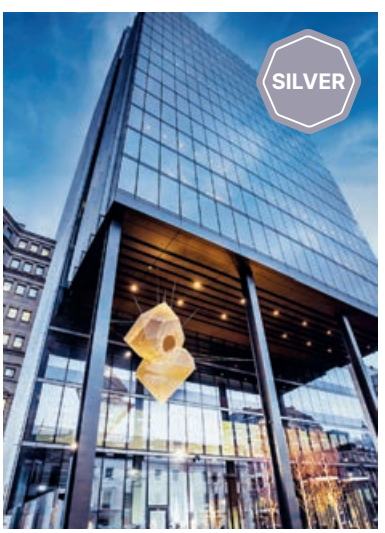
Winner
John McCarthy, BAM Construction

Project: 103 Colmore Row, Birmingham B3
Scope: Construction of 26-level tower, completed in 135 weeks
Client: Sterling Property Ventures
Contract: JCT 2016, design and build
Value: £88m

John McCarthy's ability to inspire teamwork drove the success of this 108m-tall skyscraper and its 225,000 sq ft of office space. With a similar BAM project just completed and another under way, John captured cutting-edge insight by organising workshops and peer reviews between the teams.

Similarly, he championed 4D BIM, which he had used on a previous project and which proved to be the key to sequencing the complex major works on the four-level basement.

When a Victorian wall clashed with piling positions, the piles and their caps were redesigned and complex temporary works formed to retain the wall. By resequencing the structural steelwork and the ground-floor concrete slab, he pulled back a five-week delay.



Sustainability

Sponsored by BLUEBEAM

Winner
Caron Johnson, Ministry of Justice

Caron Johnson is sustainable construction lead for the Ministry of Justice's New Prison expansion plan, a £4bn programme to deliver 18.000 new prison places. This role has seen her creating new policies and raising standards to meet government ambitions on climate change mitigation, resource efficiency, nature recovery and net zero goals.

Caron joined the Ministry of Justice (MoJ) in summer 2020, having spent 17 years at the Eden Project in Cornwall, where she led on sustainable construction and influenced the sector locally and nationally. The changes she is making at the MoJ, together with her ongoing work to promote professionalism in sustainability in the industry, are likely to impact both the prison sector and the wider construction sector worldwide.

One of Caron's first tasks at the MoJ was to write its new sustainable construction and BREEAM policy, demanding mandatory credits on top of the BREEAM minimum credits requirement, to reflect the government goals.

She has raised the target BREEAM levels from Excellent to Outstanding, with the policy applied to both new build and refurbishment projects. Caron also commissioned a natural capital evaluation tool, working with WSP, the Ecosystems Knowledge Network, Northumbria University and multiple other partner organisations to create a tool that is tailored to the unique environment of prisons.

Caron's knowledge and experience mean that she can help feed into decision-making during the early stages of a project, when the most impact on sustainable development can be made.

She leads on communication with colleagues, consultants, contractors and their supply chains to help explain why standards higher than just compliance are important.

Beyond the MoJ, Caron is part of the Government Property Profession (GPP) group and delivers talks, case studies and toolkits to other departments and to cross-party working groups. She is part of CIOB's specialist CEnv assessors team, reviewing written applications as part of the assessment process.

Other finalists

Sean Connelly
Aquascapes

Saul Humphrey
Saul D Humphrey LLP

Steve Goodhew
University of Plymouth

architectural acoustic finishes

SonaSpray fcx in 'The Market' 22 Bishopsgate

Create calm and inviting spaces that sound as good as they look with Oscar Acoustics' SonaSpray range of acoustic decorative finishes.

SonaSpray allows complete flexibility with Cat A and Cat B fit-out configuration and reconfiguration, enabling designers to create adaptable workspaces where employees don't need to shout to be heard.

Image credits to DesignLSM and Andrew Meredith Photography.

NBS Source

NBS National BIM Library

OSCAR acoustics

EDI Individual

Other finalists

Amos Simbo
BPIC Network

Saheb Dhesi
DGP Logistics

Winner
Rebecca Lovelace, Building People

Rebecca Lovelace describes herself as 'founder and chief dot-joiner' at Building People, a platform she created in 2017 to link people from under-represented groups to career opportunities in construction. The idea is that people from diverse backgrounds have better access to jobs, knowledge and support and, as a result, the industry has a chance to be more representative of the communities it serves.

Rebecca has worked tirelessly to develop Building People. From 2021 it really gained traction, with nearly 400 organisations registered and a 'communities network' of 50 organisations that benefit from the amplifying opportunities that Building People provides. Organisations such as Building Heroes, which represents ex-military people, DiverseCity Surveyors, which works with BAME people and The Rebuild Project, representing women, have a louder voice through Building People.

Rebecca has provided community network members with a presence at events such as London Build, UK Construction Week and UK Real Estate Infrastructure and Investment Forum (UKREiiF). At UKREiiF, for example, in May 2022, Rebecca secured 26 speakers from the Building People network to deliver a series of 'How to' sessions on increasing diversity across the built environment.

A significant example of Rebecca's influence was her response to the Construction Leadership Council's (CLC's) 2021 skills plan, in which she highlighted the lack of EDI focus. Her response resulted in her being invited to join the CLC where she successfully lobbied for a significant reference to EDI in the updated plan published in April 2022, as well as inclusion of career changers and returners and a public commitment to a plan to increase diversity across the industry.

Rebecca has put huge amounts of passion, energy, drive and leadership into developing Building People. In doing so, she has created a way for the hundreds of small organisations in construction which support people from non-traditional backgrounds to collaborate and be more effective.

EDI Company

JAMES BASTABLE PHOTOGRAPHY

Winner
St Modwen

Developer St Modwen created its EDI strategy and action plan in 2018 and has set itself some ambitious targets for 2025. These include 50% of senior staff to be female, 40% of the total workforce to be female, 14% of the workforce to be ethnic minorities, 75% of early careers females, 50% of early careers ethnic minorities. It also aims to achieve the National Equality Standard by 2025.

EDI consultancy Brook Graham helped create the strategy to align with St Modwen's commercial ambitions, having assessed the company's maturity in this area. Initial steps have included overhauling St Modwen's recruitment process, training, mentoring and creating EDI champions and sub-groups.

Changes to the recruitment process include: using two people to interview to remove bias; removing names, addresses and universities from CVs; and taking away the tick box for criminal convictions to avoid discriminating against ex-offenders.

Compulsory EDI training explains St Modwen's aspirations and what is expected of employees. Delegates to each training session are intentionally selected from various parts of the organisation so that personal and working experiences can be shared. In one case, this led to a rethink on the provision of washing facilities offered in new-build homes, due to culture and belief.

Company champions, from varying levels of seniority, receive a budget and resources to establish subgroups in categories such as parents, carers, faith and belief, disability, gender, sexual orientation, health and wellbeing and menopause. Events such as Pride, Carers Week and Men's Health Week are celebrated throughout the company.

An innovative approach to target-setting sees St Modwen forecast workforce demographics over a five-year period, aligned to local business plans. The intention is to work out what combination of retention, recruitment and progression will increase representation in previously under-represented groups.

Other finalists
Fortel Group
Skanska

Redesigning Docklands

Skanska is redeveloping one of the Canary Wharf estate's first office blocks into a new workspace, rebranded YY London in a nod to its distinctive facade. By **Martin Cooper**

YY London – originally known as 30 South Colonnade – dates back to 1991. It is one of Canary Wharf's first steel-framed office blocks. Over the past two years, Skanska has been stripping the building back to its structural frame, extending it upwards with three new floors and reconfiguring the internal space from the ground up.

