UK CONSTRUCTION EXCELLENCE™

MAY 2018


the
INFRASTRUCTURE
SHOW 2019
Constructing the Future
The UK's Leading Infrastructure, Housing & Supply Chain Event
16 April 2019 – NEC, Birmingham
www.ukinfrastructureshow.co.uk
SEE YOU NEXT YEAR!
For exhibition and sponsorship opportunities please contact 0845 270 7066 or email:
exhibitions@ukinfrastructureshow.co.uk
2018 PROJECT PARTNERS
hs2 engine for growth
Transport for London
Tideway
WEST MIDLANDS COMBINED AUTHORITY
Midlands Connect
HORIZON NUCLEAR POWER
Consortium Procurement
Procurement For All
CompeteFor
OFFICIAL PARTNERS
Infrastructure and Projects Authority
transportfocus
PASS PROCUREMENT
S2
Tracker
DELTA eSourcing
London Business Network
OFFICIAL MEDIA PARTNER
UK CONSTRUCTION ONLINE
EVENT DELIVERED BY
BIP SOLUTIONS
DELIVERING EXCELLENCE THROUGH INNOVATION

from the editor

WELCOME to the latest edition of UK Construction Excellence. In this issue we look at the growth of sustainable construction and green building. From efficiencies in energy, to reducing carbon emissions, the construction industry can play a large part in helping the UK hit its climate targets, now and into the future.
The shape of UK green ambitions will be hugely influenced by construction and infrastructure, for example with the growth of electric vehicles, homes will need to adapt to accommodate this surge in electrical usage.
Sustainability isn't all about the materials we use and the way we construct; but sustainability of skills and communities is of ever increasing importance. We take a look at the sustainable community being developed in Devon – Sherford – and how it is planning for the future.
Last month saw UKCE, together with the infrastructure community, gather at the NEC for the UK Infrastructure Show 2018. The day featured lots of interesting discussions and collaborations taking place, with some of the biggest infrastructure projects in Europe on show, discussing their opportunities for the supply chain.
See our full review on page 14.

Victoria Maggiani

inside the latest issue

24

Sustainable surfacing for roads and runways


28

Waste not, want not


36

Heathrow flies into the future

Publications Editor
Victoria Maggiani

Designer
Seamus Norton

Managing Editor
Sandra Peet

Display Advertising Sales
T: 0845 5571316
enquiries@ukconstructionmedia.co.uk

CONSTRUCTION MEDIA
ISSN 1461-1279

Follow us on...

UK Construction Media, Pacific House, Pacific Way, Digital Park, Salford, M50 1DR
0845 5571316 • enquiries@promarkmedia.co.uk • www.ukconstructionmedia.co.uk

Industry collaboration drives BREEAM UK consultation

The BREEAM UK New Construction scheme has gone live following BREEAM's most comprehensive industry consultation to date.

The new version has looked at key industry challenges, such as the performance gap, as well as lifecycle assessment, and offers more benefits for developers, investors and users.

It also adopts fresh approaches to sustainable travel and ecology to reflect evolving best practice.

BRE worked with industry to align the updated scheme to today's sustainable development priorities. The learning from that collaboration has driven a string of improvements, the most important being:

Performance gap: The energy category now addresses one of the industry's most pressing concerns. It rewards detailed energy modelling in design and allows for this to be reviewed, which enables modelled and actual building performance to be compared easily.

Lifecycle assessment: The materials category now encourages whole building lifecycle assessment, to help increase industry understanding and inform decision-making based on true impact of materials specified.

Ecology: New criteria for this category promote the integration of holistic, best practice ecology approaches across the lifecycle of the building.

Travel: The transport criteria have been restructured to focus on rewarding positive action, rather than proximity to existing services.

Industry has welcomed the review, recognising the potential benefits of the improvements.

Jane Wakiwaka, Sustainability Manager for The Crown Estate, said: "BREEAM schemes provide our developments with a measurable and comparable benchmark against which to assess and improve environmental performance. We support the launch of the 2018 New Construction scheme as a means of driving the industry forward, as well as challenging design and construction teams to improve and innovate in the performance of the built environment."

Alexandra Vella, Principal Engineer at Hoare Lea, commented: "BREEAM UK New Construction 2018 has adapted its method in the way energy use is predicted and the associated rewards gained. Verifying actual energy usage and using these figures when designing will better equip designers to accurately predict building needs and avoid oversizing services. Realistic records of energy use and carbon emissions could then be used to update guidelines in this area."

The arrival of BREEAM UK New Construction marks the latest stage in the continuing development of the sustainability assessment method, which is now applied in 77 countries and has more than 2.2M buildings registered under its schemes.

UK households going green with home improvements

According to new research by AA Financial Services, UK homeowners are investing in green home improvements, with some 2.2M UK households planning green improvements this spring.

Green DIY and home improvements ranked higher than installing a new bathroom, adding an extension or converting a loft/garage or room in the latest survey, meaning some £16Bn could be spent on green technology in the next few months.

At a time when public investment in home energy efficiency improvements has been cut by 58% in England since 2012, the figures suggest that the green agenda is still important to people.

Over half (57%) of those looking to add green products were installing double-glazed windows, a third (34%) were adding or improving their insulation, while 13% were adding solar panels and 7% were taking measures to become carbon neutral.

On average, homeowners are looking at investing £7,421 on their energy-saving home improvements. Some 45% are planning on spending up to £5,000 and 22% are anticipating spending over £10,000, with 10% over £20,000.

The greenest UK region was the South West, where one in nine households are planning some kind of green home improvement. By contrast, just 7% of London households had green improvements planned.

David Searle, AA's Director of Financial Services, commented: "While many focus on house prices and whether people are moving, the trends for those improving their home are actually more interesting. For every person moving home there are four that are staying put and investing money into the property they have. Further, our data suggests the drivers behind people's home improvement plans are about realising value over the long term. Making energy efficiency improvements future-proofs a home, cuts domestic bills and implies that people are serious about taking control of their energy usage.

"Spring is absolutely the time to make these changes, and the fact so many people are planning all sorts of improvements is a great sign of economic confidence."

