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News and views

04 CIOB contract debuts
United Nations’ Palais des Nations to trial CIOB’s Complex Projects Contract on a £600m scheme.

06 CIOB scholars’ research
Findings on benefits of industrialised building and renewable energy sources
Plus Chris Blythe on dirty supply chain secrets.

08 Leader
A dangerous sustainability myth has been busted.

09 Feedback
Letters, comments and readers’ views on whether we need a BIM-style carbon mandate.

Features

12-18 Cover Story Emission impossibility
How can the industry cut carbon emissions by 2025 when new evidence shows it’s failed to embed change so far?

21 Hard hat trick
Meet three CIOB members who are bringing their ideas, passion and energy to the industry.

32 Plan of steel
Constructing the “sky garden” for the City of London’s Walkie-Talkie tower was a structural challenge.

36 Ecobuild preview
The new homes standard, BIM “geniuses” and more at next month’s Ecobuild.

38 CPD: Drainage and stormwater management
Geocellular systems can help to optimise land use and enable more homes to be built on flood plains.

58 Project of the month
The Green Room restaurant on London’s South Bank takes its temporary place.

Construction professional

26 Ethics sense
The Action Programme for Responsible Sourcing turns up the heat on supply chains.

26 Management methodology
Critical Chain Project Management - a beginner’s guide.

27 BIM bytes
Designers must use their professional judgement to decide when BIM is right for a project.

28 Climate fear
Extreme weather and building on floodplains necessitates a closer assessment of risk, says CBRE.

30 That’s not in dispute
An anonymous online reporting service to identify problems on projects before they become crises.

CM’s website has a new CPD portal, for modules from the magazine and additional study topics.
Register at www.construction-manager.co.uk/cpd/
An ambitious £600m project to remodel the United Nations’ (UN) historic Palais des Nations building in Geneva looks set to be the first to trial the CIOB’s Complex Projects Contract (CPC).

The UN has already adopted the CIOB’s CPC Consultancy Appointment document to appoint members of the consultancy team, and plans to use the main contract to appoint the contractor.

The CPC Consultancy Appointment document has not yet been publicly launched, but the CIOB granted the UN permission to use the draft version. The full suite of documents will also include a forthcoming CPC Subcontract form.

The Palais des Nations project is considered an ideal testing ground for the new CPC because of its complexity. It consists of four overlapping phases covering the construction of a new building and renovation of two conference centres, several offices blocks, a library and an archive facility. Construction is due to start in 2017 and complete in 2023. The strategic plan is to accommodate 1,230 members of staff currently based elsewhere in the city in the main complex.

It is understood that the UN legal team has modified some details of the contract with annexes and special provisions, but Saleem Akram, director of construction, innovation and development at the CIOB, said that “over 90%” of the CPC clauses are as originally published.

Akram said a formal launch of the CPC consultancy appointment document would take place later this year, once a distributor for the contract suite had been appointed. However, any other clients or project teams interested in exploring it can contact the CIOB for a copy.

The news from Geneva comes nearly two years after the CPC was published, but Akram said it was unrealistic to expect a new approach to take hold quickly, pointing out that the NEC3 contract was first commissioned in 1986 and published in 1991, but only gained traction after it was recommended in the 1994 Latham report.

He added that there had been interest in the contract from client organisations in Hong Kong and Saudi Arabia.

The CPC is geared to collaborative working, written in plain English and is BIM ready. It puts the construction programme centre stage: the client must appoint a project time manager to oversee it fairly and objectively; and the main contractor must provide the scheduling information to update it regularly.

The CPC also shares some features with the NEC, notably that the parties will work collaboratively in a spirit of “mutual trust”, and risks will be allocated up front.

It was drafted by Keith Pickavance, executive consultant at Hill International, his brother, Roy Pickavance FCIOB, director of consultant DAQS and an expert in delay analysis, and solicitor Nick Lane, head of construction at Mishcon de Reya.

Lane and colleagues at his former firm, Olswang, have also been involved in drafting the new Consultancy Agreement document. In a blog posted late last year, Lane wrote: “These documents will transform the CPC into a suite of documents, bringing it in line with the FIDIC (Red, Yellow and Silver Books, the White Book and Construction Subcontract) and NEC (NEC3, PSC and ECS) suites.”

The Palais des Nations was built between 1929 and 1936 as the headquarters of the League of Nations.
A member of the Construction Industry Training Board’s (CITB) new 21-strong advisory council has pledged to put the case for a radical rethink of how the board operates and spends its £120m levy income.

Among the ideas Ian Dickerson, head of new entrants and funding at Kier, will propose at the council’s first meeting, due this month, are: using levy funds to incentivise industry employers to take part in a co-ordinated schools engagement programme; a new one-year postgraduate conversion course to supply a much-needed influx of quantity surveyors; and a new flexible approach to apprenticeships.

Dickerson outlined his ideas in the week the CITB revealed its new advisory council and slimmed-down eight-strong board.

“They have replaced the former governance system, whereby an unwieldy 21-strong board was supported by equally well-populated training and grants committees.

Dickerson told Construction Manager: “I see this as a clean sheet for the CITB, and an opportunity to say, ‘This is what the purpose of the CITB is’. There’s £120m-plus in levy income, but what should we do with it? You can pay companies like Kier a significant grant and we’ll make good use of it, or a small company might get a £10,000 grant for an apprentice they wouldn’t otherwise have taken on. But in the coming years we’re facing a number of skills shortages, at trades and graduate level.”

The industry supports schools initiatives, but Dickerson said a co-ordinated campaign to promote construction careers is needed.

“At the UKCG we have Open Doors, which is a great way of enthusing people, and there are other initiatives, but there is no co-ordination.

“All these organisations are saying things about the need to attract young people with no co-ordination or clear message. “But we have a massive skills shortage coming, so we need to incentivise employers to join a campaign to sell the industry.

“How cost effective is it for me to go to a school or a careers fair, where I might speak to 10 students, some might go into the industry but not necessarily join Kier? But I would feel better if I do it one day, but I knew that BAM is doing the next day, and we’re all trying to sell the industry.”

Training changes

Dickerson also proposed a two-year apprenticeship where young entrants spend the first year training as general operatives - perhaps based at a further education college - then switch to a specialist trade in the second year to meet local skills gaps.

“We’re told there are fewer than 1,000 steel fixers in the UK, but 900 will be needed at Hinkley Point C and the same for the Thames Tideway Tunnel. We need a complete change in the training for apprenticeships, to make sure we’re addressing skills shortages in these areas.”

Finally, Dickerson identified a chronic lack of new quantity surveyors. To counter this he suggested a new intensive one-year conversion course for graduates of other subjects, similar to the one-year law conversion course.
CIOB scholars present their industry-enhancing research

The recipients of the CIOB’s Sir Ian Dixon and the Faculty of Architecture and Surveying scholarships presented their research findings to an invited audience at an event at St Bartholomew’s Hospital in the City of London last month.

Felipe Manzatucci, a client-relationship manager from Skanska, and Ryan Close, a building surveyor at project manager and technical consultancy WYG, were each awarded a one-year research fund of £3,000 from the CIOB to produce “a piece of research that benefits the industry, themselves and their company”.

Manzatucci, the Sir Ian Dixon scholar, presented his paper entitled: “Industrialised building: a market differentiator for the principal contractor?”. His research aimed to identify ways that principal contractors could adopt industrialised building concepts to differentiate themselves from competition in the market.

Manzatucci found that fragmentation was the main reason for the poor performance of the construction sector and that industrialised building could significantly reduce the effects of fragmentation.

This led him to the conclusion that “principal contractors should embrace industrialised processes and adopt them in their overall strategy”.

Mathematician has more than eight years of experience in designing structures in the custodial and education sectors. He has also written an award-winning masters degree dissertation on modular construction.

Close, the Faculty of Architecture and Surveying scholar, focused on providing guidance for homeowners who want to install renewable technologies. His study compared the cost effectiveness and return on investment of retrofitting houses with ground source heat pumps and biomass boilers with oil, often an alternative solution for households that are not on mains gas.

He concluded that ground source heat pumps have a greater return on investment, although building fabric upgrades, which are not as important with biomass, are recommended.

Close is a building surveyor who has a working knowledge of the nuclear industry and the private and public sector.

The scholarship programme provides an opportunity for employers to develop the potential of their individuals and for the scholars to display their leadership qualities. The CIOB organises the two scholarships in partnership with the Worshipful Company of Constructors.

Bob Heathfield, past-president of the CIOB and chair of the scholarship panel, said: “Both scholars proved themselves to be very diligent and committed throughout the programme.

“To combine the scholarships with full-time employment is certainly not easy and requires the full support of their sponsoring companies, Skanska and WYG.

“Their chosen topics have been thoroughly researched with outcomes that will not only be of value to the scholars, and sponsoring companies, but also to the wider public.

“I have no doubt that the experience gained throughout the programme will serve them in good stead as they progress their individual careers.”

Chris Blythe

Cleaning up the supply chain is everyone’s business

In November the CIOB held a conference at the Queen Elizabeth II centre in London on “Inspiring the Future of Construction”. We heard many examples of people doing good things to try to encourage young people to have a positive attitude towards the industry.

So it was disappointing that less than two weeks later a Newsnight report alleged that a British contractor in Qatar had migrant workers on its contract being exploited and living in intolerable conditions. Not many young people watch Newsnight. But their parents do. Such a story does enormous damage to the image of the industry.

With work on the World Cup venues about to kick off in earnest in Brazil, there is scope for even more own goals. For a start, if contractors have no system to monitor the supply chain, they have no way to find out what is being done in their name, until another Guardian or Newsnight exposé.

Even if contractors have a monitoring system, the acid test is how they deal with the unscrupulous subcontractor without adding to the misery of what will already be a pretty miserable bunch of people. Sacking the subcontractor may be the most expedient and clinical way to solve the “apparent” problem.

This issue is not just confined to the contractors. The consultancies running the building programmes have an equal responsibility for the supply chains. An obvious solution would be an accreditation process that ensures workers are exploitation free. This would give boards some assurance that there are no nasty things going on in the supply chain that could embarrass them. Wringing their hands and blaming the subcontractor won’t wash any more.

Individual companies seem happy to risk their reputations being trashed but it’s the industry that pays the price. This is a job for the Construction Leadership Council. The industry’s image is at the heart of the 2025 industrial strategy as its key to getting the right skills on board. So taking steps to ensure bad headlines don’t occur in the first place would seem to be a top priority.

For every negative Newsnight or Guardian article, we need a hundred good stories as a counterbalance. We can always blame the media and say they should publish our success stories. But that’s not their job.

And besides, which is the most important story: engineering works on a project finishing on time or three workers dying each week as a result of neglect on construction projects?

For more on supply chain ethics, see p26.
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We need to talk about carbon emissions - again

DO WE NEED A CARBON MANDATE? In other words, following the conspicuous success of the 2016 BIM mandate in kicking off a sector-wide culture change, would a direct link between performance on carbon reduction and public sector procurement boost our current poor performance on cutting directly-controlled carbon emissions? The question arose from this month’s cover story, which reveals that the industry’s on-site emissions in England actually rose by 13% between 2008-12. It’s a pretty shocking statistic.

Not everyone we spoke to, both for the article and in this month’s vox pop (see right), agreed that this was the right approach, while some preferred to link the idea to embodied carbon and buildings’ fabric. But what was striking was the readiness to discuss the issue: hardly anyone felt that we had all the tools, levers and legislation in place to effectively manage the industry’s performance on carbon - or indeed hit the Construction 2025 targets.

It’s generally agreed that carbon and sustainability have fallen off the agenda in the past five years. The beginning of the credit crunch in 2008 coincided with what you might call “peak sustainability”, when everyone was flocking to “green” seminars and events, Halve Waste to Landfill was a popular rallying cry and of course the 2008-12 target to cut emissions by 15% was born. Then came 2008-10, the era of Paul Morrell and the Innovation and Growth Team reports, which had a strong “cut the carbon” dimension.

But after that, with the industry weary from redundancies, recession and austerity, there seemed to be a collective agreement that sustainability had been “mainstreamed” so we didn’t need to talk about it so much. Construction Manager was as much part of this as anyone else, giving the topic less editorial focus.

But now, the Green Construction Board reports reveal that “mainstreaming” was a myth: we let on-site carbon emissions increase, and it also looks as if we didn’t hit the Halve Waste to Landfill target that once seemed so achievable. It’s clearly a wake-up call.

So how do we go forward now? Of course, the industry exists to build buildings, not to single-handedly save the planet, or render itself uneconomic by adopting unfeasible targets. But the evidence of 2008-12 is that adopting voluntary targets doesn’t embed the behaviour change deeply or widely enough to make a lasting impact. By implication, it’s perfectly reasonable to have doubts about the new WRAP/GCB Built Environment Commitment.

However, a procurement-led approach might well work: just look at the Olympic Park, and now at Crossrail. That would obviously require a commitment from government, and here the coalition has obviously required a commitment from government, and here the coalition has manifestly failed to deliver a green agenda. The one silver lining in this worrying scenario is at least we have a General Election, and quite possibly a change of government, coming up soon.