Project architect Buckley Gray Yeoman's contemporary redesign incorporates floor-to-ceiling glazing to maximise natural light, a triple-height reception and a roof terrace combining office space and spectacular views across London. This is contained within the building's elegant, curved form.

"The goal was to design a building that was striking and beautiful, but also that changed the ground floor experience locally... It will be active, lively and welcoming to members of the public," says Julian Neave, partner at developer client Quadrant.

Additionally, saving 10,260 tonnes of CO_2 from the onset of the project, this is an all-electric, sustainable building. Skanska is targeting net zero for YY London and on track to achieve a BREEAM Outstanding rating, WELL Platinum, WiredScore Platinum and SmartScore Platinum.

This a cost-effective, ESG (environmental, social and governance) alternative to constructing new commercial buildings. Skanska project director Tony Boorer says: "The project has achieved huge carbon savings. Reconfiguring an existing building is an economic method of creating modern commercial space.

"The piled foundations are being reused, which means we have had no groundworks to do and consequently we have a quicker programme."

Early site investigations and further pile evaluation by Waterman Structures revealed the piled foundations had significant spare capacity. Significantly enlarging the structure to the plot without new foundations or supplementing the foundations was possible, but keeping the weight down with the new structural elements was critical. Steel was the only viable option.

Skanska is working with steelwork contractor Severfield on the project. The specialist is fabricating, supplying and erecting 1,500 tonnes of new structural steelwork.

A key driver was sequencing the work so the structure was watertight as soon as possible. Severfield began by infilling the existing atrium, which occupied a large portion of the building's central zone from level five upwards, with new steelwork. The specialist contractor then erected the new floors and a roof, making the structure watertight and allowing follow-on trades to start on site.

Using the retained fifth-floor slab to support its MEWPs, Severfield was able to begin erecting new internal steelwork while preparatory works, ▶

Project team: YY London at 30 South Colonnade, Canary Wharf

Client: Quadrant

Architect: Buckley Gray Yeoman

Main contractor: Skanska

Structural engineer: Waterman Structures

Steelwork contractor: Severfield

Programme: April 2021 to November 2022

> **The project has achieved huge carbon savings. Reconfiguring an existing building is an economic method of creating modern commercial space**
> **Tony Boorer, Skanska**

1,500

Steel tonnage used on the project

▼ The YY Building nearing completion in August 2022

▲ The YY building is so called because of its distinctive facade, shown here in CGI

◀ The extra three floors of steelwork

which included stripping back the existing fabric to reveal the original steel frame, continued below.

Preparatory work also included demolishing some areas of the building, such as cores, and strengthening steel columns and beams, allowing them to carry extra loadings from the new steelwork.

Infilling the atrium and extending the upper floors also helped create more office space, while allowing the relocation of the east core. The project has two steel-framed cores, with the western one remaining the same size with the exception of new adjacent risers.

"It's a balancing act, as the atrium allowed natural light into the central areas of the old building," explains Waterman Structures director Julian Traxler. "We've now moved the east core and toilet blocks into this infilled zone, with additional lift openings, as they don't need a lot of natural light. We've accommodated new office space where the core once was, in an area where there's plenty of natural daylight.

"Full-height glazing around the entire building also guarantees more light will penetrate into the floorplates."

Keeping to the original column grid spacing, which incorporates spans of up to 10m, all of the atrium infill steelwork involves new steel connecting to existing steelwork.

> **We've accommodated new office space where the core once was, in an area where there's plenty of natural daylight**
> **Julian Traxler, Waterman Structures**

The original steel structure consists of UB (universal beam) sections supporting metal decking and a concrete topping, which forms a composite flooring solution. The services generally run beneath the beams' bottom flange and will be generally hidden from view by ceiling panels.

The new upper floors use a different design. Here, cellular plate girder beams accommodate services within their depth.

"Using cellular beams will allow the new upper floors to adopt modern exposed steelwork design with the services on view in the completed scheme," says Severfield project manager Gavin Rogers.

The new steel design will increase the building's floor area by 9,000 sq m, most of which is accounted for by the new floors and the reconfigured and infilled atrium. However, on the north-east corner of the building, Skanska has removed a circular rotunda area, and this has allowed each floor to be further extended. A new column line, which extends from ground floor up to the new uppermost level, has allowed the building to be squared off at the corner and extended with a new 8m x 8m section of floorplate. This accords with the new facade design.

▼ 30 South Colonnade stripped back to the original steel frame

By infilling the atrium with new steel beams and lightweight concrete deck and adding storeys at the top we were able to find an additional 25% net internal area
Adam Wood, Buckley Gray Yeoman

At level eight, the old building had an outdoor terrace, which extended from the north-east corner around two elevations to the opposite south-east corner. A new row of perimeter columns around this elevation supports beams that span back to the existing columns and create another extra bay of office space on all floors above level eight.

Elsewhere, below the fifth-floor slab, Severfield has installed further infill steelwork from ground floor up to level four, as well as a new mezzanine level at plaza floor level.

Because the building steps down from South Colonnade street to the dockside, there are two ground floors. The main entrance and retail area are on what is termed 'plaza level', which steps down to the 'promenade level' that sits adjacent to the waterfront.

Buckley Gray Yeoman senior associate Adam Wood says: "As a practice we very rarely knock down a building and start again, so we're always looking to see what's possible and how far we can take the existing structure. The building's location over the dock was also a major deterrent to demolition.

CV: Tony Boorer MCIOB, Skanska project director

Tony Boorer has been in the construction industry for all his 28-year working life, having joined Skanska (Trollope & Colls at the time) in 1993. He began as a construction trainee and spent much of his subsequent working life as a site engineer.

"This gave me a great insight into the technical side of construction and really did teach me how 'things go together'," he says. "I then developed my career on the site management side, initially managing trade contractor packages and work areas, working my way up to project management and then into my current role as project director."

Boorer has predominantly worked on commercial office developments within the London area. He was Skanska's project director on a recently completed and very similar steel-framed scheme at Sixty London Wall, a finalist in the 2021 CIOB Awards. He says that much of the experience gained from that job has been applied on the YY London scheme.

"By infilling the atrium with new steel beams and lightweight concrete deck and adding new storeys at the top we were able to find an additional 25% net internal area, while making major embodied carbon savings."

The landmark YY London at 30 South Colonnade is due to complete in November 2022.

Luke Osborne
Electrical Contractors Association

It is essential that a heat pump is the correct size for its intended application

Heat pumps: dispelling the myths

The UK government sees heat pumps as a key low carbon energy technology, but they have come in for plenty of criticism. **Luke Osborne** explains how they work

As the UK continues to grapple with the effects of climate change and rising energy bills, heat pumps have emerged as one of the best ways to move away from high-emission fossil fuels and help reduce costs in the long run.

When it comes to decarbonising heat in our homes and offices, heat pumps provide a great solution. However, there are important points for installers, designers and facilities managers to bear in mind.

Building fabric

The fabric of a building should be the first call when considering how to reduce energy use. Energy use and running costs come down to how much thermal output the building requires. Ensuring that thermal losses are minimal will reduce both.

A full retrofit program will enable correct planning and co-ordination of works. For further information, see *PAS 2035: Retrofitting Dwellings for Improved Energy Efficiency – Specification and Guidance*.