SMEs key to solving housing crisis

Cross-party MPs are backing small housebuilders to help solve the housing crisis.

Following release of the 'Inquiry into support for small housebuilders', MPs leading the report have urged government to develop a strategy to increase the number of homes built by small builders.

By introducing a new 'Dedicated Strategy for Small Housebuilders', the MPs hope to reverse the decline in the number of new homes built by small builders, which has plummeted to just 2,500 today from 12,000 in 1998.

MPs leading the report said: "We have many legitimate disagreements with each other on many aspects of housing policy, but on this we are agreed: we cannot solve the housing shortage without smaller builders."

The inquiry was supported by the Federation of Small Businesses (FSB), and suggestions made within the report include:

- Improve access to finance: MPs are calling for a government-backed guarantee on loans to small housebuilders.
- Action against late payments, with a new 'three strikes and you're out' rule targeting big businesses who repeatedly pay late.
- Increase apprenticeship opportunities
- Remove barriers to building on small sites and help streamline the planning process for smaller firms.

Robert Courts MP, Chair of the APPG, said: "Government action has started to address some of the needs of small builders but we must leave no stone unturned to truly unlock the housing market.

"A new, dedicated strategy for small housebuilders would be an important step in achieving this. This needs to centre on a positive package of measures that removes some the biggest barriers for small builders including the inability to access finance and reducing the cost of developer contributions like the Community Infrastructure Levy."

Catherine West MP, Vice Chair of the Inquiry, said: "The current state of the UK housing market leaves no doubt that there is huge potential for small builders to make a vital contribution to building the homes we need.

"Our report sets out a series of proposals that will enable small builders to scale up, grow and build more which will help relieve the housing shortage.

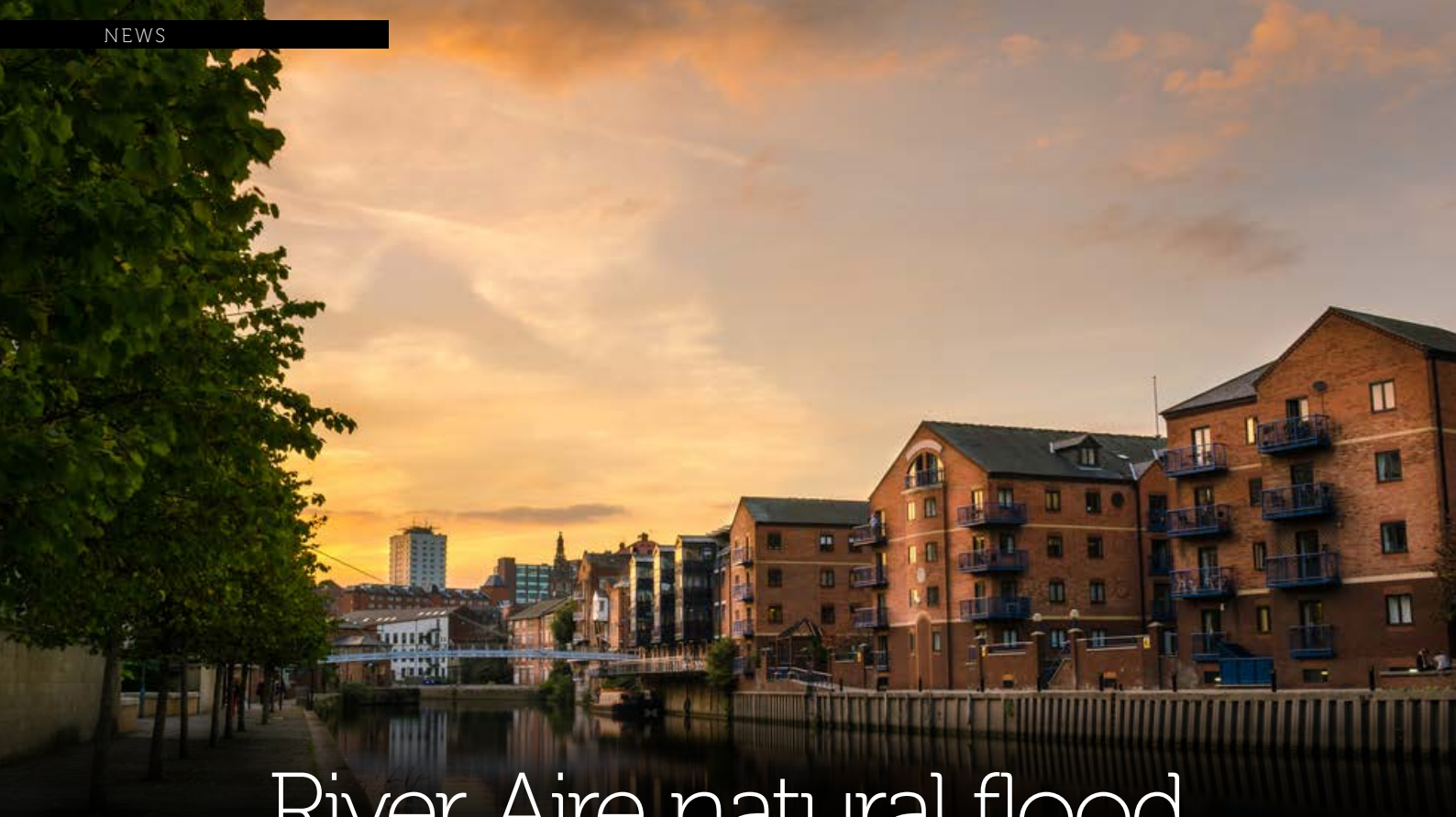
"The simple truth is that the UK cannot expect to build the homes we so desperately need unless smaller builders are backed. Giving small builders the keys they need could result in tens of thousands of urgently needed homes being built up and down the UK.

"This will help create jobs, stimulate economic growth and provide the homes the UK need."

FSB acts as the secretariat for the APPG and supported them on the inquiry.

Mike Cherry, National Chairman at the FSB, said: "Small housebuilders will welcome the cross-party effort to shine a light on the very real challenges that are holding them back from playing their part in building the homes the UK needs.