Elaine Knutt, editor
Vox pop

Does the industry need a BIM-style emissions mandate to ensure it meets carbon reduction targets?

Kirsten Henson
Director, KLH Sustainability
A carbon mandate for construction companies that focuses on reducing emissions generated through site activities would feel like a political statement, rather than a drive for real change.

The Department for Business, Innovation and Skills reports that operations on site account for only 1% of a building’s lifecycle carbon footprint. There is a growing trend towards design-and-build contracts and, as a result, principal contractors have significant influence over a lot more than just the power used on site.

Manufacture of building products accounts for 15% of the building carbon footprint, and distribution a further 1%. Therefore, reducing the quantity of cement in concrete, challenging waste on site beyond the ubiquitous statements of waste reduction, optimisation of steelwork and careful selection of building products is the best way to deliver carbon saving.

Stephen Wielebski FCIOB
Divisional development director, Miller Homes
While carbon counting is probably a worthwhile endeavour, it needs to be considered in the round.

For example, we have been looking at some recent research and it seems water companies are losing around 23% of water through leakage. If we extrapolate, the carbon footprint associated with this level of lost water is considerable. One could argue that any change to Part L of the Building Regulations will have a minimal impact compared with the carbon footprint attributable to water leakage.

There are checks and balances with everything we do, and I’d like to see a co-ordinated approach to carbon. Housebuilders, utility companies and contractors all need to be focused on the issue. Infrastructure that supports a development also has a big role to play in reducing the carbon footprint of housing and other buildings.

Elrond Burrell
Associate, Architype
Originally the government’s focus on BIM, which led to the BIM mandate, came out of a desire to help “green” the construction industry. The intention of BIM was to reduce carbon emissions by 20%, as well as costs, but austerity led to a focus on saving money. Now there is definitely a need to refocus on creating genuinely sustainable buildings.

However, I am not convinced carbon targets are the way to achieve this. Carbon is slightly abstract, there are a variety of ways of measuring it and you can play accountancy games with renewables. What we have to do is focus on deep energy reduction and create homes that are energy efficient, no matter where the power comes from. BIM has a place to play in this, and can help put carbon on the agenda.

Bill Butcher ICIOB
Director, Green Building Company and Green Building Store
Carbon reduction is too vague for most people in the industry. It is easy to sprinkle a badly designed and constructed building with expensive renewables. However, a fabric-first philosophy, such as Passivhaus, provides real results and is understandable by all involved.

They also have a strict and simple definition of a designer. From my conversations with contacts at similarly sized architectural firms, they are also welcoming the role.

CDM is not for architects
Tony Marsh MCIOB
I hope architectural practices are ready for the extra work, because the subject seems to have been hijacked by them.

No doubt a fair number of existing CDM co-ordinators will be out of work. I know of many architectural practices that have stopped doing CDM work since 1997 because it is loss making and consumed too much time, preventing them from doing actual design work.

The 1994 legislation was more than adequate and only needed the planning supervisor to be given more clout. It is action that saves lives, not paperwork.

I would like all buildings to be built to this standard or at least informed by the methodology. The government could procure using Passivhaus as a benchmark and have this integrated into the Building Regulations. It may be more expensive in the short term, but we need a focus on quality of build. A Passivhaus-benchmarked mandate could work.

Simon Green
Head of sustainability, Lakehouse
In theory we already have a carbon mandate: the Climate Change Act 2008 enshrines in law a target of an 80% cut in the UK carbon account from 1990 to 2050. However, we’re at risk of missing our 2020 target. We need better integrated public policy and investment.

The Committee on Climate Change has highlighted good progress in the automotive and wind power sectors, but less on energy efficiency. The Energy Companies Obligation and Green Deal debacles show we must join up our thinking on climate change, energy efficiency and fuel poverty. We need the government to deliver a mandate that reinvigorates market transformation.

Combating carbon complacency
Jose Scalabrino MCIOB, via website
We have to change. (The accusation could be levelled we’ve been complacent on carbon, online, 12 December)

We have to harness methane gas and bio-gas to replace coal and oil to generate electricity, and recycle used cooking oil to produce diesel fuel. We also need to bring down the installed cost of photovoltaics and wind-turbine renewable energy.

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That sinking feeling...

Delayed Green Construction Board reports on the industry’s carbon, waste and water performance are a worrying sign it’s off target for Construction 2025. Is it time for a carbon mandate? Elaine Knutt investigates

And there are further technical caveats. Charlie Law, former head of environmental management at BAM and chair of the UKCG’s waste group, points out that the Arup-written measurement protocol used in the GCB report is out of step with current thinking on reporting construction emissions, especially as it includes those linked to offsite construction. He also believes the scope of WRAP’s Halve Waste to Landfill target was always unfeasibly wide, as it included soil and excavation waste.

“We knew the scope was wrong as soon as we sat down with DEFRA [the Department for Environment, Food and Rural Affairs] in 2007,” Law suggests.

Alarm bells
But with these reservations noted, the general view among the industry professionals CM spoke to is that the reports sound a warning signal for an industry that might not be making as much progress on sustainability as it thinks. And while lack of data may have been a problem, it’s hardly one that lets the industry off the hook. In fact, it has been confirmed by Balfour Beatty head of sustainability and GCB member Paul...
“The industry needs to take [the reports] seriously, regardless of doubts about the data”
Shaun McCarthy,
Supply Chain
Sustainability School
How much carbon are we talking about?

The Green Construction Board (GCB) report took forward a commitment originally made by the Strategic Forum for Construction as part of the 2008 joint government and industry Strategy for Sustainable Construction. That target was to cut 15% of carbon emissions linked to the industry’s operations in England from plant and equipment, road transport, site accommodation, back-office operations and offsite construction fabrication.

In 2008, there was no guidance in place to achieve the targeted cuts or an agreed carbon emissions baseline. So a more detailed “how to” guide, the Action Plan to Reduce Carbon, was published in 2010. This provided a breakdown of the baseline levels of emissions and 2012 targets for various activities. (For further details, see CM Nov/Dec 2014, p52-55).

The 2008 baseline calculated in 2010 was actually 10% greater than had previously been assumed.

The executive summary of the GCB report includes this table – reproduced below – which shows good progress in business travel, freight transport and offsite construction emissions. But the largest single element, onsite emissions, showed a shocking 13% increase.

But how significant are emissions linked to construction processes in relation to overall carbon? The final report of the Low Carbon Construction Innovation and Growth Team (IGT) in 2010 said the total UK footprint the industry can influence is 298.4 million tonnes a year.

This includes the operational energy of completed buildings (83%) and the manufacturing processes in construction products (15%). In comparison, the IGT report puts emissions from distribution of people and products at 1%, onsite construction operations at 1%, and demolition and refurbishment operations at 0.4%.

So on the face of it, the emissions covered by the GCB report account for either 1%, 2% or 2.4% of the total carbon the industry can influence in a year, or between 3 million and 7.2 million tonnes. This roughly tallies with the GCB’s updated 2010 calculation, for England only, of 5.6 million tonnes.

But the 298.4 million tonnes figure covers emissions from every home and property in the UK, irrespective of when they were built. If we expressed construction’s annual operational emissions as a percentage of the embodied and operational emissions from one year’s worth of construction output, the total would be higher than 1-2.4%.

<table>
<thead>
<tr>
<th>Construction process</th>
<th>Recalculated 2008 carbon emissions (tonnes)</th>
<th>2012 carbon emissions (tonnes)</th>
<th>Change from 2008 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onsite construction</td>
<td>1,944,000</td>
<td>2,191,000</td>
<td>13</td>
</tr>
<tr>
<td>Freight transport</td>
<td>1,738,000</td>
<td>1,439,000</td>
<td>-17</td>
</tr>
<tr>
<td>Waste removal</td>
<td>542,000</td>
<td>537,000</td>
<td>-1</td>
</tr>
<tr>
<td>Off-site assembly</td>
<td>246,000</td>
<td>212,000</td>
<td>-14</td>
</tr>
<tr>
<td>Corporate office</td>
<td>265,000</td>
<td>281,000</td>
<td>6</td>
</tr>
<tr>
<td>Business travel</td>
<td>834,000</td>
<td>562,000</td>
<td>-33</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>5,568,000</strong></td>
<td><strong>5,222,000</strong></td>
<td><strong>-6</strong></td>
</tr>
</tbody>
</table>

Emissions (tonnes/£m contractors’ output)  50 51 2
Emissions (tonnes/2005 £m contractors’ output)  58 59 2
“Our carbon tonnage has gone down as we got better at measuring with a good degree of accuracy”
Brian Handcock, Morgan Sindall

“You develop policy by knowing what the issues are. It doesn’t help to have reports that are floating in the background and haven’t surfaced,” adds CIOB head of policy and public affairs Eddie Tuttle.

And in February 2015, the events of 2008-12 are fast receding: what is more important now is the Construction 2025 deadline of a 50% reduction in total carbon emissions from a 1990 baseline - and its interim target of 30% by 2017.

But it looks as if the opportunity to lay a foundation for progress on project-related emissions in the recession has been wasted, despite the oft-repeated mantra that “carbon equals cost”. Without those behaviours in place, what will happen to the industry’s emissions record when output ticks up?

Which brings us to the waterlogged Somerset Levels, the devastating storms last year in Dawlish, the fact that eight of the 10 warmest years since Met Office records began in 1659 have occurred since 2002 (see Construction Professional, p.26). “We know, based on what we are told by scientists, that CO2 is harming the planet and its atmosphere, but we are somewhat detached from its consequences in that we do not see a direct link from emissions on a building site,” points out management consultant Trevor Drury of Morecraft Drury. But without a dramatic improvement in carbon performance, an industry that should be contributing to the solution will instead be part of the problem.

**Carbon conundrum**

*CM* has obtained a copy of the executive summary of the report on carbon emissions from construction processes (see table, left). It reveals that onsite construction emissions, when normalised against turnover, actually rose by 13% in real terms between 2008 and 2012.

The report’s commentary highlights the data deficit behind the findings: ‘Although there has been an improvement in corporate reporting terms of emissions from offices and business travel since the 2008 baseline assessment, reporting for individual projects does not seem to have been improved... The amount and quality of data received has decreased since 2008.”

Compiling the reports became the responsibility of the carbon, waste and water subgroups in the GCB’s “Greening the industry” work stream. But with minimal resources, they seem to have relied heavily on work by pre-existing UKCG working groups: the carbon group chaired by BAM senior sustainability adviser Jesse Putzel; the water group chaired by Martin Ballard, group environment manager of Willmott Dixon; and the waste group chaired by BAM’s Charlie Law.

This explains why the reports are so biased towards UKCG members, and why there appears to have been no attempt to draw on data from other sources, such as the National Federation of Builders (NFB), National Specialist Contractors’ Council or the Federation of Master Builders. On the other hand, it has been pointed out that, as around 80% of majors’ workload is subcontracted to the supply chain, measuring their performance draws in many smaller specialists and SMEs (small and medium-sized enterprises) as well.

“IT would have been good to have representation across the industry,” says Paul Bogle, policy manager at the NFB, which is represented on the GCB. “But the fact that it’s just UKCG and CECA is not necessarily a bad thing.”

**Culture of reporting**

Yet the struggle to obtain carbon data puzzles many in the industry, when a culture of reporting has now taken hold at so many levels. Brian Handcock, head of sustainability at Morgan Sindall, points out that most top 30 contractors have reported corporate-level energy usage under the mandatory Carbon Reduction Commitment Energy Efficiency Scheme since 2009/10, and are now subject to the new Energy Saving Opportunity Scheme (ESOS). For project-related and supply-chain emissions, Morgan Sindall has joined the Achilles CEMARS (Certified Emissions Measurement and Reduction) scheme, which certifies its data.

Handcock says that Morgan Sindall cut emissions by 26% between 2010 and 2013 against a stable turnover. In response to the suggestion that emissions rise when...
Feature Sustainability

Passnotes: the Green Construction Board and the missing reports

Was this cock-up or conspiracy?
Certainly, voices in the industry have questioned whether the hand of Whitehall has been at work in delaying publication. The Green Construction Board (GCB) was set up by the Department for Business, Innovation and Skills (BIS) and is co-chaired by construction minister Nick Boles. It has been suggested that embarrassing reports that reflect badly on industry and government’s progress on reducing emissions will languish unpublished in the pre-election “purdah” period.

Others have suggested that the delay between finalisation of the text and publication has been used to water down the conclusions.

But it might just be cock-up?
Yes. The three reports are the responsibility of the “Greening the industry” subgroup of the Green Construction Board, for which the secretariat function was provided by a member of staff at the Construction Products Association (CPA). The carbon report was apparently finalised in June, and the waste and water reports completed by the end of the September. Responsibility for preparing the reports for publication fell to the CPA staff, and a CPA spokesman has told Construction Manager that the delay has been because she prioritised association projects over her voluntary responsibilities for the GCB reports.