Existing systems

Heat pumps operate at a lower temperature (under 55C) than conventional gas-fired wet heating systems. In homes with a condensing boiler system, the cost of this change should be relatively low. Older systems

Homeowners can claim £5,000 or £6,000 towards the installation of an air source heat pump (ASHP) or ground source heat pump (GSHP) respectively

6,000

which used hot water storage tanks and small emitters (operating at higher temperatures) may need both pipework and emitters changed to operate at the lower flow temperatures of heat pump installations.

Size

It is essential that a heat pump is the correct size for its intended application. Complete room-by-room heat-loss calculations will ensure correct sizing of emitters for each room. Designers and installers should calculate the total thermal demand and domestic hot water (DHW) to specify the size of the heat pump required. This saves the hassle of resolving inefficiencies caused by a heat pump that is too small, or even too large.

Efficient operation

To enable the efficient operation of a heat pump and to prevent excessive power cycling, designers should include a suitably sized thermal buffer within the system. This will ensure that the heat pump has sufficient heat to draw upon, without running constantly.

For the same reason, installers should put in a hot water cylinder for the DHW. These allow the heat pump to run 'off-peak' and also become active during demand side response (DSR), reducing the electrical load from the grid at times of peak demand. This benefits the end user, who can maximise time-of-use (ToU) tariffs, reducing running costs further.

Installation skills

We have seen some industry reticence in upskilling for heat pump installations, though the early adopters are taking a lead. As confidence increases, so will the installer base. With around a third of the UK population now considering heat pumps, more installers are looking to provide this service.

The early adopters are now creating career development pathways for both new entrants and those looking to upskill, with a growing number of courses available. Training providers may need assistance in ensuring there is sufficient access to courses across the UK.

Conventional heating is predominantly installed by heating engineers. However, as heat pumps are true M&E installations, electrical contractors are upskilling or partnering with heating engineers to offer a more complete service to their customers.

Future developments

Heat pumps are a proven technology that work well when sized and installed correctly in the right environment. Continental Europe has used heat pumps for decades. And the technology continues to evolve.

CO_2 heat pumps have been available commercially for several years and some installers are trialling them in the domestic sector. A CO_2 heat pump, which uses carbon dioxide as a refrigerant, can enable delivery of higher temperatures while also having a global warming potential (GWP) – the heat absorbed by any greenhouse gas in the atmosphere – of just 1. This compares very favourably to refrigerant gases used in other systems – for example, R410A has a GWP of some 2,088.

Luke Osborne is energy and emerging technologies solutions advisor at the Electrical Contractors Association.

> **With around a third of the UK population now considering heat pumps, more installers are looking to provide this service**

The cost to customers

With electricity (in normal times) being around three times the cost of gas per kWh, many consumers have asked about the economic viability of switching to heat pumps.

A well-designed and correctly sized heat pump should have an average seasonal coefficient of performance (ScoP) of between 3-4. This translates as 3-4kW of heat output for each kW used to run the heat pump. That means the running costs of a heat pump will be the same or less than a gas-fired system.

Through the Boiler Upgrade Scheme (BUS), homeowners in England and Wales can claim £5,000 or £6,000 towards the installation of an air source heat pump (ASHP) or ground source heat pump (GSHP) respectively.

For an ASHP installation this is a real help. A gas boiler replacement typically costs around £3,000, so this gives a homeowner a fund of £8,000 (as the homeowner would have been paying out £3,000 in any case). With ASHP installation costing between £7,000-£13,000, according to the Energy Saving Trust, this fund will cover all or a significant amount of the cost.

For most consumers, heat pumps are still an 'unknown' and there is much work required on messaging and educating the public. Installation horror stories tend to drown out the tens of thousands of successful installations around the country.

How to manage ethical employment practices

This CPD, in association with Achilles, examines how construction companies can ensure the ethical treatment of direct employees and people in their supply chains

Construction companies employ more than 2.2 million people nationwide. But while many firms are striving to meet sustainability and carbon reduction targets, the sector faces challenges in ethically managing labour.

The United Nations' International Labour Organization estimates that there are 50 million people held in situations of modern slavery. About 27.6 million people are in forced labour, including 3.3 million children. Modern slavery continues to impact many people globally and highlights the need for businesses to ensure the ethical treatment of people in their direct employment and those working within their supply chains.

Poor ethical employment practices vary in severity from the most critical forms of modern slavery such as human trafficking to poor working conditions and practices affecting potentially huge numbers of workers.

For instance, Achilles' *Ethical Business Trends Report*, published in February 2022, identified that 17% of construction workers interviewed had received wage deductions for administration or payroll purposes. According to anti-slavery charity Unseen UK, construction and related industries have been identified as key sectors associated with modern slavery globally.

Worker exploitation: policy versus practice

While the UK has legislation in place to tackle modern slavery, there continues to be a high prevalence of poor ethical employment practices. As a result, there are further opportunities to raise industry standards. Despite many companies holding modern slavery policies, these are not being seen in practice. Audits by Achilles identify poor practices which may provide a gateway to more serious forms of labour abuse.

There are often noticeable and common gaps – both with national framework contractors and much further down the supply chain – when it comes to understanding the complex ethical employment risks associated with the construction industry.

> **Construction managers should engage with their supply chains and verify the processes that they have in place**

What are the most common trends?

Often there is an assumption that companies within the supply chain have adopted appropriate ethical recruitment and employment practices. Construction managers should engage with their supply chains and verify the processes that they have in place, in addition to considering those that are directly employed by themselves.

All classifications of workers should be considered in the same way as a direct employee. Achilles' *Ethical Business Trends Report* identified that 11% of audited companies were unable to demonstrate that written terms and conditions of employment had been issued to workers.

Communication channels should be created, from initial engagement to the termination of services, to ensure that individuals are aware of their basic employment rights and the terms associated with the assignment. Established reporting and escalation routes for worker concerns should be available to all workers and clearly displayed.

In association with Achilles

Ensuring the ethical treatment of workers plays an important part in tackling modern slavery. Identification of improper practice may be the tip of an iceberg

Policies and procedures should be considered as a commitment or an intention as opposed to evidence of compliance.

Construction managers should also consider verifying that intentions outlined within policies are enacted. Recognised standards such as ISO 9001:2015 refer to the Plan, Do, Check, Act cycle for monitoring and continual improvement. There is no reason a similar approach should not be considered when seeking to ensure the ethical employment of workers and their treatment on site.

Ensuring the ethical treatment of workers plays an important part in tackling modern slavery. While some issues may be considered less serious than those that are seen in the headlines, they can leave workers susceptible to labour abuse. The identification of improper practice may be the tip of an iceberg that has largely gone unnoticed previously.

Rather than assuming the issue has gone away or only happens in other industries or other countries, it needs to be acknowledged that ▶

Helping Sir Robert McAlpine and British Land to tackle modern slavery

A pilot of Achilles' Ethical Business Programme helped partners to identify potential issues

British Land and Sir Robert McAlpine have been using an Achilles service to find out more about what's really happening in their supply chain from the tradespeople contracted to work on their sites. When Achilles launched its Labour Practice Audits in 2015 (currently Ethical Business Programme), British Land and Sir Robert McAlpine were keen to pioneer their use.

Challenge

British Land was due to start work, in partnership with Sir Robert McAlpine as lead contractor, on the next phase of the 13ha Broadgate campus. At the same time, the Modern Slavery Act (2015) entered UK law, requiring companies to take responsibility for understanding the ethical performance of all businesses in their extended supply chains.

The two companies agreed to carry out a pilot project with Achilles to assess the effectiveness and value of the Labour Practice Audits.