"It is vital that the Government does not turn a blind eye to the findings of this report and commits to creating a dedicated strategy aimed at giving small homebuilders the finance, skills and support they need to help fix the broken housing market."



River Aire natural flood management

The first of 450 trees has been planted on the River Aire, in a bid to reduce flood risk.

As part of a natural flood management scheme, thousands of trees in total will be planted across the upper River Aire, designed to slow water flow and reduce flooding downstream.

Ray Bridge Farm, Eshton Beck, Gargrave is the location of the first pilot site where trees such as dogwood, guelder rose, downy birch, alder and willow will be planted along with hedgerows of hawthorn, blackthorn and hazel.

Yorkshire Wildlife Trust staff and volunteers will be leading the planting of trees at the site.

Use of natural flood management comes as part of the Leeds Flood Alleviation Scheme, led by Leeds City Council in partnership with the Environment Agency, which has a catchment-wide approach to flood risk as it enters its second stage.

Using natural processes to reduce flood risk is known as natural flood management, and is an important part of managing and reducing flood risk in a sustainable way alongside more traditional engineering solutions. The interventions will also create habitat for wildlife and help regenerate rural and urban areas through tourism.

The pilot sites will allow the team to monitor and research the techniques and understand the benefits they give to reducing flood risk. The pilot programme will also be used by the Environment Agency and Leeds City Council to develop a co-design approach to working with landowners, tenants, local authorities and other key partners such as Aire Rivers Trust and White Rose Forest.

Leader of Leeds City Council Cllr Judith Blake said: "These new trees are a hugely significant part of our plans to protect Leeds from future flooding like the devastation we saw on Boxing Day 2015.

"It's great to be working with partner authorities along the River Aire to get the first of the trees planted. They are part of what will be a range of natural flood management measures in a catchment-wide approach to prevent future catastrophic floods affecting communities along the river."

Adrian Gill, Area Flood Risk Manager at the Environment Agency, commented: "I'm really pleased to launch this pilot programme in partnership with Leeds City Council. Using natural techniques to minimise flood risk while creating new habitats and increasing woodland cover across the Aire catchment will help realise the ambitions set out in Defra's 25-year environment plan.

"While we can never truly eliminate the threat of flooding, working together across local authority boundaries to develop and deliver this programme will help us to create better, more effective solutions to a catchment-wide challenge."

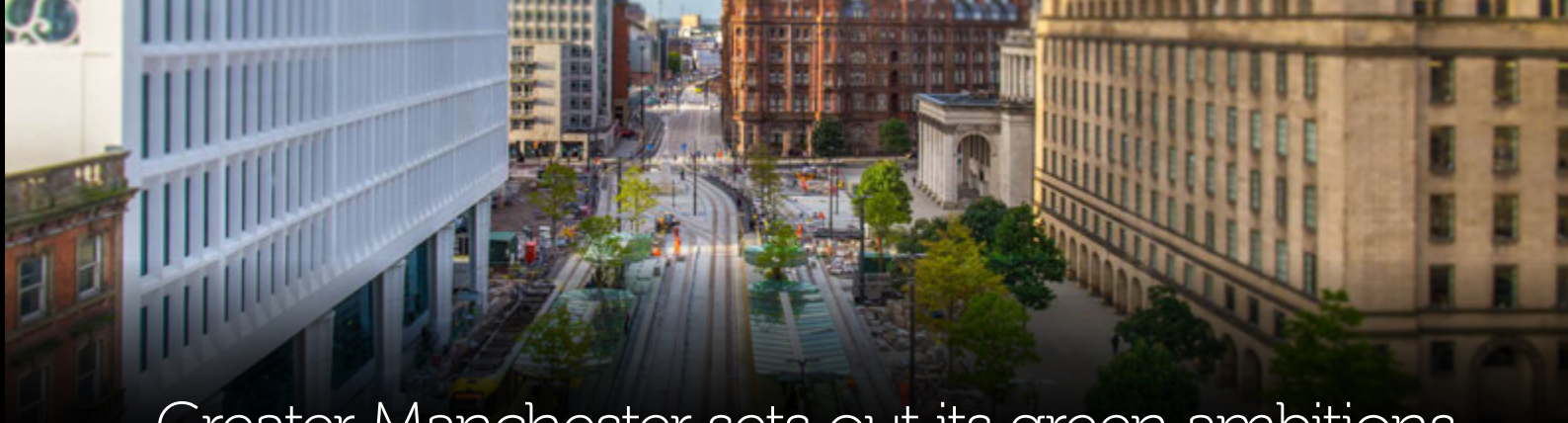
Phase I of the scheme was opened in October last year, serving the city centre, Holbeck and Woodlesford.

Phase II identifies measures further upstream, looking at areas beyond the city boundary to further reduce the possibility of the river flooding in Leeds, as well as additional measures to offer protection for the South Bank area of the city centre which is a key future economic driver for Leeds.

Phase II has a strong focus on natural flood management, with proposals to create new woodland areas more than doubling the canopy coverage in the River Aire catchment.

It also proposes water storage areas to be created and developed, operated by a control gates system meaning water can be held and then released back into the river when safe to do so.

A third element would be the removal of existing obstructions along the river to help reduce water levels, along with lowering the riverbed in places to improve its capacity and flow.



Greater Manchester sets out its green ambitions

Following his election, the Mayor of Greater Manchester, Andy Burnham, announced his ambitions for making Greater Manchester one of the leading green cities in Europe.

Not one to rest on his laurels, he called a landmark Green Summit, for 21st March 2018, bringing together environmental experts, interest groups, partner agencies, academics and local people together to accelerate Greater Manchester's green ambitions.

The new commitment for the region is one of the UK and Europe's most ambitious carbon neutrality targets, Mr Burnham and local leaders hope to bring Greater Manchester's date for achieving carbon neutrality forward by at least a decade to 2040. Climate change experts say this move is necessary if Greater Manchester is to meet Paris Agreement targets.