Hmmm. So assuming that’s the case and the reports turn up soon, doesn’t the delay still reflect badly on the GCB?
Construction Manager couldn’t possibly comment.

What does the GCB say?
Skanska chief executive Mike Putnam, who is the GCB’s co-chair, emailed this statement: “The industry set itself the 15% target in 2008 as a signal of its intention to put its own house in order. At that time, there was no methodology to measure site...”

> contractors start to measure and find more carbon sources, he says: “Our carbon tonnage has gone down as we got better at measuring with good accuracy.”

“People saying there wasn’t enough collated surprises me,” agrees Gordon Brown MCIoB, director of GBSPM, which advises on schemes ranging from £50,000 to £50m. “Any contractor building a BREEAM building would be monitoring water and energy usage on site, so all that data should be there. Plus many big contractors monitor it as part of their internal KPIs [key performance indicators]. So to say there wasn’t enough information seems a bit strange.”

Drury is tempted to draw an obvious conclusion: “At the moment it is all voluntary, so contractors who find that they have not performed well in reducing carbon emissions will be reluctant to release their data. Do we need an independent body to collect data for this and other industries to get consistent, like-for-like measurement and reporting if, as a nation, we are serious about reducing our carbon emissions?”

So possibly the data was there – but what was missing was the corporate willpower to drive down emissions in the first place. Brown says: “In my experience, it tends to be a personal drive, rather than a company drive. The best companies are the best because one or two people drive it. If they leave, it all breaks down, because it’s not understood by all.”

And McCarthy tends to agree: “Often what happens is that someone in the decision-making chain says it’s going to cost more, and then it stops.”

New commitment
But going forward to 2017 and 2025, there is now a new carbon-cutting tool to help the industry improve its performance: WRAP’s new Built Environment Commitment, launched at the Government Construction Summit in July 2014. Rather than prescribing a specific goal, the commitment is a DIY carbon target where construction firms and clients work to targets they set themselves.

So far, the UKCG has signed up its members to reduce the amount of waste sent to landfill according to internally agreed targets, monitor water usage and “take at least 500,000 tonnes of carbon emissions out of our processes by 2025”. (In comparison, the target in the 2008-12 report was 750,000 tonnes.)

But Law and Morgan Sindall’s Handcock both believe the commitment will just codify what UKCG contractors are doing already, rather than setting “stretch” targets. “Everyone was waiting for the next big thing to arrive [after the 2008-12 targets] but the commitment hasn’t really impacted. For many UKCG members, it will be business as usual,” Handcock says, later adding that contractors do not want to make themselves “uncompetitive”.

Passnotes: the Green Construction Board and the missing reports

Contractors start to measure and find more carbon sources, he says: “Our carbon tonnage has gone down as we got better at measuring with good accuracy.”

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> emissions, no data gathering from companies, no baseline from which to measure progress, no action plan, and no specific guidance for businesses. While the target has not been achieved, we now have in place an established methodology for measuring emissions from construction sites, an action plan and guidance. Major contractors have recently affirmed their commitment to delivering Construction 2025 and its low carbon ambition, including through reducing direct emissions from site activities.*

Who else is on the GCB?
Several corporate clients, consultants and contractors are represented, including Marks & Spencer, Hammerson, Willmott Dixon and Laing O’Rourke. The UK Green Building Council’s outgoing chief executive, Paul King, is also on it.

The GCB hasn’t been popping up much lately, has it?
Its biggest recent achievement is the joint ownership (with the government’s Infrastructure Cost Review) of the Infrastructure Carbon Review in 2013. Last October there was a “One Year On” conference to mark the first anniversary and 30 signatories to its carbon-cutting agenda. But the GCB and WRAP’s new Built Environment Commitment – roughly equivalent to the Infrastructure Carbon Review for the construction sector – has enjoyed far less support so far. The last time Construction Manager wrote about the GCB was in March 2014, when it welcomed an extension of BIS funding until February 2016.

What exactly is the GCB’s role?
It was set up in 2011 to implement the Low Carbon Construction Action Plan. But since the Construction Leadership Council was set up in July 2013, it seems to have lost autonomy and been co-opted to the wider Construction 2025 agenda. When Construction Manager asked chief construction adviser Peter Hansford to clarify, he said: “I hate to sound hierarchical, but the Construction Leadership Council drives the overall strategy via various bodies, including the GCB. The strategy is to achieve a 50% cut in construction sector emissions from 1990 levels by 2025, and the GCB is tasked with making it happen.”

“The biggest problem is that WRAP hasn’t been given the money to promote the Built Environment Commitment”
Charlie Law

> Drury puts this slightly differently: “This will be good for corporate branding and to show an intent to reduce carbon emissions but, again, it lacks any real teeth and punishment, except to an organisation’s image if it fails to meet its own targets. It’s seeking to sign up not only contractors and designers but investors, clients, asset owners and government – those are the groups that influence what gets built and to what standard.”

But if you haven’t even heard of the Built Environment Commitment, you’re not alone: CM only realised it existed in late October; a Google search suggests that no other media outlet in the sector has written about it, and our enquiries among industry professionals elicited blank faces. While WRAP’s government-backed Halve Waste to Landfill target in 2007 galvanised the industry, the commitment seems to have gone unnoticed.

“The big problem is that WRAP [now a charity independent of government] hasn’t been given the money to promote it,” says Law. “They struck a deal with BIS to launch it, but I understand only two people are working on it [and other projects], and there’s no programme of seminars and events as there was in 2007.”

Yet the commitment is seen as a key plank in the Construction 2025 strategy. WRAP is actually the “facilitator” of the programme, and rolling it out is the responsibility of BIS and the GCB.

The government’s chief construction adviser, Peter Hansford, tells CM “It’s got a very big role to play,” adding that he was not aware of any concern over lack of promotion.

**Carrot or stick**
So if voluntary measures risk achieving patchy results, do we need a legislative lever to improve the industry’s performance? Brown draws a comparison with Site Waste Management Plans, which were – to a degree – monitored by the Environment Agency before being downgraded to voluntary status from December 2013: “People on the ground made more of an effort than otherwise. If something doesn’t get policed, people will not respond in the same way.”

However, Morgan Sindall’s Handcock disagrees: “From a larger listed company perspective, we don’t need any more legislation. We’re already doubly hit by the Carbon Reduction Commitment and ESOS.”

Alternatively, if the industry needs broad-based behavioural change on carbon, there is an obvious precedent: the government’s 2016 BIM mandate, which began an industry-wide conversation that soon became a culture change.

What about a “carbon mandate” to link contractors’ and bidding teams’ performance to public sector tendering? The Supply Chain Sustainability School’s McCarthy supports the idea: “If the [Construction 2025] targets were reflected in government procurement, then the industry will respond to that need.” He points out that most of the industry’s sustainability successes have been client driven: as well as the Olympic Development Agency and Crossrail, he cites High Speed 2 and long-term collaborative frameworks at the Highways Agency. “Sustainability doesn’t cost more. Bad procurement does.”

The 2008-12 emissions report is unlikely to have the statistical validity to draw firm conclusions about the industry’s performance, but then lack of statistical validity also reflects badly on the industry’s carbon governance and prospects for hitting the Construction 2025 targets. Operational emissions might just be one slice of the industry’s overall footprint, but failure to reduce those 5 million tonnes a year would be a stain on the industry’s image and a failure of its responsibilities. CM
“We specified Sika-Trocal Single Ply Membrane for its easy application, quick installation and its integration into a high commanding programme.”

Gareth Edwards, Project Manager, CBC Limited
NEED HELP ON BIM?

bim.construction-manager.co.uk
One is a BIM evangelist, one juggles an onsite day job with a BSc and being a construction ambassador in schools, and one is encouraging fellow architects to join the CIOB. Construction Manager meets two incorporated members and one student on the road to full membership.
Meet Amy Griffiths, a 23-year-old assistant site manager at Kier Construction, who is juggling her co-ordination role on the refurbishment of a grade II-listed lido in Pontypridd with a part-time degree in construction management, as well as responsibilities as chair of the Novus Wales network and a schools ambassador for the Construction Industry Training Board (CITB).

Griffiths was an accidental recruit to construction, after teachers and careers advisers at her all-girl comprehensive school failed to highlight the roles on offer in the sector. She originally applied to do a degree in business studies at Cardiff University, but then came across an advert for a management trainee position at Kier, applied and was accepted in 2010.

So Griffiths’ dissertation topic, “Has the construction industry made valid efforts to encourage young female applicants into construction related roles?” is apt.

“There are still barriers to women taking site roles – the main one being awareness of the different career options in construction. Teachers and careers advisers still see construction in terms of physical trades and not for the academically inclined, or the management side of things.”

Women who establish a position in construction can face issues further down the career path: “When women have families and then return to their jobs, site working doesn’t lend itself well to flexible or part-time working hours. There can be pressure put on them when they have to take days off or change their hours. “When women are more flexible, they don’t get thanked for it, or then they get pressured to do it more frequently.”

Nevertheless, she does not feel she has been treated any differently from a man on site, and is able to combine professionalism and femininity. “In construction you have to have a certain type of character to be able to work on site, regardless of gender, and not take any comments to heart. That’s not to say people are rude – it’s just a rough-and-ready type of environment.”

“I try to get across that as a girl you don’t have to be a tomboy to get into construction. You can still do your hair and nails”

Amy Griffiths

Kier is now funding her part-time BSc, carried out as week-long block release sessions at Sheffield Hallam University, with coursework and assessments fitted in with her work on the £6.2m regeneration of Ynysangharad Park lido. She is tasked with the refurbishment of the ticket office and changing block, and works with specialist timber restorers and other traditional tradesman, who use historic finishes such as lime mortar and lime render.

With such a hectic schedule of work and extra-curricular activity, she has little time to pursue her interest in cooking, although she is a keen viewer of the Great British Bake Off and sometimes bakes for the site team. She completed the Three Peaks Challenge in 2013 and can often be seen working out in the local gym.

Griffiths is a student member of the CIOB, but her passion for improving opportunities for graduates in Wales persuaded the local branch manager to make her chair of Novus Wales. That decision came after she wrote a long letter to express her opinion that there were not enough students putting themselves forward for chairmanship and the network could benefit from a fresh perspective.

“My plan was always to become chair at the earliest opportunity. They decided to treat it as a rare case because of the length of my course – four and a half years – the fact I already have a lot of practical experience on site, and I had already spent two years on the Novus committee,” she says.

The aim now is to enhance and promote the Novus Wales network to young construction professionals. One issue has been boosting attendance at networking events, so she wants to
Meet Alex Naraian ICIOB, 46, an associate director at Adam Architecture – a practice that combines Prince of Wales-approved “classical” design with a commercial, business-like approach. In its work with traditional materials, vernacular styles and classically inspired motifs, the firm thinks of itself and its portfolio of conversions, renovations and historic redevelopments as working at the time-honoured foundations of architectural practice.

Naraian also believes it is essential for architects and designers to have a technical understanding of how their projects are built, and backs that up with his qualification as a chartered technologist (MCIAT) and incorporated membership of the CIOB.

He is also committed to keeping close relations between architecture and construction. As chair of the south-east region of the Chartered Institute of Architectural Technologists (CIAT), he is keen for more collaboration between professions within the built environment, and shared qualifications are part of this.

“The tension between architecture and construction will continue if we [architects] don’t make a real effort to learn about what is happening on the ground. Architects need a practical understanding of what physically happens, as often something designed is too complex and a simpler solution can be found,” he says. For this to occur, Naraian >

Get feedback to adapt them to people’s needs. She also plans to work with universities to help students understand the importance of networking, especially in Wales, where the pool of construction professionals is relatively small.

Her role as a CITB ambassador takes her to local schools to raise awareness of construction among children up to 16 years old. She says the secret to engaging younger children is to get on their wavelength with things they know and understand, such as Bob the Builder cartoons or Lego.

“With older children, I highlight opportunities for management roles and try to get across that as a girl you don’t have to be a tomboy to get into construction. You can still do your hair and nails. At the end of the day, it’s just a job and you can retain your outside interests.”

Stephen Cousins
**Meet the members**

Below: Richard Green Gallery in London’s Mayfair is an example of Adam Architecture’s neo-classical design approach.

Fred Mills ICIOB
Pre-construction manager, Osborne

Meet Fred Mills ICIOB, pre-construction manager at south-east contractor Osborne but also a part-time film producer, newspaper publisher and university training partner. As co-founder of awareness-raising campaign the B1M and all-round BIM evangelist, Mills is making YouTube documentaries on the subject for online sharing, while also catering for the analogue generation with the publication of a twice-yearly print newspaper.

The success and reach of the B1M – also known as the BIM 1 Million – led to it being named Construction News BIM initiative of the year in 2014. Mills was named Constructing Excellence achiever of the year in London and the south-east last summer. And he combines this with a demanding – but now part-time – day job.

“Osborne has been really supportive with guidance and mentoring,” he explains. “The work I’m doing with the B1M really aligns with their approach to BIM implementation.”

