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The Chartered Institute of Building

CONSTRUCTION MANAGEMENT

NOVEMBER/DECEMBER 2023
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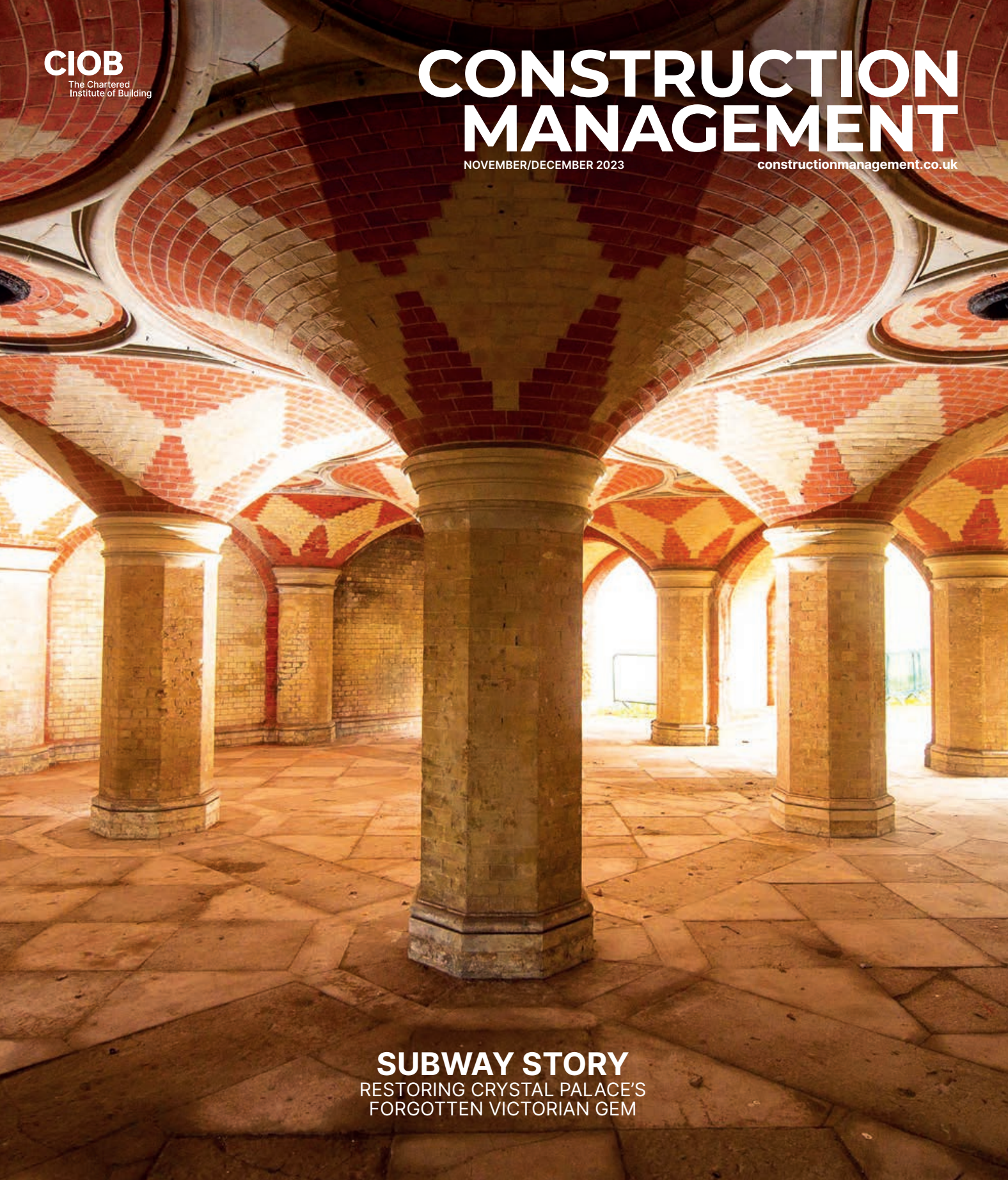


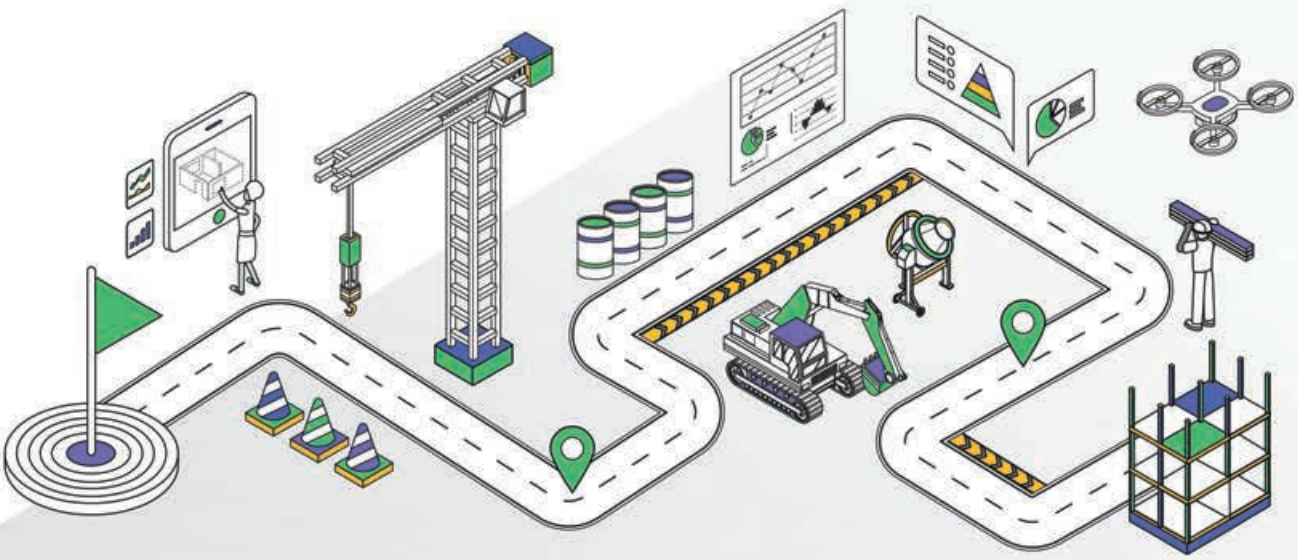
SUBWAY STORY

RESTORING CRYSTAL PALACE'S FORGOTTEN VICTORIAN GEM

HEATING OUR HOMES | FIT OUT AND BUILDING SAFETY | LIQUIDATED DAMAGES

CIOB

Mapping your digital transformation



Autodesk and the Chartered Institute of Building (CIOB) partnered to survey 65 companies from across the built environment to see how companies are embracing digital transformation.

The result? An in-depth insight report that enables you to benchmark yourself against your industry peers and plot your next steps on the road to digital maturity.

Read the report:
www.autode.sk/ciob-insight-report

AUTODESK

11/23

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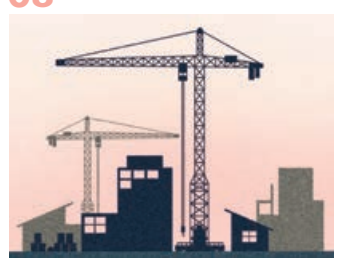

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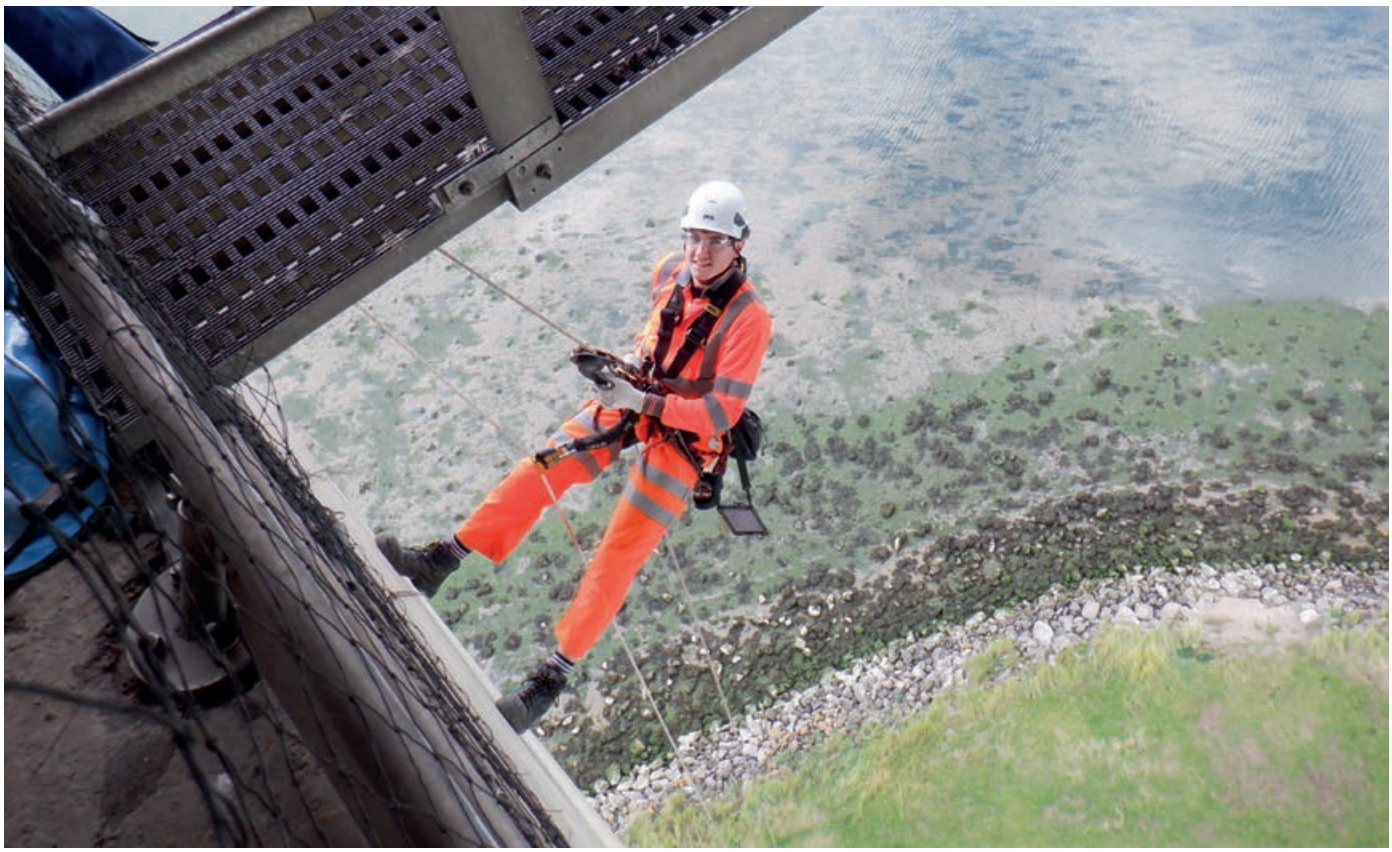

Milestone achieved at the 'super sewer'

Secondary lining has finished in the eastern section of the Thames 'super sewer' tunnel, bringing the Tideway project a step closer to its planned opening in the first half of 2025.

PATRICIA RAYNER ABIPP WWW.IMAGE2PHOTO.CO.UK

Vertical works at Orwell Bridge

UK specialist access company Up and Under abseiled the equivalent vertical distance of four miles at Ipswich's Orwell Bridge as part of an inspection project which took place across day and night shifts to complete inspection works.

Revamping of the Queen's Tower

Restoration works are underway at the Queen's Tower in the South Kensington Campus of Imperial College London. The tower is all that remains of the Imperial Institute, which was built to mark Queen Victoria's Golden Jubilee in 1887.

CIOB's CEO Caroline Gumble receives an honorary doctorate from the University of Wolverhampton (p48)

Construction of 1 Broadgate

View of the ongoing works at 1 Broadgate in the City of London. The development is one of the largest design and build schemes Sir Robert McAlpine has ever delivered in the capital.

A new bespoke home for a military band

The British Army Band Sandhurst performs for guests in their new building at Royal Military Academy Sandhurst after Willmott Dixon completed the structural phase of the facility, which will be able to house the 54 members of the band.

CIOB leads industry despair at HS2 scrapping

Questions over future of Euston terminus and role of National Infrastructure Commission

Prime minister Rishi Sunak's confirmation last month that the northern leg of HS2 would be scrapped prompted condemnation from across the built environment sector.

Eddie Tuttle, director of policy, external affairs and research at CIOB, said: "Long-term infrastructure projects, like HS2, employ large numbers of skilled workers and apprentices and go some way to securing a pipeline of consistent work for the construction sector.

"It is well recognised that the built environment industry works best when it has certainty in policymaking and investment, so we hope the HS2 funding is reinvested into similar projects which will support the upskilling of the construction workforce, particularly in the north of England, where such investment is so vital for the levelling up agenda."

Sunak pledged to "reinvest every penny" of the £36bn he said will be saved by cancelling phase two in "hundreds" of transport infrastructure projects in the north, the Midlands and the rest of the country.

The Institution of Civil Engineers' director of policy, Chris Richards, said: "The prime minister outlined several projects and schemes in his speech. Many of these projects aren't new, and many have been previously caught in this stop/start cycle of decision-making, which drives up costs. This is likely to happen again.

"Changing direction and switching projects delays businesses and communities from benefitting from infrastructure investment. These positive outcomes are how we should be measuring success, not just by lowest cost to deliver."

Sunak said the leg connecting London Euston to Birmingham would be finished "given how far along construction is". However, he added that the Euston project would continue under new management.

Mark Reynolds, group chair and CEO of Mace, which is building the HS2 Euston terminus with Dragados, said: "It is positive news for the country and the industry that the prime minister has committed to build the new station at Euston, working with the private sector to find a solution that works for everyone.

"His proposed Euston business and development zone may work, but the detail will be critical. We know there is a deliverable and cost-effective solution to Euston Station that can be built within the existing budget, allowing the station to open much earlier, enabling housing and placemaking to be offered sooner, and most importantly that delivers the best value to the taxpayer."

Interview: Rebecca Thompson, chair of CIOB's heritage panel

In CM's second interview with CIOB advisory panel chairs, St Paul's Cathedral's director of property talks about the heritage group

What's the role of CIOB's heritage panel?
We aim to understand the key policy issues for the heritage sector in the UK and, where possible, globally. Our first meeting was in September and the panel provided some excellent headlines for further discussion and possible research, including net carbon zero within heritage buildings, responsible retrofit, low carbon construction and removing VAT from repair and maintenance.

What are the net zero challenges in the heritage sector?
We need to understand how new buildings can use old techniques to adapt to climate change. The group talked about traditional building practices and how these can be utilised in modern methods of construction to enable natural cooling and ventilation, and how we can incorporate modern technology within historic buildings to enhance sustainability. The most sustainable building is one that already exists, therefore repairing or retrofitting should be looked at before demolition.

What work will you do on skills?
We will map the existing skills against future skills needed for the heritage sector. We also want to focus on the education route to construction, especially apprenticeships. We need to look at global heritage skills and enable movement of skills to support projects and address some of the barriers encountered at the moment.

SAFE WORKING AT HEIGHT WEEK 6-12 NOVEMBER 2023

‘It was hard to live with’

Ahead of Safe Working at Height Week, the daughter of a fall from height survivor shared with **CM** the impact the accident had on her life – and her campaign to improve workplace safety

Abbi Taylor was just three years old when her dad, Jason Anker, suffered a life-changing fall from height on a construction site in 1993. He was 24 years old.

“On the day of his accident, he chose to do something unsafe: he went up on an unsupported ladder, fell and broke his back,” said Taylor. “He was told he would spend the rest of his life in a wheelchair and wouldn’t be able to walk again.”