Alice Hands, Sir Robert McAlpine's head of ethical and sustainable procurement, comments: "In terms of seriousness, forced labour and modern slavery represent the extreme end of a very wide spectrum. There are multiple lesser issues, all of which we wanted to address to ensure people are treated correctly, to counter any negative attitudes to our industry and to help ensure that Sir Robert McAlpine is recognised as a great place to work."

Issues can include a lack of thorough due diligence, poor access to grievance procedures and failure to appropriately translate health and safety briefings. The high proportion of self-employed workers can also give suppliers the opportunity to issue business-to-business contracts instead of contracts of employment, losing protective and other legislative measures.

Process

In determining the scope of the Labour Practice Audits, it was vital to both companies that onsite interviews were non-intrusive, unannounced in advance and anonymous (although identifying immediate employers). Only then would workers feel at ease to share how they really felt.

It was also important that interviewees were never taken away from their work, as this would mean they could be identified and lose anonymity. Instead, the Achilles interviewers settled in site canteens and asked workers on a break for a few minutes of their time. In an overwhelming number of cases, workers were happy to help.

Following the interviews, the findings are analysed by both companies and Achilles to establish areas that need to be prioritised and subcontractors who need help most urgently.

The outcomes have been enormously helpful in enabling the partners to identify and start addressing potential issues. Inevitably, the Covid-19 pandemic disrupted delivery of the Labour Practice Audits programme, along with everything else. To continue engaging with the supply chain, the programme therefore moved to virtual Management System Audits with key supply chain partners and trades. These continue to grow awareness of potential supply chain issues, build good practice and raise standards for ethical employment.

Results

As Hands puts it: "Some audits are simply about ticking boxes – as such, they are completely useless. The Achilles Labour Practice Audits (currently Ethical Business Programme) are proving to be the opposite of that. We are constantly uncovering new findings and learning more, and as long as the audits are providing us with increased knowledge and enabling us to fix issues we find, we will continue to carry them out."

British Land's sustainability manager Karina Williams highlights how this partnership supports British Land's wider goals: "Working collaboratively with Sir Robert McAlpine and Achilles, we are pleased to have pioneered this audit programme, promoting better working environments and helping spread best practice across the industry."

this is a global issue affecting people on a daily basis within supply chains – for example nine UK construction workers had reportedly witnessed acts of racial abuse and discrimination on sites where Achilles had conducted Ethical Site Surveys.

Spotting the warning signs of worker exploitation

Five years' worth of Achilles' data, site visits and worker interviews has demonstrated that there are still fundamental issues not being addressed, and significant opportunities for improvement regardless of industry or location.

Currently Achilles' 2022 Ethical Site Survey data shows that 31% of interviewed workers have presented non-standard evidence of right to work in the United Kingdom, such as CSCS cards or driving licences. Changes in supply chain due diligence legislation will soon place an emphasis on all businesses to do more to identify poor practices and prevent labour abuses within the supply chain.

Remediation rather than disciplinary reaction

Construction managers should educate and share knowledge to encourage transparency in supply chains in order to identify and plug the gaps that might exist. While it would be easy to ignore this

2022 Ethical Site Survey data shows that 31% of interviewed workers have presented non-standard evidence of right to work in the UK

31

Managers should consider the full range of tools at their disposal to promote best practice and ensure all workers are treated fairly

problem, there is a moral obligation to work towards improving practices within supply chains.

Managers should also consider the full range of tools at their disposal to promote best practice and ensure all workers are treated fairly. Ensuring workers are fully aware of their rights helps create an empowered workforce and is key in mitigating exploitation risks.

A comprehensive induction process, including awareness of employment law and company policies, is vital to ensuring workers know what to expect and, crucially, are aware when something isn't right. It is not enough to assume workers know what their rights and entitlements are. A lack of knowledge leaves a worker open to exploitation.

Evidence of supplier compliance is an essential part of any modern slavery strategy. During supplier onboarding, consider how your suppliers will be required to substantiate their compliance to relevant codes of conduct – this should not simply be a tick-box exercise. The use of spot checks both on site and at contractor premises, or full Management System Audits, provide further opportunity to interrogate supply chain processes.

▼ A comprehensive induction process is vital to ensuring workers know what to expect

CPD Questions

1. What proportion of construction workers have received wage deductions for administration or payroll purposes?
a) 14%
b) 17%
c) 23%

2. Which statement below is true? Communication channels should be created from initial engagement to the termination of services to ensure that individuals are aware of...
a) ...the terms associated with the assignment
b) ...their basic employment rights and the terms associated with the assignment
c) ...their basic employment rights

3. What measures does Achilles recommend companies in the construction sector put in place?
a) Auditing suppliers and subcontractors
b) Training and consultancy
c) Responsible sourcing principles and rules
d) Modern slavery policy statement
e) All of the above

4. What offers further opportunity to interrogate supply chain processes?
a) Spot checks on site and at contractor premises, or full Management System Audits
b) Random sample interviews with site workers
c) Comprehensive paper records

5. Which of these was part of the Achilles Ethical Business Programme at British Land and Sir Robert McAlpine?
a) Non-intrusive, unannounced in advance, anonymous onsite interviews
b) Pre-arranged and anonymous onsite interviews
c) Analysis of interviews with subcontractors over the last 15 years
d) None of the above

To test yourself on the questions above, visit www.construction management.co.uk/cpd-modules.

MMC can liberate construction from entrenched mindsets

The award-winning Seismic project aims to tackle the manufacturing issues around offsite construction and modern methods of building

▲ MMC offers significantly enhanced operational efficiency

Despite being one of the largest sectors in the UK economy, turning over nearly £400bn a year and employing more than three million people, construction suffers from historical problems which are holding back its potential.

Margins are low, productivity is poor, innovation is rare compared with other industries. The workforce demographic is high with skills in short supply, and the industry has shown a resistance to accepting technological advances.

That's the bad news. The good news is that things are changing. And with a huge national infrastructure pipeline of schools, hospitals and public buildings to be delivered, that change can't come soon enough. The need for improvements in quality, consistency, productivity, net zero performance, cost and efficiency in the manufacturing processes that support modern methods of construction is urgent.

The construction sector needs to enhance its operational effectiveness and reduce its carbon footprint. Modern methods of construction offer significant opportunities to improve operational performance, re-engineering products and processes. These methods allow the design, manufacture and assembly of 2D and 3D components that integrate structure and internal fit out into a single building process, fundamentally changing the construction process, for example provided by the Seismic platform technology. As a result, modern methods offer significantly enhanced operational efficiency and carbon footprint reductions.

The Seismic project has developed modern construction products and manufacturing processes. Led by the Seismic Group, the Innovate UK-funded project consortium includes the modular construction companies McAvoy, Algeco Group and Tata Steel UK, in addition to research and technology partners including the Manufacturing Technology Centre (MTC), Swansea University and the National Composite Centre.

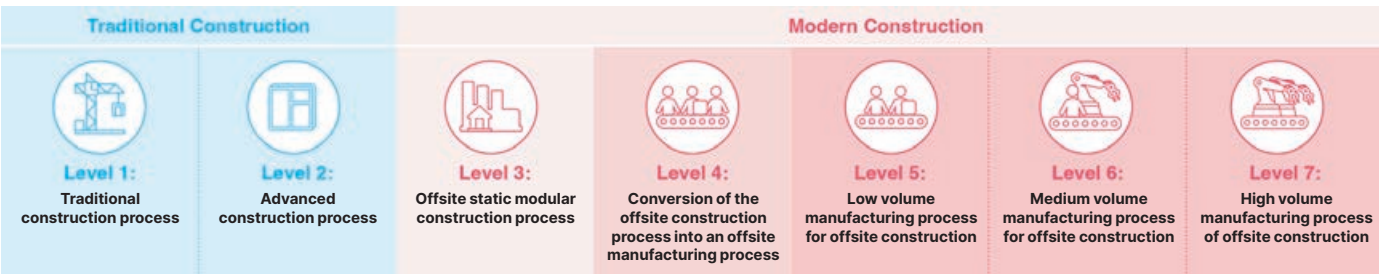
McAvoy and Algeco Group are using the Seismic platform technology in current projects and see significant benefits. For example, Algeco has seen a fourfold increase in frame production. Early operational data and MTC research indicates that the operational efficiency has the potential to double for every CMC level as changes are made.