At the family-owned firm, he works on design-and-build and traditional projects, including schools in the government’s Targeted Basic Need Programme. But what about the RIBA Stirling Prize-nominated Saw Swee Hock Student Adam Architecture project for his students each year at Solent University.

“British universities don’t teach classical architecture. They always have a modernist agenda,” he argues. As an architect working in the classical style, he is careful to present alternatives that may be less known to students schooled in the modernist tradition.

Creating classical architecture that echoes our Georgian heritage and regional vernacular styles means Adam Architecture tends to specify traditional construction methods and employ specialists. Although Naraian believes the skills are still available, he worries that only a “handful of contractors can do the work we do”. Tasks such as stonework and brickwork are increasingly provided by overseas labour, which he links to “lost skills in the digital generation, where children don’t learn from their parents and don’t do handiwork”.

Encouraging people to choose careers in construction necessitates a change in the way the industry is marketed: “We need to make sure that we hit youngsters at a right time, when they are making choices, and then provide the support infrastructure to help them into work.”

Naraian also points out that a realistic prospect of career stability is essential to encourage people to join the industry.

“We need to be more organised in the built environment to develop and broaden people’s skills. This will allow them to stay in the construction industry when things get hard,” he says. He suggests a “summit across all of the industry institutions to look at how we can work together to provide support and stop people leaving the industry”.

Membership of CIOB often works well for architectural technicians, as we are on site more and are often in contact with contractors

Alex Naraian

> believes architects “need more exposure to the site” and to be “prepared to listen and learn to the guys that are on site”.

The ICIOB designation is being phased out – although existing holders will be able to use it until 2025 – so Naraian plans to gain full chartership: “Having this title gives you more respect in the industry, especially when dealing with contractors. Chartership is about saying that you have reached a standard of professionalism and will continue to work at that level.”

Along with membership of the RIBA and CIAT, Naraian wants colleagues at Adam Architecture to consider joining the CIOB, citing the benefits to the practice and of learning about the wider industry.

“I’m encouraging colleagues who have recently achieved chartered status with the CIAT to do the same with the CIOB. Membership often works well for architectural technicians, as we are on site more and are often in contact with contractors.”

Naraian also makes time to teach the next generation of designers. Although he does not get the chance as much as he used to, he sets a brief based on a real
Feature Meet the members

“We can’t rely on 2 million people downloading documents from the BIM task group website”

Fred Mills

Reducing his hours at Osborne has enabled Mills to devote more time, in addition to weekends, to the B1M, as well as pursuing his interest in health and fitness, and preparing to become a parent next month. He is working towards his MCIOB qualification, although he confesses he has prioritised other things.

But what prompted him to devote his energy and entrepreneurialism to BIM? Mills says that construction matters - to our economy and way of life.

“I’m passionate about construction. It’s what I’ve always wanted to do and I see BIM as an opportunity to make it better.

“BIM is often presented in a dry and complex way, and I want to bring some life to it.”

Elaine Knutt

Centre for the London School of Economics? “No, that’s a stretch too far. I just happened to be in the company when it was delivered!”

At Osborne, he is implementing the BIM adoption curve he is also helping to promote. “I’m really immersed in BIM implementation. I’m one of several BIM champions across the company. We’ve been careful not to create BIM managers - if you give someone a specific role, then it becomes their responsibility alone. So we’ve tried to identify advocates at all levels and sectors of the business, and make them BIM ambassadors.”

But he says BIM adoption might be easier at £325m-turnover Osborne than at big top 20 contractors: “It’s a smaller journey to travel, with fewer people to upskill than in a major company.”

The idea for the B1M was born in 2012, as a collaboration with school friend and video producer Tom Payne. It was four years after Mills, now 28, had graduated from Loughborough University, working first as a design manager at Willmott Dixon before moving to Osborne.

“It came out of a pub conversation. I was talking about the challenges of BIM, and Tom was talking about the benefits of video. That’s how it was born.” The first step was an information-sharing and networking website to build a following. Then the newspaper and bite-sized video lectures were launched to give everyone in the industry - from students to senior managers - digestible information.

He explains: “I struggled to find clear, understandable information on BIM. It struck me we were relying on people going to the BIM task group website, downloading the documents, and reading them at their leisure - but we can’t expect 2 million people in construction to do that.”

In their quest to reach a mass audience, the pair have won corporate sponsorship to print 3,000 copies of The B1M Mail. Volunteer “distribution partners” - including five in Australia and three in the USA - take the paper to universities, BIM events and corporate offices.

Meanwhile, day-long video shoots take them to BIM adopters such as David Miller Architects and manufacturer Cubicle Centre in West Yorkshire to interview staff. The footage is edited into 15-minute YouTube documentaries.

Mills has also brokered sponsorship agreements with university partners for a series of BIM videos that are used by universities to teach undergraduates.

“The universities haven’t fallen into the trap of creating ‘BIM modules’ - they’re taking it across the curriculum,” he says.

“So we’ve found it’s been quite easy to get universities involved - they see it as a way of teaching BIM while drawing on real life industry expertise.”
Opening our eyes to supply chain ethics

Loughborough University's Jacqueline Glass reports on the progress of the Action Programme for Responsible Sourcing – and the distance still to travel

ETHICAL SCANDALS caused by shortcomings in labour, safety, management and environmental practices have become an increasingly regular feature of global news reports.

Many of these stories appear to originate in other industries, such as technology, food, fashion and retail, and in countries outside Europe. On investigation, the scandals seem to be buried deep within complex, multitiered, worldwide supply chains – as evident in the horse meat scandal – well beyond the daily scrutiny of procurement personnel.

Fearful for their reputation – and probably their share value – retailers are investing heavily in supply chain audits. Some top global construction firms are also exploring this. The risks are a cause for concern amid reports of counterfeit construction products this. The risks are a cause for concern amid reports of counterfeit construction products.

Loughborough University's knowledge network, the Action Programme for Responsible Sourcing (APRES), has brought together procurement, sustainability and CSR (corporate social responsibility) professionals, and certification specialists to debate the issue. At our fourth conference on responsible sourcing in construction, held last November, we made three key observations on where we are.

Elephant in the room

First, we seem to agree that the ethical sourcing of materials and products makes good business sense. BRE's standard for responsible sourcing, BES 6001, is now in its third iteration and 92% of UK concrete has a certificate to say it has been audited by a third party for responsible sourcing.

The materials sector appears to be responding positively – although critics argue this is driven by the marketing opportunity to promote products that contribute towards BREEAM and CEEQUAL ratings. Points make prizes, after all.

Furthermore, a cursory analysis of BES 6001 certificates confirms that not all the main building material types are represented, so the prospect of a 100% responsibly sourced building is not close.

There still appears to be some reticence by contractors to engage. Some suppliers argue: “There’s no demand from customers,” yet we understand that a failure to provide certification to BES 6001 has resulted in some companies being passed over for supply contracts.

Second, the elephant in the room is complex products – mechanical and electrical plant, and composite products, in particular. This is a big hurdle because of the complicated, global supply chains involved in

What do I need to know about Critical Chain Project Management?

Developed less than 20 years ago, the planning and execution management method Critical Chain Project Management (CCPM) makes bold claims: durations reduced by 20%-40%; increased due-date reliability; reduced cost; improved quality; and more projects delivered with the same resources.

It is used all over the world, by companies from Boeing to Seagate, and Tata to NASA. But it has gained almost no traction in construction – even though the root causes of the problems we experience can be addressed by CCPM.

In Japan, the government’s largest ministry has built CCPM into its way of working, and is spreading the word to other parts of the public sector. In 2011 the Indian state of Bihar mandated the use of CCPM on its state-wide £2bn infrastructure development programme.

And in the UK, CCPM was trialled on several occasions, notably on a Department of Trade and Industry-supported pilot with Denne Construction in the early 2000s, and a set of road projects with Balfour Beatty in the mid-1990s. Both cases were declared a success.

On any project there will be unexpected problems. In conventional project management, package and task managers plan for these, building in time and cost buffers. But CCPM manages uncertainty at project, not task level, using the statistical principle of aggregation, similar to the insurance industry. If we all had to self-insure our cars, we would collectively have to put more money aside to cover costs, than if we pool our risks.

With CCPM, individual tasks do not include “insurance” time: instead, it is pooled into

The elephant in the room is complex products – mechanical and electrical plant, and composite products, in particular.
buffers placed strategically in the project schedule, and used by tasks that need it. The pooled buffer is smaller than the sum of insurance time for the individual tasks, so the project is shorter.

CCPM also puts in place rules to prevent time buffers from being wasted, problems are identified and resolved early, and practices that cause delay and inefficiency are minimised.

This works well on in-house projects. But in construction, more than 80% of work is done by sub-contractors, where a shared buffer conflicts with the fixed pricing of contracts. But this can be overcome with collaborative contracting through a project alliance.

Rather than forcing cost risk down the supply chain, this approach manages cost at project level. Alliance members are rewarded not by how much passes through their books, but by the project’s success. Add to this the proven benefits of CCPM, and you have a route to faster, cheaper projects.

Ian Heptinstall is a management consultant. Contact him at www.profitableprojects.org.

If a client has not stated a requirement for the use of BIM, the increasing weight of opinion suggests it should nevertheless be recommended.

However, in the case of a consultant designer, a recommendation to use BIM will be a matter for their professional judgement. The designer must ask: for the needs of this client and this project, will BIM offer a more efficient and appropriate means to deliver designs, support accurate costing, and facilitate successful team integration, programming and risk management?

To answer this, a designer must consider the wider landscape beyond its own design contributions. Case law suggests designers “should be alert to the hazards and risks inherent in any professional task he undertakes to the extent that other ordinarily competent members of the profession would be alert”.

This requires an assessment of BIM by designers not only as a medium through which to create designs, but also as a means to deliver projects with less risk of defects, health and safety issues, and cost or time overruns resulting from any or all of the following:

● gaps or duplications between design contributions
● misunderstandings between team members
● problems in sequencing, including client responses to designs submitted

● delays and other obstacles to third-party consents.

Responsible assessment of the potential impact of BIM on a project as a whole goes even further than this, because of the declared intention of the methodology in assisting the efficient and safe operation of the completed building or other facility.

Where BIM is considered to offer a better way to identify a need for repair and maintenance, and parts of the completed facility that involve particular risks, requirements or sensitivities, the client will expect a designer to have these aspects in mind in determining their decision.

There may be projects for which BIM should not be recommended - for example:

● where there are established methods of working among an existing project team that would be disrupted
● where an established project team does not have sufficient BIM expertise
● housing projects where the long-term benefits of BIM in FM are marginal for homeowners
● low-value projects where the cost outweighs the benefits.

The decision is daunting for any designer. They need to keep close track of BIM and respond to the current working environment.

Assad Maqbool is a partner at Trowers & Hamlins specialising in projects and construction.
Flood risk construction: the plain truth

Ian Joyner explains how current and future flood risk must be mitigated in development

LAST WINTER, flooding dominated the headlines for months, as families were forced from their homes at Christmas, entire communities were engulfed by flood waters and the UK was battered by storm after storm from the Atlantic Ocean.

The Environment Agency estimates that 7,700 homes and 3,200 commercial properties were flooded from December 2013 to March 2014. Politicians argued over whether flood defence funding had been cut or increased, and whether funding levels were sufficient to cope with the flooding expected in future.

Victims complained that the root of the problems was development on floodplains. In fact, most of the flooded homes are likely to pre-date government policy on flood risk, and are at risk for entirely different reasons than those faced by planners today.

Risk assessment
Today, planning policy steers development to sites at lowest risk of flooding and ensures that, where it must occur on floodplains, it is done safely.

Policy recognises that to prevent all development in flood-prone areas would blight existing communities. What is often forgotten, however, is that development offers opportunities, not just to provide new homes and businesses that are designed to be safe from flooding but also to reduce the risks to neighbouring communities (see CPD module, p.38).

Arbitrarily restricting development in floodplain areas would condemn those already at risk to relying on public funding for flood defences, of which there will never be enough to reduce risks to satisfactory levels everywhere.

Planning applications in at-risk areas should be accompanied by a flood risk assessment to detail how the proposals satisfy planning policy with respect to flood risk and ensure that risk to neighbouring communities is not increased (and reduced where possible). The pervasive nature of flood waters, and the impact of local ground levels and building thresholds on determining whether flooding occurs, mean it is advantageous for flood risk to be considered from the outset.

A flood risk expert can provide a steer when development proposals are in their infancy, to avoid costly revisions at later stages. Furthermore, management of flood risk can work hand in hand with the provision of amenity space or environmental improvements, and should not just be seen solely as a problem to be engineered away at the eleventh hour.

The Met Office has confirmed that 2014 was the hottest year in the UK since records began in 1659, and eight of the 10 warmest years have occurred since 2002. A warmer atmosphere holds more moisture, so it is no surprise that five of the six wettest years since 1910 have been happened since 2000. Climate change is almost certainly affecting the frequency of extreme conditions.

