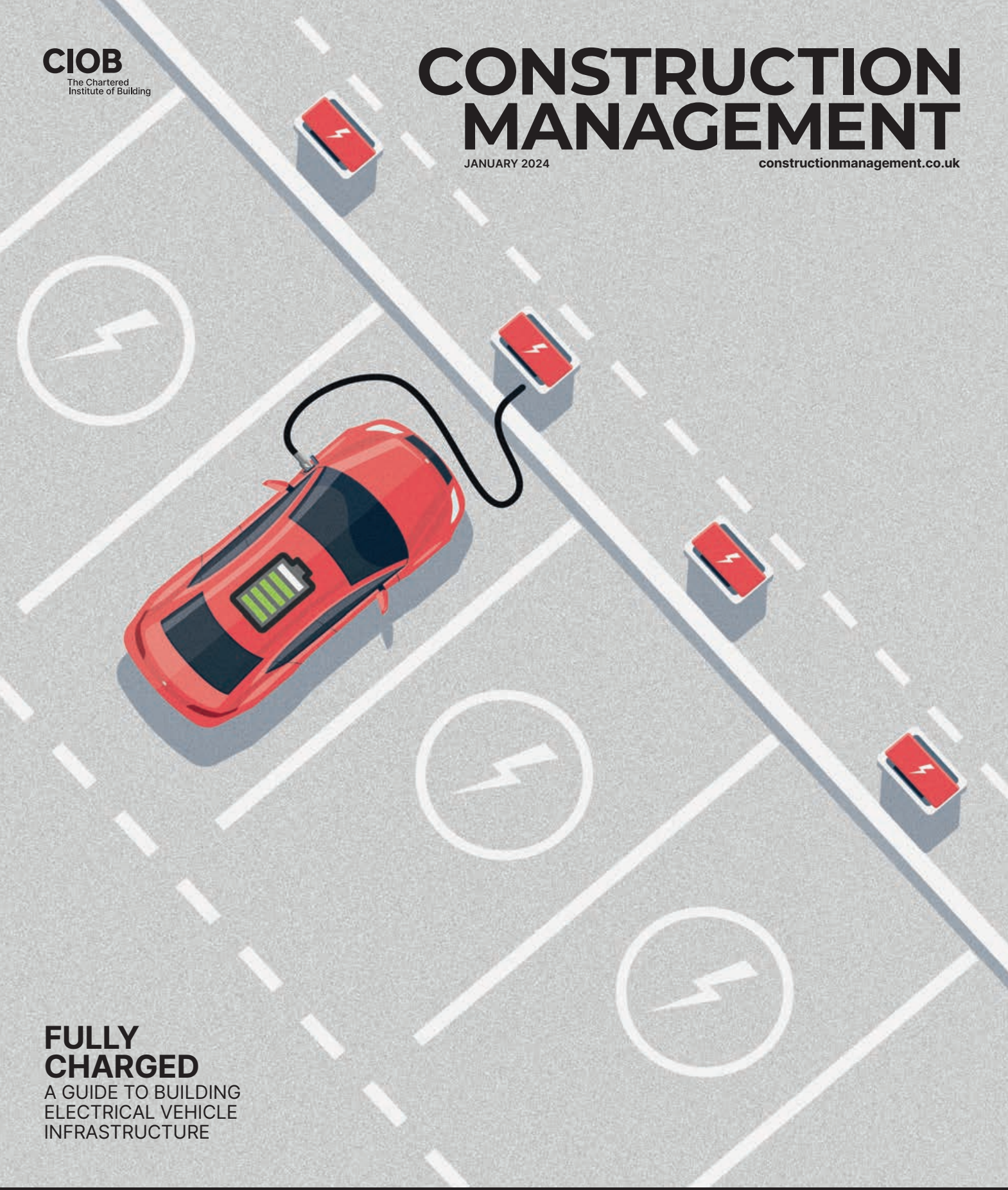
CIOB
The Chartered Institute of Building

CONSTRUCTION MANAGEMENT

JANUARY 2024
constructionmanagement.co.uk



FULLY CHARGED

A GUIDE TO BUILDING ELECTRICAL VEHICLE INFRASTRUCTURE

WHO WILL LOOK AFTER THEM IF SOMETHING HAPPENS TO YOU?

When you work at height, you're putting yourself in danger. Even a low-level fall can be devastating. Mixing tower components compromises performance, invalidates the tower's safety certificate and could lead to unthinkable consequences, not just for you but for your family too.

So, when you use BoSS®, only use genuine BoSS components. Anything else is just not worth the risk – for them as well as you.

DO MORE WITH BOSS®

www.bossaccesstowers.com

01/24

Contents


22


40


12

Works start to secure low-level nuclear waste vaults in Cumbria

Jacobs Clean Energy is leading the early works at the Low Level Waste Repository in Cumbria – the first phase of a long-term programme to permanently close the existing vaults and adjacent trenches of low-level radioactive waste disposal.

Poultry Market roof time capsule

Old and new coins and newspaper cuttings were inserted under the last copper sheet circle on the dome roof of Smithfield Poultry Market in London, recently restored by roofing contractor Full Metal Jacket.

MUSEUM OF LONDON

Emad Adel FCIOB writes on the alignment between Saudi Arabia's giga projects and the CIOB's 'modern professionalism' theme, p40

Remembering Grenfell

Grenfell Tower was fully illuminated in green on the evening of 14 December to mark six and a half years since the fire that killed 72 people.

Seventy years of the JCB backhoe loader

A JCB Mk III backhoe at work in a project with the Houses of Parliament in the background. The photo was taken in 1977, the year the range was introduced.

Maintenance work at London's Millennium Bridge

A 250m-long debris net was installed on the soffit of the Millennium Bridge to allow FM Conway to carry out planned maintenance work. An ancient Port of London Thames bylaw called for a bundle of straw to be hung under the bridge during the day and a white light at night to alert vessels.

CM's editor crowned Construction Journalist of the Year

TV anchor Juliet Mann (right) and Aecom's chief marketing officer, Harriett Hindmarsh (left), hand *CM*'s editor Will Mann the Construction/Infrastructure Journalist of the Year award at the International Building Press National Journalism Awards 2023.

CIOB

CIOB Awards finalists revealed

Shortlisted candidates include construction managers from the country's major contractors

▲ The awards ceremony will be hosted at London Hilton Metropole on 9 April 2024

CIOB Awards shortlist 2023

High Rise Accommodation

Paul Murray
McAleer & Rushe, Creed Court, St Paul's London

Chris Warren
Willmott Dixon, Perry Bar Regeneration Scheme

Daniel Royce
Willmott Dixon, The Rotherham 3 Sites, Henleys Garage, Sheffield Road & Millford House

Aaron Pearson
Willmott Dixon, Gascoigne East Phase 2 – Block E2

Eoin McCarthy
JJ Rhatigan, Abbey Place

Andrew Ziadi
Bugler Developments, Central Parade

Chris Homewood
Higgins Partnerships, Boston Road Phase 1

Low Rise Accommodation

David Noonan
Barr Group, Ashridge Farmhouse (aka Rideley Farmhouse)

Martin Bennett
Willmott Dixon, Caerphilly Housing Pilot Sites

Lee Rowley
Barratt and David Wilson Homes, B5 Central

Paul Lawrence
Bellway Homes, P2016139 Laws Crescent Brampton PE28 4FT

Jon Kelly
Storey Homes, The Place Kempston

Andrew Deacon
Linear Design & Construct, Lancefield Quay Redevelopment

Education

Jeremy Eavis
Mace, The Marshall Building

Martin Standley
Sewell Construction, Broadacre Primary School

Darran Snarr
Kier Construction, Sunningdale School

Andrew Weller
Kier Construction, Elmgrove Primary School

Chris Baker
Willmott Dixon, Manchester College City Centre Camps Phase 1

Rhys Lewis
Bam Construct & Ventures, Abbey Primary School

Gavin Ward
McAvoy, Merstham Park School

Public

Dermot Bradley
Gilbert-Ash, National Portrait Gallery

Kat Cary
Sir Robert McAlpine, St Paul's Cathedral Remember Me Covid Memorial

Andy Taylor
GallifordTry, AMP 7

Danial Moore
Willmott Dixon, New Bedfordshire Police Custody Suite

Jason Ellam-Brown
Portsmouth City Council, Portsmouth International Port Terminal

Rob Bell
Henry Boot Construction, Heart of the City Phase 2 – Block G Pocket Park

Alex Stace
Willmott Dixon, Bamfurlong Operations Centre

Leisure & Healthcare

Alex Heath
Willmott Dixon, Somerset Road, Wimbledon

Ross Taylor
Willmott Dixon, Chiltern Vale Integrated Health Hub and Residential

Danny Branson
Morgan Sindall – Construction, Great Yarmouth Marina Centre

Martin Symonds
Kier Construction, Devizes Integrated Care Centre

Simon Godfree
Kier Construction, Hythe and Dibden War Memorial Hospital

Nick Proverbs
Willmott Dixon, Harvest Road Sandwell

The Chartered Institute of Building has revealed the names of the 80 finalists of the 2024 CIOB Awards.

The prestigious annual awards recognise achievements by project managers and leaders in the UK construction industry across 14 categories, including Rising Star, Team of the Year and the celebrated Construction Manager of the Year.

There will also be awards specifically for sustainability, and equality, diversity and inclusion following their category debuts in last year's competition.

Caroline Gumble, CIOB's chief executive, said: "The CIOB Awards has long been a showcase for the very best of leadership and talent in our sector and this year is no different, with more than 80 individuals and companies making the list of finalists.

"Many congratulations to all our finalists and I look forward to seeing many of them in the spring of next year at our wonderful awards event, this time in its new London home."

▲ Construction Manager of the Year 2022 Joe O'Connell (centre) with CIOB president Sandi Rhys Jones (left) and TV presenter Anita Rani

Construction Manager of the Year 2022, Kier Construction's Joe O'Connell MCIOB, said:

The CIOB Awards has long been a showcase for the very best of leadership and talent and this year is no different with more than 80 individuals and companies making the list
Caroline Gumble, CEO, CIOB

"Winning the coveted title of CIOB Construction Manager of the Year is a career high and I am delighted to have been chosen for the industry's most prestigious award."

O'Connell won for his work helping to deliver an ultra-energy-efficient leisure centre for Exeter City Council. His team also scooped the Team of the Year prize.

Judges go through a rigorous assessment process to select finalists for each category, which includes assessing written applications, conducting site visits and hosting panel interviews.

Commercial

Scott Young
Willmott Dixon Interiors, Level 28 ESB Tranche 4

Clinton Wright
Featherstone Limited, Blick Rothenberg Office Refurbishment

Barry Kingscote
Galliford Try, 1-4 Marble Arch

Joshua Waterman
Integrated Project Delivery LLP, Battersea Power Station – Phase Two

Tom Arkley
Willmott Dixon Interiors, Thomas Hardy House

Restoration

Nicholas Sturge
Sir Robert McAlpine, The Elizabeth Tower

Kiran Giri
Bam Construct & Ventures, Plaza Redevelopment

Wayne Gray
Messenger Construction, Oxburgh Hall Raise the Roof 1st Floor death watch repairs

Mark Tregelles
Beard Construction, Cleveland Pools

Jonathan Brock
Beard Construction, St John's College Oxford Library and Study Centre

David Mills
Sir Robert McAlpine, 80 Strand

David Hartley
Bam Construct & Ventures, Project Icon, Selfridges Birmingham

CIOB Rising Star Award

Jack Stevenson
Kori Construction

Janika Niemela
St George PLC (part of the Berkeley Group)

Nouman Qadir
Quigg Golden Limited

Poppy Casson
Willmott Dixon Interiors

Maddie Beech Kier

Jessica Haskett
Kier Construction

Yasmin Struthers-Frost
BAM UK & I

Bradley Cox
WG Carter Ltd

Dilys White
ISG Limited

Ben Mason
Mitchells & Butlers PLC

Juliana Maia
DoBuild

Ashley Williams
Pexhurst Services Limited

Lucy-Ann Wallace
Hill Group Services Ltd

CIOB Team Award

Adrian Drinkwater
VINCI Building

David Noonan
Barr Group Ltd t/a Barr Build

John McCleary
Mitchells & Butlers

Chris Bennett
Kier

CIOB Client Award

Terence Magennis
Hammerson PLC

Sue McElroy
Ministry of Justice

Sarah Mcleod
Wentworth Woodhouse

Richard Powell
Prime plc

Ceriann Jardine
Coleg Y Cymoedd

CIOB EDI Individual Award

Laura James
Baker Hicks

Katy Robinson
East Riding of Yorkshire Council

Bukola Adeoye
Balfour Beatty

Gurdeep Jandoo
Wates Residential

CIOB EDI Team Award

Candice Henderson
Red Engineering Design

Clare White
Baker Hicks

Alpa Kapasi
BBVS

Mike Vasillou
Dobuild

Amanda Swoboda
Kier Construction

Hollie Cregan
Graham Construction

CIOB Sustainability Award

Saul Humphrey
Saul D Humphrey LLP

Ian Armstrong
ARCO2 Architecture Limited

Rakesh Chavda
VolkerFitzpatrick

Most adults prefer old homes to new builds, says CIOB study

Institute's research shows almost two-thirds of people are concerned about issues with new-build housing

Fifty-five per cent of adults in the UK believe that older homes are better quality than new builds, compared with 21% who think new builds are superior. Almost a third (32%) of respondents to a CIOB poll on public perceptions of new-build homes described them as "poor-quality".

The survey also found a lack of trust in housebuilders to build new homes to a high standard: 33% of respondents indicated they have a "low level of trust", and 63% said they are "very or somewhat concerned" about potential issues with new-build housing.

CIOB said housebuilders have a leading role in rebuilding consumer confidence by better promoting standards and providing buyers with clear information on how they are regulated.

The findings are part of a report by the institute exploring public perceptions of new-build homes and levels of awareness of the standards housebuilders must adhere to. It also signposts to resources when these standards are not met.

David Parry, CIOB's parliamentary and public affairs officer and author of the report, said: "Our research shows the majority view of new-build homes is that they're of low quality and this puts many people off from considering buying one.

"However, the new builds are generally much more energy efficient as they must adhere to more stringent regulations."

The survey of 2,000 UK adults was conducted in September 2023 by Opinion Matters for CIOB.

▼ Most UK adults think older homes are better quality

Interview: Chris Gorse, chair of CIOB's Sustainability Panel

Chris Gorse MCIOB, professor of construction management and engineering at Loughborough University, talks to **CM** about CIOB's Sustainability Advisory Panel

What is the role of the sustainability panel?
Under its charter, CIOB has a responsibility to promote science and practice. Through the CIOB network and advisory panel we draw on the latest knowledge to ensure we can provide expert advice on sustainability. Our primary role is to prioritise sustainability in the built environment, advancing the science and sustainable practice at all levels – global, national and regional.

What are you currently working on?
The group is working on many projects, responding to queries, producing outputs and influencing changes in standards and regulations. We will be producing technical information sheets and facilitating CPD events.

We've just published a research paper – *Harnessing Scotland's Social Housing Expertise* – led by CIOB policy and public affairs officer Jocelyne Fleming. Chris Gorse, Bianca Drotleff and other CIOB expert members also recently produced the *CIOB Guide to Sustainability in the Built Environment*.

How do you keep up with latest thinking on climate change?
As a group, we're abreast of practice-based intelligence. The science of sustainability is rapidly developing, and so is our extended network; we are constantly reaching out and encouraging interested parties to engage with us.

The panel's work extends across all 17 United Nations Sustainable Development Goals.

TARMAC

CEVO

CONCRETE **EVO**LUTION

Engineered low carbon concrete solutions.

What concrete carbon rating do you want to achieve?
We've aligned our low carbon concrete supply to the ICE, Green Construction Board Low Carbon Concrete Routemap ratings. This means complete transparency in achieving carbon reductions aligned to industry standards and no offsetting.

Tell us what you want to achieve from an industry standard A++ to G and what strength your application needs to achieve, and we will deliver a CEVO low concrete solution.