As part of the project, the MTC developed a framework to build capabilities for modern design and construction. The Capabilities for Modern Construction (CMC) matrix describes in seven levels the step-by-step development of key

£400bn

Despite being one of the largest sectors in the UK economy, turning over nearly £400bn a year, construction suffers from historical problems

In association with mtc Manufacturing Technology Centre



organisational and technological capabilities required to introduce or enhance the abilities of an organisation (see above).

The Seismic project showcases how the project partners used the CMC methodology to understand their product, process, design, quality and continuous improvement capabilities. In addition, the project shows how the data was integrated to identify gaps and develop a programme for the development of modern construction capabilities.

The CMC data documents the challenges McAvoy and Algeco Group experienced in the development and deployment of modern construction methods.

Evidence from operational modelling shows that investment in CMC capabilities can be offset by significant operational efficiency gains. The model estimates that efficiency improvements can be made in the order of 40% to 140% for construction businesses that operate at CMC levels 3 to 5, when compared to traditional construction businesses that operate at CMC level 1 to 2.

The experience and data from the Seismic project serve to highlight issues that the construction sector needs to address. The sector should look for opportunities for cross-sectoral knowledge transfer and also develop sector-specific approaches for business transformation and continuous improvement.

Modern methods of construction offer the construction sector a huge transformation potential by adopting proven processes, innovation, methods and philosophies from other manufacturing sectors.

The CMC matrix tool developed by the MTC can deliver major improvements as well as reducing costs, reducing development time, improving efficiency and productivity, contributing to improvements in safety, quality and environmental performance and de-risking construction projects.

This approach to planning for manufacturing improvements will make a major contribution to building programmes of the future, establishing common approaches to address challenges, removing duplication of effort and creating a standardised framework.

Design for Manufacturing tools and techniques will allow concepts and plans to be fully explored and validated in a virtual environment before a penny of investment is committed. Precise costings can be confidently established using process cost modelling. Environmental impact can also be modelled, as can an effective supply chain.

All of these tools and techniques, if adopted by the construction sector, will transform the entrenched practices and mindsets which have held the industry back in the past.

▲ The CMC matrix provides a development framework for modern construction capabilities

> **Efficiency improvements can be made in the order of 40% to 140% for businesses that operate at CMC levels 3 to 5, when compared to traditional construction businesses**

What companies can learn from Seismic II

The Seismic Capabilities for Modern Construction (CMC) data provides key insights for construction companies that intend to develop modern construction capabilities. These face two key challenges:

- The key technological challenge is to change product design and manufacturing processes from a traditional two-step process in which the frame is built first, followed by fit out, to a modern product design and assembly process that integrates the assembly of structure and fit out. Development of a product that achieves this is the main technological step change that enables organisations to progress from traditional to modern construction methods.
- The key organisational challenge is to deploy these new products and processes into businesses. Observations made for McAvoy and Algeco Group suggest that companies need to complement the deployment of CMC products and processes with an organisational transformation programme, to align and integrate the activities of all teams that contribute to new product and manufacturing process development.

The Development of Capabilities for Modern Construction (CMC) White Paper detailing the outcomes of the Seismic II project can be read in full here: www.the-mtc.org/seismic2-CMCwhitepaper.

TREVI GROUP

Shoring up the levee

This year, ground engineering specialist Treviicos expects to finish a decade-long project to shore up the 230km Herbert Hoover Dike in southern Florida. **Rod Sweet** reports

▲ Trevi Group subsidiary Treviicos created 40km of dam-within-a-dam to contain the water of Lake Okeechobee, southern Florida

▶ Lake Okeechobee viewed from space in 2000, with West Palm Beach to the east

The cutoff wall extends from the top of the existing dike down to a depth of 26m

26

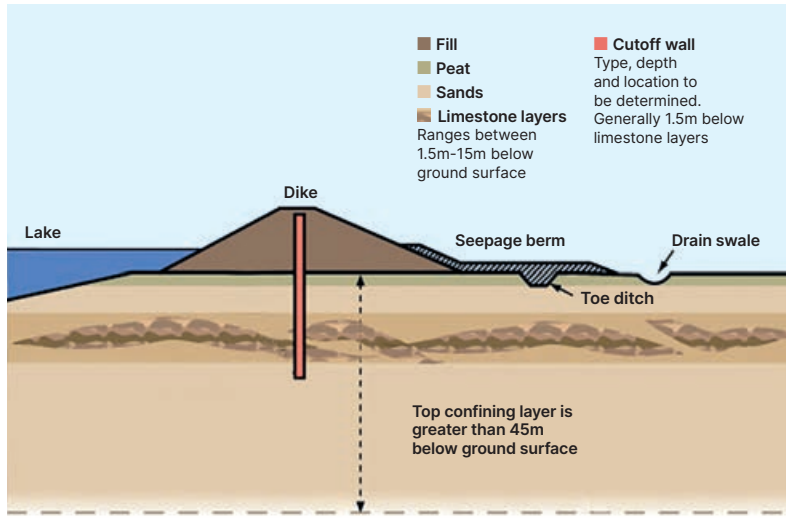
Life around Florida's biggest lake, Lake Okeechobee, has always been risky. Water levels rise during the rainy season from May to October, and when farmers began cultivating the rich soils around it in the 1910s, they knew enough to construct rudimentary embankments around its perimeter with sand and mud. That was fine until 1926, when the Great Miami Hurricane struck, killing some 300 people. Two years later in 1928, the Okeechobee Hurricane caused a catastrophic breach, with floodwaters killing nearly 3,000 people, most of them non-white migrant farm workers.

The River and Harbor Act of 1930 authorised the construction of some 110km of levee along the south shore of the lake and 25km along the north shore. The US Army Corps of Engineers (USACE) constructed the levees between 1932 and 1938.

Another major hurricane in 1947 prompted a comprehensive overhaul of the dike system, finishing in the late 1960s, when it was named the Herbert Hoover Dike, in honour of President Hoover's visit after the 1928 disaster. But constant seepage of water through the earthworks continued to threaten its structural integrity.

NASA/PUBLIC DOMAIN

▶ A sectional view of the cutoff wall inserted in the Herbert Hoover Dike. The downstream seepage berm was disregarded in subsequent design reviews



TREVI GROUP

> **The cutoff wall is not a rigid element, but it limits water flow while integrating structurally with the earthen levee**
> **Carlos Morales, Pablo Bassola and Filippo Maria Leoni, Treviicos**

By 2001, some five million people lived in the counties to the south east of the lake. That year, USACE embarked on the latest programme of shoring up the vulnerable structure with a combined cost of $870m (£744m).

Dam within a dam

Without USACE's interventions, which include the ongoing management of the lake's volume, surrounding towns could have been wiped out in the many hurricanes since the 1960s. But USACE continues to view the delicate balance of water and earth as a dynamic risk.