Planning policy requires developments to be made safe and allow for the impacts of climate change throughout their lifetime. Although online flood mapping datasets can be used to gain an initial understanding of flood risk, these do not account for the future impacts of climate change. Further investigation and discussion with the regulatory authorities is often required to understand how risk may change in future, and the implications for development and mitigation measures.

Government efforts to maintain flood protection in the face of a changing climate can also have impacts for those building in flood-prone areas.

In London, the Thames Estuary 2100 Plan (TE2100) sets out how the protection from the Thames Barrier and raised river walls will be maintained in future. As the sea level rises, the barrier will be required to let ever higher tides into London in response to extreme flood events. Over the coming century this will require corresponding increases in the height of the walls and banks that flank the Thames.

Defence force
The challenges of building sustainably in flood risk areas do not disappear with planning approval. Developers must ensure, through the flood defence consent process, that construction works do not harm sensitive river and tidal environments, interfere with flood protection or contravene the European Union Water Framework Directive.

As evidence mounts that the British climate is changing and flood risk increasing with it, sustainable management of flood risk can no longer be considered an optional extra in design and construction.

Ian Joyner is a flood risk consultant at CBRE.
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Put dispute avoidance on your radar
Trevor Drury explains how an anonymous reporting system can help to avoid a project crisis

PROFIT WARNINGS in the last few months from many of the main contractors in the industry have turned the spotlight on their problems in identifying and dealing with project risk before it becomes a problem, claim or dispute.

Disputes can arise when there is a breakdown in the communication and reporting system within a project team. This can be because of the processes used, or strained relationships that prevent accurate status reporting and identification of potential risks.

One option for clients is the Radar dispute avoidance horizon-scanning service from Resolex, which has been used on commercial property, higher education, and transport and infrastructure projects. It is currently being used on the £1bn Crossrail East extension into Kent and East Anglia and an “exemplar” project at the University of East Anglia.

Silent witnesses Members of the project team are often reluctant to report problems for fear of retribution or being subject to “shooting the messenger”. Radar approaches this problem from a different perspective and bridges the gap between reported data to management, and site gossip or the “gut instincts” of the project team.

Radar captures team conversations and instincts confidentially and anonymously, using Resolex’s project evaluation software. This data is then analysed by the Radar expert panel members.

In one example, Radar identified risk on a project where a better floor finish and dust extraction system than that specified was required to prevent the client’s sensitive equipment from failing. Early identification of this problem avoided the potential disaster of the client not being able to operate its new building.

In another case a university’s reputation was being damaged by the poor state of road access caused by construction vehicles. This was having a negative impact across the university and casting the project in a poor light.

In another project there was a clash of personalities and breakdown of the relationship between senior managers. Radar panel members worked confidentially with the individuals concerned to restructure the project reporting and clear the communications blockage. This prevented a delay to completion and further associated costs.

First questions
The involvement of Radar begins with a start-up meeting and selection of an appropriate expert panel, which is approved by the client or project team. The panel members run a workshop or combine it with the initiation workshop of the project. Risk areas are discussed and agreed, as are evaluation questions. Identifying how each team member views risk is a useful insight.

The system is explained to the project team and stakeholders – including the anonymous questionnaire process. The date for publication of the Radar reports are set in line with the project programme and an email is sent to members of the team who have been selected to contribute. Each is given a unique login and password to access the questionnaire. At each reporting period team members are contacted by email with a link to the new questionnaire.

The Radar expert panel members process the data with X-Tracker software, which provides analysis, trending, collation and mapping tools to produce periodic reports from the questionnaires. This highlights areas of potential risk and concerns that require further attention.

The report is issued to the whole project team. The contributions are anonymous and only the expert panel knows the identity of the contributors. This enables Radar to deal with subjects that would not be aired in project meetings.

Radar separates “soft risks” from “technical risks”. Soft risks are a consequence of projects being built and managed by human beings, each with their own personalities, drives, concerns and values. They are identified in workshops with the project team and stakeholders.

Technical risks should have been recorded in a risk register. However, they can often be missed because of a lack of engagement of personnel or absence of an unthreatening environment in which to identify and explore those risks.

Radar’s response is to collect and validate risk information anonymously. It also provides evidence of what individuals feel about the technical risks logged on the risk register, and soft risks that have not been previously captured.

Used alongside traditional project management reporting processes, Radar should identify problems and risks early. It can be used with any type of contract, but fits well with the ethos of the NEC contract and others that use early warnings as part of the contractual mechanism for identifying risks and problems.

Trevor Drury is managing director of Morecraft Drury. He is an expert witness and accredited mediator at Resolex. www.resolex.com
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A WALKIE-TALKIE
“GREEDY ARCHITECTURE...” “It feels like you’re trapped in an airport...” “Bloated, inelegant, thuggish...” Negative reviews from the mainstream press had left Construction Manager with low expectations. However, it was a pleasant surprise when I arrived before sunrise at the “sky garden” on the 35th floor of London’s latest and most controversial skyscraper, 20 Fenchurch Street. Looking outwards offers sweeping views of London in all directions, while looking up, the roof’s steel structure is proudly on display.

Built for Land Securities and Canary Wharf Group, the unusually shaped skyscraper, nicknamed “the Walkie-Talkie”, which flares outward from its base to maximise the available high-value office space on upper storeys (see box, overleaf), is undoubtedly a success for its developers. However, the tower, which became infamous in the autumn of 2013 when sunlight reflected off its convex south facade and melted a car that was parked at street level, has been criticised for its impact on the skyline and detachment from the City of London’s cluster of towers. The planning process that allowed it to be built has also come under fire.

Promoted as the “building with more on top”, the three floors at the summit of 20 Fenchurch Street are home to “London’s highest roof garden”, which opened to the public last month. Although “sky garden” may be slightly misleading description – an observation deck, viewpoint or rooftop restaurant may be more appropriate – the provision of a public space was an obligation of the building’s planning consent and the end result is a quasi-public space with views to rival any in London.

This developer contribution is not only an asset for the city, but also an impressive structural feat. Designed by Rafael Viñoly, with Adamson Architects as executive architect, the sky garden is a 58m by 58m (3,364 sq m) vaulted greenhouse with 360-degree views across the city. It houses a bar and two restaurants split over three levels. Constructing this fully enclosed, column-free space 150m above the ground, while maintaining the architect’s vision, was a challenge – but one that was successfully overcome by the engineers and contractors.

“TO MAXIMISE THE AVAILABLE SPACE FOR THE ROOF GARDEN, THE PLANT WAS RELOCATED DOWN THE BUILDING” Andrew Ashfield, Hilson Moran

Main picture: The “sky garden” is a 3,364 sq m vaulted column-free greenhouse with panoramic views.

Inset: The fins across the top of the building are actually 1,200mm structural steel box sections that support the glazing.

ON THE WILDSIDE

The “sky garden” on the top three storeys of 20 Fenchurch Street – the controversial tower in the City of London – presented its own unique construction challenges. Tom Ravenscroft explains.
Feature Roofing

Structural challenges of ‘top heavy’ design

The unique “top heavy” form of 20 Fenchurch Street was conceived to provide the developers with 60% more lettable office space on the 34th floor than the fourth. This design principle, combined with the fact that the north and south facades are concave, while the east and west facades are convex, so no two floorplates in the building are the same, meant the structure of this tower was far more complex than that of a traditional skyscraper.

Once the form of the building had been determined, the engineer, CH2M Hill, had to design a structure capable of supporting it. The first key decision was to move the core, which was originally placed in the centre of the ground floor. Although a natural position in many towers, this skyscraper bows to the south, placing more weight on that side of building. So that the core was not placed under a continuous turning force, it was moved around 3m and aligned with the centre of the building’s mass.

The building’s steel frame had to be extensively modelled in BIM. Whereas in a traditional skyscraper with identical floorplates steelwork can be optimised for one floor and then repeated for every storey, at 20 Fenchurch Street the engineers had to optimise the steelwork for each individual floor.

As far as possible the steelwork follows the architectural intent that all columns should follow the curved profile of the building’s facades. However, fabrication of curved columns is expensive, so straight beams have been used that are faceted every four storeys on the lower floors and every two storeys further up the building, where the curve is tighter.

This faceted steelwork matches the facade on the lower 22 floors. However, to maintain a constant structural depth for each floorplate, it was necessary to move the columns inside the building on upper floors because of the façade’s increasing distance from the core.

> To create a unified external appearance, Viñoly’s desire was for the fins that rise up the east and west facades of the building to continue horizontally across the roof. In what Paul Walters, project director at structural engineer CH2M Hill, describes as a “fairly conventional solution”, a space frame was initially proposed to support the aluminium fins that would in turn support the glazing. However, there was a more elegant solution. Using steel portal frames that match the profile of the fins maintained the impression of architectural unity while creating a cleaner-looking, more efficient and affordable structural solution.

“The fins that extend across the top of the building are actually 1,200mm-deep fabricated steel box sections – they are the structure and they support the glazing,” explains Walters.

Showing metal

Sitting like a cap on top of the building, the 980 tonnes of geometrically complex steel used to enclose the roof garden was manufactured separately from the steelwork for the tower’s main frame. While the building’s main structural steel was the work of fabricator William Hare, the steelwork for the garden summit section was designed and manufactured by the building’s overall cladding co-ordinator, Josef Gartner, which is part of the Permasteelisa Group.

Because of the unique shape of the sky garden’s floorplate, all 34 of the main structural members have an individual geometry. Each flattened arch comprises two ice hockey stick-shaped pieces of steel attached to the tower’s main structural steelwork, one on the east and one on the west facade, which support the curved steel beams that span up to 58m across the sky garden.

“Public space’ in the sky

1. Sky garden
2. Upper terrace
3. Level 35 “Skypod” cafe
4. Open-air terrace
5. Level 36 “Darwin” restaurant
6. Cocktail terrace
7. Level 37 “Fenchurch” bar

“The biggest challenge was that every piece of steel was unique in length, curvature and twists at different angles”

Derek Hill, Josef Gartner
“It’s unparalleled in London,” says Derek Hill, commercial manager of Josef Gartner. “It’s the largest use of bespoke curved steel the company has ever undertaken. The biggest challenge was that every piece of steel was unique in length and curvature, and twists at different angles.

“The steel sections, while acting structurally, are fabricated within reduced tolerances compared with traditional steelwork to accommodate the fact that all of the building services are integrated within the steel sections.”

Lighting and fire-detection sensors were placed within the steelwork, and photovoltaics were fixed to the side of the beams, in accordance with the architect’s requirement that no services would be visible from the sky garden.

With assembly taking place 150m above the ground, there was no room for error. The bespoke steel elements were fabricated in Germany, and trial erected there, before being transported by truck to the site. The traffic of heavy good vehicles is restricted in central London, so the elements – some weighing up to 9 tonnes – had to be hoisted and fitted at night.

A high standard of finish was also essential because of the high visibility of the steelwork. Any imperfection or depression in the steel would have been on show for sky garden visitors to see.

Around 4,800 sq m of laminated glass panels on the roof, and an additional 1,000 sq m of steel-framed “stick” curtain wall, were individually fitted and sealed into the steelwork to complete the sky garden.

Plant life
Topping the building with this enclosed space also created a challenge for the service engineers, as the obvious place to locate the plant required to service 34 floors of office space was already occupied. Andrew Ashfield, divisional director at Hilson Moran, the building services engineer for 20 Fenchurch Street, explains that to “maximise the available space for the roof garden, the plant was relocated down the building”.

A complex plant room and air-handling plant are hidden in the wedge-shaped space beneath the sky garden’s floor, which rises from the south to the north. The building’s cooling towers are also in this space. Louvred vents are aligned with the upper north-facing terrace.

Other elements of the HVAC system were moved outside the building entirely. A four-storey annexe opposite its southern entrance, clad with a green wall, houses back-up generators and dry air coolers.

“Ideally, these would have been on the roof,” says Ashfield. “Or they could have been fitted on to a floorplate, but there would have been replacement issues.”

Because of the complex and unusual form of the building, BIM was a key tool in designing and modelling 20 Fenchurch Street’s steelwork.

“BIM came into its own when trying to model the shape,” says CH2M Hill’s Walters. “At the end of every week the architects and engineers uploaded our models to a central location.” This model was exported into analytic software to test the structural capacity of the design.

When the form was complete CH2M Hill provided William Hare with 2D drawings and a copy of the Revit model to fabricate the building’s main steelwork.

The effort taken to realise the architect’s vision for a light, airy, column-free space at the top of 20 Fenchurch Street has certainly been rewarded. Although opinions may be divided about the building’s aesthetic and its impact on the London skyline, the scale and purity of the fully enclosed space are as dramatic as the views from it.

CM

Read more about the use of BIM at 20 Fenchurch Street at our BIM+ website: www.bim.construction-manager.co.uk
Feature Ecobuild preview

Following the dissolution of the Code for Sustainable Homes (CSH) regulation, BRE is to launch a voluntary sustainability standard for new homes next month at Ecobuild.