Helping you make lower carbon concrete choices - Join us

Scan to read more **about** CEVO

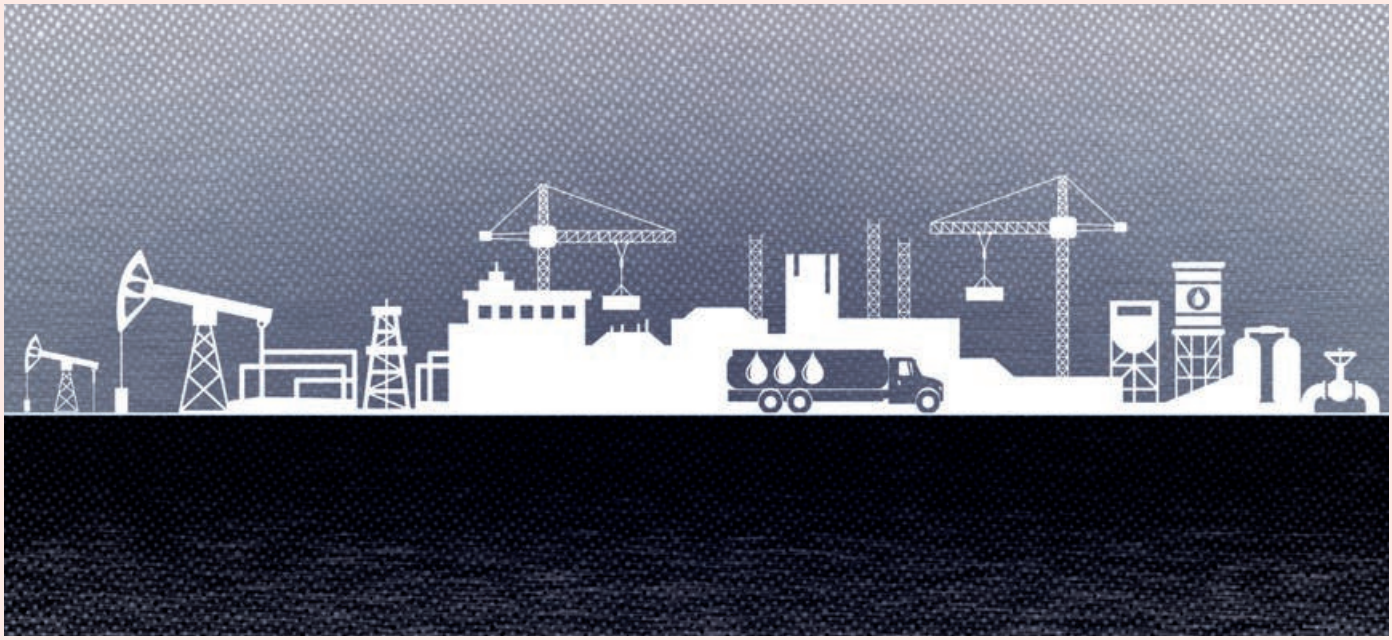
Calculate your carbon – Print your footprint **Enquire now**

Tarmac. Building our World.

lowcarbonconcrete.co.uk

Oil price volatility and what it means for UK construction

As an industry highly dependent on fuel, construction should pay close attention to the volatile oil market, says **Pablo Cristi Worm**



In our modern world, where innovation is prized and sustainability goals are driving so many shifts and developments, it can be easy to forget that the global economy still relies on oil more than any other commodity.

Though ongoing efforts to reach net zero targets are decreasing our dependence on the black gold, and will continue to do so in the coming years, the reality is that for now it plays a dominant role in transportation and industry.

Oil is also one of the world's most volatile commodities. Many of the key oil-producing regions – the Middle East, Latin America and Russia – are politically turbulent. This increases the risk of regional crises resulting in global oil price fluctuations and impacting economies all over the world.

The price of oil also regularly changes in response to geopolitical events and economic cycles. If economic activity falls sharply, so does demand for oil and its price. In the aftermath of the global financial crisis in 2008, oil prices fell 66.4% from a high of $132 (£104) a barrel. The Covid-19 pandemic had a similar effect – causing a fall of 57.6% in just three months.

The knock-on effect on construction

More recently, global events have seen prices rise, and construction is one of the industries particularly exposed to this volatility. In 2022, the conflict in Ukraine and the economic sanctions on Russia that followed led the cost of oil to surge beyond $120 (£95) per barrel. While the World Bank currently expects a price fall to $81 (£64) in Q1 2024, it is now warning that an escalation of the conflict in the Middle East could cause prices to reach $150 (£119) per barrel – an all-time historic high.

Construction's exposure to oil prices stems from several factors, including the production, distribution and utilisation of materials. According to Turner & Townsend's calculations, 80% of fluctuations in construction input costs can be attributed to the volatility of oil and fuel prices.

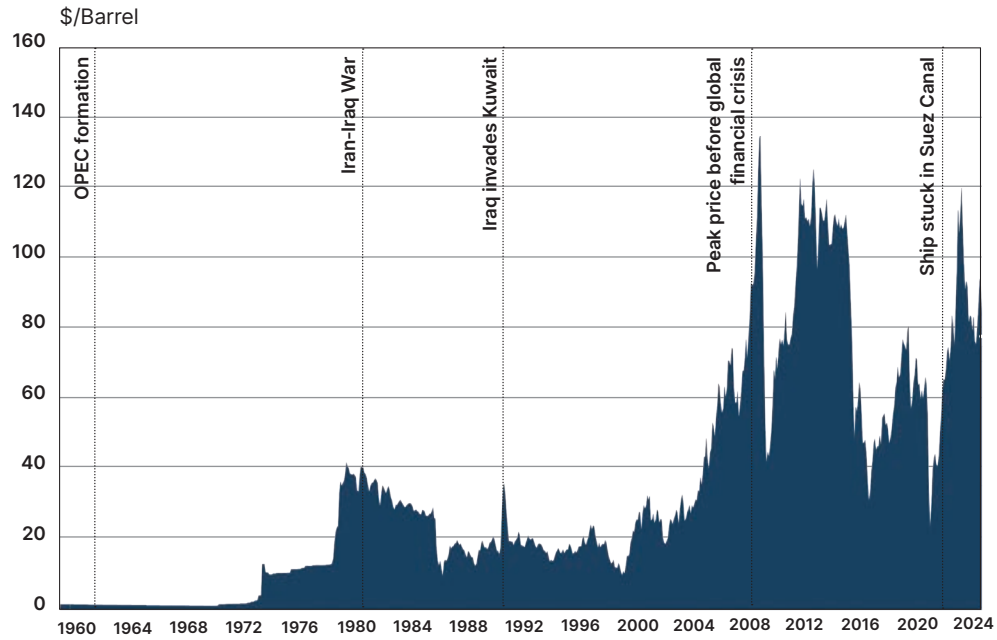
This is based on the fact that over half of construction's total expenses originate from materials, plant and preliminary costs, which are sensitive to changing oil and fuel prices. This is particularly true of the fuel-intensive production of concrete, steel and glass, as well as the operation of diesel-using heavy machinery. Imported materials – with their associated fuel needs for transportation – also make up a significant proportion of the price of projects.

Analysis conducted by Turner & Townsend found that variations in oil prices are responsible for 70% of construction material price changes. Fluctuations in the price of oil take, on average, four months to filter through to the sector. This delay should be taken into account by the industry when planning for and undertaking projects, as the full effects of a spike or fall in oil markets may not be immediately felt.

Year-on-year percentage increase in imports of petroleum products to the UK in Q2 2023

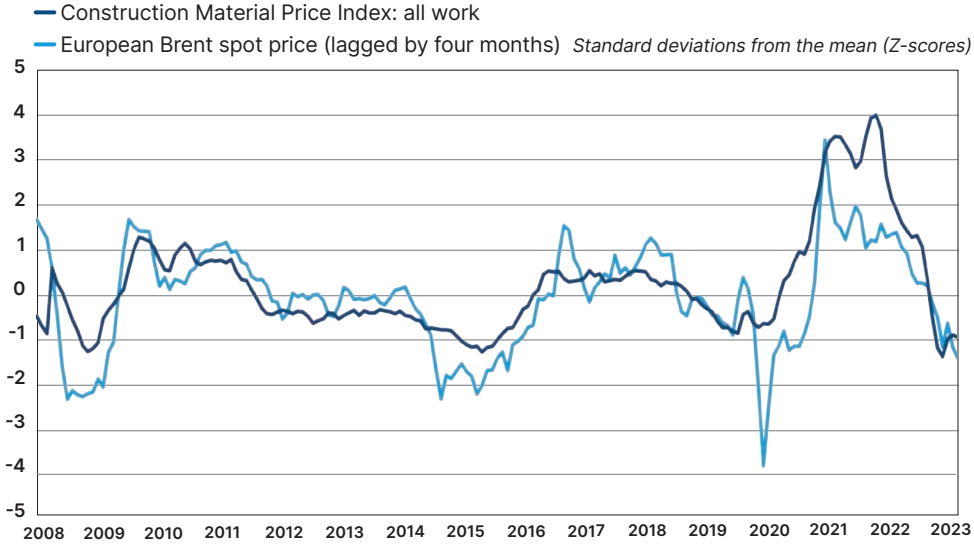
31

Crude oil prices and main historical drivers of volatility



SOURCE: ENERGY INFORMATION ADMINISTRATION/HAVER ANALYTICS

UK construction material prices and Brent price (lagged)



SOURCE: DEPARTMENT FOR BUSINESS AND TRADE AND ENERGY INFORMATION ADMINISTRATION

While the World Bank currently expects a price fall to $81 in Q1 2024, it is now warning that an escalation of the conflict in the Middle East could cause prices to reach $150 per barrel – an all-time high

Ending dependence on fuel

Given warnings about potential oil price spikes, how can clients seek to mitigate exposure of projects to this volatility? In the first instance, clients need to identify areas of their supply chain that could be more vulnerable to oil price shocks so these can be reduced – for example, by limiting reliance on imported materials or those with fuel-intensive methods of production.

More energy-efficient processes should be pursued where possible, like modern methods of construction or modular building, to limit projects' demand for fuel.

In the longer term, part of the solution will be looking to energy sources that trade prices locally rather than globally, reducing the impact of geopolitical events. The situation also reiterates the importance of innovation and investment in alternative and renewable fuels, such as hydrogen – which may deliver more stable and plentiful solutions for the future.

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

Caroline Gumble
CIOB

A renewed company membership for a changing construction industry

CIOB is updating its company membership scheme to keep pace with evolving sector regulations and standards, says **Caroline Gumble**

It has been another busy year for CIOB: from the launching of our new corporate plan and the review of our CPD policy to the introduction of a brand new membership grade, these are just a few of the many highlights from 2023. The start of 2024 is no different, with news that our redesigned company membership scheme will roll out this year.

We have offered a company membership scheme for a long time now, with an accreditation process not dissimilar to our process for individuals who gain chartered membership status.

Our scheme provides assurances that a company is run by professionally qualified managers who are committed to best practice, ethical standards and professionalism. It's also important to acknowledge that clients tend to trust companies adhering to recognised, established standards. CIOB's company membership has long been seen as an opportunity for commercial organisations in the sector to stand out and confirm their credentials.

As with many of our recent developments, the update to our scheme for companies has been driven by members, and during 2023 we consulted on our current company membership offer.

It became clear that there is still an appetite for CIOB to continue providing a robust framework that supports company members. It was also evident that, as with any of the changes we make, we needed to maintain a focus on aligning with industry standards and reflecting the ever-evolving construction landscape.

> **Our scheme provides assurances that a company is run by professionally qualified managers**

We now have a set of revised regulations, created around industry best practices and feedback from members and clients.

The new regulations are more comprehensive and provide more clarity on requirements for transparency, safety and sustainability.

Key elements of the criteria for company membership are:

- Fifty per cent of the company's board need to be chartered members of a recognised professional institute, of which one must be a chartered member of CIOB.
- The company must be able to demonstrate trading for a minimum of two years.

It's also a really positive development – for CIOB and for potential company members – that we are expanding the designations available. Depending on the focus of a company's work, a member organisation can choose to be listed as a Chartered Building Company, a Chartered Building Consultancy, a Chartered Construction Management Company or a Chartered Construction Management Consultancy.

Look out for more details on the revised and renewed company membership scheme as we move through 2024.

Caroline Gumble is CEO of CIOB.

Feedback

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

CM 06/12

'Standards are not red tape': takeaways from Paul Morrell's CIOB lecture

John Ford

Paul Morrell OBE reviewed the industry's burning issues at the Sir James Wates lecture, titled 'How much longer? Why is change so difficult (and yet so necessary) in construction?'

I particularly resonate with the point raised about the lack of enforcing standards. This absence of enforcement from the very top is a significant factor contributing to our industry's ongoing struggle with information management standards and transformation in general.

I'm curious about our next steps, though. Although we frequently discuss these matters, it seems we persist in the same direction day after day.

Take the BIM aspect, for instance. Early on, those of us on the front lines, well versed in information management and modelling, sensed almost immediately that the BIM initiative was reaching too high and too far, too soon.

The assumption that most projects already had the digital and information management basics in place and adhered to BS 1192:2007 immediately led us astray. And our clients were also not ready for COBie, nor did they have any enforced objective on them to digitise their facility/asset management contracts unless they were critical infrastructure reliant on data.

Despite our current situation, we have learnt nothing and are still aiming too high. This approach of ignoring the issues and creating new ones will inevitably require more education and problem-solving going forward, leaving people drowning in the rough seas of incomprehensible standards as those developing them continue sailing on without looking back.

And if you challenge this status quo? Then you can find yourself overboard too.

Paul Morrell gave his Sir James Wates lecture at the Royal College of Surgeons

BIMplus 23/11

Defining the digital twin

Kirsty Gaskell

I applaud the Women in BIM group. I've been to a few sessions myself but I don't get why we keep talking about digital twins. Are we builders or are we maintainers?

Our industry BIM folk are so off-target that everyone is running around like headless chickens. I still have QSs wanting to measure drawings, project managers who prioritise everything other than IM and clients who haven't a clue what to do with IFC models and COBie.

Can't we just stop and think about what we are pushing and the impact it's having on the rest of us? You can't promote change and digital adoption by skipping the simple steps and going 100mph.

CM 20/11

Six key construction issues to look out for at COP28

Stuart Wilkie

The climate and biodiversity crises are indeed linked but I would add a third: the timber crisis.

If we are to leave enough of the world's forests intact to support biodiversity and pivot towards more sustainable construction materials, then it is predicted that by the end of this decade, world timber demand will exceed the capacity of the planet to supply it.

By 2050 the deficit is predicted to be between 3 and 4 billion cu m of timber per year.

We need to dramatically increase the area of sustainably managed productive forests to meet demand for timber and timber products.

CM 09/11

Greenwich 'mutant development' demolition order: what's next?

Brian Wood FCIOB

The Royal Borough of Greenwich recently ordered the demolition of two newly built blocks of flats for breaching planning conditions.

This strikes me as appearing to possibly have some similarities with the building commissioned by the family of Captain Sir Tom Moore in his memory and served with an enforcement notice as not in conformity with the approved plans.

Whatever feelings may be had – and what a waste – lawful exercise of authority must be upheld and be seen to be.

I take it as read that, as professional people, members of CIOB expect to behave accordingly.

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

▼Silk Road Art Gallery
by Sen Wei

Photographer's words: "Unique Silk Road art museums can be found all over China, with their unique shapes and exaggerated artistic curves, perfectly presenting the characteristics of architectural diversity."

In pictures: Art of Building 2024

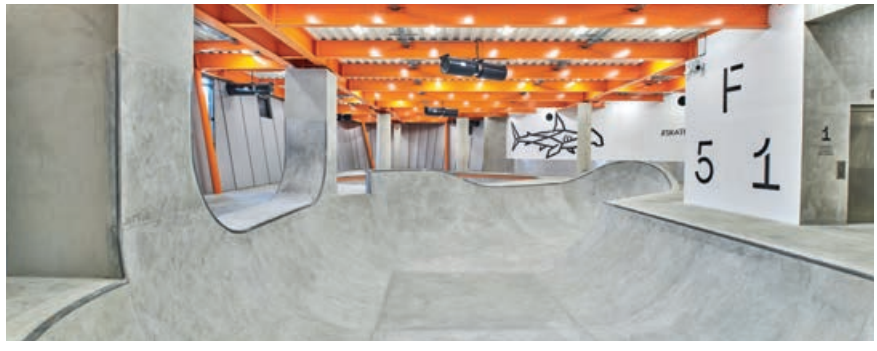
Fifteen photos have made it to the final shortlist of this year's CIOB photography competition, the Art of Building, including the six here. Cast your vote online at www.artofbuilding.co.uk. The winner will be announced on 12 January

▲National Mosque of Bangladesh
by Azim Khan Ronnie

Photographer's words: "The National Mosque of Bangladesh can hold up to 40,000 people, including in the outside open space."

▶F51 World's first multi-storey skatepark
by Matt Rowe

F51 – named after its Folkestone location – was first designed as a multi-storey car park but morphed to become the world's first multi-storey skatepark.



Go online to cast your vote at artofbuilding.org

CIOB The Art of Building

Kaizhou Window

by Hongyi Lou

Judges' comment: "This is a fascinating building, affectionately known as Kaizhou Window. Its exciting architecture serves as a gateway to the surrounding scenery and as a signpost to the rest of the world."