The accident had a profound and lasting impact on Anker’s life, both physically and psychologically. He became very depressed and turned to drugs and alcohol, a situation that escalated over the years and ended in Anker having a drug overdose that left him in a coma for 17 days. On day 15, the doctors asked the family to turn his life support machine off, but Anker’s dad refused. He woke up two days later.

“You didn’t think it could get worse than it was before but it was similar to having a stroke, so he had to learn to speak again.”

But Anker’s accident also had a profound effect on Taylor’s life.

“For me, it was hard to live with. As I got older, going to secondary school and wanting a social life with friends, dad’s moods from what he was dealing with internally escalated,” Taylor shared.

▲ Abbi Taylor: “Dad’s moods from what he was dealing with internally escalated”

On the day of his accident, he chose to do something unsafe: he went up on an unsupported ladder, fell and broke his back. He was told he would spend the rest of his life in a wheelchair
Abbi Taylor, Proud2bSafe

“And it was really hard to live with. He was still drinking too much and not dealing with what he was going through, basically.”

It wasn’t until Taylor turned 18 that Anker began giving safety talks that she started to understand fully what had happened to him and what he was going through: “That was a big learning curve.”

Today, Taylor is the managing director of Proud2bSafe, a company founded by her dad and which promotes health and safety at work. Their mission is to prevent avoidable accidents like the one that Anker suffered.

“For a long time, I held a lot of resentment towards his supervisor because on the day of his accident, my dad had been out: it was the night after New Year’s Eve. He had got home in the early hours and his supervisor had picked him up when he was still hungover.

“If he had said, ‘No, you’re not coming to work in that state’, we wouldn’t be in the situation we are in today. That’s why I think we all have a part to play in these moments that happen on site every single day.”

You can listen to Taylor’s full story in the 21st Century Construction podcast.
Safe Working at Height Week runs from 6-12 November 2023.

MCIOB shares experience of living and working with cancer

Nadine Buddoo talks to Jeannie Ambrose about battling long-term ill health while continuing in her construction career

> **Stage 4 patients who want to work... they want to be at work. We want to carry on as normal. We want to still have fulfilling lives and fulfilling careers. And there's a huge amount of skills that would be lost if you were to walk away from that person**
> Jeannie Ambrose MCIOB

New MCIOB graduate Jeannie Ambrose is championing the benefits of remaining in employment while tackling long-term ill health. Ambrose, who is living with metastatic (stage 4) breast cancer, has first-hand experience of how important a supportive employer can be following a diagnosis.

She previously worked as a building control surveyor for East Cambridgeshire District Council, before making the difficult decision to take medical retirement earlier this year.

"I was diagnosed in May 2019. I had just begun the CIOB Professional Development Programme (PDP)," explained Ambrose. "East Cambs District Council... along with CIOB, were both incredibly supportive and at no point did they ever treat me like a cancer patient. They treated me as somebody who wanted to continue with the role and who was enthusiastic about the role."

While working is not possible or preferable for everyone who is diagnosed with cancer, Ambrose believes it is crucial for employees to feel supported if they choose to continue their career.

"I think it's very easy when you hear the words 'stage 4 cancer' or 'incurable cancer' that you automatically visualise a cancer patient who's very, very ill and perhaps can't function very well," she said.

"Actually, many of us are functioning really well. Many of us are living longer than the three to five years. We have advances in medication all the time.

"I think it's just about making sure that you give your employee that flexibility so that [they] don't have the extra pressure and extra worry.

"Stage 4 patients who want to work... they want to be at work. We want to carry on as normal. We want to still have fulfilling lives and fulfilling careers. And there's a huge amount of skills that would be lost if you were to walk away from that person."

Ambrose added: "There are still things that person can bring to the table. We've suddenly got a whole different perspective on life.

"There's definitely still so much for an employer to gain from supporting a cancer patient of any stage."

To read the full story, visit www.ciobpeople.com.

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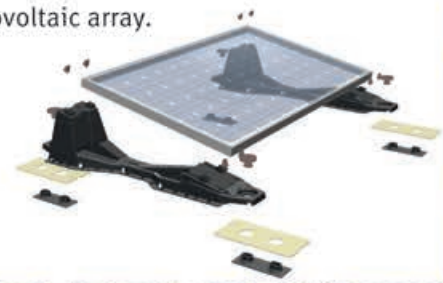

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Retail distribution centre, Peterborough
Contractor: F K Construction Ltd
Photo credit: Ivegate Ltd

Private investment in construction is strong, now we need government commitment

Although the construction sector has shown great resilience in recent years, it still needs clarity from government to plan ahead, writes **Pablo Cristi Worm**

The government's cautious approach to investment in infrastructure and construction projects in recent months has raised questions about the future strength of both public and private investment in the sector, particularly following the decision to cut the northern leg of HS2. However, looking back at construction's recent resilience in the face of economic disruption, it is important to consider the drivers that can help it weather current and future headwinds.

Since 2016, business investment and whole-economy investment (known as gross fixed capital formation: GFCF) have been relatively weak. Brexit, Covid-19, the energy crisis and increased post-tax capital costs all converged to create a difficult environment.

During the pandemic, both indicators declined sharply, registering respective decreases of 22.4% and 22.2%. By Q2 2023, both measures had recovered, marking modest increases of 4.8% and 6% from pre-pandemic levels.

It is perhaps a surprise, then, that in this period construction has been a remarkable success story. Across UK industrial sectors, construction has historically registered a relatively lower share of business investment. Over the past decade, it has typically accounted for an average of 5.4% of the total investment.

However, since the first quarter of 2019, private sector investment in construction has surged by an impressive 55%. Even in 2021, when investment in the sector cooled to 160% of Q2 2013 levels from a peak of 180%, this remained relatively high compared to other industries which fell back to or below their indexed Q2 2013 levels.

This was in part a result of the prolonged period of low interest rates encouraging borrowing to invest, as well as the temporary tax relief scheme during the pandemic, which allowed for a super-deduction on investments in new plant and machinery until its conclusion in March this year. The construction industry made the second most use of this scheme of all sectors, following only manufacturing.

Need for government certainty

Tax and interest rates are only part of the story, though. The success of the construction sector against a challenging economic landscape demonstrates resilience born from adaptability and innovation, such as during the pandemic, when construction was able to balance safety with productivity and keep

Percentage of construction businesses that used the super-deduction incentive between 1 April 2021 and 31 March 2023

23.6

The success of the construction sector against a challenging economic landscape demonstrates resilience born from adaptability and innovation

projects moving. Harnessing this strategic flexibility and creativity will serve the industry well as we enter another period of uncertainty.

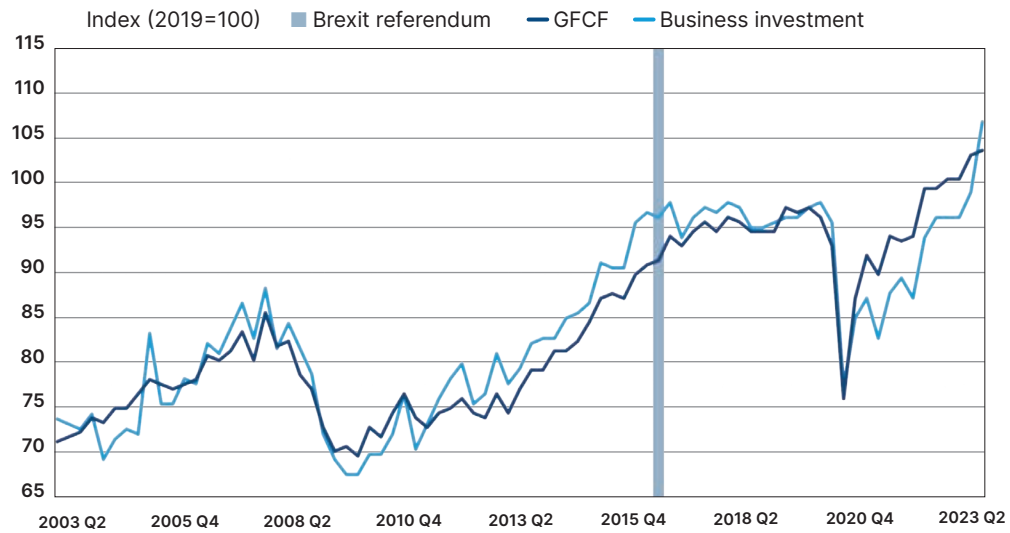
Following the axeing of the HS2 Manchester leg, the construction sector and wider development and infrastructure industries need clarity and consistency from government on the future pipeline.

The UK Infrastructure Bank's latest strategy update and the recent National Infrastructure Assessment from the National Infrastructure Commission both focus on the importance of public and private sector partnership to deliver social and economic infrastructure, in the context of vital net zero and 'levelling up' goals.

A holistic government strategy in these areas would be welcome, so the industry can plan and attract investment. Nevertheless, uncertainty must not paralyse action. Construction has shown its resilience in the past, and clients and programmes must draw on this same adaptation and forward thinking to ensure the sector can deliver.

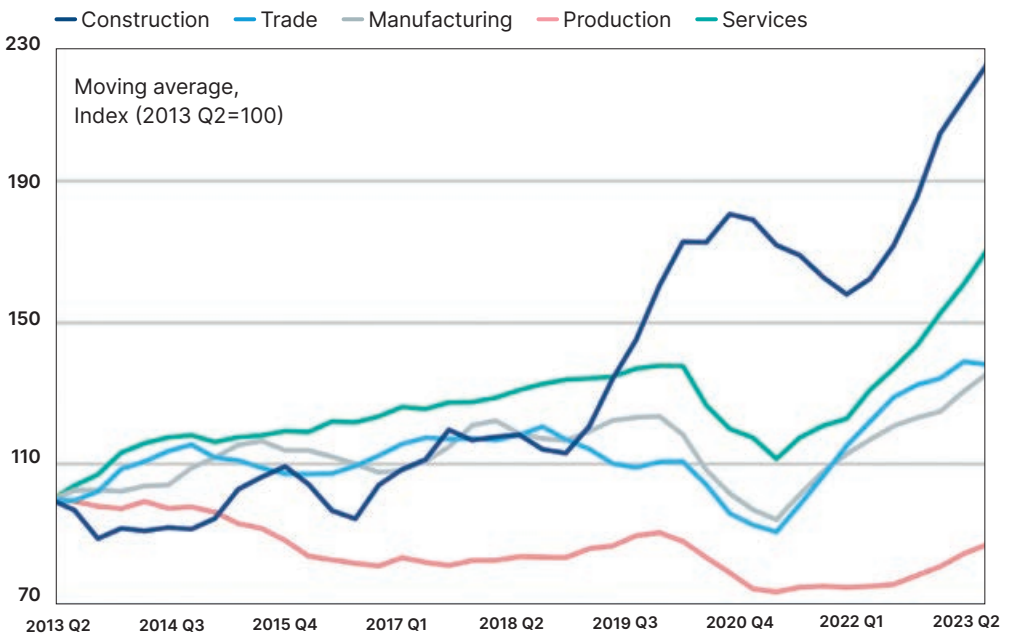
Pablo Cristi Worm is a senior economist at Turner & Townsend.

Gross fixed capital formation (GFCF) and business investment in the UK



SOURCE: OFFICE FOR NATIONAL STATISTICS

Investment by main industrial classifications, last 10 years, moving average and indexed to 2013 Q2=100



SOURCE: OFFICE FOR NATIONAL STATISTICS

Caroline Gumble
CIOB

See p51 for more detail on CIOB's social value report

Beyond bricks and mortar: how CIOB is giving back to society

Measuring CIOB's social value is an essential step to understanding the positive impact that the institute has on the communities it serves, writes **Caroline Gumble**

> **The principles of social value, which I've heard described as 'what we do beyond bricks and mortar', are now embedded in our corporate plan and the workstreams supporting it**

I started this year by sharing CIOB's first ever social value report. I am pleased that my last column this year shares further news on the same theme – and it is even more positive this time.

When I meet CIOB members, there is always a recognition that our industry is one of the few that has an impact on everyone, wherever they live or work, with conversations reflecting that built environment professionals understand that they can affect our communities and wider society.

As part of that, and in line with our public interest remit, CIOB made a commitment a couple of years ago to research our own social value and establish a 'baseline' for where we are as an organisation.

Our first social value report noted that for every £1 invested in CIOB services, £2.84 of social value is generated. However, our new report confirms that for every £1 invested, CIOB delivers just over £4 of social value.

The evaluation of the positive value we create as an organisation was conducted by corporate social responsibility consultancy Collins McHugh. Its examination included a broad range of our activities, covering our Tomorrow's Leaders and mentoring programmes, engagement with our global community of members through the regional hubs, the CIOB Academy and our CIOB Assist scheme.

Measuring our social value is important because it is integral to us as an organisation and the work we want to deliver. It is also, of course, significant for the whole industry and, increasingly, a requirement in much public sector procurement. I believe that we're one of only a few professional bodies to have mapped our social value and it is important that we see the positive impact organisations like ours can have on society.

The principles of social value, which I've heard described as 'what we do beyond bricks and mortar', are now embedded in our corporate plan and the workstreams supporting it. Our areas of focus – quality and safety, sustainability and tackling the skills gap – all reflect the positive changes our industry can help to deliver. With our overarching themes of collaboration and modern professionalism, we are also helping to take these conversations beyond our sector, out to clients, to potential recruits into the industry and to the communities we serve.

I am proud of our leadership on social value and I remain proud to be part of an organisation that is, demonstrably, doing good things.

CIOB's social value report can be accessed at ciob.me/socialvaluereport.
Caroline Gumble is CEO of CIOB.

Nicola Markall FCIOB
Sir Robert McAlpine

Moving on from the 'tick box' approach to quality control

The construction industry needs to change its mindset if it wants to provide the quality assurance it aspires to, writes **Nicola Markall FCIOB**

Quality control is in the spotlight. There is an increasing awareness in the industry and the public of the real-world consequences of bad practice, driven by recent high-profile and tragic incidents. For the sector, the Building Safety Act has brought the issue into greater focus.

Controlling quality to ensure we have assurance that buildings are built correctly is fundamental. As things stand, we risk a 'tick box' mentality becoming a replacement for effective checks.

Project teams conducting quality control checks should collate evidence backed up by traceable documentation and photographs. They should not merely answer the question 'Is it done?' but 'Is it done correctly and to the required standards, specifications and approved design?'

Beyond box-ticking

This evolution towards 'ticking boxes' has crept up on the industry incrementally. It's a shift that could be driven by several factors. Digital transformation has helped with quality control and problem solving. Yet quality control still requires a project team to spend a certain amount of time on site. In some cases, condensed construction periods and the shortage of people with the adequate skills, experience and technical capabilities could hinder this process, leading to a 'ticking boxes' approach that does not quite provide the quality assurance we aspire to.

> **At the heart of this issue is the need to build strong, competent and technically knowledgeable teams**

At the heart of this issue is the need to build strong, competent and technically knowledgeable teams. Each team member must contribute their respective field of expertise and work collaboratively on delivering a successful project across the board.

Creating teams like these requires careful planning, and it is here that the construction sector can learn from the nuclear sector. In nuclear, planning timelines are by necessity longer and teams are resourced not on 'who is available' but on 'who will best complement the other skills and competences in the team'.

A shift in mindset

Accepting that effective quality control requires investment of time and resources is a mindset shift. To achieve this shift, all stakeholders must understand the value of proper quality control – both in the 'here and now' – in terms of keeping every individual on every site safe – and for decades to come.

The consequences of failing to address this challenge are wide-ranging and serious: from having to rectify or rebuild elements of projects or even entire buildings with the associated costs, delay and impact on reputation, right up to injury or loss of life.