Designed to be simpler than the CSH, with an “easy to understand, consumer-focused rating system”, the new standard intends to place the focus on the end user, rather than the previous constructor-led approach.

The BRE says the standard aims to “provide increased quality and choice for consumers by giving them the tools to compare the sustainability performance of different property standards, as well as giving developers that want to go beyond minimum regulations an opportunity to differentiate their product in the marketplace”.

A first round of consultation to determine the “right balance between simplicity and comprehensiveness” was completed last year. A second round will collect views from the industry on technical aspects.

BRE new homes standard lead Gwyn Roberts said: “This new standard is designed to address the issues and challenges for future housing delivery and become one that people and industry want to use – a standard that provides increased quality and choice for the consumer, and drives innovation and improvement.”

The standard will sit within existing BREEAM schemes. Assessment and certification will be carried out by an independent third party with oversight by an independent stakeholder panel.

The winners of the 2015 BREEAM Awards will be also be announced during Ecobuild.

BRE’s new homes standard puts consumers at its heart

M&S to innovate – Apprentice style

Marks & Spencer and Ecobuild have teamed up to stage “The Big Innovation Pitch” - a search for an innovative sustainable solution from the 800-plus companies exhibiting at Ecobuild.

In the style of The Apprentice television competition for entrepreneurs, the retailer will go on to work with the winner to investigate the application of its product or service within its buildings.

There will be three heats, starting with the first round of presentations on 10 February.

The final live pitch will take place on Ecobuild’s show floor before an expert judging panel that will include senior representatives from M&S and other leading industry figures.

Munish Datta, head of Plan A and facilities management at M&S, said: “Innovation plays a very important part in enabling M&S to create a sustainable built environment.

“The Big Innovation Pitch provides a platform to showcase next-generation products and services at Ecobuild.”

The retailer is seeking solutions that relate to:

- waste, such as closed loop solutions for building fit-outs
- energy – for example, improving air tightness, demand reduction or renewable technologies
- food refrigeration, possibly using natural refrigerant solutions
- renewable and recyclable materials for fit-out, lighting recycling solutions or low-cost water-efficiency measures
- future-proofing existing stores – for example, with retrofittable sustainable drainage systems (SuDS) for car parks.
The City of London is home to some of the UK’s most iconic buildings, including the Walkie Talkie, the Cheese Grater and the Gherkin. Radmat’s range of PermaQuik, Esha and ParaFlex waterproofing solutions were chosen to protect these landmark buildings, and many others that form part of the capital’s world-famous skyline.

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A perfect stormbreaker

As local authorities sanction more homes to be built on floodplains and climate change makes rainfall patterns increasingly unpredictable, stormwater management is now a top priority, says Tim Wootton

IN THE CURRENT ECONOMIC and environmental climate, stormwater management and flood control is uppermost in many people’s minds – but this has not always been the case. Continuing urban development, a changing climate and intensive rainfall has led to rainwater becoming an issue that just will not dry up without investment and planning.

Following a year that included the wettest, most prolonged winter on record and some of the most devastating floods in UK history, it is no surprise that surface water run-off has become a crucial consideration for every construction project.

Surface water has to be controlled in ways that avoid using an already overloaded sewer system. Many existing drainage systems can cause problems such as flooding, pollution or damage to the environment, and so are not sustainable in the long term.

As a result, housebuilders and developers across the UK are adopting best practice sustainable drainage systems (SuDS) early in the planning process to mitigate flood risk.

A sustainable solution
The more we urbanise our landscape, the more we reduce the amount of available land where rainfall is able to soak away into the ground. The traditional approach of combining the surface water with the foul sewage system is costly, but separate surface water sewers that discharge directly into local water courses pose a potential environmental risk if misconnections occur between the two systems.

Both of these outdated systems are already demonstrating key failings, so any increase in intensity of rainfall may cause them to be overwhelmed, which, in turn, would cause increased widespread flooding. As new developments are built – some on floodplains – the need for proper flood risk management is set to become more important than ever.

Sustainable drainage mimics natural processes by allowing rainfall to soak into the ground where possible, or by delaying discharges. Reducing both the volume and rate of surface water run-off to sewers and water courses helps to improve water quality, as well as the ecology and amenity value of water courses.

It is important, however, to remember that there is no single drainage solution for any one site.

Developing a SuDS strategy
As local authorities across the UK wave through developments on floodplains to satisfy demand for new housing, they have recognised the need to work with developers to manage the risk of surface flooding using SuDS.

Specifying drainage systems at the earliest stages of site selection and design will allow easier integration into developments, while at the same time influencing other aspects of the site and reducing impermeable areas, where possible.

Effective early engagement with stakeholders should also help deliver SuDS in multifunctional spaces such as car parks, footpaths and verges, gardens, landscaped areas, driveways, courtyards.
The numerous and varied characteristics of a site make certain sustainable drainage functions more appropriate than others.

Benefits of modularisation

Faced with rising costs and stricter deadlines, modularisation is growing in popularity as contractors seek the next generation of efficient and economical products and systems. Because of the numerous benefits both on and off site, modular rainfall management has become an increasingly popular choice at every stage of the supply chain, from the architect and specifier to the contractor and client. The increased focus on SuDS compliance has led to a sharp increase in the use of geocellular stormwater management units. A high-strength, factory-engineered unit can be constructed to accommodate calculated run-off volumes, and provide greater assurance to developers, local authorities adopting the drainage systems, homeowners and insurers alike.

Wavin AquaCell is a modular technique for managing excessive rainfall and recharging local groundwater. It is available in four options, each suited for different applications in terms of the vertical loading and surface traffic above. The units can also be used in combination with each other (see case study, overleaf).

The modular nature of AquaCell gives it flexibility of scale, ranging from just a few units acting as a soakaway, to thousands of units to create a vast underground reservoir. As part of a complete solution, it can work with traditional SuDS techniques to provide effective long-term flood protection.

Wavin Group

Wavin is the leading supplier of plastic pipe systems and solutions in Europe. The company provides essentials: plastic pipe systems and solutions for tap water, surface heating and cooling, soil and waste, rain and stormwater, distribution of drinking water, and gas and telecom applications. Wavin’s headquarters are in Zwolle, the Netherlands, and it has a presence in 24 European countries. The company employs around 6,000 people and reported revenue of €1.3bn for 2011. Outside Europe, it has a global network of agents, licencees and distributors. Since mid-2012, Wavin has been part of the Mexichem Group—a leader in plastic pipe systems, and in the chemical and petrochemical industry in Latin America.

Wavin UK

Established in 1962, Wavin Limited is the UK’s leading supplier of water management, plumbing, heating and drainage systems for the building, construction and utilities markets. Highly respected within the construction industry, Wavin has a reputation for innovation and leadership, and has an extensive product portfolio under the OSMA, Hep2O and Hepworth brands, which are available through plumbing and builders merchants throughout the UK.
Continuing Professional Development
Drainage and stormwater management

Home and dry in the Firth of Forth

Built on the south shore of the Firth of Forth, a new 450-home development in South Queensferry, Edinburgh, required an underground drainage system that would address surface water run-off and alleviate flood risk. A combination of more than 6,000 AquaCell geocellular stormwater management units from Wavin was specified.

Designed by EMA Architects, the joint venture development between Cala Homes and Barratt Homes will feature three-, four- and five-bedroom detached homes, townhouses, and two- and three-bedroom flats on the 35 acre site. Following recommendations from civil engineer Halcrow Group, groundworks contractor Mulholland Contracts specified a series of attenuation tanks for three areas of the development to reduce the risk of flooding.

At the largest tank in the centre of the development, 3,610 AquaCell stormwater management units have been installed beneath the main bus turning point. Manufactured from specially reformulated, recycled material for trafficked and deep applications, 2,166 AquaCell Prime units were specified to create the first three layers of 19m x 19m x 2m cellular unit soakaway.

To complete the tank, Wavin supplied 722 AquaCell Core and 722 AquaCell Plus for the bottom two layers. Suitable for areas subject to regular and heavy traffic loading, AquaCell Core provided the required strength, while a layer of AquaCell Plus was specified for its inherent suitability for installations where extra depth is required. Installed at a depth of 4.48m, the tank was then backfilled with aggregate to 100mm above the units.

With the 450-home development set for completion in 2017, Wavin’s AquaCell range of systems will ensure that the new residents will benefit from a proven stormwater solution that delivers effective flood protection in both the short and long term.

Specifying the right unit

There are five factors to take into account when designing a geocellular structure for trafficked or landscaped installations. These are depth of cover, soil type, surface finishing, presence of groundwater and the type of traffic/loading. The combination of these will determine which unit needs to be specified.

To guarantee the structural integrity of an engineered drainage system, any underground structure must be strong enough to support the loads to which it will be subjected without any unacceptable deflection.

The correct choice of geocellular unit must have appropriate proven top (vertical) and side (lateral) load-bearing capacity and deflection characteristics to suit site conditions. For example, the AquaCell Eco has a vertical loading capacity of 17.5 tonnes/sq m and lateral loading capacity of 4 tonnes/sq m.

These loading capacities define the maximum depth parameters for which each system is suitable. For example, the AquaCell Core is suitable for installations to a maximum depth of 4m, and can cope with vertical loading of 56 tonnes/sq m and/or heavy traffic from HGVs.

In certain situations – for example, a deep-running drainage network, other buried services running above the tank location, banked or sloping ground and an upper layer of clay that prevents infiltration – installations may have to have greater cover depths. In these cases a unit with a higher loading capacity will be required.

It is important to remember, however, that minimum depth of cover will vary according to whether or not the installation will be subject to trafficking by cars or HGVs.

Housebuilders calculate the amount of storage required, depending on site conditions, and whether they are designing and building to protect against a one-in-30-year or a one-in-100-year rainfall event.

In terms of assembly, geocellular AquaCell units can simply be clipped together to form underground structures for infiltration or the temporary storage of stormwater. For additional strength and stability, they can be designed and laid in a “brick bonded” format in the required volume before being wrapped in either geotextile or membrane options.

The fact that the tanks are buried allows the land above to be used as site amenity or to increase biodiversity. This can be safer and more valuable to some stakeholders and the wider public than the alternative of large ponds or basins.

The ideal SuDS scenario is about managing the amenity value, and creating a happy medium between landscaped and engineered solutions. In the case of engineered solutions, the shape of the tank can be irregular to maximise land use. Housebuilders calculate the amount of storage required, depending on site conditions, and whether they are designing and building to protect against a one-in-30-year or a one-in-100-year rainfall event.

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CPD test paper
Drainage and stormwater management

1. Which of these is a factor in designing a geocellular drainage structure?
   - Soil type
   - Surface finishing
   - Loading
   - All of the above

2. What is the typical vertical loading strength required for geocellular drainage system beneath a landscaped or non-trafficked area with 0.3m cover depth?
   - 4 tonnes/sq m
   - 20 tonnes/sq m
   - 17.5 tonnes/sq m
   - 40 tonnes/sq m

3. What is the typical vertical loading strength required for geocellular drainage system beneath a car park with 0.71m-0.75m cover depth?
   - 4 tonnes/sq m
   - 20 tonnes/sq m
   - 17.5 tonnes/sq m
   - 40 tonnes/sq m

4. Which CIRIA (Construction Industry Research and Information Association) document provides guidance on how to specify attenuation and soakaway systems using plastic modular storage?
   - C635 Designing for Exceedance in Urban Drainage – Good Practice
   - C697 The SuDS Manual
   - C698 Site handbook for the Construction of SuDS
   - C680 Structural Design of Modular Geocellular Drainage Tanks

5. With which legislation must housebuilders comply to deal with surface and flood water?
   - Climate Change Act 2008
   - Flood and Water Management Act 2010
   - Water Industry Act 1991
   - Public Health Act 1936

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Legal compliance
Before undertaking any installation it is important to consult best practice guidelines and to ensure compliance with legal requirements.

CIRIA (Construction Industry Research and Information Association) report C680, Structural Design of Modular Geocellular Drainage Tanks, provides guidance on how to specify attenuation and soakaway systems using plastic modular storage.

The Flood and Water Management Act was enacted in 2010 to address the enormous physical and economic damage caused by the floods of 2007.

The legislation continues to guide housebuilders in preventing or dealing with surface water. It lays down guidance on the best way to alleviate the flood problems of previous years.

By standardising the design philosophy, it ensures sites are designed in the best way possible, and is augmented by information and guidance from organisations such as CIRIA.

The UK government and other interested bodies are promoting a more holistic approach to the design of sustainable drainage systems with a focus on solutions that mirror nature in terms of discharging water into the ground at the point of contact.

Developers that seek to maximise returns through land use tend to favour a mixture of conventional SuDS with engineered solutions to most efficiently address their site drainage needs but at minimum cost of land.

As concern continues to grow over climate change and urban development, geocellular stormwater management units are increasingly popular at sites across the UK.

From individual houses to large-scale housing and commercial schemes, geocellular units such as AquaCell can work with the more traditional SuDS solutions to provide a more effective flood protection system in the short and long term.

Tim Wootton is technical manager at Wavin.