Nandgaon Temple

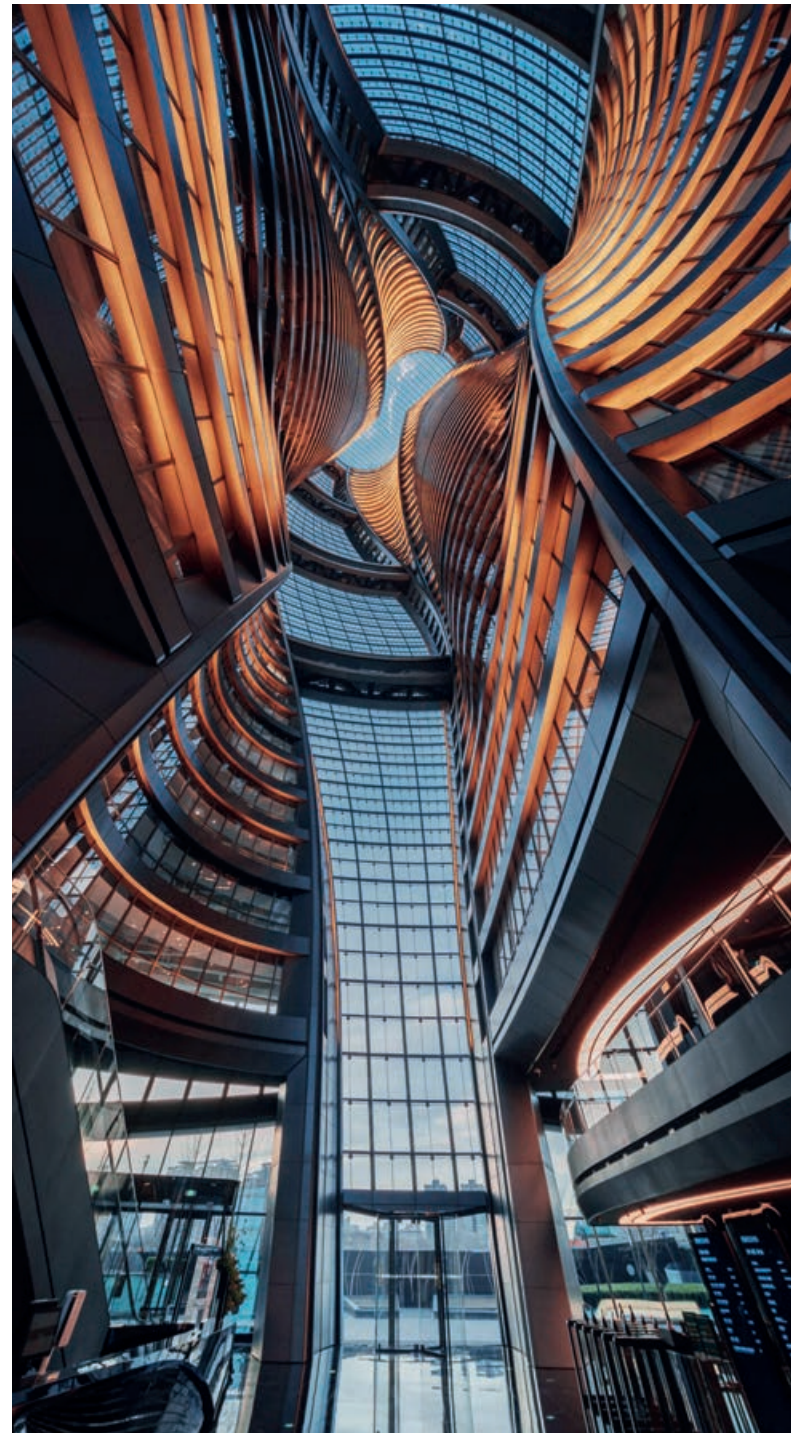
by Azim Khan Ronnie

Photographer's words: "Nandgaon is a historical town in the Mathura district of the Indian state of Uttar Pradesh. It is believed Krishna in his childhood lived there with his family."

The world's tallest atrium

by Jiachen Li

Judges' comment: "The twisting atrium at Leeza SOHO, a 45-storey office tower in Beijing designed by Zaha Hadid Architects, is the tallest in the world."



HS2's giant 'Lego' viaduct

The Thame Valley Viaduct on HS2 is being built from giant precast blocks weighing up to 90 tonnes. **Hamish Champ** watches as this offsite manufacturing marvel is slotted together

A couple of miles north west of the Buckinghamshire town of Aylesbury, the UK's longest – and the country's first – factory-made railway viaduct is slowly taking shape, like a giant Lego set.

Comprising 72 precast concrete beams, each 25m long and weighing 90 tonnes, arrayed across 36 spans and supported by 68 factory-manufactured piers each weighing 42 tonnes, the Thame Valley Viaduct is being slotted together with millimetre precision.

NICK@NICKROBINSONPHOTO.COM/HS2

When it's finished, the 880m-long structure will carry a stretch of HS2's London to Birmingham route across the flood plain of the Thame Valley.

The viaduct forms part of a section of the high-speed railway line – technically labelled the C2/3 Programme – currently being constructed between the Chiltern Tunnel and Long Itchington Wood in three distinct lengths: North Chilterns to Aylesbury, Twyford to Greatworth, and Greatworth to Southam.

At 80km long, the C2/3 project can reel off some impressive statistics: 81 bridges, 15 viaducts, 7km of green tunnels, 22km of road diversions, 330ha of landscape planting and a whopping 30 million cu m of excavated earth.

The government may have controversially pulled the communication cord on the section of the line from Birmingham to Manchester, but contractors and engineers remain extremely busy with – and committed to – the rest of the HS2 project.

Around 6,500 people are working on the C2/3 programme, and 60 are employed on the Thame Valley viaduct, which is being built along the North Chilterns to Aylesbury section.

The viaduct was designed by HS2 Ltd's main contractor, EKFB – a team made up of Eiffage, Kier, Ferrovial and BAM Nuttall – along with a joint venture featuring Arcadis, Setec and Cowi. Onsite assembly of the precast sections is the responsibility of Ferrovial subsidiary FC Civils Solutions.

Crossing an extensive flood plain to the north and west of Aylesbury, parallel with the A41, ▶

> **Delivering components ready to install on site means improved health and safety during construction and a much better quality of product**
> **Ignacio Chicharro, EKFB**

Thanks to the form the viaduct will take, people will see a railway which fits in with the surrounding landscape really well
Ignacio Chicharro, EKFB

one might have expected the viaduct's design to be "a sexy tall one, maybe 25 or 30m in height", says Ignacio Chicharro, EKFB's project director for the HS2 Aylesbury Area.

Instead, the end result will appear to skim just above the surface of the waterlogged fields to blend in with the landscape. The underside of the finished viaduct will be a mere 3m above the ground, supported by piers which sit atop 45m-deep piles.

Chicharro says initial concepts for the viaduct would have involved a high degree of temporary works, including propping for beams. But research into alternative solutions for the site led to a simpler approach being adopted.

Typically, viaduct beams are connected via a concrete diaphragm, which is cast in situ. However, the precast beams on the Thame Valley Viaduct are secured directly to one another, removing the need for the diaphragm. Meanwhile, the deck on top of the beams, which will carry the actual rail track, is also made from precast planks. Every major element of the structure – the piers, beams, deck planks and parapets – is being prefabricated and slotted together.

HS2 says this will make the viaduct a lighter structure, which is expected to save 19,000 tonnes of embedded carbon versus the previous design, cutting its carbon footprint by around a third.

"The design we are using is a more efficient structural solution," says Chicharro. "Delivering components ready to install on site means improved health and safety during construction, a significant reduction of temporary works and a much better quality of product.

"It also means we can save time on delivery, which means less disruption for the local communities in the area. And as well as the carbon

▼ CGI showing the completed viaduct which will sit just 3m above the fields below

Thame Valley Viaduct in numbers:

880	36	72	32	68	2
metres long	spans	beams	spans of 25m and four spans of 20m	piers at an average height of 3.3m	tonnes of steel reinforcement in each pier

STEPHEN HENDRY

▶ The viaduct's concrete piers are manufactured at Pacadar's factory on the Isle of Grain

footprint reduction, thanks to the form the viaduct will take, people will see a railway which fits in with the surrounding landscape really well."

However, the design proposed was quite controversial, since the UK government had imposed a moratorium on building viaducts and bridges using precast components around 30 years ago.

Rigorous approach to quality

The moratorium dates from the early 1990s, when HS2's lead bridge and viaduct engineer David Smith was beginning his career. Back then, there had been issues on some bridge structures with the durability of the joints between component sections, meaning water ingress could be a problem. Europe doesn't have such a moratorium, Smith notes, "perhaps because they don't have the same chloride levels and environment as the UK".

So how did HS2 get around the problem? Smith says his team looked at what the moratorium was trying to address, namely issues like the quality of grout, the expertise of the personnel on site and long-term monitoring of the structure. As a result, the Thame Valley Viaduct takes a rigorous approach to quality and structural integrity.

"The viaduct is designed to last for 120 years, so we have developed a strategy for monitoring the health of that structure over that time, to give us early warnings when things are going wrong, as well as developing techniques to stop things going wrong in the first place," he adds.

HS2 North Chilterns to Aylesbury section: key projects

- 24km of high speed line
- 18 overbridges
- Five underpasses
- Three viaducts (including the Thame Valley Viaduct)
- Five major road realignments
- One Network Rail realignment
- Earthworks: 6.6 million cu m excavation/ 8.3 million cu m fill

The viaduct's design was in part inspired by examples developed in Spain, where Ferrovial has its headquarters, and Smith says this expertise was used in developing the connections for the beams.

"In our technical specifications and technical standards, we wrote in specific performance requirements to allow this form of construction, so we can ensure an airtight end duct across the joints after they've have been connected together," he explains.

Nothing, Smith admits, is maintenance free. But the goal is certainly to be low maintenance, so that any repair or assessment activity can be done in a very narrow window to ensure the two lines carrying high-speed trains have minimal interruptions.

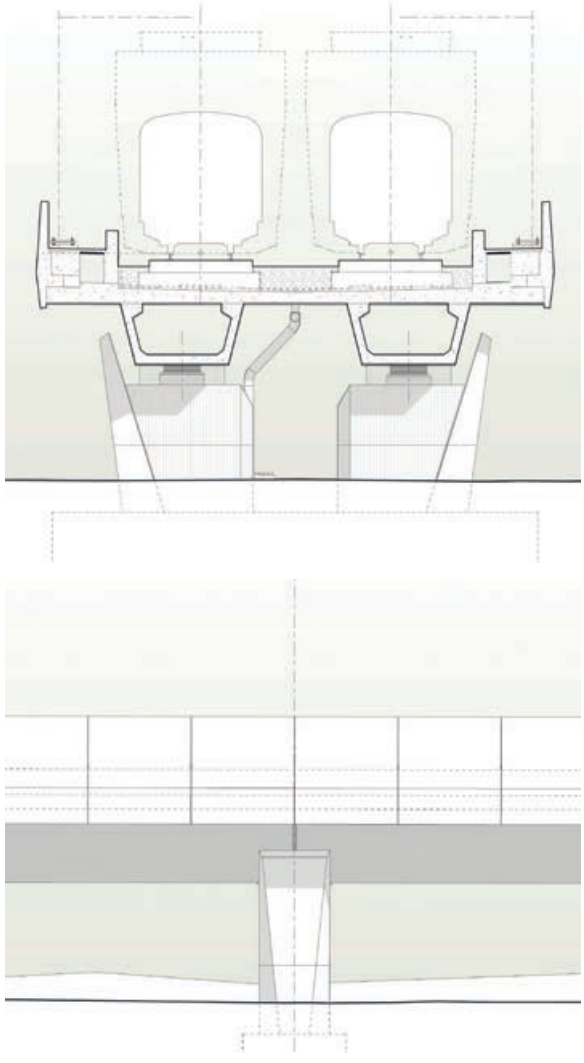
From a construction viewpoint, there are huge advantages to the offsite approach, Smith says.

You can use the same adjustable moulds so they are capable of producing precise lengths of beams. That means greater efficiencies and greater accuracy
David Smith, HS2

"The main benefit of having such enormous parts being built in a factory is that you can be much more precise," he says. "You can use the same adjustable moulds so that they are capable of producing precise lengths of beams. That means greater efficiencies and greater accuracy. So we are able to work perfectly capably with tolerances that are mere millimetres.

"We've also saved five, maybe even six months' worth of construction time compared to a traditional approach."

The beams and piers are being made by the UK operation of Spanish precast concrete specialist Pacadar, which is also responsible for producing the concrete linings for many of HS2's tunnels. ▶



Pacadar manufactures the viaduct's components in huge moulds at its factory on the Isle of Grain in Kent. Once moulded, delivery of the concrete sections is a complex logistics affair. They are transported overnight to the Thame Valley site, four hours' drive from the factory, to minimise disruption to local road networks.

▲ Superstructure and pier section (top)

▲ Superstructure and pier elevation (above)

FC Civils Solutions is charged with installing the huge precast units. This delicate operation involves two huge cranes – one of 300 tonnes, the other 350 tonnes – raising the beams from the flatbed lorries and lowering them onto the piers where they are effectively bolted into place.

Boosting biodiversity

Completion of the Thame Valley Viaduct is expected in the third or fourth quarter of 2025. HS2 says that once the viaduct is completed the floodplain will be enhanced to boost biodiversity and improve flood water management. Work will include replacing existing arable land with new areas of woodland and wetland to promote wildlife.

Smith is excited about the level of innovation that HS2 is facilitating and says he is "passionate about leaving a legacy for the next generation of engineers, and for the next generations of projects".

The scrapping of the northern section of the HS2 line "was a surprise", he adds, "but there's still a lot we can do, and indeed we are doing, across the length of phase one, from London to Birmingham.

"The learning from the design for the Thame Valley Viaduct will be taken forward and used on high-speed rail projects both in the UK and across Europe in future," he says. The Thame Valley Viaduct design will also be used by HS2 on the nearby Edgcote Viaduct in Northamptonshire.

The learning from the design for the Thame Valley Viaduct will be used on high-speed rail projects in the UK and across Europe
David Smith, HS2

CV: David Smith, lead engineer for bridges and viaducts, HS2

A specialist in bridge engineering, David Smith is currently seconded from AtkinsRéalis to High Speed 2 Ltd as lead discipline engineer for bridges and viaducts throughout the whole route, following his leadership of the viaduct design development in the southern half of the route for the Phase One Hybrid Bill.

A chartered engineer and fellow of the Institute of Civil Engineers, he has more than 25 years' experience, skilled in the design, assessment and strengthening of steel, concrete and composite bridges and highway, light rail and high speed rail structures, including the Medway Viaduct in Kent.

Responsible for the development and maintenance of the route's bridge technical standards and aesthetic design requirements, he is delighted to play a role in delivering the first railway viaduct in the UK to be built using prefabricated concrete components.

"If I achieve nothing else on this project, just showing what the UK can do with regards to precast segmental construction is what I really want to achieve out of it," he says.

DIGITAL CONSTRUCTION WEEK

EXCEL LONDON
5-6 JUNE 2024

INNOVATION IN THE BUILT ENVIRONMENT

Apply to speak at DCW

Share your knowledge on stage at the UK's leading event for innovation in the built environment.

SHOWCASE YOUR WORK

Put your innovative projects in the spotlight

GROW YOUR NETWORK

Get in front of a forward-thinking AECO audience

IMPROVE THE INDUSTRY

Share your learnings with others to drive progress

@DigiConWeek
Digital Construction Week
@DigiConWeek

Organised by diversified COMMUNICATIONS

DEADLINE:
23 February 2024

www.digitalconstructionweek.com

HEADLINE PARTNERS
AUTODESK Construction Cloud · PROCORE · BLUEBEAM · CAUSEWAY

GOLD SPONSORS
Bentley · GRAPHISOFT · IFS · Trimble

GOOGLE

Raising the roof at Waterloo

CIOB member Martin Ball manages the buildings on Network Rail's Wessex route, which includes the complex upgrade of the roof at Waterloo, the UK's busiest station. He talks to **CM** about his role

▲ Around 10,000 new glazed panels will be installed across the concourse and porte-cochere roofs (bottom of picture).

The roof on Waterloo Station dates back over a century and last summer Network Rail started work on a much-needed £47m renovation programme.

Approximately 10,000 new glazed panels will be installed across the concourse and porte-cochere roofs. The panels will be made from a polycarbonate glazing material which is around 50% lighter in weight, reducing stress on the structure, which was built in 1922.

Overseeing this two-year project on the UK's busiest station is Martin Ball MCIOB, a senior asset manager for the buildings team on the Wessex rail route for Network Rail.

Last summer Network Rail started work on a much-needed £47m renovation programme

47

The concourse and porte-cochere roof structures are aged, and their condition led to the installation of debris netting in areas and enhanced condition monitoring

Martin Ball, Network Rail

"My team has overall responsibility for the condition of all fabric and M&E assets within a station, including platforms, canopies, footbridges, buildings, access roads and car parks," he explains. "We also look after depot train sheds and plant, and lineside buildings such as staffed maintenance team offices and electrical equipment buildings."

The Wessex route covers a triangular area from Waterloo down to Portsmouth Harbour, and then out west just past Weymouth in Dorset. Ball's team of four has responsibility for 200 stations, nine depots and 1,700 lineside buildings.

Meeting Waterloo

The Waterloo station roof is one of their biggest projects.

"The concourse roof covers around 8,000 cu m, comprising 25 glazed 'lantern' structures, and is partially curved in profile," Ball explains. "The porte-cochere roofs are located to the north of the station and provide sheltered through-access for passengers, buses and taxis.

"Both structures are aged, and their deteriorating condition led to the installation of debris netting in areas and enhanced condition monitoring."

Contractor Octavius was appointed for the renovation project, which includes erection of a temporary roof structure that will sit over the current station roof while the existing glass panels are replaced. The work will be completed in phases, with the scaffolding deck moving across the concourse as the project progresses and eight temporary staircases will be installed across the station.