As an industry, we have an opportunity to re-evaluate how we approach quality control, and to make sure everyone involved appreciates the value of getting it right, and we should take it.

Nicola Markall FCIOB is technical compliance director at Sir Robert McAlpine.

Feedback

A selection of readers' comments about news and issues in the industry from across the CIOB community

▲ New Zealand-based Margaret Stefanitsis, aged 86, is preparing to start a PhD

CIOB People 27/09

Why age should not be a barrier to learning and employment

Richard Degg

I was 38 when I graduated with a BSc (Hons) in construction management and 42 before I was employed in a construction graduate role. I must have applied for over 50 graduate roles and attended half as many interviews but my age prevented me from gaining employment in a grad role. I even travelled over 100 miles for an interview where the hiring manager said "You're too old for this role" before we started the interview.

I only gained the position at 42 because the hiring company wanted a candidate with practical construction experience, which I had (six years as a plumber).

There is a lot of ageism in the construction industry which is hardly ever discussed. Older workers have a wealth of experience and knowledge and I think companies should support and if need be train older candidates.

The age thing hasn't deterred me. I've received an unconditional offer, which I have accepted, on an MSc Building Surveying at Nottingham Trent University in September 2024, when I will be 50 years old.

I just hope I don't suffer the same employment problems once I graduate in 2025.

Richard Thorpe

This is a very thoughtful article. At 70 years old with high energy levels and a raft of experience in construction, I am already feeling the barriers which come with age from within the business I work for.

Margaret Stefanitsis is a great role model at 86 years young. I am a strong believer that age should be a central part of every business inclusion strategy. However, my experience shows that it certainly is not at this time.

CIOB People 13/09

Building leaders who won't fear change

Sean Flynn MCIOB told CIOB People how the new School of the Built Environment at London Metropolitan University will provide the new generation of construction professionals with the necessary skills.

Dave Stitt FCIOB

The main skills shortage I see from my 47 years in the industry are: how to get the best from people, how to get on with people, how to build teams, how to create an environment where everyone can come to work and do their best work, how to create psychological safety, how to promote diversity of thought and how to include that thinking. I call these 'real skills' as in being real as human beings. We downplay them by calling them 'soft skills'.

As a leadership team coach, I see plenty of technical skills. The change that's needed is for leaders to let the people get on with the technical stuff and let them embrace being a human working with other humans. However, they find it difficult because that was never on the curriculum.

As MICE FCIOB with a civil engineering degree, I was never taught 'real' skills. I got up the greasy pole by force of will and determination to get the job built – my way. That may have worked back then (I'm not even sure it did) but not now. The world has changed, though I am not sure the industry has.

CM 31/08

RAAC questions answered

Rajdeep Chowdhury

RAAC is a great product. It gives a lot of benefits to the user throughout the life cycle and also for the developer as it will reduce the quantum of steel and concrete otherwise required in conventional reinforced concrete structures.

But it requires good maintenance and a proper screening layer to take care of any moisture ingression and the effect of any impact load.

In India, too, there are various multistoried structures done with RAAC floor panels.

Thomas Hewitt

Imagine if the Romans had erected buildings with a design life of 40 years. Of course their concrete was made of sterner stuff.

Anthony Pardoe

Most contracts specify a design life and in my experience this was generally 40 years. What have the owners of these buildings done to ensure that the structure is safe to use beyond its expected design life?

Share your views on the latest industry issues by posting comments online at www.construction management.co.uk or by emailing the editor at construction-management@atompublishing.co.uk

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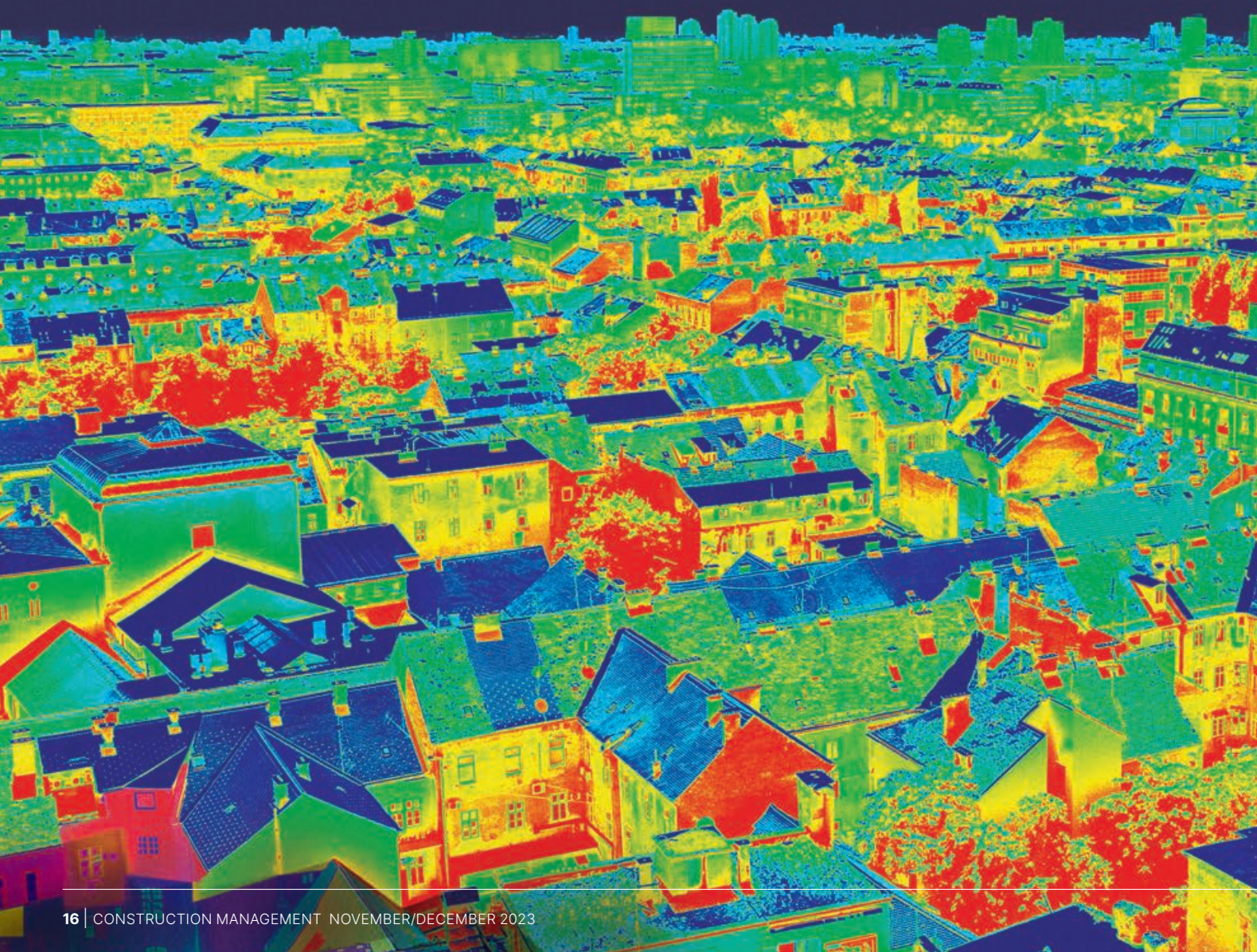
How do we heat our homes?

Fuel bills are still sky-high, another winter is looming and the government is going cold on net zero. **CM** asked four housing experts what they would change to make our homes more energy efficient



UK housing energy efficiency in numbers

38
Percentage of housing stock built before 1946 – the UK has the oldest housing in Europe

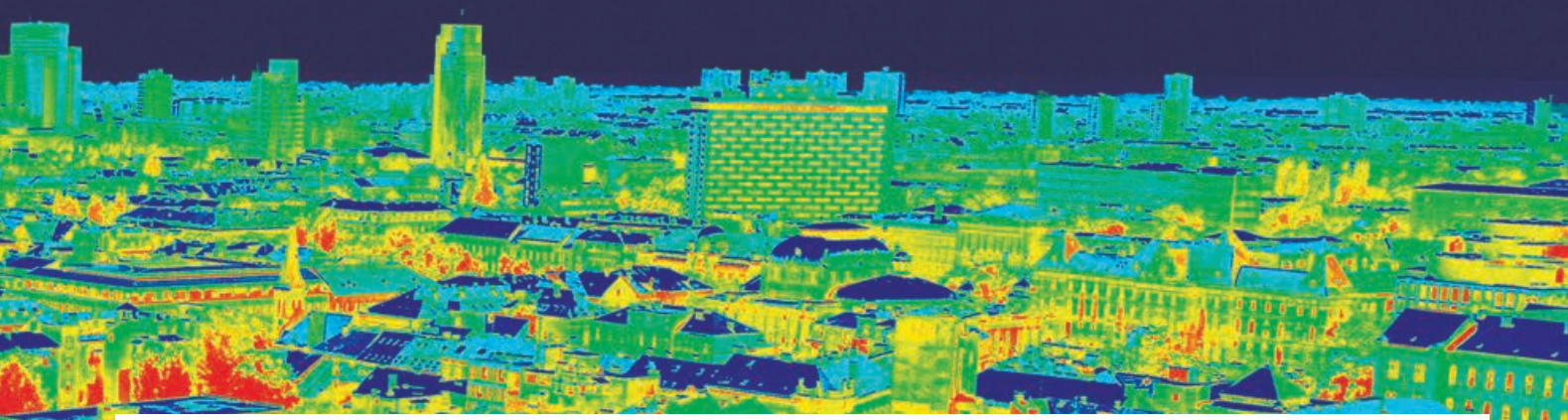
15
Percentage of UK energy use accounted for by housing

66
Million tonnes of direct CO_2 emissions from heating housing

83
Percentage of homes relying on gas for central heating and hot water

80
Percentage reduction in carbon emissions required by the Future Homes Standard (compared to current standards)

100
UK percentage target for carbon emissions reduction by 2050



‘Introduce a help to fix retrofit loan scheme’

David Parry, parliamentary and public affairs officer, CIOB

A recent government consultation asked for ideas on improving heating of residential properties – and CIOB is calling for a loan scheme to help with the costs of retrofitting homes.

“We and the wider industry have been calling for a national strategy for retrofitting for years now,” says David Parry, parliamentary and public affairs officer, CIOB.

“Previous government schemes, such as the Green Homes Grant and Boiler Upgrade Scheme, failed for several reasons, most notably that homeowners were required to part-fund energy efficiency work in a lump sum.”

CIOB’s proposed ‘help to fix’ interest-free loan would cover the full cost of home improvements, such as double glazing, insulation or installing new roofs.

CIOB says this loan would enable homeowners to bring down fuel bills by making their properties more energy efficient. It adds that it will be a necessary step if the government is serious about meeting its carbon reduction targets.

Parry says that a national strategy created with multiple future governments in mind will be necessary if the country wants to deliver results “at the pace and scale required”.

He adds: “A long-term initiative where homeowners can borrow the full cost of improvement works would incentivise a big upturn in demand, which in turn will help improve the energy efficiency and quality of the nation’s housing stock, while also cutting carbon emissions and accelerating the move to net zero.

> **A long-term initiative where homeowners can borrow the full cost of improvement works would incentivise a big upturn in demand**
> David Parry, CIOB

“Factored into a wider strategy, developed with industry experts, which considers the training of a skilled workforce, a help to fix scheme could go a long way to achieving the goals the government has set itself but is currently nowhere near meeting.”

The help to fix loan initiative is included in the institute’s response to the Energy Security and Net Zero Committee’s recent Heating our Homes inquiry.

‘We need to develop green building skills’

Eddie Hughes MCIOB, MP for Walsall North and former minister for housing

As parliamentary under-secretary of state for housing and rough sleeping in 2021 and 2022, Eddie Hughes worked on the Part L uplift which came into force last year.

“The government has introduced green initiatives like incentivising boiler replacement with heat pumps, and we’ve changed the regulations to shrink the size of UK housing’s carbon footprint,” he says. “With new-build homes, CO_2 emissions must now be around 30% lower than the previous standard – and 75%-80% lower with the Future Homes Standard in 2025.

“But what we do need to look at is delivery – and green skills. We’re moving into a new dimension where we need skills for installing technologies. We’ve set a target of 600,000 heat pump installations per year by 2028.

“We need to send out the message that these are great jobs for the future. And it is incumbent on the government to help stimulate the market, so that colleges and the industry can train the people we need.”

Hughes also sees up a ‘levelling-up’ angle with housing energy efficiency and associated skills.

“Number one, because we’ve seen such an increase in utility bill prices, it is now incredibly important that we make homes more efficient for lower income households,” he says. “Number two, when we talk about green jobs, can we, for example, manufacture more heat pumps in the UK, and provide financial inducements for those factories to be developed in areas of lower income greater need?”

Hughes, who has chaired the All-Party Parliamentary Group for Built Environment Excellence, stresses the need for high build quality. He advocates the quality benefits of offsite manufacturing, describing the TopHat modular factory in Derbyshire – which he visited recently – as “excellent”.

“Offsite isn’t the only answer to the housing crisis, but it’s part of the jigsaw, and it can help with both build quality and the skills shortage,” he adds.

> **We need to send out the message that these are great jobs for the future**
> Eddie Hughes, MP for Walsall North

‘Build quality is key with energy-efficient homes’

Richard Cook, group director of development, Clarion Housing

Clarion is the UK’s largest housing association – with some 120,000 homes that need retrofitting over the next 20 years – and it’s also a major developer, delivering 2,000 new homes every year, which Richard Cook leads.

“We have already made great strides with the Future Homes Standard (FHS),” he explains. “We have removed fossil fuels from all our new projects, and we are dealing with the thermal requirements in our ongoing schemes. At one project in Hertfordshire, we’re building seven new homes to the FHS and we will be undertaking post-occupancy modelling of the units to see how they perform.

“The big challenge with the new energy requirements is the quality of build. For example, with traditional brick and blockwork, we find bricklayers cut through the insulation with a trowel, and we end up with a gap where there’s no insulation.”

This is why Clarion is trialling what Cook calls a “system build” approach – a componentised approach which involves greater repeatability. “We’re exploring the benefits of different products and approaches – prefabricated cladding, precast panels faced with brick slips, bathroom pods,” he explains. “Architects can still design great homes, but they have to choose from selected components.

“We have three high-rise schemes using this approach in Birmingham, Manchester and Leeds: 2,000 apartments in total. It’s driven by digital design, it reduces cost and increases supply chain efficiencies – and it means higher quality.”

Cook says Clarion is “taking a leadership position” on FHS and moving faster than the legislation which he hopes will encourage the supply chain to get up to speed.

“If there is a market there, suppliers will respond to it,” he says. “We are already starting to see this: Bosch has installed a roof-mounted heat pump on a Bellway house (in their experimental eco house, The Future Home, at the University of Salford). That’s a fantastic innovation.”

Cook notes that the industry “has rightly taken a pasting over its quality standards” during the last few years.

“We have to get it right in areas like fabric quality and then new tech like heat pumps will require a CPD process,” he says. “But from a professional perspective, this is about good site management and supervision; it’s not a revolutionary change.”

> **From a professional perspective, this is about good site management and supervision**
> Richard Cook, Clarion Housing

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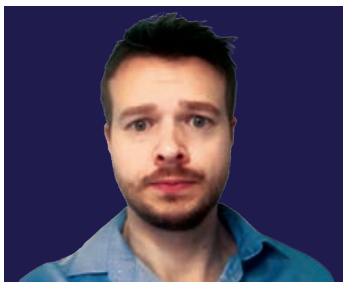
‘Residents must play their part with low carbon housing’

Tony Hopkin FCIOB, head of construction and quality, Midland Heart, and **Dr Mónica Mateo García,** senior lecturer, Birmingham City University Centre for Future Homes



The Future Homes Standard development in Handsworth constructed by Midland Heart

> **We wanted to learn more about the way we design homes, build them and maintain them, as well as find out more about the way people live in them**
> Tony Hopkin, Midland Heart

> **More needs to be done to help residents understand heat pumps, ventilation and building performance**
> Mónica Mateo García, BCU

Birmingham-based housing association Midland Heart pioneered one of the first Future Homes Standard (FHS) developments, led by head of construction Tony Hopkin (*CM,* April 2022).