A modular system is scaleable, so it can be used for small-unit schemes, as well as large-scale developments.
Where the people make the difference

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IN THE RADAR
All the latest news and developments from the CIOB

COMMENT
Su Butcher on why management needs to take notice of social media

LEARNING CURVE
Global Student Challenge, plus body language tips

ONE TO WATCH
Morgan Sindall's Jamie Young

IN GOOD COMPANY
How Mace is delivering a new look for Birmingham’s New Street station

FROM THE TOP
David Sershall, MD of the Building Division at VolkerFitzpatrick Ltd.

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CIOB supports government’s new ‘rigorous’ technical and vocational qualifications

The Department for Education has launched new technical and vocational qualifications and stripped out thousands of poor-quality courses across a wide range of subjects, including construction, planning and the built environment.

The announcement by the Government follows on from a review in 2011 by Professor Alison Wolf, which found that thousands of young people were doing vocational courses of little value.

As a result, thousands of qualifications that did not meet the new robust standards have been stripped away. Three new categories of technical and vocational qualifications for 14- to 19-year-olds have been introduced. These include new ‘technical certificates’, which help 16- to 19-year-olds into skilled trades, ‘technical awards’ for 14- to 16-year-olds and the A level-equivalent ‘tech levels’.

The latest qualifications are approved for teaching from September 2015 and reporting in 2017 performance tables. All the qualifications have been designed with, or approved by, employers.

The CIOB actively contributed to the development of the standards on which the new qualifications are based.

Bridget Bartlett, deputy chief executive of the CIOB said the development of vocational qualifications that employers value and respect is incredibly important. “Qualifications that meet these new standards will enable pupils to make informed career choices. The construction sector is currently facing skills shortages and the emergence of high-quality vocational qualifications in schools will be key to the future success of this economically important global industry,” she said.

For more on the new qualifications see: www.gov.uk/government/publications/technical-and-vocational-qualifications-for-14-to-19-year-olds

CIOB SEeks NEW BOARD MEMBERS FOR FACILITIES MANAGEMENT GROUP

The CIOB FM Group will deliver strategy on this growing area and are sought from senior FM professionals who have a passion and vision for their industry. The group is now seeking to expand and expressions of interest are invited from senior FM professionals who have a passion and vision for their industry.

The group will meet formally two to three times a year with many communication opportunities in between. Group meetings will take place either in London or Bracknell (CIOB HQ). Full membership three-year tenure.

Facilities management is one of the fastest growing professions, likely to be fuelled by the Government’s adoption of the ‘Soft Landings’ approach and is recognised as a key element in BIM.

Facilities managers have extensive responsibilities for myriad services. Successful organisations now approach FM as an integral part of their strategic plan.

Members interested in joining the group should send a CV and covering letter outlining their background to jparker@ciob.org.uk
CIOB makes new appointments to education and FM boards

THE CIOB has announced two new appointments. Marcus Hill is the new chair of the Qualification Standards and Practice Board and Christine Gausden RD FCIOB takes up the deputy chair of the Facilities Management (FM) Group. Marcus and Christine take over from Steven Harrup and Phil Rickett who have completed their three year term.

Following a career in construction management in the early 1990s Hill moved into the relatively new world of FM. He started his career with Procord, the management buyout of IBM Property and later acquired by Johnson Controls. Over the past 20 years Hill has held a number of senior positions in facilities management both in operational management and consulting; he is currently the category lead for FM at Capita. He has been actively involved in the CIOB FM Group as well as having been chair of the Professional Interview Panel.

Christine Gausden is past chair of London & Dubai Branches; she was part of the Latham Working Groups specific to partnering and equal opportunities. A multi-skilled successful construction project manager, Gausden is a practitioner with international experience specialising in the delivery of new build, refurbishment and fit-out projects for prestigious blue chip clients in both the public and private sectors.

She has a strong track record for successful handover of major projects from inception to completion, taking personal responsibility for the provision of programme, budget and quality of works; Gausden is a motivated team leader of professional design teams and contractors’ personnel, innovative in the establishment of professional services, systems, procedures and training.

As senior lecturer at the University of Greenwich she specialises in Project and Facilities Management and is researching best practice, collaborative working and employability.

Yorkshire Construction Awards now open for entry

The Committed to Construction in Humber and West Yorkshire awards (CCIHWY) are now open for entry. They will be held on 17 April 2015 at the Royal Armouries, Leeds and will showcase the professionalism, excellence and innovation that is at the heart of the West Yorkshire and Humber region’s construction community. The awards will celebrate the high quality work being undertaken by developers, supply chain, contractors, professionals such as architects, engineers, consultants and end users and will reflect the dynamic nature of the industry from all sectors, large or small.

This year, the event has joined forces with the CIOB Humber, York & North Yorkshire Centre to highlight the areas of growth and construction projects across the regions and looks set to be the biggest and brightest awards ceremony to date.

The Awards are open to organisations, public, private and individuals.

Application packs are available from Nicky Senior at Little Spark events on 07817 974804 or email nickysenior@littlespark.co.uk.

Royal Armouries Leeds: venue for CCIHWY awards
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If you have moved or changed any of your details recently, don’t forget to tell us. You can update your details online – simply log in to “members area” of the website www.ciob.org. Or email us at memenquiry@ciob.org.uk or call our membership customer services team on +44 (0) 1344 630706 for further help.

If you would rather post your details send them to:
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PROJECT

Willmott Dixon enters the space age with new Oxfordshire project

To celebrate reaching the highest point of the build on a new £22m Space Technology Centre at Harwell, Oxfordshire, Willmott Dixon held a topping out ceremony in December.

Willmott Dixon Construction has been appointed by the Science and Technology Facilities Council (STFC) to design and build the new facility for RAL Space based at the Rutherford Appleton Laboratory. It will be home to the UK’s largest and most sophisticated space design, production and research facilities and is an extension to the existing laboratory, with Phase 1A due for completion in May.

The integration facility will accommodate a coordinated set of space facilities, supported by world leading integration and calibration teams.

The 7,500 sq.m facility will provide specialist areas including clean rooms, offering ultra-clean environments needed for the successful manufacture and testing of sensitive space-related equipment such as cameras and telescopes.

Matthew Raybould, operations director at Willmott Dixon said the project is a really interesting and innovative scheme for the firm to be involved in. “We are working to a demanding and technical building in a tight timescale and have reached the topping out milestone within six months of being on site which is a great achievement. The success of this build is testament to a great team effort from all those involved.”

Principal designers are The Fairhursts Design Group (architectural & landscaping), Glanville Consultants (structural & civil engineering), Briggs & Forrester (MEP services design & installation) and Clean Room Construction (clean room areas).

The Rutherford Appleton Laboratory will be home to the UK’s largest space research facility

The design is influenced by the theme of outer space in its colour scheme and the materials used. RAL 100 will also offer the public a unique opportunity to see a satellite inspired art installation, which is suspended from the ceiling, thanks to an extensive use of glass around the atrium and reception area.

Work on Phase 1B of the facility, providing further clean room facilities is anticipated to commence in June 2015, after the completion of Phase 1A.

Novus Ireland had a busy end to 2014 with three events. Novus Ireland Chair, Gerard Graham of Wilson Construction gave a talk at SERC Bangor campus to construction students about the CIoB and Novus and the benefits of membership.

Students from the new foundation degrees in Sustainable Construction and Architectural Technology with Sustainable Design, Subsidiary and Extended Diploma attended the event.

A similar talk was given at Queens University Belfast, at The School of Planning, Architecture & Civil Engineering (SPACE) to the Post Graduate MSc Construction & Project Management (CPM) students.

Members of CIoB Novus also took a tour of Creagh Concrete’s factory at Toomebridge in Co. Antrim. Over 20 people attended including students and lecturers from South Eastern Regional College (SERC).

William Doherty, director at Creagh Concrete spoke about how the company has progressed and led a factory tour which included the precast production line and demonstration of how stock items are produced; an introduction to one of the company’s newest products – Spantherm; and a look at the precast stair line.

Seamus McKeague, the firm’s managing director and Finalist in the Ernst & Young Entrepreneur of the Year award 2013 also gave a presentation about the business.

NOVUS IN IRELAND ENJOYS HAT TRICK OF EVENTS

NOVUS SPREADS THE MCIOB WORD AT A TRIPLE HELPING OF EVENTS AROUND THE REGION

Novus Ireland

Royal Armouries Leeds: venue for CCIHWY awards

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Taster session inspires pupils to choose career in built environment

The CIOB East of England branch, Kier and Anglia Ruskin University visited the Thomas Gainsborough School in Suffolk in December to open the eyes of year 11 pupils to the prospect of a career in construction.

The CIOB gave an in depth view of construction and the roles within the industry and pupils reported that this dispelled the stereotypes they held. A number of different stations were set up for pupils to test their knowledge and discover career pathways for the future.

Kier, currently building the new Sudbury-based £16m school showed how two different people working within the company had progressed to their current positions. One employee had gone through university studying as a quantity surveyor and been taken on at Kier as part of the graduate development programme. A second employee had been taken on as an apprentice site engineer, completed his qualifications and gone on to university, all courtesy of Kier.

The CIOB introduced three people that got into high positions from different routes. “This showed us that it was possible to achieve anything with the right attitude and determination, and that GCSEs weren’t everything as one man explained. He came out of school with his highest GCSE being a D. He became a brick layer, hurt his back and was forced to go back into education. He got his qualifications and now manages assets worth over £300m,” said pupil Luke Gladwell.

A lecturer from Anglia Ruskin University explained the courses available in the construction industry - from architecture to civil engineering to show students further possible pathways. “I believe the whole session was a success. Kier offered a very exciting apprenticeship development programme, and Anglia Ruskin University offered desirable degrees in construction. I have been inspired by the whole session and wish to pursue a career in construction in the very near future,” said Luke.

New in Brief

Yorkshire AGM Calendar
Sheffield & South Yorkshire Centre’s AGM is taking place on 4 March, 6pm at Sheffield Hallam University. The Humber, York & North Yorkshire Centre’s AGM will be held on 11 March, 6.30pm at the Buckleys Inn, Billborough. York, followed by a presentation on BIM. The Leeds & West Yorkshire Centre’s AGM takes place on 24 March at the Hepworth Gallery, Wakefield. There will also be a tour of the Hepworth. Time to be confirmed.

To register your interest in attending, please email fevans@ciob.org.uk

CPD on London Plan
After a successful year at the Essex Centre with CPD events from ‘Everything you need to know about cranes’ to ‘BIM’, 2014’s finale event was held in December at Anglia Ruskin University in Chelmsford. Ryan Thrower, director of NRG Consulting presented ‘Balancing The London Plan, Part L 2013 and Environmental Scheme Standards’ to over 30 guests.

Thrower covered the following topics:
- SAP 2012 –Main Updates
- Sources of Thermal Bridging Details
- Heat Pumps
- New Part L1 (2013) compliance requirements for energy and CO2
- New elemental recipe method for setting the TER and TFE
- What can affect the Fabric Energy Efficiency
- Part L 2013
- Part L 2010
- Beyond Part L: Current Planning Policy in London
- Enhancement from Building Regs Pass to London Plan Compliance/CSH 4
- Policy 5.5
- Environmental Topics

If you are interested in a copy of the slides, please email Chia at coh@ciob.org.uk

Scotlands Helps Teach the Teachers About Careers in Construction

The Scotland branch of the CIOB is hosting an innovative event in March designed to inform and educate education providers about the breadth and variety of careers available in construction. “Too often construction is seen in terms of building, joinery, plumbing……. In fact construction affects every single person’s lives and encompasses a vast range of disciplines. From planning and design, architecture, restoration, project management, surveying, engineering and environmental studies,” explains Lynn McKay branch manager.

The morning event will see high profile construction professionals talk about their career journey including Alisdair Fernie from Brookfield Multiplex, Sean McCulloch from City Building Glasgow, Chris Chivers, senior vice president CIOB Paul Brown, vice chair, CIOB Scotland and Ian Gracie, chair of CIOB Scotland.

Guest will be able to take home a DVD and other resources to use in their own school. “This is a really unique opportunity to access valuable careers material and make contacts in the industry and further education not on offer anywhere else,” added McKay.

This free event takes place on 10 March from 10am to 2pm at Glasgow City Chambers. To book email lmckay@ciob.org.uk
In October the CIC 2050 Group’s Construction Industry Survey reported that 60% of respondents felt Social Media was not being used appropriately by the industry. Not surprising perhaps, but views on what ‘appropriately’ meant varied considerably, with respondents polarised between the enthusiasts and those who felt social media use should be discouraged. These results mirror my own experience working as a consultant for three years since leaving a career in architectural management. Many construction companies have a prescriptive approach to the subject; occasionally there is enthusiasm from marketing or HR, but I’m often asked to help convince the board. Meanwhile, unbeknownst to the company, advocate employees work ‘under the radar’ using social media to help them in their day-to-day work and career development.

“Advocate employees work ‘under the radar’ using social media to help them in their career development. Why is there this disconnect between senior management and employees?”