The centrepiece of its latest effort has been the insertion of a low-permeability cutoff wall within the dike, made of self-hardening slurry, a technique pioneered by ground engineering specialist Treviicos, the North American subsidiary of Italy's Trevi Group.

In two phases – 2008-12 and 2016-22 – Treviicos inserted 40km of cutoff wall along sections of the dike deemed most at risk, Treviicos project managers Carlos Morales, Pablo Bassola and Filippo Maria Leoni told *CM*.

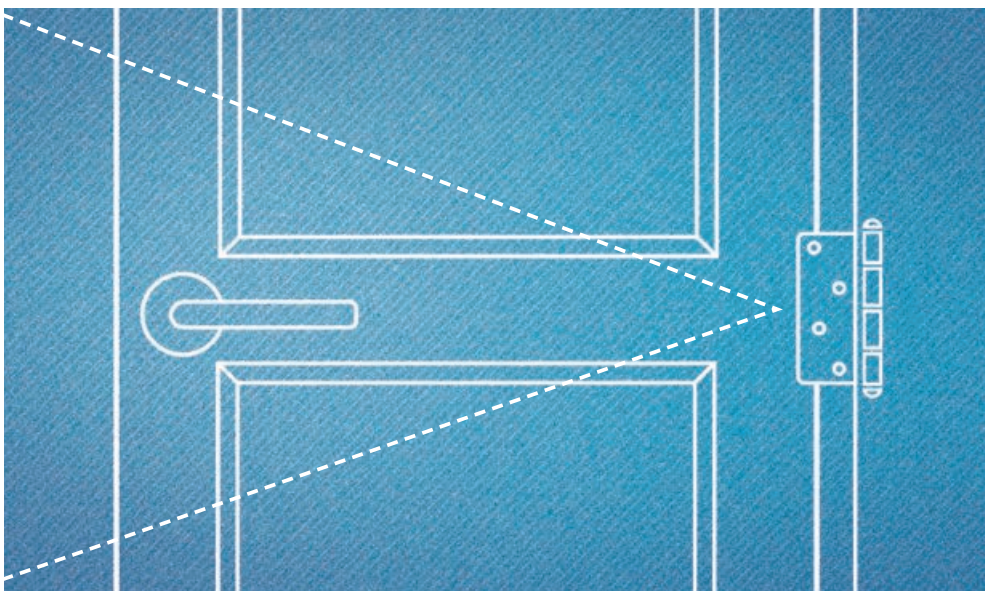
"The slurry is an engineered mix of Portland and slag cements, bentonite, additives and water, which acted both as excavation support and permanent backfill," they explained.

"The cutoff wall is not a rigid element, but it limits water flow while integrating structurally with the earthen levee."

By the end of this year, Treviicos will have inserted 670,000 sq m of the slurry to create a dam-within-a-dam. In height, the wall extends from the top of the existing dike down to a depth of 26m. Treviicos used a mechanical clamshell to dig out soft soil and a crane-mounted hydromill to excavate harder limestone layers.

It used jet grouting to seal areas abutting existing concrete structures such as gates and locks. Trevi Group says it was the longest and most challenging project in its North American history.

Paul Gibbons
Decipher



When is a variation not a variation?

In our latest contract clinic, a reader asks if an instruction to fit specific door hinges is a variation. **Paul Gibbons** responds

THE QUESTION

The architect on our project has issued an instruction to install specific hinges to doors on our project, but they claim this is not a variation. Is this correct and, if so, what can we do?

THE ANSWER

Variations often cause conflict in construction projects. But what looks like a variation may not always be a variation. If a change on a project is essential to the performance of the contract, and is not defined in the bills of quantity or specifications, it may be a new instruction but not a variation under the contract.

First, the definition: a variation is any alteration to the original work as set out in the contract. This could take the form of an addition, omission or substitution. Whether your variation is a change or a compensation event depends on one very important thing: the construction contract used.

On your project, it will also depend upon what your contract says. Are there any terms defining what is included and what is not included in the scope of works? What is in the other documents that form the basis of the contract? Are there references in the project specification or method of measurement around inclusions for ironmongery or hinges? Do bills of quantity exist defining such items?

> **Change may play to either side's advantage or disadvantage, but that does not make the bargain unfair in law**

If nothing is defined, you may need to consider whether the instruction is reasonable. It is possible, but unlikely, that an instruction or, more importantly, valuation could be unreasonable. In *Henry Boot v Alstom Combined Cycles*, the terms of the contract were important: "The rates and prices in the Bill of Quantities shall be used as the basis for valuation so far as may be reasonable failing which a fair valuation shall be made."

This was fine, and that line or something similar is often seen in contracts. The challenge came in deciding what was fair and reasonable. The court said: "It is one of the skills of tendering for a construction contract... to anticipate where there may be departures from the estimated quantities or item descriptions which might prove to be to the contractor's advantage."

The courts appear to accept there will always be an element of risk in a construction contract. The parties accept that risk when they sign up for the project. Change may play to either side's advantage or disadvantage, but that does not make the bargain unfair in law. In a 2019 case in Hong Kong, the contractor recovered costs for plant standing idle because of a change to the project, even though the idle plant did not cost them any money.

Unless there is a clear contractual reason the new hinges should not be used, even if they were not listed in the bill of quantities or specification, it is possible they will not be a contractual variation. It is more likely that you will have to accept the cost, even if the hinges are the finest hinges money can buy, and there are hundreds of doors involved.

Paul Gibbons is CEO of Decipher Consulting.

This much I know
Peter Jackson
Managing director, Seddon

'Those undertaking manual work should benefit from having more leisure'

Peter Jackson wants to reduce the fairness gap between site and office workers

What made you join the construction industry?
I fell into construction, to be honest. My parents encouraged me to get the best education I could, so while some of my friends joined the industry via the YTS scheme in the mid-1980s, I went to Reading University. I read Chemistry with sponsorship from BOC as part of its management programme. However, I quickly realised university wasn't for me. I became lost in terms of what I wanted to do, leaving in Christmas 1988.

I was then offered a job with Fairclough Building in Swinton, Manchester, as a quantity surveyor on the basis I was good with maths, and they thought I was a "nice lad". They would let me do my degree part-time at Salford University and I would earn a wage, so I thought: why not?

What do you remember from your first project?
As a trainee on the factory extension for Kellogg's in Trafford Park, I remember the smell from the factory and the sticky coating of what must have been sugar on my car. The culture was intimidating at first; there was an expectation to get things done and to a high standard, but once I established myself I felt like a real part of the team – enjoying the tremendous sense of humour and comradery.

What was the best advice you were given?
Think for yourself and take the initiative. If something needs doing, get it done. If you've got something to say, then say it!

What one thing would you change to make careers in construction more appealing?
Since the late 1980s, the industry has developed massively, both culturally and in the diversity of available roles, which reflects that changing culture. There has been a huge focus on areas like BIM, design, green and planning. These roles encourage new ways of working, by introducing new technologies and flexible working – ultimately creating a more inclusive environment.

> **I am a big fan of listening to podcasts, TED talks and reading, but you get the most learning from spending time with intelligent people**
> Peter Jackson, Seddon

I think the pandemic widened the gap between trade and office-based staff in terms of perceived fairness. It's difficult to make a trade role flexible when it's site based and the individual is physically needed on site. However, I'm currently discussing with the board the idea of four-day working weeks for onsite workers. Those undertaking manual work should benefit from having more leisure, resulting in increased motivation and productivity – so it makes perfect sense to trial it.