To achieve this, the city-region is exploring radical proposals that include building zero carbon homes, an emissions-free bus fleet, doubling the provision of charging points for electric vehicles, a Greater Manchester energy company, and a plastic-free city-region campaign.

The commitment would not just benefit the environment, but the investment in green technologies and policies would bring huge economic benefits and jobs to the region, said Mayor Andy Burnham.

He said: "A carbon-neutral city-region needn't be some far-off ambition, the reality is that we can't afford to wait; climate change is happening now. A green future is there for the taking if we just take that first step to go for it. For Greater Manchester, today is that first big step.

"Greater Manchester has never been afraid to be a pioneer – and today's Green Summit presents us with a fantastic opportunity to be bold in our ambitions and become a UK and European Leader.

"More local renewable energy is achievable, and is increasingly becoming cheaper and cleaner than carbon fuels. Although initial investment can be expensive, the long-term rewards and savings are huge. What we can't afford are the long-term costs of carrying on as we are.

"Retrofitting our homes to make them more energy-efficient would help reduce carbon emissions and fuel bills; carrying out the work could also bring tens of thousands of jobs to the city-region within this sector alone.

"All businesses need to become green businesses, and the quicker we make this change, the bigger our economic and environmental advantage. And by bringing together this burgeoning green industry with a robust work and skills programme through our schools and universities, we can develop a homegrown skilled workforce that's ready and able to meet the demands of today, and tomorrow.

"The sooner we start making these changes and take that leap, the sooner we can start to see the rewards – cheaper running costs for our transport fleets, a healthier population, and a thriving green economy on our doorstep. Greater Manchester is going to lead the way for others as we move towards a cleaner, greener future."

The UK Green Building Council (UKGBC) has come out in support of Mr Burnham's ideas and part of this is strengthening its presence and influence in Greater Manchester.

UKGBC's Director of Policy and Places, John Alker, was involved in the summit, facilitating the buildings workstream at the event. John featured on the bill alongside sustainability expert Mike Barry (of UKGBC member M&S) and BEIS minister the Rt Hon Claire Perry MP.

Priorities for UKGBC include supporting the Mayor's green priorities, such as bringing down carbon emissions and fuel poverty in GM's aging housing stock; helping businesses cut emissions from commercial properties; and ensuring that all new development aims for the highest possible environmental standards.

In addition to supporting the summit, UKGBC announced:

- The launch of a Greater Manchester Local Network, which will see UKGBC run quarterly events in the region, supported by a newly recruited Manchester-based Local Network Coordinator
- Bruntwood and Peel Land and Property will join the UKGBC network of over 400 organisations from across the industry
- A commitment to a UKGBC office in Manchester from Summer 2018

Mr Burnham said: "I'm delighted that a well-respected national charity such as the UK Green Building Council is expanding its activities and presence in Manchester. I welcome their support for our zero carbon ambition, which they can help us achieve through their policy input, their training programme and further strengthening our networks of green business."

John Alker, Director of Policy and Places at UKGBC said: "Greater Manchester has an opportunity to be a trailblazer, as it has been many times before in its history. It can demonstrate that high quality, sustainable buildings support an ambitious vision for the region as a clean, green and healthy place to live and work, which will support the attraction of talent and investment. UKGBC can help to deliver this, and I'm looking forward to an active programme of work with our growing local network."

Chris Oglesby, Chief Executive Officer at Bruntwood said: "As a company committed to making our great city regions greater, we look forward to working with the UKGBC and its members to support our zero carbon vision for GMCA. As part of our own commitments we've recently restated our carbon reduction targets and will reduce our emissions by a minimum of five per cent per year for the next three years. Bruntwood will also become an accredited Gold Standard Low Carbon Company and achieve the ISO 50001 Energy Management Standard in order to demonstrate our longer term ambitions as a carbon conscious company."

David Glover, Operations Director and Chair of Peel's Sustainability Steering Group said: "Peel Land and Property welcomes UKGBC's enhanced presence in the North and we look forward to working together to create a cleaner, greener and more prosperous city region. Our best practice in the property sector has led to energy savings of over 30% in our building energy use, worth over £1.5M on a £4M annual energy bill, and eliminating over 8,200 tonnes of CO_2 emissions a year. This represents an annual improvement of around 4.4%, when at a national level, emissions from commercial buildings have remained constant or, in recent years, actually risen."

Manufacturing better buildings: apply for funding

Innovate UK has up to £72M to invest in establishing a core innovation hub to support collaboration between industry and academia and transform the construction sector.
The funding is for UK-based research and technology organisations that already have substantive existing facilities and expertise to work with others in the construction sector, such as businesses, the research base or public sector organisations.

Transforming construction

The way we create buildings has not changed in 40 years, and construction has not seen the same increases in productivity as other industries. The sector is also facing a skills crisis due to an ageing workforce.
This competition aims to fund a single, core innovation hub that will develop and commercialise new digital and manufacturing technologies for construction. The hub should focus on how to:
• create better-performing built assets
• increase the industry-wide adoption of emerging digital and manufacturing technologies
• design new processes to improve productivity in construction
To be successful in their application, the research and technology organisation will need to demonstrate there is a commitment from the private sector to invest and use the hub once it is complete.

Part of the Industrial Strategy

The Transforming Construction challenge aims to support the construction industry to adopt the latest digital manufacturing technologies to produce safe, healthy and efficient building.
This will help buildings to be constructed 50% faster, 33% cheaper and with half the lifetime carbon emissions.
It is the part of the Government's Industrial Strategy Challenge Fund, which brings together world-leading research with businesses to take on the major societal and economic challenges of our time.

Competition information

• The competition is open, and the deadline for applications is at midday on 23 May 2018
• Projects must be led by a research and technology organisation working in collaboration with other businesses, the research base or the public sector
• Total eligible project costs should be £72M or less
• Projects should start in August 2018 and last up to four years

A different approach to tackle flooding

In his speech at the annual Flood and Coast Conference, Environment Agency Chief Executive Sir James Bevan highlighted the need for a new approach to tackle flooding over the next 50 years.

He said that while the country is better protected than ever against flooding, the future will bring more challenges as sea levels rise and more housing is required to accommodate a growing population.