Following completion of the 12-home Handsworth development in May 2022, the association carried out a year-long study with Birmingham City University (BCU) to see how the homes performed and how residents behaved. The research concludes that human lifestyles must adapt alongside the building technology to meet emissions targets.

Hopkin says: “We are very aware the FHS is a massive change and we wanted to learn more about the way we design homes, build them and maintain them, as well as find out more about the way people live in them.”

The improvements were achieved by increasing insulation, improving window specification, increasing the levels of airtightness, employing enhanced ventilation techniques and installing heat pumps and photovoltaic systems to help negate rising energy costs.

“The overall cost of what we delivered was approximately 15% more when compared to the same house types constructed to 2013 building regulations due to being an early adopter,” says Hopkin.

The report shows that the mix of two-, three- and four-bedroom homes can operate with a 70% reduction in carbon emissions when compared to similar houses with gas heating – but this requires occupants to understand how their houses work for full efficiency.

The research found occupants were happy with their new homes and with the thermal comfort, although some admitted it took time to adapt to the technology.

Dr Mónica Mateo García, from BCU’s Centre for Future Homes, says: “A key lesson learned is how their lifestyles put pressure on the environmental conditions in the houses and often resulted in high energy use.

“Occupant lifestyle is a key factor in achieving FHS targets and more needs to be done to help residents understand heat pumps, ventilation and building performance as well as how their usage can optimise efficiency.

“It’s encouraging to see that heat pumps provide very comfortable conditions even in very cold periods. It’s also reassuring that the calculations show the house designs are working to their design performance targets.”

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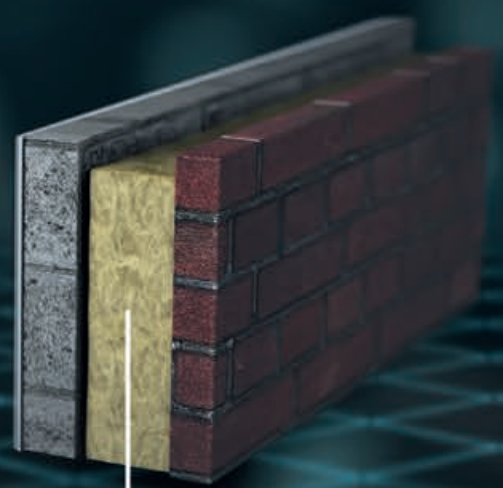

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The Crystal Palace Subway opened in 1865

Subway story

A grand Victorian underpass that once connected the Crystal Palace with a neighbouring station is being restored to its former glory. **Will Mann** reports from south London

The Crystal Palace Subway is one of London's hidden – and largely forgotten – subterranean treasures.

It was built in 1865 to give rail passengers alighting at the new High Level station a shortcut to the Crystal Palace, reassembled following the 1851 Great Exhibition in Hyde Park at a site on Sydenham Hill in south London.

The subway is a lavish legacy of the High Victorian architectural period. Designed and constructed by Italian cathedral specialists, its vaulted roof is supported by octagonal pillars faced with cream and terracotta bricks and tiling, which fan outwards as they climb to the ceiling.

Unfortunately, it was never as popular as was hoped. Public interest in the Crystal Palace dropped away in the late 19th century. It was destroyed by fire in 1936, and passenger numbers declined on the branch line serving the High Level station, which closed in 1954. The station – a cavernous structure with high brick-faced facades and four square towers at each corner of the entrance building – was demolished and redeveloped as housing.

But the subway survived. It lay derelict for half a century, until a group of local enthusiasts called the Friends of Crystal Palace Subway (FCPS) formed in 2013. They began exploring renovation options. In 2019, a £2.34m grant was secured from the City of London and £639,000 from Historic England, with FCPS chipping in £5,000.

In 2020, Thomas Ford & Partners was appointed as lead architect for the renovation and design of a new roof over the courtyard at the eastern end of the Grade II*-listed subway, with a view to turning this space into an events venue. Their work started with a detailed asset condition survey. In January 2022, Bromley council gave planning permission for the scheme and in February appointed heritage contractor DBR for the project.

The scope of DBR's work includes repair of the Victorian subway station area, including cleaning of ▶

brickwork and rebuilding existing walls, construction of new parapet walls and the new roof structure over the courtyard.

When *CM* visits, the project is about three-quarters of the way to completion. The DBR site is accessed from the busy A212 – Crystal Palace Parade – on the western edge of the park. The old High Level station was on the other side of the road.

We are welcomed by DBR's Talia Weiss, a trained conservator who also takes charge of the contractor's marketing.

"Today is the 169th anniversary of Queen Victoria opening the Crystal Palace," she tells us. "You've arrived via the same route as second- and third-class passengers, who had to go the long way round and cross the road to reach the Crystal Palace. First class passengers came through the subway."

Although significant amounts of the stone and brickwork needed replacement, DBR has tried to retain as many of the original materials as possible, explains James Tarrant-Fisher, DBR's project manager for the Crystal Palace Subway.

"That's the ethos of any heritage or conservation project," he says. "It's also a sustainable approach.

"Where we've had to replace bricks, these are mostly reclaimed from brickyards, and we've tried to replicate the original materials to ensure what we're using is sympathetic to the original design.

"The FCPS have done an incredible job at collecting archive materials for the site to help us with the restoration."

Before Thomas Ford's asset condition survey, the site was overgrown and had to be cleared of vegetation.

Where we've had to replace bricks, these are mostly reclaimed from brickyards, and we've tried to replicate the original materials to ensure what we're using is sympathetic to the design
James Tarrant-Fisher, DBR

Crystal Palace Subway restoration

Value: £3.2m

Programme: February 2022 to October 2023 (estimated)

Main contractor: DBR

Architect: Thomas Ford

Client team: Bromley Council; Historic England; Friends of Crystal Palace Subway

Civil engineer: CTP

Structural engineer: Morton

QS: IKS

▲ Cleaning the existing brickwork. Note the line of the original roof

▶ Aerial view of the Crystal Palace Subway site, early in 2023, prior to construction of the new courtyard roof. The radial 'crystal shards' pattern in the old station courtyard (on the west side of the road) will be replicated in the new courtyard to the east

DBR

2.34

In 2019, a £2.34m grant was secured from the City of London and £639,000 from Historic England, with FCPS chipping in £5,000

Second- and third-class passengers had to go the long way round and cross the road to reach the Crystal Palace. First-class passengers came through the subway
Talia Weiss, DBR

The subway's south staircase was almost completely buried – likely filled in shortly after World War II – and this was uncovered by excavations. The staircase's lower section had suffered severe structural movement. Plant growth and ground pressures caused the west wall to almost completely collapse, and trees had taken root in the masonry. A reinforced concrete retaining wall, about a metre thick, has been constructed and ground anchors installed to retain the soil pressures.

Much of the lower south staircase had been removed, which Tarrant-Fisher describes as "puzzling" given each course of stone weighed 600kg. The stone that remained in situ was salvaged and used on other parts of the project, in line with conservation best practice. Sections of the vaulted subway were used as a salvage area for all the reclaimed stone.

"We had to completely replace the lower south staircase and the brickwork is being reconstructed with reclaimed bricks bedded in lime mortar," Tarrant-Fisher says. "These materials and techniques closely replicate the Victorian construction process."

In contrast to the south, the north staircase lower section was largely intact. However, the stair treads suffered from poor quality cementitious repair and the walls of the upper flights had been badly damaged by exposure to the weather.

"We have used some individual steps and landing stones salvaged from the south lower staircase to repair the north lower staircase," says Tarrant-Fisher. "The largest landing stone exceeds one tonne in weight, a size no longer quarried, so conservation was essential."

The north upper staircase was damaged beyond repair, so replacement was the only option, with the damaged brick walls reconstructed.

From the staircase, we enter the courtyard. The original roof was dual-pitched, and the central gutter was supported by two columns that fetched off the courtyard floor.

However, architect Thomas Ford has opted for a different design for the new roof, which will be a simpler, pitched structure, made from steel and timber with a zinc covering.

"This avoids the difficulty of maintaining and draining a hidden valley gutter and removes the need for central columns, creating a clearer and more usable space in the courtyard," says Weiss. "The roof will be glazed to allow natural lighting."

Although none of the original roof structure survives, excavation works have uncovered the original drainage routes, which were hidden in the courtyard walls. The rainwater outlets for the new roof will run on the surface of the courtyard walls and will be connected to the original Victorian drain runs that still exists below the courtyard. ▶

▼ The roof design for the new courtyard, with the radial pattern of 'crystal shards' in the floor

FCPS

DBR

▲ The courtyard paving stones were lifted and stored in the subway during the conservation work

"The courtyard paving is being repaired and reinstated where necessary, using the original layout and paving patterns," says Tarrant-Fisher. "It was only once we excavated the area that we found the original paving was partly intact, so we will be relaying this pattern to keep the continuity. We lifted the courtyard paving stones and stored them in the subway, and as many as possible will be reinstated in their original locations."

The courtyard floor will feature an elaborate radial pattern of 'crystal shards', which is also visible in the paving on the other side of the A212, where passengers arrived at the high-level station.

From undertaking surveys of the underground drainage, we noticed that there were laterals aligned with each column. Further investigation proved that each fan vault acts as a scupper draining the road above
James Tarrant-Fisher, DBR

Next, we enter the spectacular fan-vaulted subway, which runs under the busy Crystal Palace Parade to the site of the old high-level station. "The octagonal structural columns show little evidence of any structural movement despite four lanes of traffic running overhead," notes Tarrant-Fisher.

"The fan vaults serve both an aesthetical and functional purpose. The aesthetical element is there for all to see. What is unseen is the drainage system that the vaults encase. From undertaking surveys of the underground drainage, we noticed that there were laterals aligned with each column. Further investigation proved that each fan vault acts as a scupper draining the road above. This collects into vertical rainwater goods, connecting the scupper to the below ground drain."

The entrance to the park from the subway was through huge oak sliding doors, each weighing 500kg. Remnants of the doors' structure, runners and tracks were found when Thomas Ford surveyed the site and DBR is relying on these clues plus archive photos and drawings to work out how the doors should be remade.

"These doors were slid across from apertures built into the brick walls, which are still intact," explains Tarrant-Fisher. "The design of the runner system itself is very complicated, because the doors have to slide past each other. We are trying to replicate the original system as best we can. But it has been complicated by structural movement which means we've had to reduce the size of the sliding mechanism.

"The doors will be constructed in DBR's timber workshop as two leaves. These will be hung separately and jointed in situ. The doors will be hung via mechanical means; they are too large to be lifted manually into position."

DBR's project team on the subway – which peaked at 30 – will complete their work this autumn. The trains may have long departed, but this grand vestige of Victoriana will soon be open to the public once again.

CPD at CP

"DBR works hard to foster traditional craft skills on all our heritage projects, and we try to have as many apprentices on our projects as possible," explains Talia Weiss.

"It was in the terms of our contract that we should employ apprentices on the Crystal Palace Subway, and we have two here: one bricklayer and one stonemason.

"We've also done a couple of CPD events at the site and we're doing some school visits as well.

"It's important we encourage the younger generation to take an interest in conservation projects such as this, so we can ensure heritage skills are not lost to the industry."

BCSA

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Image courtesy of William Hare Limited

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Dealing with combustible cladding down under

Flammable facades are not just a feature of UK buildings. **Rod Sweet** reports from Sydney on Australia's approach to cladding remediation

The Australian state of New South Wales (NSW) is attracting international attention for its approach to replacing flammable cladding on multi-unit residential buildings.

Launched in March 2021 after the state passed the Design and Building Practitioners Act 2020 the year before, Project Remediate targets 225 buildings deemed at risk, predominantly in Sydney and its greater metropolitan area.

It follows two cladding fires in Australia: the 2014 fire at Lacrosse Tower in Melbourne and the Neo 200 tower fire in 2019, also in Melbourne. In each case the cladding was ignited by a burning cigarette left on a balcony. Looming over these two fires, in which, thankfully, no lives were lost, was London's Grenfell Tower catastrophe in 2017, which claimed 72 lives and injured more than 70.

Set to last three years, Project Remediate is a voluntary scheme that offers apartment owners corporations interest-free loans with 10-year payback periods to replace their cladding. Owners don't have to engage with it but by law they do have to replace their cladding, so the choice is to use the scheme or go directly to the contracting market.

To entice owners, the scheme offers the interest-free finance, plus comprehensive inspections, detailed design and the preparation of the tender to attract contractors'

Project Remediate is targeting 225 buildings deemed at risk, predominantly in Sydney

225

We provide the owners, who are in this situation through none of their own doing, with the assurance and assistance to go through the remediation process

Tanya OBrien, Project Remediate

bids. Additionally, each project is overseen by a managing contractor, Hansen Yuncken, a facade consultant, ACOR Consultants, and a quality assurance team.

They work to the 'Pattern Book' developed for the scheme – a continuously updated document that details the preferred remediation design approaches, a schedule of the typical building components that will need to be validated and a schedule of inclusions for the remediation assurance certificates. The result is a fixed-price contract leading to a fully certified and insurable facade, plus other non-cladding repairs the owners want to address while the scaffolding is in place.

Under the programme, removed cladding is recycled into aluminium ingots and reusable plastic.

"The philosophy is that we provide the owners, who are in this situation through none of their own doing, with the assurance and assistance to go through the remediation process," says Tanya OBrien, director of Project Remediate at NSW Department of Customer Service.

"These are mums and dads, not building experts, and they never expected to have to deal with something like this. We provide them with the support and recommendations to make the best choice."

As of 22 September this year, owners of 101 buildings had engaged with the programme. Of those, 10 were in the site investigation phase, 14 were in the 0-30% design phase, 61 were at the 100% design phase (moving to contract signing), 10 had contracts signed and were in works preparation, four were in the construction phase and two had been completed.

OBrien sympathises with the slim majority of owners who have yet to engage. They are deemed 'inactive', and represent owners corporations that haven't responded, have requested more time, are pursuing legal action or have gone private.

"It's tough because people are having to invest their own money to fix a problem they didn't anticipate," she says. "There's a lot of blame flying around, like 'The government shouldn't have let this material be in the market in the first place'. But we have to say, look, this is the best deal on offer."

She warns that going to the market can end up costing owners more because contractors might be less familiar with the flammable cladding issues, and preliminary assessment and design can be less thorough. When that happens, unexpected issues lead to contract variations after work starts, pushing the price of the work up. She gave one example of a $1m (£520,000) design-and-construct contract for a building in North Sydney ending up costing $2m (£1.04m).

"In that scenario, as an owner you're sitting there with a building that's half pulled apart," OBrien said. "What are you going to do? You've got to sharpen your pencil with a contractor who's got scaffolding halfway round your building."

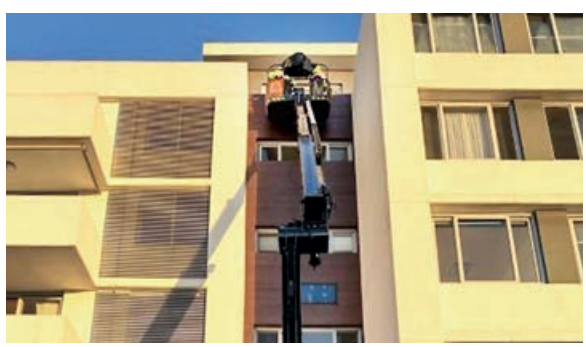
She also warns that owners corporations shouldn't put off engaging for much longer.