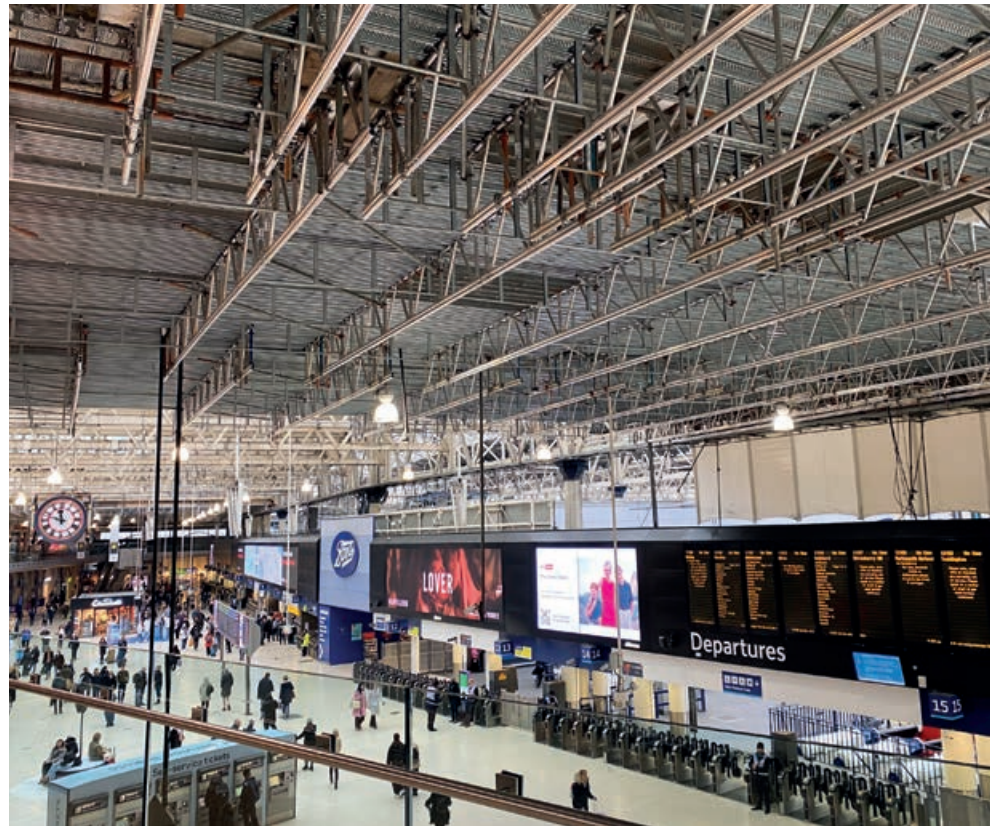
"The high-level concourse roof scaffolding has been hung from the wrought iron roof structure, and an external 'marquee' propped off the scaffold to maintain weathertightness, covering the lanterns, and sheltering passengers below," explains Ball.

As part of the project, enhancements will also be made to the link canopy, inspection walkways will be replaced, plus there will be rewiring and relighting of both roofs. All works are being carried out while the station maintains full operability.

"The biggest challenge at Waterloo has been making the right decisions as new issues have been presented," Ball says.

"We had originally remitted cleaning and touching up of the structural steelwork rather than full redecoration. But the cleaning revealed the underlying paintwork to be in worse condition than expected. The question was whether to stick to the original remit or accelerate full redecoration of the roof structure, which meant securing additional funds and reprioritising other future projects elsewhere on my route.

"This was a significant project change and required approval from our investment panel, which ▶



▼ The scaffolding deck is suspended from the wrought iron roof structure and will move across the concourse as the project progresses

Assets critical to safety and the running of trains are inspected annually, and all other assets five-yearly. My team review these surveys and instruct necessary interventions
Martin Ball, Network Rail

was given. Redecorating the entire concourse roof increased the project cost, but by carrying out this work as part of this project, rather than as a separate future standalone project, it generated a significant efficiency to the business, safeguarding against future interventions to the roof for about 25 years."

Wessex regime

Ball's work across the Wessex route assets is underpinned by a robust inspection regime.

"Assets critical to safety and the running of trains are inspected annually, and all other assets five-yearly," he explains. "My team review these surveys and instruct necessary interventions ranging from pothole repairs in car parks to total asset renewals of platforms, canopies or footbridges."

The work is funded by the Department for Transport in five-yearly control periods (CPs) and the next one (CP7) is starting in April 2024. Ball's team has a renewals budget (Capex), covering higher value projects, and an operational budget (Opex), for smaller works and maintenance, both delivered through a framework contractor. Operational works cover emerging defects – such as water leaks, trip hazards and blocked drainage – and planned preventive maintenance – such as asbestos surveys, fire remedials and gutter clearance.

▲ The Waterloo Station roof and the famous clock are over 100 years old

"We provide expert advice for these works, and ensure they are completed within statutory timescales," says Ball.

"We also liaise with the train operators, other internal Network Rail departments, and we review and respond to requests from passengers, local authorities, retailers – and even politicians!"

Ball says that "safety is at the heart of our business", but that in turn increases cost.

"As an example, repairs to a platform support wall cannot be carried out when trains are running or when the power is on. A 'possession' of the line is planned which stops trains from running, and power to the DC electrified third rail is switched off. A work group under a team of protection staff (as there are still hazards such as maintenance train movements within the limits of the possession) can then carry out repairs. Work is usually carried out at night.

"I am proud that the railway is prepared to meet those extra costs to protect the safety of its staff."

CV: Martin Ball MCIOB, senior asset manager, Network Rail

"I have worked on the railway for 11 years: six years as a station asset condition surveyor and five years in asset management with Network Rail. Before this I worked as a building surveyor for a small firm in central London and as a topographical and measured building surveyor in both Leeds and Sussex.

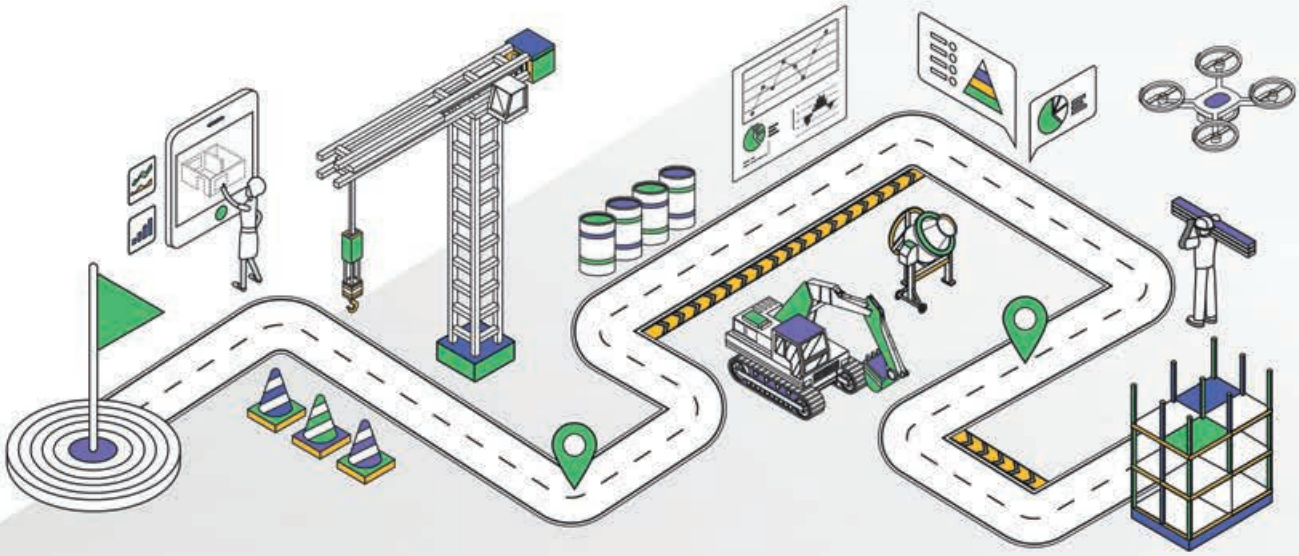
"Our team of four asset managers has a mixture of experience and education, ranging from 'on the tools' to surveying, engineering, HNCs, first and post-graduate degrees, internal Network Rail asset examination qualifications and professional membership of the CIOB.

"On a typical day, I usually have to prioritise my workload against four criteria: the work I planned on doing, what meetings I need to attend, volume of emails received, and arising issues. I usually spend a day working from home, a couple of days in one of our many offices and at least one day a week dressed top to toe in orange hi-vis out on site.

"The railway is unlike any other industry and it can take a good year to fully understand all the different interfaces that come into play when interventions are proposed and made."

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.

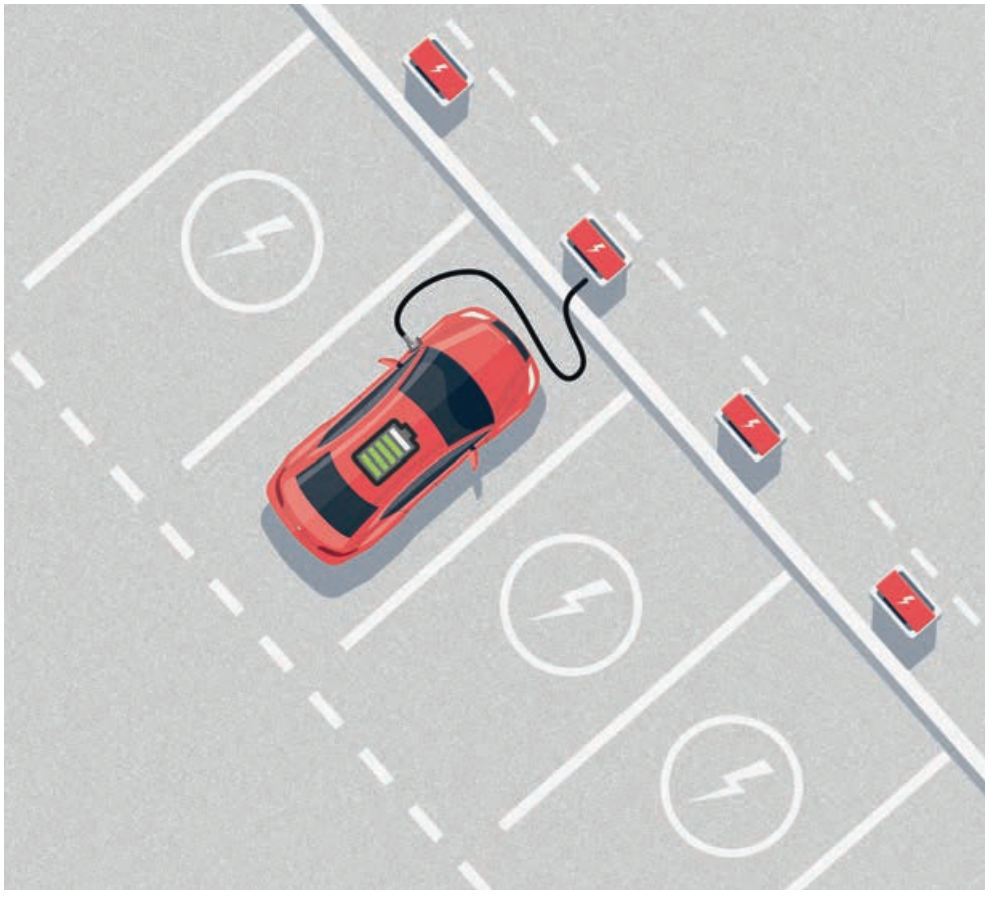
The result? An in-depth insight report that enables you to benchmark yourself against your industry peers and plot your next steps on the road to digital maturity.

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

AUTODESK

Fully charged

CIOB member Will Temperley recently launched his own electrical vehicle infrastructure business, Fortis EV. He talks to **CM** about the exciting prospects in this growing sector



How did you get into EV charging stations construction work?
Having spent a large part of my career in rail and civil engineering sectors, we started Fortis Foundations in 2020, then saw an opportunity to contribute to the transition to cleaner transportation through the installation of electrical vehicle (EV) charging stations. We launched Fortis EV two years ago.

Any company has to adapt and grow – and, looking forward, renewable energy is a huge market. With planned government initiatives being rolled out, a lot of civil engineering and construction expertise is needed to deliver these projects, and that's where we come in.

Fortis has leveraged its expertise in civils to facilitate the installation of EV infrastructure, making the company a full turnkey provider for both the electrical and civil engineering work required.

We install EV charging stations in car parks, bus stations and roadside parking bays and work with companies such as VolkerHighways, ESB, Circet and Addcharge.

What are the key technical challenges during the construction?
There are two types of EV charging station project – domestic and commercial. The key technical challenges for domestic projects are the installation of AC/DC plug sockets and isolation switches. For commercial projects, it's the paperwork, governance plus planning permits and agreements. For both types of project, the safety aspect for the public and employees is key – you are dealing with gas, water, electric, data cables and drains.

What skills and accreditations do you need to work on EV projects?
You need technical civil engineering skills and qualifications, plus interpersonal and management abilities. On top of that you need NRSWA (New Roads and Street Works Act) training, a minimum

Take our EV infrastructure CPD on p28

▲ Fortis EV has worked with companies such as ESB to install charging points

of three years' experience in the field you're working in – whether it be electrical or civils – and as a company we require employees to have HERS (Highway Electrical Registration Scheme) and NERS (National Electricity Registration Scheme) accreditation before they can work on our EV projects.

We follow all the guidance from the NICEIC (National Inspection Council for Electrical Installation Contracting) and there are standards for each civil engineering element, including highways, digging and trenching, cable laying, surface reinstatement, cable connections, distribution and safety walls.

Fortis Foundations also offers extra training through HSG47 (*Avoiding Danger from Underground Services*), to give staff that additional training to keep employees as safe as possible.

Tell us about one of your recent projects

At Thornton Heath in south London, we recently installed five high power 100kW battery storage EV charge points for bus stations.

For any project, logistics is the biggest challenge. Here, the site was live and open, so maintaining working relationships with those running the surrounding car parks and streets was paramount to ensure public safety and to keep the bus depot open while the EV charge points were installed.

Fitting cables below the surface causes a lot of disruption, so at Thornton Heath we came up with a plan to run cables along the ground or behind barriers to keep the cost down.

Do you see good prospects for the EV market and what future innovations are likely?

The prospects for Fortis are very good. According to National Grid, there will be 10 million electric vehicles on UK roads by 2030, and as many as 30 million by 2040. There is new tech being created all the time, such as charging points that sink and pop up.

I think AI will lead to big innovations for our company, for example, making it easier for planning and completing the various forms which are required for granting access on EV projects.

With planned government initiatives being rolled out, a lot of civil engineering and construction expertise is needed to deliver these projects, and that's where we come in
Will Temperley, Fortis EV

CV: Will Temperley, managing director, Fortis Foundations

Will Temperley founded Fortis Foundations in 2020, bringing over 20 years of rail and construction industry experience to the business.

The family-run company provides civil engineering products and services, specialising in foundations and piling to the rail, civils, energy, residential and water sectors.

In 2022, Fortis launched a sister company, Fortis EV (electric vehicles), for the fast-growing EV infrastructure installation sector.

At the recent East of England StartUp Awards, Fortis Foundations won the Construction & Building Services category and was the overall StartUp winner out of the 25 categories.

What you will learn in this CPD

- Types and applications of EV chargers
- Infrastructure considerations when installing EV chargepoints
- A case study of EV chargepoint installation

CPD: EV charging infrastructure

In this CPD, BEAMA explores the business opportunities and technical requirements involved in creating the national electric vehicle charging infrastructure. By **Mark Williamson**

There are currently around 900,000 battery electric vehicles (EVs) and 50,000 public chargepoints in the UK. It is anticipated that there will be between eight and 11 million EVs on UK roads, which the government expects will require 300,000 public chargepoints as a minimum, by 2030.

As the number of EV drivers increases, those without access to off-street parking will need charging solutions, depot charging for commercial vehicles and rapid charging for on-the-go charging in cities and along transport routes.

Government and private sector investment in EV charging infrastructure will be considerable. Although this presents a huge engineering and construction challenge, it is also a great business opportunity for the UK construction industry.

EV chargers: types and applications

The UK EV charger market and technology have quickly evolved over the past decade. There are two distinct types of EV charging systems: alternating current (AC) and direct current (DC). Electric power is supplied as AC. However, an EV battery is always charged using DC. The current needs to be converted from AC to DC, and where this occurs depends on the type of chargepoint.

Home and workplace

For private charging at home or the workplace, main considerations will include ease of access, available power supply and the type of charge required. Solutions available for home and workplace locations are mostly single-phase AC chargepoints, available from 3.6kW to about 7kW. A 22kW chargepoint is unusual for a home but may be used in some workplaces.

Fleet depots

Businesses looking to electrify their fleets operating from a depot will have different considerations from businesses installing solutions at office locations. The type of operation and duty cycle, available network capacity and physical space in the depot will be key factors in determining charging requirements. These solutions can be wall-mounted, pole-mounted or standalone. Depending on the power required, they may be either AC or DC chargepoints.

Private on-street AC charging

Some EV users do not have facilities for off-street parking. There are chargepoints (from 7kW to 22kW AC) that can be sunk into the pavement or road in residential on-street settings. This option may require dedicated on-street parking bays and may not be suitable for all on-street charging.

Public chargepoints

Dedicated sites and forecourt charging

The forecourt of the 'petrol station of the future' will typically contain multiple high-power chargers, with an average charging time of around 30 minutes. In the future, these locations may need to be newly constructed to meet user needs, rather than reengineered existing buildings or forecourts.