Despite huge advances in flood protection, Sir James is concerned that the technology will be left behind as the country rises to meet these new challenges.

As he revealed that every £1 invested in new flood schemes saves the economy £10 in damages avoided, he warned that new approaches are needed to combat increasing flood risk.

Since 2015, new flood schemes completed by the Environment Agency have benefited more than 100,000 homes but to continue building on this success new 21st century approaches are needed.

Sir James has called for greater business investment, quicker emergency response and increased use of natural flood schemes, in addition to 'hard' defences, in order to reduce the impact of flooding on communities around the country. He questioned how these challenges should be dealt with and suggested that more concrete – simply building our flood defences higher and higher – is not the answer.

He also warned that tough questions will need to be answered about what is important to protect and that there might be a case for considering future funding priorities.

Sir James Bevan said: "Almost every day in this country, when rivers and tides rise, rain falls and storms blow, thousands of people sleep safe and unaware that they are being protected by flood defences.

"But what works so well now – and has done in the past – may not be enough in the future. Over the next 50 years if we are going to give the country the best possible protection against flooding, we are going to need a different approach."

Leeds heat network launched

March saw one of the UK's largest heat networks, the Leeds PIPES Network, officially launched by Leeds City Council, Vital Energi and The Co-Operative Academy.

PIPES is a new flagship heat and hot water system for thousands of homes and businesses in Leeds, connecting some 1,983 council homes and numerous business around Leeds city centre to the Leeds Recycling and Energy Recovery Facility (RERF). The £35M network has been developed in partnership between Leeds City Council and energy company Vital Energi.

The project sees steam generated at the Veolia operated RERF converted into hot water and distributed along a 16.5km network of district heating pipes. The heat network will connect homes and businesses in Leeds to a new, environmentally friendly source of heating and hot water.

Major benefits are predicted for the city, with a projected annual cut of 22,000 tonnes in the city's carbon dioxide emissions. By cutting these emissions, the heat network is set to improve air quality around the city, while bringing major local employment opportunities, including 30 work experience placements and apprenticeships.

Heat is scheduled to be available for spring 2019, with all homes connected by autumn 2020. Once in operation the network will provide low-carbon heating and hot water across the city.

New internal heating systems, as well as a smart metering solution, will be provided for 23 apartment blocks to give residents greater control over their energy consumption. Being connected to the heat network is predicted to offer tenants energy bill savings of between 10% and 25% per year, helping to tackle fuel poverty and reducing bills of vulnerable residents.

The Leeds District Heating Network has received £4M funding from West Yorkshire Combined Authority and Leeds City Region Enterprise Partnership (LEP) through the Leeds City Region Growth Deal – a £1Bn package of Government investment to accelerate growth and create jobs across the Leeds City Region. An additional £5.8M of European Regional Development Funding has been received to assist to connect 1,080 council homes in the Lincoln Green area.

Cllr Lucinda Yeadon, Deputy Leader of Leeds City Council and Executive Member for Environment and Sustainability, explained: "The Leeds PIPES Network will revolutionise the way that heat and hot water is delivered around Leeds, taking advantage of Leeds City Council's previous investment in the Recycling and Energy Recovery Facility.

"This complements our work on air quality – taking old gas boilers out of commission will have a big impact on background NoX.

"Once complete, Leeds PIPES will save thousands of Leeds residents and businesses a significant amount on their energy bills every month.

"We have designed our network with the future in mind and this first phase of works is just the start. In the coming years I look forward to seeing the Leeds PIPES Network grow, making a real difference for the people and environment of Leeds."

Double adjudications the way to go for employers failing to serve a pay less notice

Up until the recent decision in Grove Developments Limited v S&T, employers who failed to serve a pay less notice on time often ended up on the wrong end of a 'smash and grab' adjudication decision, resulting in a requirement to pay their contractor, as well as legal and other fees involved in the process. However, the TCC has now given its blessing to a way for employers to try and gain the upper hand.

In Grove, the parties entered into a JCT design and build contract. Grove was the employer and provided the contractor, S&T, with information regarding the basis of valuation of their work; however, this was out of time. Grove then served a pay less notice (on time), but without providing any further information regarding the basis of valuation. Grove argued that there was no need to send this because it was provided to S&T earlier. The problem was that the pay less notice did not, by itself, set out the basis of calculation that the employer said was due, contrary to the contractual requirement and s.111(4)(b) of the Housing, Grants, Construction & Regeneration Act 1996. Perhaps knowing that it was about to lose that case, Grove attempted to persuade the court that it could argue the "true value" of the work undertaken by S&T in a separate adjudication. The court decided not to follow previous cases in this area suggesting that an adjudication as to value in relation to the same sum as the notice of adjudication would have to wait until a final account. Coulson J held that an employer can start a second (counter) adjudication in order to dispute the value of the contractor's work. This case therefore provides more hope to employers who fail to serve a pay less notice on time. It is likely to lead to a substantial increase in double adjudications.

Prior to the decision in Grove, the central message to paying parties was to follow strictly the payment procedures in their contract; thereby avoiding defending a 'smash and grab' adjudication. While Grove should be welcomed by paying parties, the potential benefits need to be appreciated in light of two important limitations.

It is true that there is a statutory right to launch the 'true value' adjudication before a decision is reached in the 'smash and grab' adjudication. Indeed, a paying party to a construction contract can start adjudication on 'true value' as soon as the party is in a position to do so. However, courts will not refrain from enforcing any sum awarded in the 'smash and grab' adjudication simply because the decision in the 'true value' adjudication is still pending. Therefore, if a paying party leaves it too long, it could easily face the prospect of a summary judgment application to enforce the smash and grab award and need to pay the costs of those proceedings, as well as the award.

The second limitation comes from the time and costs associated with the 'true value' adjudication, particularly if the disputed sum is significant, which will inevitably require the help of appropriate experts and legal advisors. The paying party will normally be the one responsible for bearing those costs regardless of the result of the adjudication. Additionally, as above, the paying party will need to quickly prepare its case or anticipate the need to launch a true value adjudication in advance, and it is often the case that a true value adjudication will take longer to prepare than an adjudication for payment because no pay less notice was served.