"If some small buildings come in at the last minute, we'll definitely have bandwidth to get them done within the programme window. But if it's a 40-storey tower with 5,000 sq m of cladding to deal with, we're going to have a problem, especially given how stretched the industry is in New South Wales.

"So if by the end of the year you're not registered and we're not working with you, it will be too late and you'll have to go private and solve the problem yourself."

◀ New South Wales is targeting buildings at risk of cladding fire

▼ Recladding works using elevated work platform access



PROJECT REMEDIATE

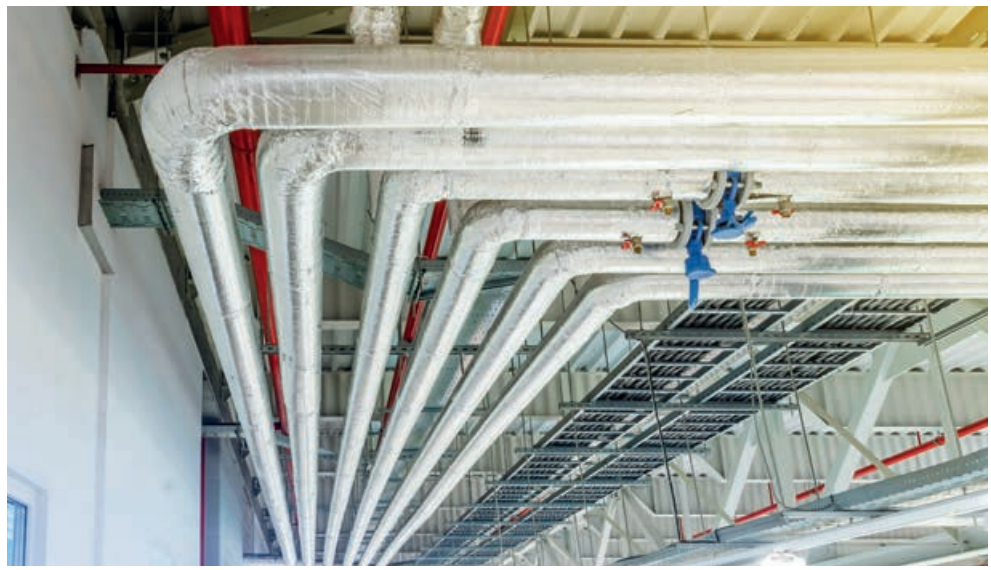
Global impact

Commenting on the NSW scheme, Eddie Tuttle, CIOB's director of policy, external affairs and research, says: "Importantly Project Remediate acknowledges that the construction industry has a global footprint and impact.

"We must ensure that programmes dictating the quality of buildings are aligned to global industry best practice and that is very much to the fore of the work in NSW."

Thermal insulating materials for pipes

This CPD, in association with Rockwool, examines the British Standard that sets out how to establish and specify minimum thermal insulation requirements for pipework and other equipment



◀ Suitable HVAC and building services insulation solutions are used in structures of all shapes and sizes

▶ BS 5422 offers guidance for specifying thermal insulation on piping

BS 5422 provides a method for specifying thermal insulating materials needed on pipes, tanks, vessels, ductwork and equipment for certain defined applications and conditions within the temperature range -40°C to +700°C in domestic, non-domestic and commercial buildings.

As part of this, the standard specifies requirements for the insulating materials. It is meant to work as guidance for designers, specifiers, contractors and manufacturers of thermal insulation in the building services sector, supporting Approved Document L as the reference point to determine the minimum thickness of insulation required to limit heat losses and gains from building services.

The applications covered by BS 5422 include:

- conservation of energy, for both cooled and heated systems;
- slow freezing of contents;
- control of condensation on cold surfaces;
- protection of personnel from exposure to extremes of surface temperature;
- control of process or service temperatures; and
- limiting effects of system on indoor building temperature.

BS 5422:2023 took effect from 30 June 2023, at which point the 2009 version was withdrawn. Regulatory guidance refers to BS 5422 dynamically; as such BS 5422:2023 will apply to new projects, including those for which planning permission has been achieved. However, where tender documentation had already been issued to potential installers, or a contract awarded, BS 5422:2009 would continue to apply.

BS 5422:2023, the first update since 2009, introduces a number of important practical changes and additions

2023 update overview

While BS 5422:2023, the first update since 2009, requires the same base level performances as the previous version, it introduces a number of important practical changes and additions:

- Thermal performance data relating to materials that are rare or no longer supplied has been removed, instead focusing on the most commonly used insulation materials at the time of revision.
- Pipe diameters are now referenced to as 'less than or equal to', leading to the removal of two tables specific to copper pipes.
- Legacy 'National Class' reaction-to-fire ratings have been replaced by Euroclass ratings, in line with current building regulations. According to the British Standards Institution, Euroclass Reaction to Fire gives a more comprehensive and clear definition of the behaviour of materials exposed to fire than the more limited legacy BS 476.

The more stringent Energy Technology List/Capital Allowance/NES Y-50 targets have been adopted as an optional 'enhanced performance' set of B-series tables, which for the first time provides guidance to specifiers who would like to exceed the standard performance.

District heating tables for secondary systems have been added as Tables 19C and 20C. Plastic pipes (single wall) are now treated as having no insulative value of their own.

In the case of energy conservation, BS 5422:2023 seeks to strike a balance between economic considerations and CO_2 savings. Applying an enhanced level performance standard to a building project can bring considerable long-term advantages for the building ▶

DEUTSCHE ROCKWOOL

▲ Stone wool insulation has a thermal performance that does not change with time

owners and operators, mostly reflected in lower operating costs and lower heat loss. The reduction in energy needed to run the building also has environmental benefits.

Specifiers and designers have to consider a number of factors when planning the insulation for building services systems according to BS 5422:2023.

Thermal performance

● **Thermal conductivity**

Also referred to as a k-value, or lambda (λ), the thermal conductivity of a material is a number that describes how readily it transmits heat. Values are expressed in watts per metre per kelvin (W/mK), and as such are independent of thickness.

Lower thermal conductivity values indicate a better, more efficient thermal performance. The thermal conductivity of insulation increases with temperature, meaning higher service temperatures require thicker insulation to achieve a given thermal resistance.

Thermal conductivity values in the new BS 5422 are based on the most commonly used insulation materials at present. Note that the thermal performance of some insulation materials deteriorates over time. As such, an aged thermal performance is declared, which typically takes the form of a 'time averaged' lambda value over 25 years.

Other materials, such as stone wool, have a thermal performance that does not change with time, according to recent testing at the Danish Technological Institute. This is important for specifiers and installers to keep in mind when deciding which material to use, based on the expected lifespan of the building services or HVAC installation.

● **Thermal bridging**

An important part of any building services system that is often overlooked when it comes to insulation calculation is the pipe supports and fixtures. Here thermal bridging can become a problem.

The standard states that load-bearing insulation should be used between the pipes and any support or fittings to avoid a gap in the insulation caused by compression of the material. Other structural elements, for example, stiffening rings, should be insulated externally to stop thermal bridging.

Any material used in the construction and insulation of building services and HVAC systems could have an impact on the potential fire spread and fire load in the building

Traditional pipe supports have often included wooden blocks to prevent the insulation from being damaged and creating a thermal bridge. While successfully supporting the pipes and protecting the insulation, wooden supports can present a fire risk and provide minimal thermal benefit. More recently, pipe supports made from non-combustible material have been introduced, therefore safeguarding that the fire classification of the system will not be reduced.

● **Service temperature**

BS 5422:2023 covers applications ranging from -40°C to +700°C. It is imperative that the service temperature rating of the chosen insulation product conforms with its intended application. This information should be readily available on the product's Declaration of Performance.

● **Surface emissivity**

Surface emissivity is the ratio of the energy radiated from a material's surface to that of a perfect black body emitter. It is a dimensionless number ranging from 0 (perfect reflector) to 1 (perfect emitter).

The emissivity of a surface depends not only on the material but

BS 5422:2023 covers applications within a temperature range up to 700°C in domestic, non-domestic and commercial buildings

700

also on the nature of the surface. A clean and polished metal surface will have a lower emissivity, whereas a rough and oxidised metal surface will have a higher emissivity. When aiming to limit heat transfer to a fixed value, or achieve a given surface temperature, emissivity impacts the required thickness of insulation.

Fire performance

Building services and HVAC systems are found on all levels in most buildings. Any material used in the construction and insulation of building services and HVAC systems could have an impact on the potential fire spread and fire load in the building. Therefore, it needs to be carefully considered at the design stage.

● **Reaction to fire**

The reaction to fire of insulation products is classified through BS EN 13501-1 (Euroclass), which considers results from the following tests:

- ignitability;
- rate of flame spread across the surface;
- amount of heat released during combustion;
- rate and level of smoke release; and
- character changes, such as release of flaming droplets.

Products are assigned a rating from A1 (best) to F (worst), with products achieving A1 and A2-s1,d0 typically defined as non-combustible. With the exception of A1, ratings are appended with 's' and 'd' to respectively indicate emitted levels of smoke and flaming droplets.

▲ BS 5422:2023 applies to new projects from 30 June 2023 including those for which planning permission has been achieved

● **Smoke and toxic gases**

According to Home Office statistics, 'gas or smoke' was listed as the cause of just over half of all fire fatalities in the UK between 2019 and 2022. Smoke consists of particles, vapours and toxic gases, all of which can be harmful to human health. In addition, smoke impairs vision, making it more difficult for occupants and rescue services to navigate a building.

Stone wool insulation has a Euroclass reaction-to-fire rating of A1 or A2-s1,d0 – meaning it is non-combustible and as such will not contribute to any significant toxic smoke. ▶

Case study: Minerva Primary Academy, Bristol

Thermal, noise-reducing and non-combustible insulation solutions were specified for a two-storey school extension project

The Minerva Primary Academy in Bristol undertook a two-storey extension project to increase its capacity from 300 to 420 pupils. The £7.5m facility also includes a multi-use hall, additional classrooms and learning spaces, as well as offices and additional staff areas.

Rockwool DuoDuct slab and Ductwrap were specified as thermal, noise reducing and non-combustible insulation solutions for the building's ventilation system in line with the requirements of Building Bulletin 101 (BB101) *Guidelines on Ventilation, Thermal Comfort and Indoor Air Quality in Schools* and Building Bulletin 93 (BB93) *Acoustic Design of Schools*.

The Minerva Primary Academy's ventilation system incorporates an extensive ductwork system featuring both internal circular and external rectangular sections.

To ensure optimum performance for the system, external ductwork sections require effective insulation to protect them from changes in the ambient temperature.

The acoustically absorbent and A1 non-combustible qualities of Rockwool DuoDuct slab and Ductwrap ensured that all the relevant project requirements were achieved.

Applied correctly, the updated standard will make building services and HVAC installation safer, more efficient and more sustainable

Compartmentation

It must be ensured that the fire resistance of compartment walls and floors is not compromised when penetrated by building services and HVAC systems. Insulation systems on pipework or ductwork traversing a fire-resisting division shall maintain the level of fire resistance of the wall, floor or cavity barrier through which they pass.

With BS 5422:2023 the insulation requirements for building services and HVAC systems have been aligned closely with building regulations. The tables and guidance make it easier to choose the best and safest material for each project. Applied correctly, the updated standard will make building services and HVAC installation safer, more efficient and more sustainable.

Rockwool DuoDuct and Ductwrap

Rockwool DuoDuct is a non-combustible stone wool slab which provides thermal insulation to external ducts carrying warm air, chilled air or dual-purpose duct systems. The insulation is designed for use with rectangular external ducts and is made using Rockwool Dual Density technology. This consists of a heavier density outer and a lower density inner layer.

The high-density outer layer offers greater impact resistance over a single-density stone wool product. This makes it ideal for areas where the duct may be susceptible to damage in confined spaces, high-traffic areas and external spaces, (see case study, left).

Rockwool Ductwrap is a lightweight and flexible thermal insulation roll faced with reinforced aluminium foil used as a solution to insulate internal ductwork. Like DuoDuct, it is acoustically absorbent and A1 non-combustible.

Further information about BS 5422 can be found at: knowledge.bsigroup.com.

CPD Questions

1) What is the temperature range covered in BS 5422?
a) -40°C to +700°C
b) 0°C to +500°C
c) -100°C to +250°C
d) -25°C to +1,000°C

2) Thermal performance data relating to which materials has been removed in the 2023 update?
a) PVC
b) Copper
c) No longer supplied and rare materials
d) Materials sold before 2023

3) BS 5422 applies to which projects?
a) Only non-domestic and commercial buildings
b) Domestic, non-domestic and commercial buildings
c) Only high-rise buildings
d) Only domestic buildings

4) Which Euroclass ratings indicate a non-combustible material?
a) A1 and A2-s1,d0
b) C and F
c) D and E
d) B and F

5) Which building regulation is BS 5422 designed to support?
a) Approved Document B
b) Approved Document E
c) Approved Document H
d) Approved Document L

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

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How fit out is tackling fire safety

Trade body the FIS has published new guidance to help interiors specialists get to grips with the Building Safety Act. **Will Mann** finds out more from CEO Iain McIlwee

All corners of construction are grappling with the Building Safety Act, but fit-out firms now have some helpful guidance thanks to trade body FIS (Finishes and Interiors Sector).

CEO Iain McIlwee and technical director Joe Cilia published three guides last month, to coincide with the legislation coming into force: an overview of the act itself; another on competency management plans; and a golden thread explainer.

"We've referenced the information that's out there – such as the CIOB/RIBA guide to managing safety critical components – and tried to boil it down to the simple stuff our sector needs to know," McIlwee says.

Building Safety Act guide

"Our Building Safety Act guide explains issues such as what buildings are 'higher risk', what project changes are notifiable to the Building Safety Regulator (BSR), what are the roles of the dutyholders."

However, McIlwee is concerned that many in the industry are not yet aware of the changes the new building safety regime heralds.

"The interior system is a fundamental part of the build, but to get it right, you have to make early decisions," he says. "People don't do that. There are changes made late in a project, which now have wider implications because of the new gateway approval process [for higher-risk buildings].

▲ Changes to wall designs during construction are notifiable under the new gateway system for higher-risk buildings

"For example, what you might have considered a small change, like a wall opening for any pipe, duct or cable, now becomes notifiable. Depending on the size of that opening, the configuration of your entire wall may have to change. And then, you have to ask, who is responsible for the fire integrity of that wall system?"

The new FIS guide includes full guidance on how the gateway system works and what is notifiable.

"The point of the gateways is that if you start things fiddling around with things, you've got to notify," says McIlwee. "And then, you're going to have to wait for the BSR, and your project is going to be held up. All because you didn't

prepare properly and didn't make the decisions ahead of the construction of the building."

Another issue that bothers McIlwee is product systems.

"For example, a wall system might be made up of products including steelwork, plasterboard, insulation, and you may think that seems fine," he says. "But the products may not have been tested in combination. How do they perform when you're having to put them together in certain situations?

"So, you've got to make assumptions around the test evidence that you have on the individual products, to support the planning application. There are product systems that have been accepted for years, based on the best evidence available, but we don't know if that's going to be accepted anymore; the BSR may take a different slant.

"At the moment, there's not really a way of lining up all of the information about those products in a structured way."

Competency

The FIS sector guide for competency management plans aims to help interiors firms understand "the three pillars of organisational competence, occupational competence and functional competence", McIlwee says.

"We wanted to flag that competence isn't just about what happens at the site, it's also about the processes behind that," he adds.

The guide emphasises the need for CPD. "If you're a drylining contractor, the likelihood is that the majority of your workforce have got a drylining qualification of some description," McIlwee says. "But that qualification is the minimum. As products evolve, people need to adapt too, and supplement formal qualifications with product and manufacturer training to be competent."