Intrinsic part of life
So what is social media and why is it so powerful? Social media is people having conversations and publishing on the Internet. The conversations make the web different, credible, dynamic and evolving. As a result we can now find all sorts of information from talking to people online, anywhere in the world. We have new communications tools with the potential to change our industry as profoundly as email and become as familiar as the telephone. Social media is not just a fad; it has become an intrinsic part of the Internet and therefore a part of all our lives. Imagine a conversation where a person or concept is mentioned about which you know very little and want to know more. The impulse to ‘Google’ the subject is great. Instead of finding static web pages, we now find LinkedIn profiles, conversations on Twitter and Facebook, or mentions in the comment sections of blogs. People are talking about things, including us.

Today social media users are building networks across and between companies, continents and disciplines, breaking down the silos that have characterised our industry for so long. During the recession this wasn’t so much an issue, but where people have the opportunity to research an employer and choose where they work, what happens online becomes intrinsic to our chances of recruitment and retention. Employees need to find the right tools to navigate this change, and employers need to be prepared for the journey too.

Perhaps it’s time to stop doing a Canute and start building a boat instead?

Su Butcher is owner of Just Practising, a social media consultancy that works exclusively in the construction industry.
The CIOB Global Student Challenge is an international construction business challenge supported by MERIT open to all students studying a Bachelors degree level course in the Built Environment or related field. The challenge aims to identify and shape the construction leaders of tomorrow.

With research indicating that there will be 70% increase in construction developments across the globe by 2025, this challenge is helping to develop the talent to deliver on these predications.

Students also have the opportunity to compete in the finals in Hong Kong and win prizes including mentoring by prominent leaders in the construction industry and a cash prize.

Fourteen universities have already registered including Hunan University, China and Wolverhampton University, UK.

The benefits of taking part include:
- The chance to win personal mentoring from CIOB past presidents; prominent individuals in the construction industry.
- An all-expenses paid trip to Hong Kong if you are chosen to compete in the finals.
- The opportunity to participate in a simulation that allows you to develop financial, resource management, strategic thinking and team-building skills.
- Acquiring the knowledge and experience of what is required to manage your own construction company to prepare you for your future career.
- Developing your commercial awareness and management skills.
- Networking with ambitious students from around the world; building valuable life-long connections.
- The Alan Crane Trophy for the winning team to display in your university.

Last year’s winners of the GSC 2014 were Fredrick Austin, Oscar Macleod Savage, Luke Mitrione and Joel Mitchell from RMIT University Australia. They are all studying for their Bachelor of Applied Science in Construction Management. “It’s these contacts, and the CIOB network we have been introduced to, that we will really benefit from throughout our careers,” said Mitchell.

The final date to register is 11 February. First rounds take place between 11 February and 18 March with finalists announced on 23 March. The finals will be held in Hong Kong in July.

Read more at www.ciob.org/global-student-challenge
IS YOUR BODY LANGUAGE LETTING YOU DOWN?

Philamena Hayward from the Hayward Development Partnership, recently talked to West Midlands Novus about the basics of body language and how powerful their body language can be in getting a message across.

"Whatever stage of your career your success depends on influencing others," said Hayward. "No one works in a vacuum and to be influential you need to develop effective working relationships. A fundamental building block in that process is listening; in particular listening to what is not being said. Research shows that 97% of our communication is non-verbal and 55% of that is our body language. We are all able to 'read' those unspoken messages that tell us what someone is really thinking and feeling and simply being more aware helps. By the same token it is important to think about your own body language to ensure you are giving a clear and consistent message. You can use your body language to change your own internal state to become more effective. When you listen to what is not being said you have the choice to truly communicate and influence."

SIX BODY LANGUAGE TIPS:

1. As well as helping you understand others, thinking about your own body language can help you communicate your message.
2. To boost your confidence, assume a posture that you associate with confidence. Focus on clarity and notice how quickly your internal state changes.
3. Use your body language to demonstrate you are listening: make eye contact and face the person directly, lean forward, nod.
4. Create a positive mood by smiling.
5. Build rapport and show agreement by mirroring expressions and postures. We do it unconsciously anyway, so practice doing it consciously to become more skilled.
6. To improve your speech, use your hands: gesturing not only reinforces our message, it can power up your thinking.

Jamie Young joined Morgan Sindall in 2010 during a year out from Loughborough University (where he gained a first class honours degree) and worked on the Basildon Sporting Village. He was sponsored by the firm in his final year and then joined its two year graduate scheme since when he has been involved in design managing a care home in Norfolk, the UEA Enterprise Centre (Passivhaus, Low Carbon, BREEM Outstanding) and is now working on the new Chemical Engineering and Biotechnology Laboratory for the University of Cambridge (see Contact Nov/Dec 2014). Jamie gained his MCIOB in just 12 months.

Q: Why did you choose a career in construction?
A: I really enjoyed graphic design at GCSE level but wanted to be involved in architecture. When I saw the course available for design management, I was sold on it. My dad is a civil engineer and I think that helped as I saw the challenges involved within construction and the tangible benefits that come out of it. For me, being able to see an end product to all the hard work I put in highlights the value and attraction of the construction industry.

Q: What’s been your worst professional mistake?
A: When I first started, I never wanted to ask any questions in case of looking stupid, however, I quickly realised I looked stupid whether I asked the question or not. So from that point on, I have had no hesitation in asking all the stupid questions necessary.

Q: What would you have done if you hadn’t worked in construction?
A: International food critic - I like food and travelling so would be pretty much the perfect job. Realistically, probably an accountant.

Q: How do you relax when you’re not at work?
A: I spend most of my time watching Judge Judy, playing football and spending time with family and friends.

Q: What’s the best advice you’ve been given?
A: Never eat yellow snow.

Q: What’s your most embarrassing work moment?
A: On my first work social (held in the middle of winter), I obviously wanted to make a good impression... I managed to slip on some ice and ended up with concussion and a week off work. There was also the time I was writing an important email to an architect named Ruth... managed to start the email... "Dear Roof."

Q: If you were starting your career again what would you do differently?
A: To be honest, not a lot. So far I’ve taken as my opportunities put in front of me, worked hard and enjoyed myself doing it. I don’t think there is any other way of doing it.

Connect with Jamie on LinkedIn at www.linkedin.com
Training station

Mace’s commitment to training is being seen first hand in the redevelopment of Birmingham New Street

The redevelopment of Birmingham New Street station and Grand Central is being delivered by Network Rail with Mace as its delivery partner and principal contractor, and is set to open in September 2015.

The completion date will mark the opening of the £750m station, the Grand Central shopping centre and a landmark John Lewis department store.

Over 140,000 passengers use New Street every day, more than double the number it was designed to accommodate.

Network Rail’s programme will create a 21st century station and provide an attractive and modern transport hub, combined with high-end retail and well-designed connectivity with the rest of the region.

The scheme will include a new 10,500m² concourse and signature atrium that will transform the station into a state of the art, open gateway for people travelling to and from the city. The design has been carefully considered to open up access to the south side of Birmingham with better connectivity through the station.

Young guns
The New Street redevelopment provides a great opportunity for Mace employees to work on a complex and challenging project. Most aspects of construction are captured on the project and are often undertaken in very restrictive environments. Everyone on the project is learning and developing but none more so than the younger team who have been presented with a fantastic opportunity to learn on Europe’s largest and most complex redevelopment project.

Mace and Network Rail have both recognised the importance of bringing through the next generation of construction leaders and the importance that flagship projects like New Street have for their development. One of the recent successes on the project is the substantial completion of the new atrium (pictured) and the subsequent commencement of the atrium demolition (pictured). James Haywood, an experienced graduate who is in his second year of the Mace Graduate Programme, is the assistant construction manager overseeing the demolition which involves the removal of 6,000 tonnes of concrete. Haywood has cemented himself as an essential member of the team and feels that the project will give him an advantage in his quest to become MCIOB.

"Working on such a complex project has given me a head start in completing my professional review," he says. "I have been involved with and delivered some very complex work activities on the project: been on the ground interacting with all works package contractors; developed my communication and problem solving skills with colleagues and package contractors and developed strong working relationships and understanding. This has resulted in the successful delivery of my project areas to date."

Freddy Maxwell-Hart is the construction manager and assistant project manager for the atrium and is in his second year of the Mace Developing Success Programme. Overseeing the construction of the complex structure of the atrium roof, and the demolition and rebuild of the multistory car park has offered an excellent learning opportunity and experiences which will assist in his application to become a member of MCIOB. "Working on this project and being heavily involved with the atrium roof has been an incredibly challenging and rewarding experience," he says. "With the strict logistical constraints, project procedures and complicated structures my construction management skills have vastly improved. As well as site experience, Mace’s Developing Success scheme has broadened my knowledge of wider issues I wouldn’t otherwise encounter on site, allowing me to further develop my skills, understand my leadership style and become a more rounded manager."

Fast track
Adam Hill senior project manager is proud of the project for many reasons. “Birmingham New Street station will leave a legacy that will be used by millions. Perhaps more significantly for the industry is that it will provide a legacy for the people that worked on the project: the knowledge and skills that have been nurtured and will be carried with those individuals throughout their careers. The project is a huge challenge but without doubt the job I am most proud to have worked on and being from the city it is close to my heart. We are developing a first class facility and developing first class people. The commitment Mace and Network Rail show to learning and development provides the foundations for the industry’s future leaders.

"James, Freddy and I are currently completing our professional review and the New Street Project is providing a wealth of material to ensure the successful path to MCIOB."

"[We] are currently completing our professional review and the project is providing a wealth of material to ensure the successful path to MCIOB"
TELL US BRIEFLY ABOUT YOUR CAREER?
I started at the age of 18 with Wimpey Construction as a Trainee Site Engineer and was sponsored by them through an HND, Degree and Masters Degree in Construction Project Management which was a great foundation to a career in building. I moved through the operational ranks with Wimpey Construction, Carillion, Morrison Construction, John Sisk & Son, Morgan Sindall (Construction) Ltd to my current position as Managing Director of the Building Division at VolkerFitzpatrick Ltd. Throughout my career I have been involved with many different projects in various sectors, mostly in and around London. I have always enjoyed the challenge of complex construction sites and the many characters you come across throughout the various stages of a project.

WHAT HAVE BEEN THE HIGHLIGHTS? AND ANY REGRETS?
The highlights for me have always been when a building is completed after months of hard work by many people, particularly when the customer is delighted with the end product. That is what we should all strive for – a satisfied customer with the hope of repeat business. I have no regrets, more valuable lessons learnt, particularly when things don’t go according to plan. You have to keep learning and continually improving. Somebody once said to me that ‘every day is a school day’ and that has always stuck with me.

WHAT ADVICE WOULD YOU GIVE TO CONSTRUCTION MANAGERS AT THE START OF THEIR CAREERS?
Always do what you say. Have integrity. Always try and engender trust with all the stakeholders of a project. Treat everyone you encounter with the same level of respect. Try and view perceived problems as a challenge and collaborate as much as possible to find a solution that is a win-win for all parties involved.

FACT FILE
• New Street is the busiest station outside London and the busiest interchange station in the UK with a train leaving the station every 37 seconds.
• 1,000 workers are currently on site, working 24 hours a day, 7 days a week.
• The first half of the new station was completed in April 2013 and once the project is finished in 2015 there will be 36 new escalators and 15 new lifts reaching every platform.
• Mace has made a commitment to employ 100 apprentices on the project.
• Originally the station was designed to accommodate 80,000 passengers per day. Approximately 140,000 passengers currently pass through the station each day.

“...You have to keep learning and continually improving. Somebody once said to me that ‘every day is a school day’...”
MEMBER BENEFITS

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Project of the month
The Green Room, South Bank, London

ON LONDON’S South Bank contractor BBuild has completed a timber-framed restaurant next to the National Theatre. The £740,000 temporary building was designed by Benjamin Marks, the son of David Marks and Julia Barfield, founders of Marks Barfield, architect of the nearby London Eye.

The Green Room is the second building to be constructed as part of the Coin Street Community Builders’ (CSCB) redevelopment of its Doon Street site. It follows the Vinci-constructed and Allies & Morrison-designed Rambert Dance School next door, which was completed in 2013.

The building has planning permission to occupy the site for the next five years and will operate until phase two of Lifschutz Davidson Sandilands’ masterplan, which includes a 43-storey residential tower and leisure centre, is completed in 2019.

Marks took inspiration from the Architype-designed office that previously occupied the site. It was built in 1988 with a bolted-together timber frame, in homage to self-build pioneer Walter Segal. Along with Matt Atkins, Marks led the project to dismantle and reconfigure the building as a community centre in Stockwell.

Like the offices it replaced, the restaurant is “designed to be deconstructed” says Marks. “It was put together in a way that you could take it apart”. Many of the building’s elements, including the timber frame and stone columns bound together with lime mortar, are designed be reused.

The restaurant will eventually make way for an office and education block with a public square, the final phase of the Doon Street development, that will complete the “terrace” of buildings.
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