Despite the decision in Grove, 'smash and grab' adjudications will no doubt continue and in my experience the strategy in similar situations should always remain the same: employers should always aim to serve a pay less notice within the relevant timeframe. Although those who fail to do so will be provided with more hope following the decision in Grove, this will always be subject to the limitations above.

Mark James, Partner – Dispute Resolution, Coffin Mew

Managing claims and avoiding disputes in Offshore Energy Projects:

The Importance of timely and adequate Contractual Notices

Companies involved in marine construction projects in the renewable energy sector (such as offshore wind farm projects), which operate within complex contracting environments typically involving multiple construction contracts, can be drawn into significant disputes related to time and money claims.

If a dispute arises, the failure to make prompt and adequate notices of claim can be the end of otherwise valid claims. We look at some of the key considerations to keep in mind when notifying claims, and the approach of the English Courts, which would also guide arbitrators deciding English law arbitrations.

Considerations for Contractual Notice Provisions

Bespoke contracts or contracts based on international model forms used in the offshore construction sector typically include notice and time bar provisions in relation to claims. The ability to make a valid claim will depend on the wording of the notice provisions, applying the usual principles of contract construction, and whether they are construed as directory or mandatory.

If parties intend notice provisions to operate as a condition precedent to the making of a claim, clear language should be used stating (i) the precise time within which the notice is to be served; and (ii) that failing timely notice, the party making the claim will lose its right to claim under the clause. An ambiguous provision would not be construed as a condition precedent because, since such provisions are intended to operate in the interests of both parties, that would only benefit one party and would deprive the other of a potentially valuable right to claim an extension of time. However, the phrase "provided that the Subcontractor shall have given within a reasonable period written notice to the Contractor of the circumstances giving rise to the delay", even though it did not contain an express warning as to the consequences of non-compliance, has been held to be a condition precedent, as the courts considered that it made clear in ordinary language that the right to an extension of time was conditional on the notification being given. The relevant event triggering a time bar should be clearly identifiable to avoid uncertainty, especially given the serious effect of a condition precedent clause. Provisions may be drafted to ensure notice is given either at the earliest opportunity upon the occurrence of the trigger event, which would be in the employer's interest, or only once the contractor, having knowledge or means of knowledge of the event, is delayed by the event or reasonably believes it will be delayed.

Typically notices need to be made in writing and care should be taken to comply with any additional requirements as to content and form, as they will be subject to careful scrutiny especially in the event of a dispute. Simply put, a notice should be clear and unambiguous as a recognisable claim. The notice should make clear to the other party that the party making it is contending that the relevant event has occurred and has led to a delay giving rise to a claim. Unless the contract includes specific requirements, the level of detail of the claim and supporting documents may not be an absolute obligation but may depend on what is available to a party at the time of the notice. To put matters beyond doubt, a written notice should provide sufficient details as to the claim by describing the event and the information, as to additional time and/or money claimed, which is available to it at the time the notice is made, and make reference to the contractual provision relied on.

Where no formal notices or doubtful notices are made, subsequent attempts to construe project correspondence as valid notices, if these were not originally intended as notices, or to justify a claim through technical and project reporting, or reliance on the fact that the circumstances of the claim were known to the other party or discussed between parties, will be unlikely to succeed. If the notice provision is a condition precedent, the party seeking to make a claim would not be relieved from the obligation to give proper and unambiguous notice of the claim.

The contractual provisions about the circumstances in which notices are to be given should always be read in conjunction with the provisions regarding delivery of the notice, which are usually included in the so-called "boilerplate" clauses. These provisions are generally mandatory such that notices would only be deemed to be valid if the requirements as to the provision of written notices, the person(s) to be notified, the place and permitted modes of delivery (whether these are to be sent by letter, email, or fax) and the time of deemed receipt, are also complied with. It is essential to check whether any changes to the delivery address have been formally notified. Care should also be taken, if there has been consistent conduct by parties using another address (such as a site office) for correspondence during the project, as this may operate as a waiver of strict compliance with the service provisions. However, when formal notification of changes is absent, the notice provisions must be followed to the letter.

Both parties need to pay careful attention to the notice obligations. The onus is first on the party making the claim, and a failure to serve a compliant notice may be a complete answer to such claims, even if the claims would in theory be valid. However, such provisions typically also stipulate a time limit within which the other party is to respond, and a failure to do so or raise any objections as to non-compliance with these requirements may constitute a waiver of the right to reject the claim in future.

Conclusions

Notice provisions, in particular those which impose strict obligations, are intended to provide commercial certainty in preventing late and unparticularised claims, thus enabling parties to know where they stand as regards claims as soon as possible. Timely notice also gives the other party the opportunity to investigate whether or not to allow the claim, and to consider and possibly mitigate any financial consequences of the claim. Such clauses also operate as gateways to liability and, especially in complex international construction projects, where many claims may arise during the course of the project, care needs to be taken to ensure that notices and responses to them do not fail to comply with the essential requirements of the notice provisions.

Helen Conybeare Williams
Counsel
Haynes and Boone CDG, LLP

SUPPORTING THE CHECKERS - TIME TO RESTORE CONFIDENCE IN CONSTRUCTION COMPANY ACCOUNTS?

My firm is regularly asked to go into construction companies and verify that balances shown in a company's accounts as debtors and work in progress balances are accurately stated and are actually recoverable. If you think about it, any bank lending money in reliance upon a set of accounts needs to be sure that there are no "creative figures" included in the numbers.

Debtors and work in progress form an integral part of the assets of a construction company's balance sheet.These same balance sheets are looked at by credit referencing agencies and insurers to set levels of credit either on a recommended and/or insured basis. So, making sure that a company accurately states the correct value of its debtors and work in progress in its accounts is rather important.

Now you could say that if you are looking at a set of audited accounts this is totally unnecessary. But is it really? Why should we expect a chartered accountant to be able to look at a construction contract and determine whether amounts claimed by the company are actually recoverable?