Beyond the occupational side, the FIS guide has tried to address functional competence.

"The challenge for any competency management plan is identifying who is doing what, because our industry does not have jobs that fit neatly into a national occupational standard," explains McIlwee.

"This is where a RACI (responsible, accountable, consulted and informed) model comes in, mapping functional requirements, identifying any gaps and reviewing the sign-off and decision-making process.

"A lot of the challenges in construction come from making decisions 'in survival mode', where you are under pressure to make the best call that you can, with the weight of huge liquidated damages weighing on your shoulders. We have to make sure that those decisions are being made by people who are qualified and competent to make them."

> **A lot of the challenges in construction come from making decisions 'in survival mode'**
> **Iain McIlwee, FIS**

Golden thread

The FIS golden thread guide brings together existing publications and standards – such as BS 8644-1: *Digital management of fire safety information* – and explains the key points for the fit-out sector.

"The definitions around BIM have shifted and there is more of an emphasis on data, which we're helping interiors firms get to grips with," says McIlwee. "What is a common data environment? What is structured data? What is a digital twin? It's an attempt to draw more people into the conversation by demystifying some of the language.

"We've created a checklist, which takes you through three stages of data creation: products, construction, asset. And then we link that back to existing standards to help guide people on making structured decisions on information management.

"That will help our sector with the golden thread requirements."

▲ The FIS's guides on the Building Safety Act and Competency Management Plans are available at www.thefis.org

Compliance with the updated Approved Document L

In this CPD, Knauf Insulation examines how housebuilders can find their optimal route to Approved Document L compliance, while continuing to close the broader performance gap

On 15 June 2023, the grace period for compliance with the updated Approved Document L (Part L) of the Building Regulations for England ended, after coming into effect the previous year. The regulations address the conservation of fuel and power and apply to all building projects in England. Their aim is to lower the operational carbon emissions of new homes, raise fabric efficiency standards and introduce a new level of quality control.

All new homes must now produce 31% fewer operational carbon emissions than required in the previous 2013 regulations. This can be achieved through any combination of fabric, heating systems and renewable technologies.

The regulations act as a 'stepping stone' towards a 75% target by 2025 outlined in the Future Homes Standard.

> **The as-built BREL report requires photographic evidence to show thermal continuity and quality of insulation**

U-values for new fabric elements in new dwellings

	Approved Document L 2021 W/(m²·K)	Approved Document L 2013 W/(m²·K)
Roof	0.16	0.20
Wall	0.26	0.30
Floor	0.18	0.25
Party wall	0.20	0.20

New 'primary energy' metric

Part L raises energy efficiency standards, by introducing tighter limiting U-values for new fabric elements and air permeability in new builds (see table below left).

Housebuilders must also ensure new homes meet targets for:

- primary energy – a new metric, influenced by fabric and fuel;
- emissions – influenced by fabric and fuel; and
- fabric energy efficiency – influenced by fabric only.

Part L defines 'primary energy' as energy from renewable and non-renewable sources that has not undergone any conversion or transformation process.

Housebuilders can meet the 'emission' and 'primary energy' target rates through a combination of fabric and fuel. However, insulation must be used to meet a home's target 'fabric energy efficiency' rate.

All three target rates must be calculated using the latest version of the government's Standard Assessment Procedure (SAP), via the latest SAP software.

New BREL report

Housebuilders must now demonstrate continuity of insulation, using a new Buildings Regulations England Part L (BREL) report. Two BREL reports must be submitted for a new build:

- design stage BREL: showing that the house specification has the potential to meet its target rates; and
- as-built BREL: showing that the target rates have been met.

Photographic evidence

The as-built BREL report requires photographic evidence to show thermal continuity and quality of insulation.

The photos must show typical details of the build, such as

▲ Insulation must be used to meet a home's target 'fabric energy efficiency' rate

insulation at external door thresholds and junctions. Photos must be digital, stamped with geolocation, date and time, and be of high enough resolution for auditing purposes.

This increased scrutiny indicates a clear shift towards measuring real home performance. While the immediate focus is on energy efficiency, housebuilders will soon need to consider the bigger picture, including factors such as fire safety and low-embodied carbon.

How does the bigger picture look?

The 2018 Independent Review of Building Regulations for Fire Safety (the 'Hackitt Review') recommends an 'outcomes-based approach to regulations', with guidance focusing on informed assessment and demonstration of safety.

The government's Building Safety Act is also introducing new requirements to ensure more products are safe, and the New Homes Ombudsman Scheme empowers homeowners to dispute substandard work.

Since 2018, Building Regulations for England and Wales have ▶

◀ Mineral wool insulation adapts to the wall cavity

▼ Image showing how insulation can improve the thermal performance of a semi-detached house

The RIBA 2030 Climate Challenge recommends that its 2025 target of 800kgCO_2e/m² be adopted 'as a minimum' for new builds in design today

banned combustible materials in the external walls of relevant buildings over 18m tall. (They're now banned on certain external wall build-ups of all residential buildings between 11m and 18m tall unless a full-scale fire test has been undertaken).

However, the mayor of London restricted the use of combustible materials on external wall systems on all developments on Greater London Authority-owned land, irrespective of height or use.

This 'go further, faster' approach also applies to carbon reductions. While the Future Homes Standard has established targets for 2025, the RIBA 2030 Climate Challenge recommends its 2025 target of 800kgCO_2e/m² be adopted 'as a minimum' for new builds in design today.

Homeowner awareness is also increasing: 86% of respondents in a recent Knight Frank survey rated energy efficiency as either 'important' or 'very important'.

Growing customer expectations, tighter regulations and a focus on performance are increasingly putting pressure on housebuilders to close the performance gap.

How can insulation help?

While a product might 'tick the box' on paper, it can fall short of its performance potential. Building designs often rely on a perfect installation to achieve optimal thermal performance. Because conventional rigid board insulation doesn't flex, if a substrate isn't perfectly uniform, it won't sit flush, leading to gaps and heat loss.

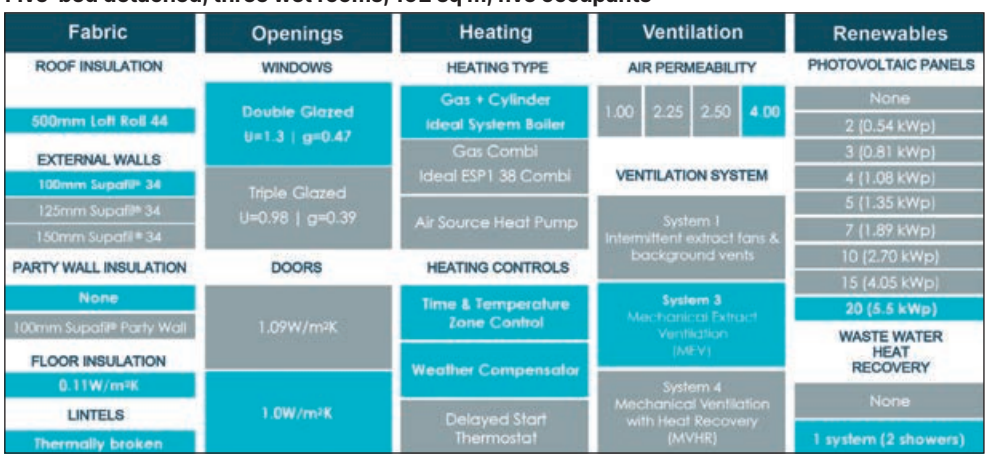
By contrast, mineral wool's flexible structure adapts to minor imperfections, maintaining close contact, and slabs 'knit' together, minimising air gaps. This 'buildability' quality makes mineral wool easier to install correctly, maximising its real-world thermal performance.

Similarly, passive fire safety measures like insulation function as part of larger systems within the cavities of a building. Deviation ▶

86

86% of respondents in a recent Knight Frank survey rated energy efficiency as either 'important' or 'very important'

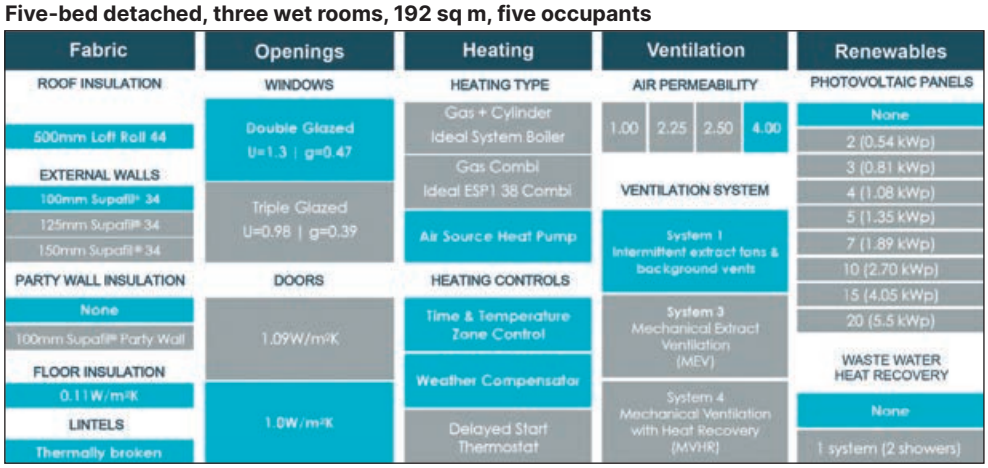
Five-bed detached, three wet rooms, 192 sq m, five occupants



Example 1: Prioritising simplicity

For simplicity, a volume housebuilder might change little about their fabric and heating specifications and install rooftop photovoltaic panels to increase energy efficiency. This reduces the need for costly redesign work.

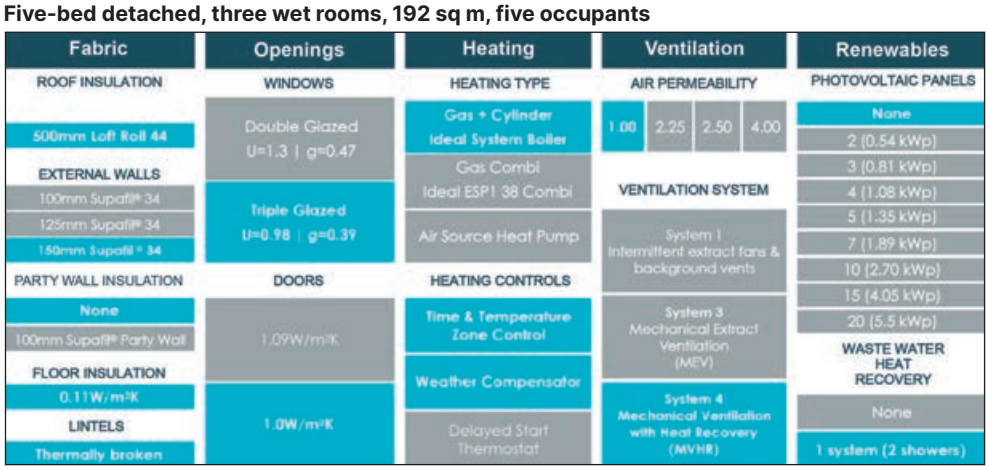
Five-bed detached, three wet rooms, 192 sq m, five occupants



Example 2: Prioritising technology

For larger sites, some housebuilders might continue with their usual fabric specification but introduce air source heat pumps. This gives more time for design work to account for alternative technology, for supply chains to adapt and for products to become available in the required quantities.

Five-bed detached, three wet rooms, 192 sq m, five occupants



Example 3: Prioritising longevity

A more bespoke build might call for a higher efficiency insulation and wider cavities, allowing flexibility to consider different types of heat source. Building to 150mm cavities prioritises the reliability and longevity of fabric, while allowing technology to be based on project-specific factors. It will also futureproof larger developments in design today against further changes when the Future Homes Standard comes into force in 2025.

For further guidance on Part L, visit the Housebuilders Hub at www.knaufinsulation.co.uk/Housebuilders-hub

Knauf insulation is applied on a housebuilding project

from the specification can prevent these systems from performing correctly. The use of combustible materials creates further risks.

The simplest approach is to specify non-combustible (A1 or A2-s1,d0) materials, like mineral wool, from the outset. These products achieve thermal performance without compromising on safety.

When it comes to achieving long-term sustainability goals, such as net zero homes, lowering a building's operational carbon will not be enough. Housebuilders also need to consider a building's embodied carbon (the emissions produced throughout its whole life, from raw material extraction to eventual demolition).

It's also worth keeping in mind that, as operational carbon is driven down, a building's embodied carbon will make up a larger proportion of its overall emissions – a change which could become significant as regulations continue to evolve.

Glass mineral wool has the lowest embodied carbon of any mainstream insulation material. With it, housebuilders can lower the overall carbon footprint without compromising on other qualities such as reliable thermal and fire safety performance.

What's the best way to comply?

Different builds require different approaches and under the updated Part L regulations, housebuilders still have the right to choose their optimal solution.

Part L contains a 'notional dwelling' example. However, this is purely illustrative and is rarely an effective route to compliance. Instead, housebuilders should decide on the ideal balance of fabric and technology to meet Part L requirements and suit their own priorities.

The chart on p41 shows some example scenarios, along with Part L-compliant options that use non-combustible A1 or A2-s1,d0 low embodied carbon materials.

As operational carbon is driven down, embodied carbon will make up a larger proportion of emissions – which could become significant as regulations continue to evolve

CPD Questions

1) The updated regulations require all new homes to produce what percentage fewer operational carbon emissions compared with the Part L 2013 regulations?

a) 26% **b) 29%**
c) 31% **d) 34%**
e) 37%

2) The grace period for compliance with the updated Approved Document L (Part L) ended on...

a) 1 June 2023
b) 10 June 2023
c) 12 June 2023
d) 15 June 2023
e) 24 June 2023

3) What must be used for a home to meet its target fabric energy efficiency rate?

a) Insulation
b) Heat-reduction technology, employed during warmer months
c) Using more timber in the framework of a building
d) Concrete floors
e) Monitoring equipment

4) The as-built BREL report requires what, to show thermal continuity and quality of insulation?

a) Plans of the building
b) Photographic evidence
c) Recorded verbal accounts of work undertaken
d) Signed affidavits
e) All of the above

5) Housebuilders can meet the emission and primary energy target rates through a combination of what?

a) Fabric and fuel
b) Improved paperwork and communication
c) Better heating technology
d) Improved collaboration with local planners and housebuyers
e) Using renewable energy and sustainable materials

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

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Steven Woolnough
Decipher

‘How do you calculate liquidated damages in a contract?’

This month’s contract clinic question comes from a client looking to set liquidated damages for a section of a project before completion of the whole scheme. **Steven Woolnough** shares his advice

THE QUESTION

We are a client looking to appoint a contractor to construct a shop and warehouse – but due to the cost of the build and the high rent on our current premises we would like to use the warehouse as soon as possible before the shop is ready. How do we set a figure for liquidated damages in the construction contract?

THE ANSWER

Liquidated damages are a fixed and agreed sum to be paid for a breach of contract. Typically, in construction contracts they will be included in circumstances where the contractor fails to complete the works by the date in the contract. The damages will be set at a monetary value per day or week for the period the works are not completed.

To address your question: if making use of a section of the project before the completion of the whole scheme would be beneficial to you – then I would advise including a ‘sectional completion’ clause in addition to a liquidated damages clause.

> **Both JCT and NEC cater for sectional completion in their suite of contracts. They provide an ability to apportion liquidated damages to each section**

Sectional completion

Sectional completion, as the name suggests, is a mechanism where the project completes in parts or sections. In our scenario, it would allow the benefit of earlier possession of the warehouse to the employer. It may also be attractive to the contractor as they will be relieved of some of their continuing obligations such as maintaining insurance for that area.