What's the most valuable training you've received and why?
I went to Henley Management College in 2003, just as I had been promoted into a general management role, and the timing was perfect. The combination of the course and those I studied alongside made me look at things differently, considering the big picture and strategy.

I also encourage people to invest in their own self-development and take charge of their careers; the only investment you need is your time. I am a big fan of listening to podcasts, TED talks (Technology, Entertainment and Design) and reading, but you get the most learning from spending time with intelligent people, so finding that network is vital.

CIOB Community

Tomorrow's Leaders set for takeoff

Official launch of young professional network

▲ Tomorrow's Leaders will support members through their career journeys

This month sees the official launch of CIOB Tomorrow's Leaders with a virtual event, Tomorrow's Leaders: Building Professionalism in Construction, on 25-26 October.

CIOB Tomorrow's Leaders is a community for members in the early stages of their construction career. These diverse, ambitious and emerging professionals are proactively looking to get ahead in their careers and make a difference to society through the built environment.

As a global community, with self-development an integral part, Tomorrow's Leaders is designed to support members through their career journeys to become inspiring leaders, and will play an active role in building the pipeline of quality construction talent.

> **As a global community, with self-development an integral part, Tomorrow's Leaders is designed to support members through their career journeys**

Representatives and champions across the globe are already leading the way, delivering activity alongside hub committees.

The Tomorrow's Leaders launch event will feature sessions covering the importance of this global community, with discussions on how to develop competencies, share knowledge, showcase skills, and build professional networks. ●

Find out more at www.ciob.org/tomorrows-leaders. For details of the launch event, contact: scox@ciob.org.uk.

CIOB seeks chair for standards committee

Role suitable for education specialist with knowledge of CIOB standards

CIOB is seeking expressions of interest from suitably qualified members/fellows for the role of chair of the Professional Standards Committee from July 2023. The successful candidate will have the opportunity to join the committee as a member in 2022.

The committee meets three to four times a year either remotely or at CIOB's London office. It is responsible for the oversight of CIOB qualifications and apprenticeship assessments and for setting and maintaining standards and quality assurance procedures for membership.

You will need to be an education professional and a CIOB member or fellow. You should have a strong interest in education, vocational training and standards. The ideal candidate will have a solid knowledge of CIOB standards.

This is a volunteer position, but all travel and associated expenses will be reimbursed.

Please email an up-to-date CV to Lyndsey Montgomery at lmontgomery@ciob.org.uk.

MATT GORE

'Construction needs total disruption'

Sir James Wates will challenge industry thinking with lecture

Former CIOB president Sir James Wates CBE is giving a thought-provoking speech on construction industry change in December.

In 'Total disruption: There has got to be a better way for construction', the chair of Wates Group (pictured) will look at why, despite plenty of innovations in construction, none have managed to change the way we construct the majority of buildings.

Wates will look at why other sectors like IT, manufacturing and pharmaceuticals have revolutionised their processes and are leaving construction in their wake.

He will argue that construction needs total disruption, involving new business models that allow investment in innovation as well as properly training the next generation. New ways of working are needed that mean clients, consultants, contractors and the supply chain collaborate seamlessly.

The talk, by invitation only, is on 15 December from 6-9pm at Shangri-La, The Shard, London.

Global Student Challenge enjoys a refresh for 2023

Next year's competition will use a new interactive software platform

CIOB has made some changes to its annual Global Student Challenge.

The competition, in which students from around the world create a virtual organisation and test team skills on a construction project, will now use a new interactive software platform: SimVenture Validate.

The Global Student Challenge tests competitors' creative thinking, analytical and technical skills and develops effective teamwork. SimVenture Validate allows users to ideate, plan, test and share entrepreneurial and innovative ideas.

For next year's competition, teams will be asked to bid for the construction of a student-focused campus facility. They will be asked to present a build that is radically different, focuses on the student experience and that meets local technical, environmental, and social needs.

Using locally sourced materials and skills, they will be tasked with the design and delivery of the facility through a thorough two-stage selection process, replicating a real-life bidding process. The finalists will then present their bid to a live panel of industry expert judges online.

The winning team will receive an all-expenses paid trip to the CIOB Members' Forum to present their bid and test ideas in the real world with global industry experts giving feedback. They will also receive a £2,000 cash prize.

The Global Student Challenge begins in January with registration and continues through the bidding rounds until the winner is announced in April. The Members' Forum will take place in June 2023 in the UK.

For full details and entry criteria visit https://gsc.ciob.org.

New book presents building defects and health issues

FCIOB produces compilation of expert views

CIOB fellow Michael Parrett has compiled a book of peer-reviewed articles on the subject of building issues and their influence on health.

***Building Defects & Your Health* is a compilation of techniques that looks at the understanding of building issues, the influence they have upon the health of the occupiers and the impact that use and occupation of a building can have on problems developing inside the building.**

Parrett is an expert in building pathology and holds a master's in Interdisciplinary Design for the Built Environment. A producer of industry training films, lectures and articles on investigating dampness in buildings including flooding, condensation and mould, he first came to public notice through the BBC2 series *Raising The Roof*.

Proceeds from this publication will go towards fighting childhood cancer.

Order the book online at https://myhometruths.co.uk.

CIOB CEO supports Midlands levelling up

Caroline Gumble visited Wolverhampton and Birmingham on a three-day tour of the region

CIOB CEO Caroline Gumble lent her support to the levelling up of the midlands on a recent visit.

As part of a three-day tour of the region, she hosted a roundtable event at Aston University where education providers, regional policymakers and leaders in the built environment came together. The discussion was chaired by Andrew Bridge, senior customer engagement manager at CITB.

The key message from the session was the need for better collaboration between business and education – to allow the industry to inform young people of opportunities within the built environment, as well as to feed into the course materials and provide stable work opportunities. Bridge remarked on the passion in the room about providing this collaboration.

Gumble's tour also included visits to projects under way. First up was the University of Wolverhampton's School of Architecture and Built Environment (SoABE), where she officially inaugurated the new CIOB branded spaces (see p55).

In Wolverhampton, she learned how the Grade II-listed Royal Hospital was turned into a wellbeing scheme for over-55s as part of a digital twinning project. This project was the brainchild of Paul Dockerill, CIOB trustee and director of energy and programme management at Jessup Brothers, in collaboration with local digital expert Deeo.

Other visits included the One Centenary Way project in Birmingham by Sir Robert McAlpine (SRM). The first part of phase two of the Paradise development, this will overlook the transformed Centenary Square and, with its unique exposed steel frame, provide a visual gateway to Paradise and a new city landmark.

Gumble heard about the work SRM is doing around early adoption and implementation for the Building Safety Act. The tour took in the Perry Barr Regeneration Scheme, which aims to transform the area, enhancing infrastructure and providing homes. A highlight was meeting people working on the scheme under the Kickstart programme with Lendlease.

▲ Caroline Gumble with head of school Paul Hampton at the University of Wolverhampton's School of Architecture and Built Environment

▶ Gumble (second from right) visits the Royal Hospital development

Academics win international award for research leadership

Work of two members of CIOB Safety SIG recognised

Professor Billy Hare and Dr Fred Sherratt, two members of CIOB's Safety special interest group, have had their contribution to safety, health and wellbeing research acknowledged at an international conference in Melbourne, Australia.

The inaugural CIB Wim Bakens Best Coordinator Award was presented by the International Council for Research and Innovation in Building and Construction (CIB) at its triannual World Building Congress, hosted at RMIT University.

The CIB is a global network for exchange and cooperation in building and construction research and innovation. The award, is named after the recently retired CIB director general, Dr Wim Bakens.