Are accountants really trained in construction law, quantity surveying and the commercial management of construction contracts? I don't think so. I am sure there must be a book out there on DIY dentistry but you won't catch me doing my own fillings any time soon. So why do we expect auditors to provide verification of balances due under contracts? Every time our industry has a major failure, one of the first things we all look at is the company's last set of accounts. We have a culture of "blame and claim" in the UK so understandably accountants are increasingly unwilling to sign off a set of accounts unless they are completely satisfied that they are accurate.

Construction is a complex sector which relies on many elements coming together on time and on budget to allow contractors to make very modest margins on large turnovers. The model works for as long as margins remain positive and fails rapidly when negative margins burn through working capital at incredible speed.
So, let's suppose you are part of an audit team and you are trying to verify whether a balance which is claimed to be owed on a construction contract should be included in the work in progress figures on the balance sheet. What questions should you be seeking answers to?

a) Has the balance been invoiced?
b) Has the balance been applied for?
c) Is the debtor running an HMRC approved self-billing arrangement?
d) Has the debtor issued a Payment and/or Pay Less Notice?
e) Has the client "billed" in accordance with the contract (form, structure, content, time)?
f) How old is the contract to which the balance relates?
g) How old is the balance?
h) Is the balance in respect of the original contract sum (green light), variations (amber light) or loss and expense (red light)?
i) Who says the amount is recoverable?
j) What evidence is available to back up the claim that the balance is recoverable?
k) Is there a set off, contra charge or cross contract claim that might extinguish the balance?
l) Has the client discharged all pre-conditions pre-requisite to payment?
m) Has there been any material breach of the contract by the client?
n) Why hasn't the balance been pursued through legal channels?

So, if you have answered all the above questions satisfactorily and your PI insurance premiums are up to date, by all means sign off those accounts.

But, if you are not sure, there is one final question to ask yourself:

o) Which construction industry expert have you consulted to verify that the balance is legitimate and recoverable?

The Vinden Partnership works with accountants and funders throughout the UK to verify construction company debtor and work in progress balances.

Peter Vinden is Managing Director of The Vinden Partnership, a leading provider of dispute resolution, corporate advisory and quantity surveying services to the UK construction industry. Peter can be contacted by email at pvinden@vinden.co.uk. For similar articles please visit www.vinden.co.uk.


the INFRASTRUCTURE SHOW 2018
Constructing the Future
KEYNOTE ARENA
hs2 engine for growth
PLATINUM SPONSOR
BARRIER
Environmentally Sound
GOLD SPONSORS
ENTERPRISE IRELAND
hs2
CRETE
GAP GROUP
HIRE SOLUTIONS

UKIS 2018: Building the future of infrastructure

The buzz was all about collaboration at this year's UK Infrastructure Show.

Following a successful inaugural year in 2017, the UK Infrastructure Show was back at the NEC, providing a comprehensive overview of the infrastructure projects and commitments in the UK today.

With more than 1,000 delegates registered, 50 companies exhibiting, and talks from some of the key people in infrastructure, the event represented the best in UK infrastructure today.

Delegates had the opportunity to engage directly with some of the largest infrastructure projects ongoing in the UK, such as Tideway – the super sewer across the Thames, and HS2 – the biggest infrastructure project in Europe, as well as housing providers, local authorities and procurement specialists.

Training zones provided comprehensive advice to delegates, bringing buyers and suppliers together, led by CompeteFor, PASS, tracker, Delta eSourcing and Supply2Gov.

The show was divided into three zones, representing the key areas in infrastructure: Moving, Housing and Powering. Each zone was packed throughout the day with delegates keen to learn the latest in procurement and supply chain advice and opportunities available. It was fascinating to see the overarching reach of infrastructure from utilities, and roads, to networks, skills and business.

With the Government confirming a £600Bn pipeline of public and private infrastructure investment over the next ten years, the sector is buzzing. And speakers talking at the show were keen to highlight that it's not just investment in infrastructure projects that is happening, but a massive amount of effort is also being driven into developing the people who will design, build and run these projects.

With major transformations ongoing and more funding and investment in the pipeline, industry confidence has been boosted and this was reflected in the atmosphere at the show.

One major theme was the longevity of infrastructure, and the need to ensure what we are building today is not only suitable for the future, but adaptable and agile enough to remain useful for future generations.

The keynote arena was chaired by Abigaile Bromfield, Associate Director at Arup, who has worked on some major growth and infrastructure plans and strategies, such as UK Central Hub and Solihull HS2 interchange station, as well as supporting delivery of consents for major housing, regeneration sites and infrastructure for a variety of national schemes.

She spoke about the critical part infrastructure plays in shaping society, how it is the foundation on which our economy is built.

She said: "It's really important that we get together as an infrastructure community to discuss the really big issues that are facing the sector, to help us build the places we want. Infrastructure plays a crucial part in shaping the society of the future, and it's imperative that existing and future infrastructure responds to the challenges that are facing the sector, such as congestion, capacity and carbon issues, smart technology, digitisation, and efficiency challenges."

She continued: "The UK is in a much better place to deliver infrastructure projects; there are better strategies in place, improved governance and resourcing, and better targeted funding and more innovation emerging."

Looking at the Government's Transforming Infrastructure Programme, she was full of praise for the long-term delivery and outcomes of this plan, saying: "We must work together across industry to deliver transformation for our sector."

The indelible mark that infrastructure leaves on our landscape now, and far into the future, was echoed by Lorna Pimlott, HS2 Sponsorship and Policy Director.

She looked at the great examples of infrastructure the country has already


the INFRASTRUCTURE SHOW 2018
Constructing the Future


Lifestyle Checkpoint
TS SIMPLE TO USE


KEYNOTE ARENA
hs2 engine for growth


PREVAIL
Accountancy
Think proactive, get it right first time!
Our full range of services include:
Management Accounting
Cash Flow + Budgeting
Financial Reporting


Roadbridge
SIMPLY WORKFLOW
MOBILE WORKFORCE MANAGEMENT

produced; the Forth Bridge, a National heritage Site that sees 200 trains crossing a day, 100+ years after it was built. "This is the type of infrastructure we need to deliver more of, from generation to generation."