Both JCT and NEC cater for sectional completion in their suite of contracts. They provide an ability to apportion liquidated damages to each section. This is done by adding specific details into the contract particulars under JCT or the selection of X5 and X7 under NEC contracts.

Sectional completion provisions are not without risk. Sectional completion and liquidated damages provisions may become troublesome when parties do not make the mechanism clear. Issues also arise when drafting errors create ambiguities.

If the sectional completion is not clearly defined or the resulting damages are not clearly set out for each section completed, there is risk of the whole liquidated damages provision being struck out as too uncertain. In such scenarios, you may be left with having to make a claim for ‘general damages’. General damages can be time-consuming to prepare and not always straightforward to prove.

Setting the amount

When you have decided that you are going to include liquidated damages and allow for sectional completion within your contract, how do you set the figure?

The answer is that it depends on the type of project and the losses that would be foreseeable if completion was delayed.

For a warehouse and a shop, you should focus on liquidated damages for each section. Base an estimate upon those costs or losses that will flow if that section was not completed by the stated completion date. There will be a loss of revenue that would not be achieved if the warehouse or the

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

Sectional completion and liquidated damages provisions may become troublesome when parties do not make the mechanism clear

shop are not functioning by the date specified.

Other items include: rent on your present premises; having to find an alternative temporary location; movement of equipment; cancellation charges; site charges; insurance; additional administrative and supervision costs; interest charges; and inflation.

It is likely there will be other items specific to your project. However, it is almost certainly not as simple as just a loss of revenue.

When calculating the figure, as well as allowing for the potential losses, consider any savings if the project was delayed. Things to consider would be not having to pay for utilities and insurances on the completed scheme. Factoring these into your calculation will make it robust and ward off any potential challenges to it being a 'true pre-estimate'.

Once you have calculated the figure, keep a detailed record of how the liquidated damages level was set. Be prepared to provide the detailed justification if the other party challenges. Any dispute to the number levied as liquidated damages will be swiftly dealt with if it can be proven that they are a genuine pre-estimate of loss regardless of the amount of actual costs incurred.

Steven Woolnough is senior consultant at Decipher.

‘We still need hands-on skills’

Mike Smith FCIOB reflects on a stellar career that started on the tools and progressed to running a business

What made you go into construction?
I came into construction as a stopgap as I had wanted a career in the Royal Navy. I had taken a position at a supermarket as a management trainee, and hated it. My family had a contract decorator’s and, while going through the various interviews, I went to work there. The Navy’s loss could be said to be construction’s gain.

What do you remember from your first project?
The first ‘real’ project I was fully involved in was in Dolphin Square, in London, where I was literally taken from working largely on the tools to management overnight.

It was to refurbish 46 flats in 24 weeks. I remember the camaraderie on site and the willingness of others to teach and pass on knowledge. I worked hard, long hours and there was dust and dirt but not a single incident on health and safety and a real team ‘can-do’ pride in the workmanship.

What was the best advice you were given?
Working before fax, computers, emails, smartphones etc, you had to rely on notes, letters and phones. I was always told to check and check again, no matter what you were told – and draw a picture if needed. My technical drawing skills were ok but not my freehand, but I still do it today and always have a notebook.

How do you think becoming a fellow has helped you in your career?
Running a business from an early age until recently, becoming a fellow has made me stand out from the crowd in terms of my peer group – and earned some respect from those who understand what being a fellow entails. It’s not just about passing an exam, but showing what, in my case, years of experience and continued learning has done – you are not just seen as ‘the builder’.

Is there a specific project or achievement you are most proud of?
There are a number of projects I have carried out which stand out, but the best achievement for me was the number of people I have taken under our wing and allowed to develop and fly. Taking someone from a labourer whose first language isn’t English to a fully fledged site agent, a bench joiner to a MCIOB and director.

Is there anything in your career you would do differently now?
It’s hard to go back and say what would I have done differently, because at any moment in time you do what feels or seem right. I have had such a varied and rounded career from the tools upwards. If really pushed, I would probably have to say travelled more and worked in other countries.

Who do you most admire in the construction industry, past or present?
How many people can I put down? I have been blessed with meeting many past presidents of CIOB: Ian Dixon stands out as he was such a humble yet engaging person who showed so much passion for the industry and CIOB with his own funded bus named ‘Building Matters’.

Among current people it’s difficult: do you go down the architect, contractor or consultant route or someone else? The King is to be admired in construction matters as he has been ahead of his time in terms of sustainability – his own house – and saying when things do not look right: Paternoster Square, the Sainsbury Wing at the National Gallery – and even going so far as to be part of developing a ‘model’ town – Poundbury.

My favourite architect? Lutyens. Why? The pure range of buildings, houses and municipal – unique in every way.

Mike Smith FCIOB CV

- **Senior building surveyor, Mole Valley District Council, May 2023 to present**
- **Managing director, Corniche Construction, 1983-2023**
- **Surveyor/ contracts manager, Target Construction, 1983-84**
- **Surveyor/ estimator, Ritec Decorators, January-July 1983**
- **Tenant liaison and manager/ contract manager, Cliden Construction, 1981-82**
- **Trainee estimator and surveyor, Ritec Decorators, 1977-81**
- **Management trainee, J Sainsbury, July-October 1977**

Becoming a fellow has made me stand out from the crowd in terms of my peer group – and earned some respect from those who understand what being a fellow entails
Mike Smith FCIOB

What has changed the most about construction since you've been working in it?
Health and safety. We're not there yet but the improvements are massive.

What's the most valuable training you've received and why?
The most valuable training I had was twofold. One, I was blessed to work on site with competent trained tradesmen. And, secondly, I started in an age before IT so you had to do everything by hand or from first principles – it wasn't copy and paste or get out a power tool. IT/automation has made things quicker and it has a place but not necessarily better. We still need hands-on skills.

Do you have a motto that applies to your work and, if so, what is it?
There's no such thing as a stupid question. If you have to ask it's because you didn't listen, you didn't know, or it wasn't explained properly and you didn't have the right information/tools.

What advice would you give to someone starting in construction today?
Learn your trade – whether that's professional side, client side or contractor. And never be afraid to ask or listen. You'll learn a lot from the old lags – good and bad.

What one thing would you change to make careers in construction more appealing?
Take away the glamour of working in an office. There are so many magnificent building projects, small and large, with all sorts of skills employed.

CIOB Community

University awards honorary doctorate to Caroline Gumble

University of Wolverhampton recognises the contribution of CIOB's CEO

The University of Wolverhampton has awarded an honorary Doctor of Science degree to Caroline Gumble, CEO of CIOB. Honorary awards are presented by the University of Wolverhampton to people who have made a significant contribution to their field of expertise.

Gumble has been CEO of CIOB since 2019. Her previous roles were in leadership positions in the UK and overseas, within the automotive and capital goods sectors, and membership organisation EEF/Make UK.

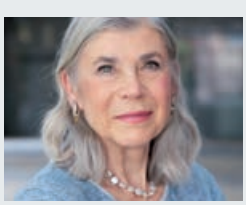
She also serves as a director of the board of trustees for the Institute of Export & International Trade, is a trustee of CIOB Assist and has been appointed as visiting professor of global engagement and transformation – built environment at Loughborough University's School of Architecture, Building and Civil Engineering.

Leading a member-focused global transformation of the institute, with the support of CIOB's Trustee Board, she is particularly interested in the potential of construction to be a force for positive societal change, with a focus on quality and sustainability in construction and on driving the cultural shift in EDI, social mobility and worker welfare.

> **I am extremely humbled and proud to receive this honorary award and recognition from Wolverhampton University, an institution I respect for its commitment to high-quality lifelong learning**
> **Caroline Gumble, CIOB**

Gumble said: "I am extremely humbled and proud to receive this honorary award and recognition from Wolverhampton University, an institution I respect for its commitment to high-quality lifelong learning, particularly within the built environment."

EDI conference will tackle critical themes for the sector



CIOB hybrid event will focus on addressing inclusivity in construction

CIOB is holding its EDI conference, Challenging the Status Quo, on 28 November. The conference will focus on how to make the sector genuinely welcoming to all, help to address disability inclusive practices and promote gender equality in senior levels.

The hybrid event – which takes place at One Moorgate Place, London, as well as online – is chaired by CIOB president Sandi Rhys Jones OBE FCIOB (pictured, left) and Mark Harrison, head of EDI at CIOB.

Attendees will hear policymakers and experts sharing stories of what works in making progress on this critical agenda.

Sessions will be run as panels and case study presentations. The key themes will be: disability inclusive practices; promoting gender equality in senior levels; understanding neurodiversity; addressing under-representation; and lack of diversity. For details visit: www.ciob.org/events.

PHOTOS BY WHYLERPHOTOS.COM

Glasgow ceremony celebrates CIOB Scotland winners

Construction industry leaders come together at lunch to recognise this year's winners

The stars behind Scotland's built environment took centre stage at a ceremony in Glasgow in September.

Over 300 construction industry leaders came together at the annual CIOB Scotland Awards, where seven of Scotland's built environment professionals were rewarded for their contribution towards the industry at a lunch at Hilton Doubletree.

The winners were:

Trailblazer: Calhan Butter from Balfour Beatty for his work on delivering its digital priorities.

Graduate: Gavin Wyatt.

Innovator: Jamie Brown, senior building services manager at Tilbury Douglas, for work on the Medicines Manufacturing Innovation Centre.

Site manager: Iain MacLaren, site manager for Barratt Development.

Project manager: Jim Wilson, senior project manager with Morgan Sindall.

Project professional winner: Gerry Conwell, construction manager at SP Energy Works, for his work on the AU overhead line diversion route.

CIOB Open awards winner: Brian Gallacher for his services to the wider built environment.

Brian Gallacher collects his award from CIOB's Caroline Gumble

The awards were presented by CIOB CEO Caroline Gumble, who said: "I am delighted that we have been able to showcase so many examples of excellence in construction and I applaud all our winners for their hard work, commitment and many achievements."

The charitable collection this year raised just over £3,100 for CIOB Assist Fund. The main award sponsors were Contract Scotland and Competence Matters with further support from Faithful+Gould, MPMH, Multiplex, Places for People, Training LMS, Tilbury Douglas, Maxi Construction, Barratt Homes, PJ Hegarty and Scottish Power Energy Networks.

> **I am delighted that we have been able to showcase so many examples of excellence in construction**
> Caroline Gumble, CIOB

Contracts and AI: Midlands events set to spark stimulating debate

Webinar and Great Debate lined up for November

Getting granular with NEC4 and debating the role of artificial intelligence (AI) in the built environment will be up for discussion at two upcoming events being held by CIOB Midlands in November.

● NEC4: The Devil's in the Detail
This lively webinar on 22 November will feature expert speakers from Driver Trett and Diales.

In this session, the speakers will present varying views from the real-life perspective of contractor, project manager, architect and adviser, providing analysis of pertinent issues relating to the administration of NEC4 contracts.

This will be of interest to those who work in construction and engineering, particularly in commercial management, project administration and dispute resolution.

● AI in the Built Environment: How should the sector respond?
The East Midlands Great Debate takes place in Nottingham on 8 November.

A panel featuring experts from Cumberland Council, Sir Robert McAlpine, Mott MacDonald and architect Copy and Space will discuss the risks and opportunities of AI, its impact on standards and professional practice and how the industry should collectively respond.

The session is chaired by Andrew Knight, global data and tech thought leadership and analytics, tech partner programme and data standards at RICS.

The debate is a cross-organisational event presented by CIOB, ICE, LI, RIBA, RICS and RTPI.

Correction: In the October edition of CM a photo was used on page 63 with the caption 'On site at Tudor Court', which was not of the project the article was about. We're sorry for any confusion caused.

Gilbert-Ash top of the Kew for exciting fit out

Former Richmond manor house site will become Cat A office space

CIOB chartered building company (CBC) Gilbert-Ash has been appointed to carry out the fit out of an office and studio development on the site of a former London manor house, transforming it into a modern Cat A workspace.

Situated in the heart of Richmond, Kew Studios is steeped in history and rich in character, and will be transformed into office space with a strong focus on sustainability.

The £10m project includes the refurbishment of the existing building to include structural works to create a staircase, lift core and mezzanine plant platform. There will also be alterations to external openings, building repairs and replacement of MEP services to reconfigure the building for subdivision and fit out.

Work includes with front and rear extensions, new roofing including a green roof, insertion of mezzanines, and external and internal refurbishment including fit out to shell and core. The project, which will be carried out in three phases, also includes external hard and soft landscaping.

Gilbert-Ash managing director Ray Hutchinson said that the company is delighted to be working on the, project which includes a number of sustainable initiatives.

He said: "Much of the original building will be preserved but it will be enhanced with features such as a living green roof, electric vehicle charging, cycle storage and solar panels."

Sustainability is a key focus for Gilbert-Ash, which has a number of initiatives under way to help drive down its carbon footprint.

Midlands members visit Milton Keynes radiotherapy build

Morgan Sindall site manager hosts specialist hospital visit

Northampton Committee member Kelly Attwood hosted a radiotherapy bunker site visit recently for fellow CIOB members.

Attwood and her team at Morgan Sindall were behind the visit to the Milton Keynes University Hospital Radiotherapy Centre.

The new centre is an extension to the hospital's Cancer Centre and will house two state-of-the-art medical linear accelerator (Linac) bunkers.

The scheme includes new consulting rooms and a new CT suite.

The building is split into three blocks: block 1 and 2 are traditional steel frame and SFS construction and block 3 is the concrete bunker.

The bunker walls are up to 2.6m wide and the roof slab is 1.4m deep with over 90 tonnes of reinforcement.

Construction work is due to be completed in spring 2024.

▲ The new Radiotherapy Centre is an extension to the Cancer Centre

Meet CIOB at Dublin event

The CIOB Republic of Ireland Hub is hosting a Meet the CIOB event at Dublin's Green Isle Hotel on 16 November.

The event will provide information about membership and the resources and services available to members. Presentations will be held by solicitor Quigg Golden on the Construction Industry Register Ireland (CIRI) Bill and the Irish Green Building Council on the CO_2 performance ladder, green public procurement and sustainable practice. To book go to: Meet the CIOB Ireland, 16 November 2023 at eventbrite.co.uk.

New report on CIOB's social value published

CIOB delivers £4.06 of social value per pound invested, through its training academy, mentoring and member support

SOL STOCK

Social value is becoming increasingly significant across the construction sector, particularly in procurement processes
Saul Townsend, CIOB

A new report from the Chartered Institute of Building (CIOB), which highlights the organisation's own social value, has been published.

The findings show that for every £1 invested CIOB delivers £4.06 of social value, through initiatives including its Tomorrow's Leaders and mentoring programmes, engagement with its 47,000 members through regional hubs, member app and publications, the CIOB training academy and the CIOB Assist programme which provides help and support to CIOB members during times of hardship.

Social value is described as a measure of the positive value organisations create for the economy, communities and society. CIOB's previous estimation of its own social value was in 2022 when it was found to be £2.84. However the calculation then was not as detailed and didn't include CIOB's work at a regional level.

Saul Townsend, head of content and communications at CIOB, said: "Social value is becoming increasingly significant across the construction sector and more widely, particularly in procurement processes, and it's a subject we encourage our members to embrace.

"It epitomises our own CIOB values of professionalism, integrity, respect and excellence so, with this in mind, we felt it important to lead by example and measure our own social value, and we're proud of the results."

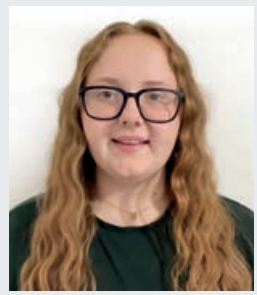
The CIOB report reveals that in 2022 more than half a million visits were made to the CIOB Academy website, while over 11,500 of its continuing professional development (CPD) packages were accessed. It shows that the CIOB Assist programme supported 484 people last year compared with 290 in 2021.