> **The forecourt of the 'petrol station of the future' will typically contain multiple high-power chargers, with an average charging time of around 30 minutes**

Rapid charging hubs

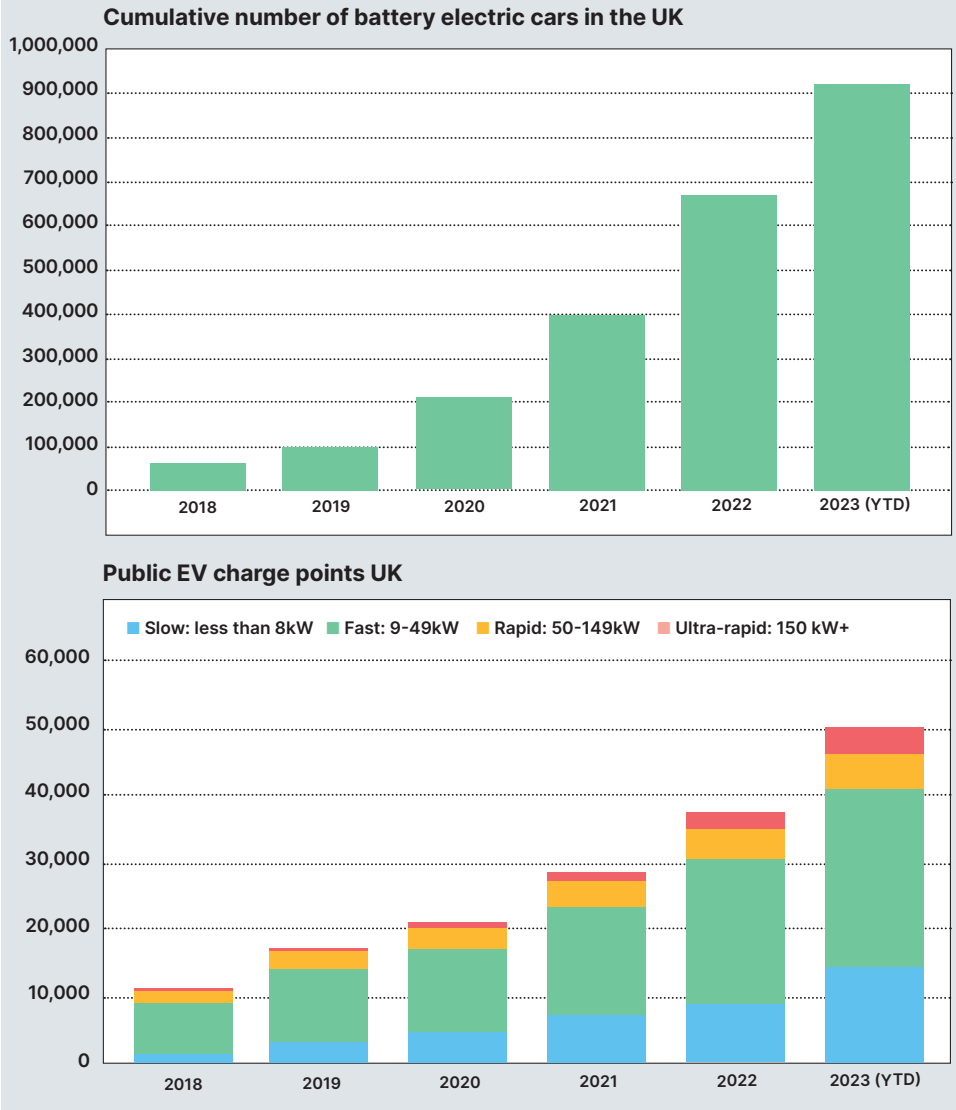
Hubs of rapid chargepoints, such as those found at motorway service areas, are the form of charging infrastructure that most resembles the infrastructure for internal combustion engine (ICE) vehicles. ▶

AC chargers: The mains AC from the grid is supplied to the vehicle, and equipment built into the vehicle converts the current to DC to charge the battery. Space and weight considerations can limit the power of chargers built into the vehicle.

DC chargers: The mains AC is converted to DC current by the charger within the chargepoint before it is supplied to the vehicle. Because the DC charger is not part of the vehicle, it is less limited by space or weight and can accommodate much greater charging currents. The charging times for the batteries can be much shorter.

The year government expects that at least 300,000 public chargepoints will be required

2030



▲ The number of chargepoints is growing with the rise of EV use

Chargepoint operators are investing in significant grid connection upgrades that enable sites of six to 12 chargers or more at speeds of up to 350kW.

Electrical and civil considerations for installing new EV chargepoints

EV chargepoints are typically connected to electricity network infrastructure owned and maintained by distribution network operators (DNOs) or independent distribution network operators. The network capacity used by an EV chargepoint varies from one charging station to another depending on the location, number and load of chargepoints, other onsite facilities and the integration with other energy systems such as solar generation or battery storage systems.

The electrical infrastructure of the network (switchgear, transformers and cabling) is unique to each site and determined by factors such as the funds available, resilience needs, supply chain conditions, scalability plans and, most importantly, technical specifications (especially the voltage and capacity of the grid connection).

Before construction begins, technical specifications and design of the infrastructure between the electricity network and electric vehicle supply equipment (EVSE) will be determined by an independent connection provider (ICP) or DNO.

Network engineering factors

Network capacity upgrades may be required in certain locations where there previously has not been infrastructure requiring high power, or where a faster chargepoint is intended to be installed.

Some sites may not require network upgrades before installation, so exploring where current capacity exists is an important step in site location decisions to avoid unnecessary and significant upgrade costs. Data on grid capacity around the UK exists to assist with site selection.

The Energy Networks Association (ENA) has defined grid connection

Some sites may not require network upgrades before installation, so exploring where current capacity exists is an important step in site location decisions

codes relating to import and export control. These are particularly important for load management and bidirectional EV charging:

- Engineering Recommendation (EREC) G99 (*Requirements for the connection of generation equipment in parallel with public distribution networks*).
- Engineering Recommendation (EREC) G100 (*Technical requirements for customers' export and import limitation schemes*).

Designers, installers and end users should ensure compliance with the most recent iteration. More information can be found at **www.energynetworks.org**.

Wiring

With few exceptions, electrical power is provided to the EVSE (and accordingly to the EV) using wires governed by the British Standard 7671, the Wiring Regulations, which is co-published by the Institution for Engineering and Technology (IET) and BSI. All new and amended electrical installations are to conform to the requirements of BS 7671:2018+A2:2022. BS 7671 s.722 relates specifically to EV charging installations.

PEN fault protection

Many UK electricity supplies combine the earth and neutral into one protective earth neutral (PEN) conductor using a supply system known as protective multiple earth. It becomes unsafe if the PEN conductor is disconnected from the earth. If someone simultaneously touches something connected to the PEN conductor (such as an EV plugged into a chargepoint) and something at true earth potential (such as a metal fence), the residual current circuit breaker will not operate, and the person could receive a fatal electric shock.

To protect against this, it is necessary to either provide a dedicated earth to the chargepoint or fit a PEN fault protection device that will automatically disconnect the PEN when a dangerous voltage is detected. Some of the latest chargepoints incorporate PEN fault protection into the device.

BS 7671:2018+A1:2020 s.722.411.4.1 and the *IET Code of Practice for Electric Vehicle Charging Equipment Installation* provide further guidance.

Transformers

The quantity and ratings of transformers required depend on the capacity of the grid connection and the voltage at which the connection is secured. Installers should match the rating of the transformer to the load profile of the charging station and the maximum load anticipated at any point. ▶

▲ Chargepoints were installed at the Hilton Garden Inn

Case study: The Hilton Garden Inn, Abingdon

Connected Kerb supplied discreet and sustainable chargepoints for a 'long-dwell' location at an Oxfordshire hotel

The Hilton Garden Inn in Abingdon, Oxfordshire, wanted to add easy-to-use charging infrastructure in line with demand, avoiding large numbers of unused chargepoints wherever possible but providing enough for customers and staff with electric vehicles.

The hotel recently underwent a refurbishment and wanted the charging points to be visually discreet. Sustainability was also an important consideration since the chain is the first major hotel company to establish the Science Based Targets initiative to reduce greenhouse gas emissions in line with the Paris Agreement.

The Hilton Garden Inn's car park is a 'long-dwell' location where staff and customers park their cars for long periods. The hotel signed a contract with Connected Kerb for the installation of four dual Gecko chargepoints to meet these requirements.

The dual Gecko chargers blend into the surrounding environment and allow two vehicles to charge simultaneously from one unit. The solution meets the hotel's requirement of keeping provision aligned with demand.

Although all chargepoints have now been activated, Connected Kerb does provide the option to install enabling infrastructure underground. The above-ground socket can be added at a later date once EV demand rises.

The hotel found Connected Kerb's offer appealing as a tool for retaining staff with an electric vehicle who otherwise may not have somewhere reliable to charge at their own home.

It was also drawn to the sustainable credentials of the charging infrastructure, which is made predominantly from recycled materials.

▲ The network capacity varies according to location and facilities

Accessibility
The installation of charging stations should allow and encourage inclusive usage, especially by users with reduced mobility or other special needs. Industry groups and other bodies, such as the charity Motability, worked with government to publish a specification for the accessibility of chargepoints.

Compliance
Only EV charging devices that are compliant with the Electric Vehicles (Smart Charge Points) Regulations 2021, Public Charge Point Regulations 2023 and UK Wiring Regulations should be installed.

EV charger installers
EV charger installers should be part of a competent person scheme (CPS) and the installers must be part of a CPS for customers to be eligible for the government grants available for workplace chargers. ●

Mark Williamson is electric transport infrastructure manager at BEAMA, the UK trade association for manufacturers and providers of energy infrastructure technologies and systems.

Further reading
www.beama.org.uk: *BEAMA and Green Finance Institute Guide to EV Infrastructure*
shop.theiet.org:
IET's *Code of Practice for Electric Vehicle Charging Equipment Installation*
GOV.UK: Guidance: *Connecting electric vehicle chargepoints to the electricity network*
GOV.UK: Building Regulations – Part S (E,W) / Part 7 (S) – EV Charging Infrastructure

Useful references
- BS EN IEC 61851-1 *Electric Vehicle Conductive Charging System*
- BS 7671:2018+A2:2022 *Requirements for Electrical Installations*
- BS 7671:2018 s.722 *Electric Vehicle Charging Installations*

CPD Questions

1. What kind of current is used to charge electric vehicle (EV) batteries?

a) AC
b) DC
c) AC or DC
d) None of the above

2. Who needs to determine the technical specifications and design of the infrastructure between the electricity network and electric vehicle supply equipment (EVSE) of a network before construction starts?

a) A network operator
b) The Institution of Engineering and Technology
c) An independent connection provider or distribution network operator
d) A qualified engineer

3. Which standard do all new and amended electrical installations need to conform to?

a) BS EN 50104:2019 +A1:2023
b) BS EN IEC 62053-21:2021+A11:2021
c) BS 7671:2018+A2:2022
d) IEC TS 62939-2:2018

4. What regulations do the installation of EV charging devices need to comply with?

a) Public Charge Point Regulations and UK Wiring Regulations
b) EV Smart Charge Point Regulations, Public Charge Point Regulations and UK Wiring Regulations
c) EV Smart Charge Point Regulations
d) EV Smart Charge Point Regulations and UK Wiring Regulations

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

QUALITY & EXPERTISE.

BEHIND EVERY DOORSET.

Commercial developments are demanding - any products chosen need to meet stringent performance and safety standards without holding up the build program.

With JELD-WEN, you can be sure of getting the specialist expertise in product performance and regulatory compliance you need to make the best choice. We offer a range of products and straight-talking support to give you a complete doorset solution.

Speak to JELD-WEN today.

JELD-WEN

What you will learn in this CPD

- Which legislation and regulations affect doorsets
- How to test doorsets to current standards
- Why third-party accreditation is important

CPD: Five ways to improve fire doorset safety

In this CPD, **Jeld-Wen** explains why testing, accessories, third-party accreditation, traceability and whole-life considerations play a critical role in selecting the right fire doorsets

Fire doorsets are essential to a building's fire safety strategy. But procuring them correctly means keeping pace with evolving regulations and changing industry attitudes. Central to these shifts is the emphasis on long-term safety throughout the lifespan of a building, with legislation identifying key roles and responsibilities in the operation and maintenance phases. Meanwhile, cost remains a constant aspect of product specification and procurement.

Here we examine the five key areas for improving long-term fire safety.

Following testing, fire doorsets are labelled with an FD (Fire Door) rating, indicating the achieved fire resistance duration, such as FD30 (30 minutes) or FD60 (60 minutes)

1. Testing to current standards

Understanding the testing landscape

There are many different situations in which fire doorsets can be used. Each application requires different performance characteristics, depending on the specific context of the individual building and its intended use. Relevant building regulations should therefore be the first port of call for checking the performance requirement. But how should that performance declaration be established?

For the Building Regulations in England, Appendix C of volumes 1 and 2 of Approved Document B deals exclusively with fire doorsets. It gives two routes by which fire doorset performance can be arrived at, plus a third that applies to lifts.

Terminology

Fire doorset
A door or shutter which, together with its frame and furniture as installed in a building, is intended (when closed) to resist the spread of fire and/or gaseous products of combustion and meets specified performance criteria to those ends.

Compartment (fire)
A building or part of a building, comprising one or more rooms, spaces or storeys, that is constructed to prevent the spread of fire to or from another part of the same building or an adjoining building.

The first one is the national classification route and the second is the European classification route. As Approved Document B takes pains to point out, the two classifications do not necessarily equate and so performance determined under one route cannot be taken as a certain level of performance under the other route.

National classification route (BS)

This method involves testing to BS 476 part 22. It gauges a fire doorset's fire integrity, while fire insulation performance, though less frequently mentioned, often emerges in commercial settings or by insurers' demands. Following testing, fire doorsets are labelled with an FD (Fire Door) rating, indicating the achieved fire resistance duration, such as FD30 (30 minutes) or FD60 (60 minutes).

European classification route (EN)

There are a series of important tests to be considered here. All fire doorsets should be classified in accordance with BS EN 13501-2, tested to the relevant European method from the following:
BS EN 1634-1 and BS EN 1634-2 concern fire resistance while BS EN 1634-3 concerns smoke control.

In this system, the term 'E' represents integrity, indicating the duration of a product's resilience during a fire test. Classifications are E30 (30 minutes), E60 (60 minutes), and so forth, with further letters added for other performance characteristics. For example, an E30 door will have been tested only for fire resistance for up to 30 minutes. These classifications are crucial in ensuring fire and smoke protection standards are met.

▲ CE stands for Conformité Européenne, the French for European conformity, while UKCA means 'UK Conformity Assessed'

Consultation on national classification removal

In 2022, the UK government considered reforms to Approved Document B of the Building Regulations, suggesting a complete shift from the national to the European classification system, which already holds precedence. While this change may seem insignificant for products like fire doorsets that often undergo European testing, it presents potential challenges.

Many UK fire doorset manufacturers are prepping for this shift to EN (European Standards) testing, which might strain test laboratories and certification entities. The EN test, more demanding than its British counterpart, could need product adjustments to meet EN 1634 standards, potentially raising costs.

CE marking and UKCA marking

Presently, only external fire doorsets can carry the CE mark, excluding internal fire doorsets from both the CE and UKCA marks. However, related components, like hinges, must be CE/UKCA marked and rated for fire usage. ▶

85 **Under the BWF Certifire scheme if a fire doorset's resistance falls below 85% of its stated period, its certification is instantly put on hold**

2. Correct components to form a fire doorset

A fire doorset is more than just the door leaf. Its performance depends on the door leaf being closed and the right hardware fitted. There are maximum allowable gaps between the door leaf, door frame and threshold. The gaps are needed for the doorset to operate in daily use but the correct distance also ensures components can function correctly when activated by heat.

The fire doorset relies on the correct hardware to be fitted in line with allowable limits as tested or specified in certificates. Hardware, in general, acts to ensure the door closes correctly and reliably and won't contribute to the spread of fire. Different door constructions will have limitations on the hardware that can be fitted.

The anatomy of a fire doorset

A fire doorset's effectiveness depends on its complete assembly, including the door leaf, frame and appropriate hardware. Specific allowable gaps ensure that components like intumescent function properly during a fire. Key hardware components include:

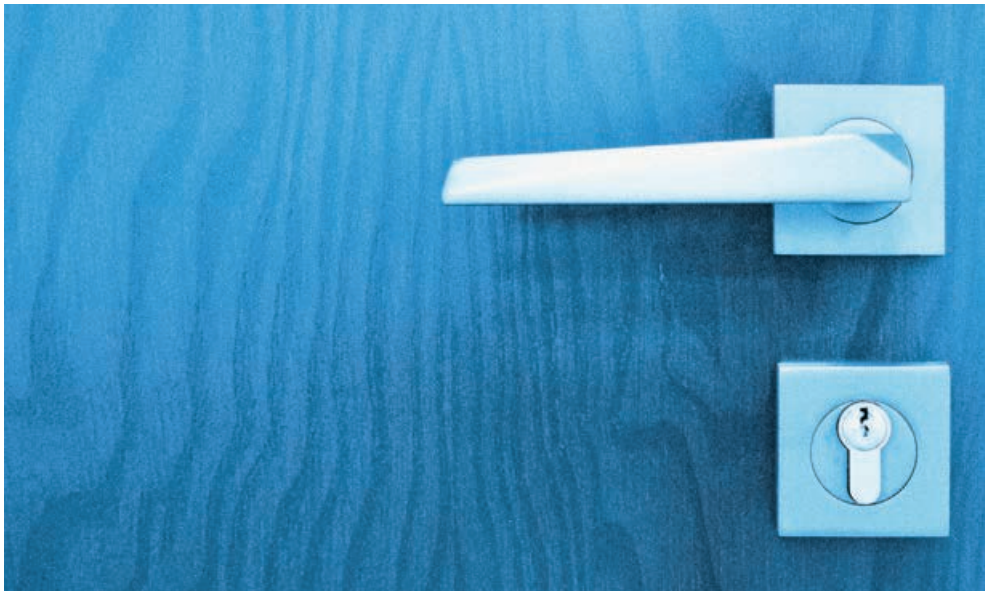
- hinges
- handles
- latches/locks
- drop seals
- seals
- glazing
- letterplates
- overhead closers

Using a manufacturer-made and tested fire doorset streamlines the selection process, ensuring optimal compatibility and performance.

Fire doorset hardware and cost

While cost can tempt some when selecting hardware, it shouldn't be the only determinant. Door leaves, with their varied materials, sizes and weights, require specific hardware. A mismatch can compromise an entire building's fire safety strategy.

Moreover, smoke seals play a vital role in preventing lethal smoke transfer during fires. Proper installation and selection are vital for optimal protection.