Established in 1953 with United Nations assistance, the organisation holds special UN consultative status. It has over 40 research groups or 'working commissions', led by academics. Professor Hare and Dr Sherratt won the award for the working commission on Safety, Health and Wellbeing in Construction.

The award acknowledged the work of the group (as well as the People in Construction working commission with Professor Fidelis Emuze) in delivering two joint online conferences during the pandemic years of 2020 and 2021, as well as engaging with CIB on research bids led by Professor Hare, and embedding the UN Sustainable Development Goals into the working commissions' activities.

CIOB pledges £50k support for teaching room

Caroline Gumble opens teaching facilities at the University of Wolverhampton's School of Architecture and Built Environment

▲ Wolverhampton University's School of Architecture of Architecture and Built Environment

▼ The university's Springfield Campus occupies the site of a former brewery

CIOB has pledged £50k to sponsor teaching facilities at the University of Wolverhampton's School of Architecture and Built Environment.

The teaching room, opened recently by CEO Caroline Gumble and pro vice-chancellor Tim Steele, will offer facilities for students on built environment courses at the university's new construction super-campus.

The school, which opened in August 2020, won the Conservation and Regeneration Award at the Constructing Excellence Midlands Awards 2021 and the New Build Award at last year's Chartered Association of Building Engineers (CABE) Awards.

It is the latest addition to the university's £120m investment in a new construction excellence campus at the city's former Springfield Brewery regeneration site.

It offers specialist teaching and social learning spaces, design studios, specialist labs, multi-disciplinary workshops, lecture theatre, cafe, offices, meeting rooms, ICT rooms and a top-floor super studio with double-height ceilings.

CIOB has been collaborating with the university since 2017 when it introduced its first qualification in Building Control.

Gumble described the facilities as "a purpose-built education centre for tomorrow's construction professionals". She said: "CIOB has funded these spaces, including the state-of-the-art CIOB room along with a dedicated pod in the atrium, to provide visibility and accessibility to students and staff and home for our dedicated CIOB liaison manager."

She added: "We want to raise standards, promote professionalism and support new entrants into this important industry and, of course, grow our community and bring more people into chartership."

Steele said: "The partnership with the CIOB is valuable. We share many key priorities such as driving professional standards, innovation and strengthening the talents of those who are based in the industry."

CIOB also sponsored graduation prizes presented in July to students who have excelled in their studies.

One to watch

Jobert Pepito Fermilan MCIOB, associate director Capita – Real Estate & Infrastructure

Why did you choose a career in construction? What else might you have done?
I grew up in the Philippines and travelled with my parents around the world for the hope of a better life. During those travels, I built an affinity for buildings and skyscrapers – wondering how they were built, the meaning behind why they were built in this particular setting or environment, and the challenges they had to overcome to make it work.

I have always been competitive and played team sports. After representing Cumbria Rugby in my youth and trialling for Newcastle Falcons Rugby Academy at 11 I would have loved to play professional rugby.

You've become the Tomorrow's Leaders representative for Preston Hub. What are your plans in this role?
I intend on building on the success of the local hub and enhancing its strategic objectives by recruiting new members. I have exciting plans ahead.

What are your career ambitions?
I have aspirations of managing a business in our industry at the C-suite level in the next seven years. I have a personal desire to help others develop in their careers in many ways, such as mentoring, coaching and/or sponsoring.

What do you do in your spare time?
I have two young boys who keep me busy outside of my working hours. Otherwise, when I get a little bit of time, I run to keep mentally and physically strong. During Covid I ran ultra distances to challenge myself.

▼ Delivering data in a site-friendly format is essential to programme efficiency

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"Powerproject Vision has helped us to control our planning governance," explains Steven Tideswell, Vinci Construction UK's head of business excellence. "Working more collaboratively and without loss of data means we will be better protected against any future claims."

Book your free trial at elecosoft.com/products/powerproject.

Diary dates

Highlights of the CIOB Calendar for the coming month

CIOB site visit: Birmingham Health Innovation Campus
▶ 3 October, 5-6.30pm
Join the CIOB and Sisk to tour the Birmingham Health Innovation Campus (BHIC) site in Selly Oak and talk to the project team.

Targeting BREEAM Excellent, No 1 BHIC will incorporate design measures to reduce carbon emissions and help mitigate the effects of climate change, and protect the local environment.

A joint venture with the University of Birmingham, when completed the world-leading healthcare technologies campus will offer high-quality innovation facilities for businesses in medtech, precision medicine, diagnostics and digital healthcare.
Contact: gfloyd@ciob.org.uk

CIOB site visit: Becketwell phase one, Derby
▶ 11 October, 3-4.30pm
Take a behind-the-scenes look at phase one of the Becketwell scheme in Derby with GMI Construction.

The new-build residential block in Derby city centre contains 259 apartments over 11 storeys (a mixture of studios, one-bedroom and two-bedroom units), including all associated drainage, services and external works.

The project forms part of the comprehensive regeneration of the Becketwell area, which will include a mix of homes, workspace, hotel, retail and leisure uses, in addition to a new public square for the city.
Contact: gfloyd@ciob.org.uk

Site visit to Oak Tree School, Wokingham
▶ 13 October, 4-5.30pm
Oak Tree School is a new volumetric modular SEN School in Winnersh for 150 pupils. The collaborative project will provide a learning environment for learners with an education health and care plan (EHCP) for autism spectrum conditions and associated complex needs, from Year 1 to Year 13.
Contact: ecatalano@ciob.org.uk

Tomorrow's Leaders Maidstone Distillery tour and tasting evening
▶ 13 October, 6-8.30pm
The Maidstone Distillery, Maidstone
Join the Maidstone Hub Tomorrow's Leaders for this tour and tasting at the restored Maidstone Distillery.

The evening will start with an introduction to the history of distilling in Kent while enjoying a gin and tonic, followed by the tour, and will finish with a tutored tasting of the different gins produced.

There will then be an opportunity to network in the bar while enjoying canapes from Frederic's Bistro.

We would like to thank Kier, which has kindly sponsored this event.
Contact: blawrence@ciob.org.uk

Tomorrow's Leaders Cambridge launch event
▶ 17 October, 5-8pm, Peterborough
The Cambridge hub is pleased to be hosting an evening of networking and friendly competition at Glo Golf in Peterborough.

The evening will consist of networking, mini golf, food and drinks. It will provide a great opportunity for the local construction community to come together and meet other likeminded professionals and students.

You will have the opportunity to speak with your local CIOB team, as well as your Tomorrow's Leaders representatives, about how you can be more involved and make the most of your membership.
Contact: hhosking@ciob.org.uk

CIOB Graduation Ceremony
▶ 21 October, 9.30am-1pm and 2.30-6pm,
Clothworkers Hall, London
For the first time we are holding a graduation ceremony for adults only: please note, for the morning ceremony no children under 16 are invited to attend.

Come and celebrate with family and friends your achievement of gaining this internationally recognised accreditation. Chartered membership sets you apart as a true professional in your field and will enhance your career, help you win contracts, boost the professionalism of your organisation and raise standards around the world.
Contact: events@ciob.org.uk

Exeter Annual Quiz
▶ 2 November, 6.30-10pm
The Stand Off, Exeter
CIOB Tomorrow's Leaders Annual Charity Construction Quiz returns! Teams of four to six (or you can be teamed up on the night) will compete for a first prize of £60 or booby prize of 'wooden spoon'. There will be a business card draw.

Teams can enjoy food platters and a complimentary drink.
Contact: estreames@ciob.org.uk

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

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