In April this year CIOB released a guide on social value for construction SMEs to help them get to grips with how to deliver, measure and communicate social value, which has been downloaded around 350 times.

Access the full report at https://ciob.me/socialvaluereport.

One to watch

Rylie Sweeney
Apprentice build manager, Willmott Dixon



What made you choose to take a construction apprenticeship?
After participating in 13 work experiences at a technical college, I found that I really enjoyed construction. I had work experience with Willmott Dixon in October 2021, and the employees spoke about routes into construction, apprenticeships and their management trainee programme in particular. I could see myself working at Willmott Dixon, and in February 2022 I became part of their apprentice cohort for 2022.

You are not yet 18 and already chair of two youth advisory groups. Tell us more about what that involves and why you wanted to do it?
It follows my own struggle in mainstream education. I was told I could not achieve anything, destined for failure – and failed to be engaged.

When I moved to UTC South Durham technical college, I had a completely different experience: I learned more hands-on, gained lots of industry experience, and everything I did was geared toward preparing me for the future. This gave me a new positive spark for achieving my goals and spurred me on to drive change in education and help others realise their potential.

As a member of the advisory boards, I have enjoyed great opportunities: speaking in parliament, participating on panels and giving guest talks to share my experience via webinars, round tables – even on radio.

My goal is to help shape the future of education for students by working with passionate young people and companies, so they can have a better education experience than I did.

As a result of my close collaboration with companies like the Careers & Enterprise Company, Edge Foundation and many more, I can ensure the youth are at the forefront of all decisions being made.

What are your career ambitions?
What's next for me? I aim to continue in the construction industry, grow, learn and gain experience in construction management while inspiring young women to enter the industry. My goal is also to continue champion and drive change for better education across the UK to help youth succeed and become future ready to take the best next steps for them.

What do you do in your spare time?
I'm enjoying working with youth. I'm a committee member for NAWIC North East & Tees Valley to inspire tomorrow's leaders into construction. Additionally, I post frequently on social media about apprenticeships and construction to provide youth with everything I wish I had when transitioning to the world of work. Aside from work, I enjoy spending time with family and friends, but shopping is also a treat I can't resist.

Follow Rylie Sweeney on Instagram at the_lifeofrylie.

CIOB
Global Student Challenge

Global Student Challenge 2024

Celebrating 10 years

“CIOB Global Student Challenge has allowed us to see the world of construction professionals from different perspectives.”

Universitas Indonesia,
Global Student Challenge Winners 2023

Celebrating 10 years of the CIOB Global Student Challenge.

Since its launch in 2014, we've pushed forward innovation and developed a **construction business game** for built environment students from around the globe. Students must be studying either HND or a Bachelor's degree level course, although one team member can be studying up to a Masters level.

Using interactive software platform SimVenture Validate, the competition asks students to create a **virtual organisation**, testing team skills on a **unique and challenging construction project**.

Are you up for the challenge?

The winning team will be rewarded with a **£2,000 cash prize** and an all-expenses paid trip to CIOB Members' Forum, to present the winning submission to leading construction professionals from around the world. Teams in second and third place will also receive a cash prize.

Unleash your creativity...

Join us for this invaluable learning experience. Find out more and register your team today!

ciob.me/studentchallenge

Timeline

September 2023 - January 2024
Teams register to enter

01 February - 16 March
Bids submission

18 - 28 March
Selection of finalists for interviews

April
Finalists interviews and winners announced

June 2024
Winning team presents submission to industry experts during CIOB Members' Forum

Register today!

College students make impression

Maidstone Hub awards recognise achievement


▲ Lisha Maxwell (left) and Anna Smy were Outstanding Students

Four construction management professionals have been awarded 2023 Maidstone Hub's Outstanding Student awards. Two of the recipients were attending colleges in Bexley, one in Bromley and one MidKent College.

Anna Smy, who is studying for an HNC in Building Surveying at London South East Colleges, Bexley, was nominated for her ability to balance a full-time job with part-time study. Her college said: "She brings enthusiasm and contributes well in class and is able to reconcile subject matter from the classroom to her day-to-day role in industry."

Danny Miller, who is studying for an HND in Building Surveying at London South East Colleges, Bexley, was nominated for his self-motivation and ability to balance full-time study with work and family life, including young children. "He is singular-minded in the pursuit of his goals and brings a degree of order to group activities, demonstrating a natural ability to take on a leadership role," his tutors said.

The third winning student, Lisha Maxwell, was a mature student at London South East Colleges, Bromley studying for a Built Environment BTEC HNC. Despite some health difficulties and having her baby boy during her course, she achieved consistently high grades and never missed a week of lessons. She is now working with Kent Council as a surveyor.

MidKent College student Ben Ward progressed from the Level 3 programme into employment and onto the HNC. His college tutors commented on his ability to "adapt quickly to changes in the working environment" and the challenges that the course expects.

CBC creates new community space for Dorset church

Greendale Construction's new-build annexe offers a multi-purpose venue at St John's, Broadstone

CIOB chartered building company (CBC) Greendale Construction has successfully completed work on a new annexe for St John's Church in Broadstone, Dorset.

The new-build annexe, named the NorthReach Project, provides a multi-purpose venue.

Starting construction in May 2022, the work comprised refurbishment of the redundant choir vestry to provide a meeting room in the existing church, and construction of a main annexe with atrium and multi-purpose space, with associated office, kitchen/servery, general storage and toilet accommodation.

A plant room was formed in the existing basement and alterations completed to the church fabric.

The NorthReach annexe, together with the new church meeting room, will provide a community space for exercise classes, meetings, free concerts and exhibitions, afterschool clubs and craft and support groups for all ages.


▶ Greendale constructed a new-build annexe for St John's Church, Broadstone

CIOB Academy widens e-learning options

CIOB Academy has expanded its e-learning course offering. Courses from IEMA, NEBOSH and IOSH are now available, delivered in association with Astutis.

IEMA (Institute of Environmental Management and Assessment) courses explore environmental management.

NEBOSH (National Examination Board in Occupational Safety and Health) courses focus on safety and health in the workplace.

The IOSH (International Occupational Safety and Health) courses enable candidates to elevate their understanding of workplace safety.
For more information visit ciobacademy.org.

▲ Norwich Castle: the project will transform the internal spaces of the Norman Keep

Morgan Sindall invites Norwich Hub back to see castle progress

Site team hosts fourth CIOB visit to show off progress made on early medieval site

CIOB members were delighted in September to be invited back to look at the developments to date at the historic site of Norwich Castle.

Norwich Castle: Royal Palace Reborn is a £15m project to transform Norwich Castle's iconic Norman Keep, one of Europe's most important early medieval castles.

The project will transform the Keep's internal spaces by rebuilding its medieval floors and rooms. It is one of the largest heritage projects of its kind currently under way in the UK.

The Morgan Sindall site team gave a presentation on the progress made to the two remaining phases of the scheme, talking about the challenges encountered and updating visitors on the journey.

Attendees saw at first hand the Percival section, which is close to handover, and also the roof structure to the Keep, which was well under way.

CIOB CEO Caroline Gumble joined the tour. Members hope to be returning for the final visit to see the finished result early next year.

◀ Exterior view of the Norman Keep

Free ebook on safety critical elements

CIOB and RIBA have produced *A Guide to Managing Safety-Critical Elements in Building Construction*.

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

These are elements that, if omitted or installed incorrectly, could cause a serious injury, or loss of life, to those in and around the building.

The guide is only available electronically and is free to all from CIOB Academy.

Net zero changes 'disappointing', says CIOB

Institute responds to prime minister's announcement

CIOB, which has long campaigned for a long-term national retrofit strategy, responded to prime minister Rishi Sunak's announcement in September on the scaling back of the UK's net zero plans and targets:

Eddie Tuttle, director of policy, research and public affairs at CIOB, said: "Decarbonising homes and the wider built environment is vital to reach net zero so it's disappointing to hear the prime minister scaling back energy-efficiency targets and the commitments made in the government's own net zero growth plan published only six months ago, which refers to minimising reliance on fossil fuels.

"Energy consumption in buildings accounts for almost half of the UK's carbon emissions so to deprioritise this issue is baffling when the government should instead be finding ways to support homeowners to retrofit their properties and improve their energy efficiency for the lowest possible cost.

"The Boiler Upgrade Scheme has had very low take-up and, in our view, increasing the grant available to homeowners will make little difference, as the remaining 25% will still be unaffordable for many households amidst a cost of living crisis.

"If government remains committed to reaching net zero by 2050, as they say they are, then they must set out how they plan to achieve this without reducing the reliance on carbon-based fuels to heat homes on the scale and at the pace required."

In association with BLUEBEAM

Software is an SME survival tool

Bluebeam and CIOB have published a guide on how software can help construction businesses

According to the UK government's Insolvency Service, over 4,000 construction companies have gone bust during the past year – a 16.5% increase on the previous year and the highest rate for a decade.

Attributed to rising materials and labour costs, it is clear that inflationary pressures are taking their toll. Small to medium-sized enterprises (SMEs) are most vulnerable. They are more exposed to consumer demand and their position in the supply chain often means a long wait for payment.

How construction software can help

To survive in this climate, SMEs must look for ways to deliver their services more effectively, according to James Chambers, director, global industry development for the Build and Construct Division at Nemetschek.

He says that construction software holds the key: "The use of construction-focused software has grown at huge pace in the last few years. While the pandemic was certainly a trigger point for many, that investment has not slowed.

"That is because there are tools available for all levels of the industry, with companies realising that they can improve their margins and deliver better project outcomes. Now is the time to be proactive and make these improvements, no matter the size of your business."

Transforming construction businesses

Software can help improve financial management, de-risk projects and boost collaboration. It does not have to involve huge investments either, with construction software more accessible than ever.

A new guide from Bluebeam and the Chartered Institute of Building (CIOB) has been published to help. Outlining how software can streamline and automate key processes throughout businesses, *Digital Transformation for SMEs: Unlocking the Benefits* also describes how tools should be procured and rolled out to get the highest return on investment in the shortest amount of time.

Chambers suggests that financial tools are the best place to start: "Spotting cashflow issues should be the number one priority. Tools can automatically monitor cash in and out of the business, and simple dashboards can make a huge difference by flagging problem areas, whether a late payer, an unexpected increase in material costs or a drop in what's available in the bank.

"The additional time often leads to a significant improvement in project delivery too, with business owners able to focus on that, rather than administrative tasks."

Remove risk through collaboration

One way to minimise mistakes and avoid costly rework or delays is through effective communication between the project team and the client. Software can help here too, formalising processes like capturing customer requirements and sharing them across the project team. This clarity makes it more likely that the right outcomes will be delivered.

Chambers concludes: "If you are just starting out, use tools that are quick and easy to adopt, bring people together and deliver recognisable gains as quickly as possible. With a difficult economic picture, this could make all the difference to a business's survival."

Diary dates

Highlights of the CIOB Calendar for the coming month

Tomorrow's Leaders Champion and Representative Forum 2023
▶ **1 November, 12-1.30pm, online**
A forum for Tomorrow's Leaders champions and representatives across the globe to receive updates, share best practice and network.

Open to all current Tomorrow's Leaders champions including those also sitting in Tomorrow's Leaders hub and governance committee representative roles.

As well as providing CIOB updates and information, there will be an opportunity to collaborate and share best practice, to ask questions and to network with other champions from across the globe.
Contact: scox@ciob.org.uk

Enhance Your Career In the Built Environment
▶ **6 November, 9am-4.30pm, Leeds**
Held at Nexus at Leeds University, this collaborative industry event focuses on opportunities for students within the built environment to enhance their professional career.

The full-day conference will feature presentations, skills workshops and panel discussions covering an array of key topics presented by leading contractors, consultants, education and professional institutes within the construction industry.
Contact: kbarker@ciob.org.uk

Why we all need to use LinkedIn?
▶ **8 November, 5.30-8pm, Aylesbury**
Join CIOB Hemel Hub for this face-to-face LinkedIn training session with David Shimwell, divisional director of Revival, part of the MA Group.

Shimwell will bring his direct energetic presentation style to help you to get the most from using LinkedIn – whether you are looking to build your own personal profile awareness or are planning to use the platform to help to grow your business. There will be an opportunity to ask questions at the end of the session.

Key items to be covered are:
- How LinkedIn fits in to a modern-day marketing mix.
- How activity is linked to success.
- What does a good profile look like?
- Creating content that works.

Contact: pfrith@ciob.org.uk

EDI Conference: Challenging the Status Quo
▶ **28 November, London, 9am-4.30pm**
An engaging hybrid conference, focusing on how to make the sector genuinely welcoming to all, help to address disability inclusive practices and promote gender equality in senior levels.

The conference will be chaired by Sandi Rhys Jones OBE FCIOB, CIOB president 2023/24, and Mark Harrison, head of EDI at CIOB. Speakers will include leading experts in EDI roles across various sectors.
See p48 for more details and www.ciob.org/events for the full agenda.

Site visit: Western Community Hospital, Southampton
▶ **15 November, 3-5pm, Southampton**
Demolition work is underway to prepare for the new £21m rehabilitation unit at Western Community Hospital in Southampton. The new unit will be built on the site of the old Tannersbrook Ward, while the rest of the hospital continues to operate as normal.

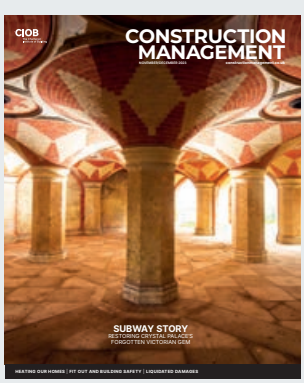
The modern, purpose-built unit will replace two rehabilitation wards currently at the Royal South Hants Hospital in Southampton.
Contact: clloyd@ciob.org.uk

Artificial Intelligence: The Future of Construction
▶ **14 December, 9am-4pm, online**
AI brings many challenges but it also brings new hope for the sector, opening it up to a more inclusive and diverse workforce.

This conference brings an opportunity to engage with industry experts to discuss the role of AI in construction, the wider built environment and thought leadership on how to embrace the change within the industry.

Host Eddie Tuttle, director of policy, external affairs and research at CIOB, will be joined by sector expert Dave Philp from Cohesive who will present the keynote and CIOB's report on The Roadmap Toward AI.
See www.ciob.org/events.

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



Switchboard: +44 (0)20 7490 5595
Editor: Will Mann
will.mann@atompublishing.co.uk
Deputy editor: Cristina Lago
cristina.lago@atompublishing.co.uk
Production editor: Sarah Cutforth
Art editor: Heather Rugeley
Community editor:
Nicky Roger
nicky@atompublishing.co.uk
Advertising manager:
Dave Smith
dave@atompublishing.co.uk
Key account manager:
Tom Peardon
tom@atompublishing.co.uk
Credit control:
Eva Rugeley
eva@atompublishing.co.uk
Managing director:
Stephen Quirke
stephen@atompublishing.co.uk

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oscar evo-blade ceiling trim

World-famous fashion brand, uses Oscar Evo-Blade for their new global store design roll out.

Evo-Blade transforms bulky ceilings into wafer-thin surfaces, providing dramatic shifts in height & sharp, recessed lighting features, recreating the brands established chequered design in its ceilings.

Designed & manufactured in Great Britain, the Evo-Blade works with a variety of configurations, from regular plasterboard, to acoustic sprays & plasters such as Oscar Elite & SonaSpray.

Search Oscar Evo-Blade on YouTube to find out more.

NBS Source

NBS National BIM Library

OSCAR acoustics