▼ Door leaves require specific hardware and a mismatch can compromise the building's fire safety strategy

Third-party accreditation

Third-party accreditation ensures that fire doorsets are:

- fit for purpose;
- compliant; and
- have been produced through a controlled and consistent process.

Third-party accreditation serves to comfort both specifiers and end users – whether tenants or owners. Beyond initial testing, it ensures that components and construction methods remain aligned with the original standards.

In addition, independent assessment confirms that fire doorsets are produced consistently, are compliant and fit their intended purpose. Accreditation schemes should be overseen by UKAS-registered organisations, ensuring they meet rigorous standards. As part of this, fire doorsets undergo testing at a UKAS-approved facility, following either the national or European classification routes.

What does third-party accreditation evaluate?

Third-party accreditation evaluates:

- factory processes and procedures;
- production consistency; and
- ongoing auditing.

Beyond testing the product, third-party schemes verify that the fire doorset manufacturer's processes and procedures are consistently upheld. This ensures manufacturers can't simply produce one compliant door for testing while distributing inferior products – every fire doorset from the facility must match the declared specifications.

Mandatory audits are integral to the process. They occur at timed intervals or after a number of units have been sold (depending on the certification scheme), ensuring no more than five years between checks.

As construction adapts to the golden thread, manufacturers are likely to introduce traceability initiatives, where products bear a unique code allowing the original product specification to be checked

Accreditation schemes spotlight

The British Woodworking Federation's (BWF's) Certifire scheme stands as a premier third-party accreditation for fire doorsets. Under this scheme any performance falling short of its declared rating requires investigation and rectification. Failing to address a performance that is even a minute less can jeopardise certification.

If a fire doorset's resistance falls below 85% of its stated period, its certification is instantly put on hold. Furthermore, any design alteration triggers the need for retesting, ensuring the Certifire certification remains up to date. This encompasses both the components and the fire door's construction methods.

Dual-purpose certification

Greater value can be had from working with a manufacturer that offers dual-purpose certification. These credentials not only attest to fire resistance but also other industry standards, such as PAS24 enhanced security. This reassures consumers that both fire and security aspects have undergone stringent evaluation.

4. Product traceability

Currently, the requirement for a 'golden thread' of building safety information applies only to higher-risk buildings – that is, residential buildings exceeding 18m in height, or those that have at least seven storeys and at least two residential units. Care homes and hospitals meet the same height threshold during design and construction, but not during occupation. Over time, experts expect the range of buildings under this requirement will expand.

▲ Reputable manufacturers offer guidance on fire doorset installation

The golden thread:

- currently applies to higher-risk buildings;
- is expected to be expanded in scope over time; and
- records the original design intent and any changes made after.

The golden thread isn't just about building safety – it's about how information is stored in and used by digital tools and systems. It should record the original design intent and any changes. It ensures information availability at the right time and to the right people – including the newly created roles of dutyholders and accountable persons.

Responsibility for the golden thread transitions between the design and construction phase and the operation and management phase. Through these roles, the industry should witness a culture shift. Residents of higher-risk buildings should feel safer, and a 'single source of truth' for building safety-related information should emerge.

How can manufacturers support the golden thread?

As construction adapts to the golden thread, manufacturers are likely to introduce traceability initiatives, where products bear a unique code allowing the original product specification to be checked.

Fire doorsets are no exception. Engaging with manufacturers to learn about plans to implement 'tag and track' systems is crucial. Such features might not immediately impact work, but will assist installers and building managers later when making repair and maintenance decisions.

5. Whole-life considerations beyond manufacturing

Part of procurement involves assessing whether a product can be properly installed on site and determining its maintenance frequency to ensure consistent performance over its lifespan.

A manufacturer's commitment to testing, accreditation and providing current information only matters if the fire doorset is installed correctly. Currently, no qualification exists for fire doorset installers – nor a requirement for one. This lack of standardisation means inconsistent training, potentially leading to errors even by competent installers.

Reputable manufacturers offer installation guidance and are open to discussions should installers need further interpretation of standards.

All fire door fittings should adhere to BS 8214:2016. The key takeaway is that reputable manufacturers will not endorse any installation that ▶

▲ Fire doorsets require correct specification, installation, inspection and maintenance

doesn't strictly follow their guidelines. Any deviation from these instructions jeopardises the fire safety strategy.

Common maintenance issues include damaged seals, excessive gaps, faulty hinges, damaged doors and propped-open fire doors.

The importance of understanding how even minor changes to a fire doorset can affect its fire-resistance capability cannot be understated. These include instances where doors have had modifications such as new paint coats or trimming to accommodate new flooring.

Though fire doorsets should be inspected at least every six months, there is no legal mandate to action any identified remedial requirements. Issues like damaged seals or large gaps between the door leaf and frame can be avoided by following the manufacturer's guidelines. Damage due to vandalism or doors propped open for extended periods is not something manufacturers or contractors can control.

If manufacturers and contractors collaborate to provide better information to building managers and accountable persons, restoring fire doorset specifications to their original performance becomes feasible. Simple actions, like not propping door leaves open, make a significant difference.

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

Conclusion

The new building and fire legislation is enhancing fire safety standards in the industry. While roles such as 'competent person', 'dutyholder', and 'accountable person' are now clearer, success hinges on improved industry collaboration. Fire doorsets require the right framework of specification, installation, inspection and maintenance to function optimally.

There is still room for improvement in the standardisation of fire doorsets across the UK. Currently, there is no legal obligation for them to be third-party certified. But opting for fire doorsets with independent accreditation assures hardware specifications and consistent performance. Manufacturers offering product tagging further enhance project transparency.

While the industry awaits a UKAS-accredited certification scheme for fire doorset installers, buyers can safeguard their interests by sourcing fire door components from BWF-approved Fire Door Centres or firms listed in the *BWF-Certifire Fire Door and Doorset Scheme Directory*. Additionally, the BWF provides invaluable information and materials to facilitate installation, inspection and maintenance.

Useful references

GOV.UK: Fire safety: Approved Document B

HSE.gov.uk: New roles and responsibilities – Building safety

HSE.gov.uk: Storing your building's information – the golden thread

Though fire doorsets should be inspected at least every six months, there is no legal mandate to action any identified remedial requirements

CPD Questions

1) Building Regulation Approved Document B requires testing to which standard?

a) BS EN 14351 (part two)
b) BS EN 1634 (part one)
c) BS 8214:2016
d) BS EN 1350

2) Which of these statements is true?

a) A fire doorset's effectiveness depends entirely on its hardware
b) Hardware alone ensures the door prevents the spread of fire
c) A fire doorset's performance depends on the door leaf being closed and the right hardware fitted
d) There are a minimum number of allowable gaps between the door leaf, door frame and threshold

3) Third-party accreditation evaluates:

a) Factory processes and procedures
b) Production consistency
c) Ongoing auditing
d) All of the above

4) The requirement for a golden thread of the generation and management of building safety information applies only to residential buildings exceeding...

a) 17m in height
b) 18m in height
c) 19m in height
d) 20m in height

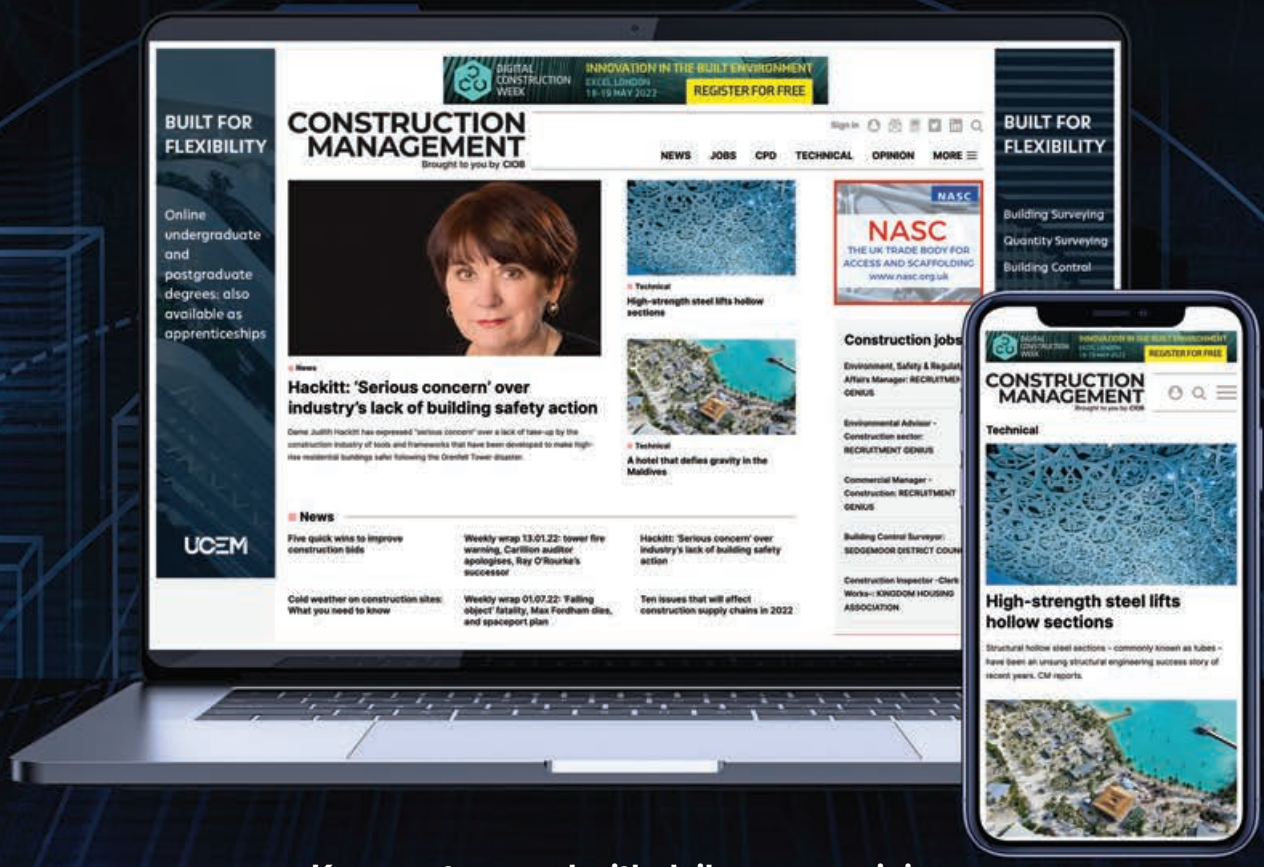
5) All fire door fittings should adhere to which standard?

a) BS 8214:2016
b) BS EN 1350
c) BS EN 1634 (part one)
d) BS 476 (part 22)

CONSTRUCTION MANAGEMENT

Essential information for construction professionals

constructionmanagement.co.uk



Keep up to speed with daily news, opinion, CPDs and technical info on CM's website.

Our content includes:

● Breaking news ● Technical articles for construction professionals ● CPDs ● BIM and digital construction coverage ● Opinion from industry thought leaders ● Legal analysis ● Careers features

Join 58,000 other construction professionals who subscribe to our newsletters by signing up here:

constructionmanagement.co.uk/newsletter

Emad Adel FCIOB
Expolink Consortium

Why Saudi giga projects align with CIOB values

Middle East-based CIOB fellow **Emad Adel** explains how Saudi Arabia giga projects like the Red Sea tourism masterplan fit with the institute's vision of 'modern professionalism'

CIOB's corporate plan for 2023-2028 has been developed through extensive consultation with CIOB members worldwide, building on the foundation of the 2020-2023 plan, which serves as our moral guide.

While CIOB has historically been a symbol of professionalism, we now see the ideal moment to embrace what we term 'modern professionalism'. This involves fostering a new era of adaptability and innovation for professionals to excel in an increasingly globalised world.

Those with the highest levels of professionalism are often those who drive innovation, promote diversity and consistently deliver excellence in their work. Our focus revolves around three key themes: quality and safety; addressing skills shortages; and advancing environmental sustainability. We want to bring about a decisive transformation in these areas.

The built environment makes up 39% of global carbon emissions, of which 11% can be attributed to construction projects.

In Saudi Arabia, giga projects are pivotal to the Vision 2030 forward plan. They involve tourism, residential, commercial and industrial developments designed to invigorate and diversify the economy. They constitute one of the world's most extensive capital investment programmes, with an estimated budget exceeding $850bn (£677bn).

▲ The Six Senses Southern Dunes is one of 50 resorts in the Red Sea project

All giga projects are being expedited, and the initial phases are slated for completion between 2023 and 2025 to meet the aim of achieving $100bn (£80bn) in annual foreign direct investment by 2030. Can a development portfolio of this magnitude still prioritise environmental sustainability?

Saudi Arabia's giga projects constitute one of the world's most extensive capital investment programmes, with an estimated budget exceeding £677bn

677

Red Sea masterplan

The Red Sea tourism masterplan on Saudi Arabia's west coast encompasses an area of around 28,000 sq km. When complete in 2030, it will comprise 50 resorts on the pristine Red Sea coast, including some 8,000 hotel rooms and more than 1,000 residential properties across 22 islands and six inland sites.

Complete with its own international airport, the scheme will include luxury marinas, golf courses, entertainment and leisure facilities.

The company behind it, Red Sea Global, set out to prioritise both people and the environment.

The project will employ some 30,000 construction workers. To house them in the remote location, Red Sea Global exceeded international welfare standards by building its Construction Village – 12 landscaped neighbourhoods with sports pitches and a cinema. A maximum of three workers share a room, with en suite shower and bathrooms.

For the environment, the project recently secured the first Saudi Riyal-denominated Green Finance credit facility.

▲ The development will be powered by a purpose-built 1,300mWh battery storage facility

▼ The project is supporting 10,000 graduates through educational initiatives

Among development companies in the MENA region, Red Sea Global earned the highest rating for sustainable urban planning, specifically the Platinum LEED certification for Cities and Communities, in its initial stage.

Renewable energy

How does the Red Sea project stand out, environmentally? For one thing, it's poised to become the world's largest tourism destination powered exclusively by renewable energy.

Andrew Tyson, Red Sea Global's head of construction, told me: "We're very proud of our decision to run the Red Sea destination on 100% renewable energy. Our purpose-built battery storage facility will be one of the largest in the world at 1,300MWh, and we have recently completed the commissioning of more than 760,000 photovoltaic panels needed to power phase one of the destination."

Its quest for sustainability has led Red Sea Global down some interesting paths. By 2030, the destination aims to cultivate over 30 million plants at its 1 million sq m nursery. It ordered 11,000 carbon-negative concrete pavers for the nursery from startup Partanna, which says its cement cures at ambient temperature, avoiding the intensive heat required for traditional cement.

This shows how very bold plans can foster and support innovation.

We have recently completed the commissioning of more than 760,000 photovoltaic panels needed to power phase one of the destination

Andrew Tyson, Red Sea Global

CIOB and sustainability trends

There are numerous points of intersection between CIOB's corporate plan and the Red Sea project. CIOB is dedicated to integrating sustainability into education. The Red Sea project contributes to this by supporting 10,000 graduates through educational initiatives, with a target of at least 50% of these hailing from areas near the developments.

One of CIOB's roles is to promote best practice and commend achievements in sustainability. That's why I chose to showcase the Red Sea project as a pioneering initiative, illustrating the potential for more such projects in the MENA region.

This aligns with CIOB's mission to develop learning programmes that enhance industry expertise while advocating innovative practices.

This, in turn, contributes to reducing the costs associated with sustainable construction and makes a compelling business case that is widely embraced. The goal is to make these principles applicable across projects of all sizes because I firmly believe that the built environment merits nothing less.

Emad Adel FCIOB is planning manager for the Expolink Consortium working on Dubai's Red Line Extension Route 2020 project, and a member of CIOB's Global External Affairs Advisory Board.

In association with TOPCON

Machine control: the key to future-proofing construction

Machine control, once used to improve machine and technology efficiency, can help construction overcome some of its pressing challenges

Although the benefits of machine control have often centred around automation and boosting efficiency, much of its potential for construction remains unlocked. Properly deployed, it can help address some of the industry's most difficult problems.

Achieving sustainability goals

As the construction sector's sustainability efforts continue to be placed under the spotlight, professionals across the built environment – which produces almost half (47%) of global CO_2 emissions – are consistently looking at ways in which to contribute positively to this huge challenge.

Research from Topcon found that 67% of professionals agree that the industry will be net zero by 2050, and machine control will play a key role in achieving it.

Through its ability to enhance both accuracy and efficiency, machine control can ensure that reworks are avoided, leading to a reduced need for more materials and products – often the culprit of the sector's notably high carbon footprint. Today, a more accurate and efficient industry is a more sustainable one.

67

Percentage of professionals who think that construction will be net zero by 2050

▼ Machine control can help to avoid rework and enhance efficiency

Bridging the skills gap

As the skills gap continues to widen, the construction sector in particular needs solutions and technologies that support and encourage growth.

Our research shows that 30% of management consider the widening skills gap and labour shortages as one of the most serious challenges facing construction projects. However, 77% of those surveyed agreed that machine control is set to play a crucial role in addressing the challenges posed by the skills gap.

Although variations exist across Europe, and certain countries are feeling the brunt of the skills gap more than others, addressing this challenge will be unavoidable.

Automating workflows

In addition to the skills gap, 28% of respondents to our survey mentioned the management of complex project data as a challenge for the sector. This rises to almost half (46%) for those aged between 25-34.

Machine control and its ability to automate workflows and processes can offer the support needed by this next generation of construction professionals. Digitalisation is a crucial step in the development of construction and can ensure that careers across the sector remain attractive and accessible to all.

You can read Topcon's *Future of Machine Control* report at www.topconpositioning.com.

Get ready to enter construction's digital Oscars

This year's Digital Construction Awards, a partnership between CIOB, Digital Construction Week, CM and BIMplus, launch on 9 January

The Digital Construction Awards 2024 will open for entries on 9 January: you can get a sneak peek at the categories and entry criteria now.

The Awards celebrate best practice and reward innovation in the application of BIM, information management and digital technology in the built environment sector.

They will take place at a gala dinner on 2 July 2024 at The Brewery in London. The entry deadline is 15 March and shortlisted entrants will be revealed on 13 May.

Two new categories have been added to the 12 that featured at the 2023 Awards. One is for multi-disciplinary consultancies that want to shout about their best practice and innovation in digital construction, which complements the existing Digital Consultancy of the Year for specialist digital outfits.

The other category is focused on innovative new products and complements the existing Best Application of Technology category.

▲ Winners celebrate at the Digital Construction Awards 2023

Industry Oscars

CM editor Will Mann said: "We were overwhelmed by the reaction to the 2023 Awards – there were more than 140 entries, and nearly 450 digital construction professionals attended the gala dinner. We're proud to stage the awards again and celebrate the progress the industry is making."

Ollie Hughes, co-founder of Digital Construction Week, added: "To ensure the best of the best receive the recognition they deserve, we are expanding our judging panel to more than 40 well-known experts drawn from across the built environment sector. No matter which categories you enter, one of the keys to success will be evidence."

Previous winners

Among 2023's winners were Sir Robert McAlpine's conservation of the Elizabeth Tower (Digital Construction Project of the Year) and Laing O'Rourke's work on the Everton FC stadium (Digital Innovation in Productivity, and Digital Collaboration of the Year with BDP and Solibri).

Graham was triumphant as Digital Contractor of the Year and Skanska scooped the Delivering Net Zero with Digital Innovation trophy.

Su Butcher, programme manager at BIM for Housing Associations, was Digital Construction Champion of the Year, while FM Conway business analyst Lauren Parsons picked up Digital Rising Star of the Year.

For more on the Awards, head to digitalconstructionawards.co.uk.

The Digital Construction Awards categories

- Digital Construction Project of the Year
- Digital Contractor of the Year
- Digital Consultancy of the Year
- Digital Multi-disciplinary Consultancy of the Year
- Digital Collaboration of the Year
- Digital Rising Star of the Year
- Digital Construction Champion of the Year
- Best Application of Technology
- Product Innovation of the Year
- Best Use of Data on a Project
- Delivering Sustainability with Digital Innovation
- Digital Innovation in Asset Management
- Digital Innovation in Health, Safety and Wellbeing
- Digital Innovation in Productivity

Luke Chamberlain
Decipher

‘Where do we start with preparing a claim?’

A contractor in dispute with the client at final account wants to know how to prepare a claim. **Luke Chamberlain** explains

THE QUESTION

We’ve come to final account and the employer argues the amount due is substantially lower than our costs, so we need to prepare a claim. We’ve never been in this situation before, so don’t know where to start. What are the key things we need to include?

THE ANSWER

To prepare a robust claim for submission at final account stage, perhaps consider first: why has a difference between valuations become prominent at this stage of the contract?

We assume the disputed values are likely to centre around the assessment on variation claims and any entitlement to loss and expense. However, the recovery of such monies is generally dependent on certain conditions of the contract being met, both in terms of timing and content. If variations are being raised for the first time at this stage it is a cause for concern. This is because across most forms of contract, there are notification time bars to follow (see box).

A failure to comply with these provisions could have a detrimental effect on a contractor’s claim. In some cases it could lead to a loss of entitlement. This is particularly significant in the case of the NEC form of contract.

RICS guidance supports this. It notes that the “process must adhere to the contract requirements for notification and approval of change by the identified parties”. This helps avoid the scenario in our question.

It is also worth noting *Essential Living (Greenwich) Ltd v Elements (Europe) Ltd [2022] EWHC 1400 (TCC)*. In that case, in consideration of the final account assessment, it was held that, under the contract, variations could not be reopened at the final stage. The only exception is if either party identifies a fresh basis of claim permitted under the contract.

> **If variations are being raised for the first time at this stage it is a cause for concern**

Assuming the above procedures have been correctly tackled, there are several things the contractor needs to include in a claim. *Construction Claims and Responses: Effective Writing and Presentation* by Andy Hewitt suggests a submission should consist of two parts:

- **The narrative:** Deals with the details of the project and sets the circumstances of the claim. It demonstrates the effects of the claim and explains the basis of any supporting documents. These should help demonstrate the effects or quantum of the claim.
- **Appendices:** Contain documents such as programmes, calculations and project records, to support, illustrate and substantiate the claim.

It is important to remember that the object of any such claim is to provide an adequate demonstration that, “on the balance of probability”, the claimant is entitled to compensation.

Examples of notification time bars

Clause 4.20.1 of the JCT Design and Build 2016: This sets out an obligation for the contractor to notify the employer “as soon as the likely effect of a relevant matter… becomes (or should have become) reasonably apparent”.

Clause 61.3 of the NEC4 ECC Option A: This sets out an obligation for the contractor to notify the project manager of an event believed to be a compensation event “within eight weeks of becoming aware that the event has happened”.

Clause 20.2.1 of the FIDIC Yellow Book 2017: This sets out an obligation for the claiming party to give a notice to the engineer “as soon as practicable, and no later than 28 days after the claiming party became aware”.

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

The key to success is giving proper notice of claims. These should be fully supported by demonstrating cause, effect, entitlement and substantiation

For success, a claim must include:

- **Cause:** The event that has given rise to the claim – generally, a statement of fact.
- **Effect:** It will be necessary to show that an event caused the effect forming the basis for the claimed compensation.
- **Entitlement:** It is necessary to demonstrate that the event on which the claim is based is something for which the contract or the law provides entitlement to the claimant.
- **Substantiation:** This is the basis for providing, to a reasonable level, that all statements made, points relied on etc, are correct.

Any claim must be demonstrated, substantiated and justified (see box).

When parties want to settle the final account, the key to success is giving proper notice of claims. These should be fully supported by demonstrating cause, effect, entitlement and substantiation. The RICS *Final Account Procedures* guidance advises that if costs are properly tracked, such issues should be minimised. It is recommended all parties look to achieve this.

Consistent cost reporting will avoid any last-minute surprises. It should also ensure necessary time bars are satisfied.

Luke Chamberlain is senior consultant at Decipher – A DeSimone Company.

‘Educators appreciate how construction professions work as a team’

In the first of a series of interviews with CIOB academic members, Mark Tree from Anglia Ruskin University talks about the mutually beneficial relationship between academia and industry

What are you working on at present?
Within the school there is quite a lot of research going on regarding earthquake and general disaster resilience. One of the projects is on an international scale so is quite exciting. Obviously, given the global environmental position, these are of fundamental importance.

Other projects are underway within the school regarding the implementation of modern methods of construction and also innovative drainage solutions.

Why is it important to the construction industry now?
Any way in which the construction industry can lead the way towards achieving net zero and become generally more sustainable is obviously of vital importance. We also need to become much more efficient and also innovative in the way in which we further develop and construct the built environment.

Tell us about your journey from industry to academia?
I enjoyed a fantastic training and education experience with a local contracting organisation in East Anglia. They really looked after their trainees, provided broad opportunities for experience and also education to get to chartered builder status.

My career was developing well and I had no intention of moving away from contracting but sadly the economy had other ideas! This resulted in me becoming involved in teaching on a part-time hourly paid basis at an FE college.

Ultimately I moved to another college and eventually was managing the technician and professional construction area and delivering a wide range of courses for several construction organisations. I was invited to apply for a job at ARU which resulted in taking over course leadership of the BSc (Hons) Quantity Surveying and gradually led me to my current position.

My role as head of school provides an excellent opportunity to make sure our students get the best possible educational experience that provides them with the foundation for a rewarding career in the built environment.

It also affords me the opportunity to work with professional bodies and employer organisations to ensure that these educational foundations are built on an understanding of what industry requires from graduates coming into the various professions.

Construction is such a rewarding and fulfilling industry that deserves

> **Construction is such a rewarding industry that deserves the best possible people entering it. Those entering deserve the best possible start**
> **Mark Tree, ARU**

Mark Tree presents a certificate to 2022 ARU graduate Rhys Collings

the best possible people entering it. Those entering it also deserve the best possible start.

Is there a role industry professionals can play in preparing the next pipeline or talent?
So often our industry receives bad press, so the best thing that industry professionals can do is to provide the best possible role models and opportunities for the next generation of talent. Let's shout about the good things that we do. Let's provide role models that people wish to aspire to replicate.

What advice would you give to a built environment professional who wants to explore the opportunities available in education alongside their work?
Give it a go – it isn't as scary as you think. There is nothing more rewarding than feeding into the lives of the next generation. The more we spend time with those entering the industry the more we will understand their goals and aspirations and be pleasantly surprised at what they have to add to our industry.

How important is it to bring industry experience to the classroom?
Absolutely vital! Theoretical knowledge is one thing but the ability to apply this in a practical way and allow students to see the application of the things they are learning can be so motivating for them and also rewarding for industry professionals who take time to give back.

How do you think becoming an educator has helped you in your career?
It has helped me appreciate how the various professions come together and work together as a team within the built environment disciplines.

It is possible to sit in your silo and not be aware of all the work that others are contributing to construction projects and the industry in general.

I think the move into education has enabled me to appreciate the bigger picture and generally become more appreciative of the various personality types and disciplines that exist and support each other.

What one thing would you change to make careers in construction more appealing?
I would love it if generally people were more aware of the breadth of careers and disciplines that are available within the construction industry as a whole.

People seem to be aware of the headline jobs and disciplines but very few people seem to appreciate the full spectrum of opportunities that exist. I think if people were aware of this there would be a lot more takers for careers in construction.

Do you have a motto that applies to your work and, if so, what is it?
If anything is worth doing, then it is worth doing well and to the best of my ability.

If you're interested in academic membership visit: www.ciob.org/membership/ become-a-member/educator

Mark Tree MCIOB CV

- **Interim head, School of Engineering and the Built Environment, Anglia Ruskin University, Apr 2023 to present**
- **Deputy head, School of Engineering and the Built Environment, Nov 2018 to present**
- **Pathway leader (quantity surveying), Sep 2008-Nov 2018**

CIOB Community

Great Debate discusses AI in the built environment

CIOB joins professional bodies at Nottingham Trent University to debate industry response to artificial intelligence

The East Midlands Great Debate in November brought together six of the UK's leading professional bodies, including CIOB, to discuss key issues around AI in the built environment.

Over 130 attendees at the event, hosted by Nottingham Trent University, enjoyed panel discussions chaired by Andrew Knight from RICS.

The discussion was kicked off by Sammy Woodford, conservation and design officer at Cumberland Council, followed by Jaina Valji, architect and founder at Copy and Space, Gareth Parkes, head of data and analytics at Sir Robert McAlpine, and Mark Enzer OBE, strategic advisory director for Mott MacDonald.

▲ Speakers line up at the East Midlands Great Debate

Speakers responded to questions including 'Will AI take my job?' and 'How should we approach industry ethics, regulations and guidelines?' The discussion also focused on how implementing AI can improve outcomes for sustainability solutions.

Parkes said: "As AI revolutionises the built environment, its success hinges on harnessing good quality data, fostering collaboration and championing skills and knowledge transfer, all while upholding ethical principles."

Other key takeaways included:

- Success will always depend on the quality of data and collaborative data sharing.
- The need to find a common language across the industry.
- The industry needs to show a willingness to adopt and invest in the technology to drive it forwards.
- The need for improved education and upskilling the workforce. AI will automate many tasks but also create new and exciting opportunities.
- Reducing the need for human intervention poses a risk by limiting opportunities to practise good decision-making and ethical judgements. As technology advances, the way we approach and solve problems will change.
- How will we know the technology is working? By delivering better outcomes.

MCIOB takes new role in fit out firm

Ashley Kemp appointed operations director at ICON Projects

Commercial fit out and refurbishment specialist ICON Projects recently welcomed Ashley Kemp (pictured) to its senior leadership team as operations director.

Kemp, who is a CIOB chartered member, brings a wealth of expertise to the business, having worked with tier 1 fit out contractors over the past 15 years, most recently at Overbury, Area and Collins Construction.

From its offices in London, Cheshire and Birmingham, ICON Projects offers workplace consultancy, design and fit out across commercial office, retail, higher education and life sciences sectors.

Kemp said: "Being part of the ICON Projects team at this stage affords me the exciting opportunity to shape our growth in line with our long-term ESG commitments. This company is about working with good people to leave a positive mark on our world, and that's a purpose I can really stand behind."

TL leader brings together professional bodies

Networking event sees chartered organisations joining forces

London's Tomorrow's Leaders (TL) representative Anjali Pindoria made it her mission this year to collaborate with the wider industry.

In November she connected with the RICS Matrics London and JCT Young Professionals Group (YPG) Committee to host a joint networking evening. "Networking can often feel formal, so all industry bodies were determined to keep it 'chill', approachable and relaxed, creating an environment where members can converse easily," she said.

"The evening served as a testament to the importance of cross-chartership engagement, enabling our members to expand their networks to enrich their professional journeys by connecting with like-minded individuals as well as those they never get to normally meet outside of their membership groups," Pindoria added.

"By doing this, we can build better for our clients, as we network and help each other by encouraging diversity of thought."

She commented: "The fantastic turnout and positive feedback has encouraged other chartership bodies to get in touch already to find out if they can collaborate on upcoming events."

The event was sponsored by Emerson Bond and Fenwick Elliott.

▼ Anjali Pindoria (third from left) at the networking evening at RICS HQ in London

Irish conference promotes CIOB offer

The CIOB Ireland Construction Conference 2023 in November gave industry professionals a chance to network and learn more about what the CIOB has to offer.

CIOB speakers included: Ruth Kennedy-Green, CIOB acting director of membership; Annette McElligott, the CIOB ROI committee chair; Jenna Bell, business development manager – Ireland; and Joseph Kilroy, policy and public affairs manager – Ireland.

From outside CIOB were: Dermot Durack, solicitor with Quigg Golden; JP Hilliard, director at WKN Real Estate Advisors; Rachel Loughrey, project support officer at the Irish Green Building Council; and Natalie Ryan, regional ambassador with Lighthouse Construction Charity Ireland.

Durack spoke about the Construction Industry Register Ireland (CIRI) Bill; and Loughrey on the CO_2 performance ladder, green public procurement and sustainable practice.

SANDY GERRARD

Busy end to year for Eastern Region

First Tomorrow's Leaders networking event in Bury St Edmunds is a sellout success

A busy end of year for the Eastern Region has seen it hold its first Tomorrow's Leaders networking event in Bury St Edmunds, Suffolk.

The Greene King Beer Cafe was fully booked for a talk from local historian Steve Ruthen about the brewery building and other historical buildings around Bury St Edmunds.

Elsewhere in the region, the Norwich Hub worked with the teams at James Paget Hospital in Great Yarmouth, WSP and Morgan Sindall to arrange a site visit, explaining how they were mitigating the risks of RAAC at the hospital. A tour focused on identifying solutions used to support damaged planks, enhance end bearing points and how the difficulties of working within a 'live' hospital environment were overcome.

At Anglia Ruskin University, Peterborough, members of the Cambridge Hub visited phase two of its new building. The university is being developed in phases, aimed at filling a higher education 'cold spot' where 32% of the population have degree-level qualifications compared to a national average of 43%.

The Chelmsford Hub hosted a webinar on Unexploded Ordnance: The Risks and our Response. Marc Owen from Bombs Away talked about the historical context of unexploded ordnance, the hazards, assessing the risk and the mitigating actions that can be taken.

Pioneering EDI in construction

Jobert Fermilan talks about his role as the Cumbria and Lancashire EDI ambassador

The role of a hub EDI ambassador is extended to members who demonstrate a genuine enthusiasm for and deep understanding of this crucial policy area. The aim is to empower ambassadors to drive equitable practices within local hubs, regional committees and the Tomorrow's Leaders community.

EDI, I firmly believe, is not a catchphrase: it is a fundamental ethos that is pivotal to reshaping our industry's landscape. This rests on two critical pillars: employer actions and supply chain involvement.

Employer action

Employers need a proactive approach, centred on creating a workplace culture that champions authenticity and inclusion. CIOB's Diversity and Inclusion Charter serves as an invaluable blueprint for this journey.

An environment that refuses to tolerate discrimination is essential and this can be the bedrock for attracting talent. Transparency and accountability complete the cycle. Regularly sharing progress is pivotal for ensuring sustained growth.

Supply chain involvement

To make meaningful strides, supply chain businesses must be educated about the transformative potential of EDI and equipped with the tools to implement it effectively.

Initiatives such as workshops, guidelines and open dialogues are invaluable in ensuring that EDI principles infiltrate every corner of the industry. Main contractors must nurture inclusivity down the line.

The baton of EDI must pass seamlessly from organisation to organisation, much like a relay race. However, this race is not about competition; it's about collaboration.

Visit two sites that are shaping the Midlands

Sign up for tours of Three Chamberlain Square in Birmingham and Vistry Works East Midlands

Members in the Midlands can book in for two new site visits showing key developments in the area.

In Birmingham a tour of Three Chamberlain Square is planned for 1 February. This is the next building to be delivered in the Paradise redevelopment, sitting alongside the grade-I listed Birmingham Town Hall.

The design is targeted to make the building aesthetically pleasing and focuses on a low carbon and low-energy build. The external design will complement the surroundings, with active frontages on all sides and an extensive new public realm.

Attendees will hear from the team about the development to date, tour the site and have the opportunity to network with the CIOB Birmingham Hub committee and fellow members.

Over in Nottingham, members can learn more about modern methods of construction (MMC) at the Vistry Works East Midlands Factory on 16 January. Reopened in July 2023, the 33,000 sq m facility has the capacity to deliver in excess of 6,000 homes per year.

The new MMC facility will supply new homes with open panel frames for Vistry Group's mixed-tenure Countryside Partnerships and housebuilding businesses and will facilitate the delivery of homes to meet the Future Homes Standard which comes into operation in 2025.

Attendees will tour the factory and Innovation House and hear from factory director Paul Bilbie about the facility and the benefits of MMC.

Contact gfloyd@ciob.org.uk

▲ The new Three Chamberlain Square next to Birmingham Town Hall

Attendees will hear from the team about the development to date and tour the site

Northampton Hub hosts tour of Market Square

Members can learn about the challenges and logistics of Stepnell's regeneration site in the centre of town

On 22 February the Northampton Hub will be hosting a site visit to the newly developing Market Square in Northampton.

The square is being regenerated, with the installation of new paving, public seating, a lighting scheme, market stalls and a water feature.

The team at Stepnell will provide a tour of the works and an explanation of some of the challenges encountered during the project, including talking about the logistics of working in the town centre and with local stakeholders.

The market square dates back to 1235 and a number of archaeological finds have been uncovered during the excavation process. **Register at ciob.org/events.**

▼ New paving, lighting and seating will feature in the Market Square regeneration

Last chance to enter Maidstone awards

Entry call for Motivational Leader and Emerging Talent awards

There is still time to enter two CIOB awards from Maidstone Hub: the Motivational Leader Award 2024, sponsored by Baxall, and the Emerging Talent award, sponsored by GVE Commercial Solutions.

The winners will be announced at the Maidstone Construction Professionals' dinner on Thursday 21 March at the Tudor Park Hotel in Maidstone. Two shortlisted finalists will be invited as guests of the Maidstone Hub.

The Motivational Leader Award celebrates exemplary managerial and motivational skills by a CIOB member in a leadership role within the Maidstone Hub location.

The Emerging Talent Award 2024 is open to student members studying a built environment subject who joined the industry in the past three years and live or work in the Maidstone Hub constituency.

The closing date is Friday 12 January.

Contact blawrence@ciob.org.uk for more details.

One to watch

Scott Dennett
Management trainee,
Willmott Dixon Construction

What made you choose construction for your career? What else might you have done?
My aspiration was always to become a financial/commercial professional, after work experience for a commodity broking firm in London. But I made the decision to pursue a career in construction after speaking to a number of professionals at the Maidstone School Careers Fair. In the wake of my first site visit to Canterbury West Station, I was captivated. This prompted the beginning of my career at Willmott Dixon.

You are a Tomorrow's Leaders (TL) champion – why did you want to take on that role?
Being a TL champion has given me the freedom to network with other professionals, to stay updated with essential industry news and the opportunity to listen to new innovative ideas from a variety of different specialists.

My passion to inspire the next generation into construction has been fuelled by my personal journey, after getting the chance to complete work experience as a student.

What are your career ambitions?
My ambition is to establish myself as a quantity surveyor, working my way to a senior management position. I also want to work towards attaining my chartered status with the CIOB.

My role at Willmott Dixon has given me the freedom to learn different disciplines within the industry with the purpose of making me an all-rounded professional. I currently have a particular focus on gaining as much site management experience as I can during the early stages of my career – the intention being to make myself a greater asset to my future project teams.

Is there anything you'd like to change about the industry? If so, what and why?
Establishing important relationships is a massive part of any team's or project's success. If bigger strides are made to build stronger relationships between supply chain partners and main contractors, I think it would make the industry more effective when meeting quality, health and safety, environmental, programme and commercial targets.

What do you do in your spare time?
My hobbies are golf, boxing, football and going to the gym.

Alongside studying a Bachelor of Science (BSc) Honours Construction Management degree at the University of Westminster, I enjoy keeping my mind occupied, with stock and shares investing.

As you develop, so does your career

Whether you're a student or a seasoned professional, prepare for every step of your career journey with the best breadth of courses in construction.

Here are just a handful of our courses that can help boost your career:

CDM Principal Designer

30-20-10: Client Project Manager

Fire Safety During Construction

Conflict Resolution and Settlement

Learn from industry leaders at the CIOB Academy.
ciobacademy.org


CIOB
Academy

Cruise control

Jason Ellam-Brown MCIOB, principal construction project manager at Portsmouth City Council, shares how Portsmouth International Port's new Terminal Annexe is both an exemplar for sustainability and a demonstration of the success that comes when client and contractor values are aligned

Portsmouth International Port is positioning itself as a trailblazer with its aim to be carbon neutral by 2030. Its new passenger terminal extension – 'the annexe' – is a beacon of environmental sustainability. Built by contractor Knights Brown, it is one of the UK's first levelling up projects – built with £11.25m funding from the Department for Levelling Up, Housing and Communities.

● **Harnessing the sea's power:** At the heart of the eco-friendly design is a seawater heat exchanger. This system utilises the abundant and free energy source of seawater to heat and cool both the existing terminal and the annexe.

▲ Seawater is used to heat and cool the annexe, as well as for toilet flushing

▲ Jason Ellam-Brown MCIOB led the development of the Terminal Annexe

● **The solar solution:** The roof of the terminal is adorned with 130kWh photovoltaic panels. These not only run the building but also charge batteries with excess energy. This setup ensures a continuous power supply even when the sun takes a break.

● **Ancient wisdom, modern application:** The annexe has embraced a time-tested fifth century Persian technology with a passive ventilation system integrating wind catchers complemented by solar fans.

● **Warmth from the waters:** Energy-efficient underfloor heating, powered by the seawater heat exchanger, ensures a cosy atmosphere.

● **Walls that whisper sustainability:** The nearly 1m-thick double insulated and cavity walls stand as guardians against energy loss.

● **A coat of green:** Even the paint on the walls contributes to the environmental goals. It doesn't emit toxic fumes – it consumes carbon.

● **Enlightened illumination:** The intelligent lighting system, sensitive to Lux levels and movement, ensures energy is used only when necessary.

● **Living walls:** The 300 sq m of internal and external green walls absorb carbon dioxide, emit oxygen and create a serene environment.

● **Water conservation:** Innovatively, the terminal uses seawater for toilet

Trust was the foundation of our team dynamics, cultivated through regular one-on-one and all-team meetings, emphasising the importance of collaborative planning

flushing. This conserves fresh water and ties the building's operations to the natural resources at its doorstep.

- **Foundationally sustainable:** The use of driven piles and ground-bearing slabs saved on waste disposal. This underscores a commitment to minimising environmental impact.
- **Sealing in efficiency:** A high level of airtightness ensures maximum energy efficiency. Keeping internal and external environments separate significantly reduces energy loss.
- **Rainwater – nature's gift:** Rainwater harvesting systems water and nourish the living green walls.
- **A carbon-positive future:** The terminal annexe isn't just carbon-neutral, it's carbon-positive. It produces more energy than it uses.
- **Light from above:** Roof lights reduce the need for artificial lighting and connect the interior space with the natural world.
- **Collaboration and communication:** The symbiosis between client and contractor is paramount.

This final point was vividly illustrated in my experience leading the development of the Terminal Annexe. Amid a landscape of diverse challenges, success hinged on effectively harnessing construction management skills when both client and contractor are chartered construction managers whose training aligns. (The contractor contract manager was Matthew Spiller MCIOB.)

Key to this was managing the nuanced communication among team members, both in remote locations and within organisations possessing divergent goals. The project demanded meticulous coordination of a diverse workforce. This was not just about disseminating information, but fostering a culture of transparency and swiftly resolving misunderstandings.

PAUL GONELLA/STRONG ISLAND MEDIA

▲ Port director Mike Sellers (also chairman of the British Ports Association) in the new building

▶ The annexe's roof incorporates wind catchers and solar panels

The project navigated competing priorities and inherent conflicts between public body sensibilities and the profit-driven ethos of contracting businesses. We bridged these divides through team-building sessions and workshops, creating a unified front despite differing perspectives.

Efficiency was key in managing time and limited resources, especially crucial in a local authority context. This involved ongoing assessment of team performance, aligning tasks with capacities and ensuring everyone was working to their full potential. Regular feedback and performance improvement strategies agreed in team-building workshops were integral to this.

Building an environment that valued diverse perspectives was crucial. Recognising each team member's unique strengths – their 'superpower' – was a cornerstone of our approach.

As the managing lead, my role entailed making informed decisions promptly, considering inputs from team members and stakeholders. The ability to be dynamic and adaptable was a constant requirement.

Integrating the team into an operational port environment demanded a range of leadership skills. Trust was the foundation of our team dynamics, cultivated through regular one-on-one and all-team meetings, emphasising the importance of collaborative planning.

The project is a testament to the power of effective construction management, showcasing how MCIOB client and MCIOB contractor collaboration can overcome diverse challenges to achieve success.

View a timelapse of the build at www.linkedin.com/in/ellam-brown and a YouTube video at www.knightsbrown.co.uk/projects/passenger-terminal-transformation-portsmouth-international-port.

PAUL GONELLA

An inspirational year of events

CIOB has many exciting conferences and activities planned for 2024. Here's a snapshot of some of the best CIOB events to attend or support

CIOB events and activities have been created to inspire and support professionals with their career development within the construction and the built environment industry. Focusing on themes around the CIOB corporate plan, these activities are a diverse range of opportunities, from specialist conferences and tailored CPD learning to celebrating the accomplishments of those who achieve chartership and those who become finalists at our prestigious CIOB Awards.

● **Global Student Challenge**
Competition starts February 2024
This competition brings together university students studying construction from around the world who are tasked with the exciting challenge of forming a virtual organisation to deliver on a project. The winning team has an exclusive opportunity to attend 2024 Members' Forum and meet senior CIOB representatives.

● **Artificial Intelligence: The Future of Construction**
1 February
Hear thought leadership on how AI can be used in the built environment, and the challenges and opportunities we face in the interaction of AI and construction.

● **CIOB Student Festival**
6-7 March, virtual
Established in 2021, this is a dynamic and immersive gathering of students, industry experts, thought leaders and academics. It is a platform for networking, collaborative learning and gaining insight to a future career in construction.

● **CIOB Graduation Ceremonies**
17 May, 20 September, 13 December, Painters' Hall
Held in London, our graduations provide a momentous occasion for new individual and company members to commemorate attaining CIOB membership.

● **CIOB Awards**
9 April
With a legacy of over 40 years, CMYA has evolved into the prestigious CIOB Awards. This has seen an expansion in the number of awards, allowing us to honour an even greater pool of exceptional talent. This campaign celebrates the best people in construction.

● **Heritage and Conservation Conference**
9 May, hybrid (congress centre and virtual)
Our annual heritage conference brings you the latest in conservation, retrofit and expert thought leadership. Professionals working in the conservation and heritage sector require specialist skills and knowledge and for over 15 years this event has discussed, challenged and led the way.

● **Healthier and Inclusive Construction**
24 September, hybrid (congress centre and virtual)
Sector leaders and experts explore the status of building a healthier and inclusive construction industry, discussing the skills gap, mental health and inclusive construction.

● **Sustainability Conference**
22 October, virtual
With the commitment to net zero greenhouse gas emissions by 2050, we discuss the drive to carbon neutrality with policymakers, experts and leaders in the sector.

● **Construction Technology**
12 November, hybrid (One Moorgate Place and virtual)
Diving deep into the use of technology in the built environment, this event explores the behavioural, economical and future skills evolving within the industry.

● **Levelling Up the Built Environment**
26 November, virtual
Investment in the UK's devolution has cost billions of pounds, as the drive to devolve the whole of Britain continues. We will be joined by influential speakers to discuss the legislative changes of levelling up.

Sponsoring one of the CIOB's activities demonstrates your alignment with our core values of modern professionalism. It also provides an ideal way to elevate your brand and position your organisation as a recognised expert in your field while introducing your brand to our members. For more information, please visit www.ciob.org/sponsorships or email sponsorship@ciob.org.uk.

Diary dates

Highlights of the CIOB Calendar for the coming month

Site visit: Vistry Works East Midlands Factory Tour
▶ 16 January, 9.15-11.30am, Nottingham
Members are invited to a tour of the Vistry Works East Midlands (Coalville) timber frame factory in Leicestershire.

Reopened in July 2023, the 33,000 sq m facility will supply new houses for Vistry Group's mixed-tenure Countryside Partnerships business and housebuilding business. It is expected to deliver over 2,000 homes in its first year and has the capacity to deliver in excess of 6,000 homes per year.

The sustainable timber-frame homes will be a key part of the group's approach to meeting the Future Homes Standard, which comes into operation in 2025.

The relaunch of the MMC facility will have a positive socio-economic impact, boosting local job creation.

During the visit you will be able to tour the factory and Innovation House and hear about the facility and the benefits of MMC. For more details, see p50.
Contact: gfloyd@ciob.org.uk

Site visit and CPD: Temple Quarter Enterprise Campus/Former Royal Mail Sorting Office, Bristol
▶ 18 January, 4-6pm, Bristol
Join CIOB for a site visit and CPD at the former Royal Mail Sorting Office in Bristol, which is being reborn as the University of Bristol's new Enterprise Campus.

A presentation on the enabling works by Kier will be followed by an update by Sir Robert McAlpine on the ongoing and finished project, and a site walk.

Vacant since 1997, the building was purchased by Bristol City Council and demolished to facilitate the flagship development.

Temple Quarter Enterprise Campus (TQEC) will provide the space to reimagine the university's role as one of the world's great civic universities – enabling a transformed relationship with the city region, its businesses, communities and government.

The first phase of the TQEC includes development of a new six-storey 38,350 sq m academic building (TQA1), highway and landscaping works.
Contact: nbreakspear@ciob.org.uk

Take Action – CIOB and Environmental Sustainability
▶ 18 January, 1-2pm, online
Amanda Williams, head of environmental sustainability at CIOB, will be presenting a CPD and Q&A, organised by CIOB Wessex and Channel Islands.

Williams will talk about the CIOB Environmental Sustainability Action Plan, highlighting some of the broad themes and indicating where members can get involved.
Contact: clloyd@ciob.org.uk

Site visit: Splashes Leisure Centre, Gillingham
▶ 25 January, 2-4pm, Gillingham
Principal contractor Willmott Dixon is providing a site tour of Splashes, in Gillingham, Kent – a new leisure centre for the local community.

The family-friendly facility will have two pools: a four-lane 25m swimming pool and a second pool that includes a children's fun pool with flume, wave ball pool and beach area.

There will be a gym, a multi-purpose room on the first floor and a cafe by the entrance.

The external facade is a mixture of aluminium rainscreen cladding with projecting fins, porcelain, brickwork and curtain wall.
Contact: blawrence@ciob.org.uk

Meet the CIOB – NI Hub
▶ 31 January, 8am-12pm, Belfast
Drop into the Europa Hotel, Belfast, to enjoy light refreshments and learn how the CIOB supports its members. On hand will be the NI Hub committee members, Tomorrow's Leaders champions and CIOB staff.

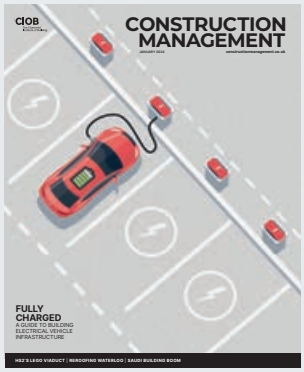
The event will provide attendees with an opportunity to network and link up with construction professionals in Northern Ireland.

There will be a wide range of exhibitors and presentations on varied areas of the CIOB offer, from membership and training partnerships to Tomorrow's Leaders and policy.

The event will include a case study on Woodvale Construction and its progress with social value. Mark Wade, director of Hays, the event's sponsor, will give an account of the skills required in construction and the jobs climate in Northern Ireland.

The event will close with a presentation from Natalie Ryan, regional ambassador for Ireland for the Lighthouse Construction Industry Charity.
Contact: jfitzsimmons@ciob.org.uk

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

Circulation: Net average 31,416
Audit period: July 2021 to June 2022
Subscriptions: To subscribe or for enquiries, please contact:
Subscription team:
Tel: 01293 312160
Or go online at:
https://constructionmanagement.imbmsubscriptions.com

Or write to us at the address below:
Construction Management
Published for the Chartered Institute of Building by Atom Media Partners, 26-27 Bedford Square, London United Kingdom. WC1B 3HP
construction-management@atompublishing.co.uk

CIOB People

Construction's new people development resource

Expert opinions, career case studies, practical guides and events across a range of people development topics

- Women in Construction
- Mental Health
- Equality, Diversity & Inclusion
- Apprenticeships
- Social Value
- Wellbeing
- Learning & Training
- Employee Engagement
- HR Tech
- Maternity & Paternity
- Leadership
- Flexible Working
- Tomorrow's Leaders

www.ciobpeople.com


UCEM
UNIVERSITY COLLEGE
OF ESTATE MANAGEMENT
No. 1
Provider of surveying apprenticeship
BUILT FOR APPRENTICESHIPS
Improve retention
Increase diversity
Attract new employees
Utilise levy-funding
Online degree apprenticeships we offer:
Chartered Surveyor
BSc (Hons) and MSc routes available
Building Control Surveyor
Construction Site Management
Construction Site Supervisor
Sustainability Business Specialist Apprenticeship
www.ucem.ac.uk/apprenticeships
businessdevelopment@ucem.ac.uk