And HS2 is this type of project, she said, "a project I will help build, but my grandchildren will use." Lorna focussed on the development of HS2 and how all involved consider its planning as a legacy, and the real responsibility all involved feel towards getting it right and making it valuable for generations to come. But it is not just about providing a physical legacy, rather a holistic solution, providing new infrastructure to facilitate communities, businesses, and the architects and engineers of the future.

"There is a longevity to HS2 that is not found in many other projects," she said, "the driver of the first trains is currently doing their GCSEs."

Which is why HS2 supports its own strategy to support skills and education for the sector, another big talking point of the day; Brexit and the skills agenda.

The insights offered by the high-level speakers were invaluable for any business looking to succeed in the infrastructure pipeline.

Keith Waller, Commercial Advisor at the Infrastructure and Projects Authority, set the tone for the show, with a speech about how government is helping the industry shape itself, through the Transforming Infrastructure Performance Plan. By setting out broad long-term strategies for infrastructure investment, the government will help the sector plan for long term change, delivering better outcomes by focussing on efficiencies in procurement and delivery.

He said: "The Transforming Infrastructure Performance plan, TIP, is a change programme, it's a change from the narrow focus on capital efficiency to a new focus on delivering better outcomes from our investment in infrastructure.

"With a £600Bn investment pipeline for the next ten years, delivering both social and economic infrastructure from HS2, to utilities, social housing and roads, we have the opportunity to provide a long term change programme, looking at 'how do we deliver better outcomes for society as a whole?'

"Improving efficiency is important, especially within the construction sector, where productivity has remained broadly flat. And if we look at the way we do things, this is not surprising. For example, every delivery to site is moved four times before it's used, that's not productive and wouldn't be seen in a manufacturing process.

"For every house we build we send seven tonnes of waste to landfill - this not a productive, sustainable or an efficient way to build our infrastructure. We need to start doing things differently."

Keith set out the main focus from the government in working with the industry to improve productivity, and deliver sustainable outcomes. He said that smarter delivery of infrastructure from government will help incentivise industry to deliver these long term outcomes.

The skills agenda also made up some interesting talking points throughout the day, with visitors, exhibitors, and speakers all highlighting the need to invest in skills training, and retaining talented youth.

The devolution of power and decision-making to individual regions led to some lively conversations, with lots of talk about opportunities across the UK. UK regions were well represented at the show, with Wylfa Newydd Power Station in Wales, the West Midlands Combined Authority, Transport for the North and the Northern Powerhouse Partnership, all having a significant presence at the show, as well as Enterprise Ireland.

The Midlands was well represented, appropriately enough with the show being hosted by the NEC, as it is proving to be a hub for infrastructure. The development of HS2 is obviously a large factor in this, but it was great to see the Midlands Engine, Midlands Connect and WMCA, all expounding the benefits of the Midlands.

Bob Sleigh OBE, Deputy Mayor of West Midlands and Leader of Solihull Council, discussed the wide ranging opportunities available in the West Midlands, which he called: "the home of infrastructure, but, also home to the traffic jam."

"The West Midlands is the birth place of the first industrial revolution," he said "home to the world's first railway terminus at Curzon St which will be incorporated in to HS2, and the first Iron Bridge, which opened in 1781, with some of the great industrial pioneers living in the area."

Mr Sleigh talked about how an uncoordinated infrastructure approach led to the congestion problems currently experienced in the area, and why this needs to be addressed and a clear plan put in for future infrastructure developments.

Promoting the West Midlands as an area of growth, he said that devolution was leading to the unlocking of growth, allowing areas to concentrate on where they need most development, but it was important to work together for a coordinated approach.

"The West Midlands is UK central," he said, "Birmingham is City of Culture for 2021, Commonwealth Games host in 2022, and greets the arrival of HS2 in 2026. This is the new industrial revolution, and this scale of growth against these timescales is quite a challenge, which industry needs to rise to."

Not to let the Midlands take all the glory, the North continued to show its strong presence, with Transport for the North and the Northern Powerhouse Partnership represented in talks in both the Keynote arena and Moving Zones.

Henri Murison, Director at the Northern Powerhouse Partnership, brought the keynote arena to a close, with his lively speech about the devolution of power and the challenges vs the opportunities this leads to.

The enthusiasm for infrastructure development came across very strongly from the keynote speakers; the energy with which they spoke drove lively Q&A sessions and conversations around the exhibition hall.

A central theme was the need to work together across the industry to deliver transformation within the sector, both in productivity and technology. And having witnessed the infrastructure sector in action, there is certainly a determination to make this happen.

Building green – the future of sustainability in construction

When it comes to sustainability, the construction sector hasn't always been renowned for its forward-thinking initiatives. But are things changing, and what further changes can we expect within the industry moving forward? Dr Aidan Bell, co-founder of sustainable construction company Envirobuild, takes a look at where the green construction landscape stands and the upcoming trends for 2018.

Construction sector change

Buildings are so integral to civilisation that some estimates attribute 50-60% of Greenhouse Gas (GHG) emissions to their various uses. As more and more people accept the detrimental effects of man-made climate change, it makes sense that the construction industry adapts its business approach to incorporate a more environmentally conscious stance.
Construction change is driven almost solely by economics (lack of capital investment due to boom and bust for example), and legislation (notably, health and safety: 80% fewer fatalities per worker occur compared with 1990). There is no point fighting this fact. Instead, we need to work within these confines if we hope to make change in the construction industry. You'll notice that this is a theme running through my predictions of the biggest sustainable changes we hope to see in the 2018 UK construction scene.
Ongoing energy usage has often already been legislated (CSH and BREAAM) and has an economic driver of decreased operational costs. There have also been indirect benefits gained through the greening of the electrical grid, with kg of CO2/kWh fallen by nearly 50% since 1990.
Ongoing energy is still the largest proportion of a building's lifetime energy use. A domestic property used to have around 20% of the total lifetime energy embedded within the construction phase, whereas today that embedded energy usage is 40%. As efficiency improves, this is projected to move beyond 50% and therefore a holistic approach to building design becomes more important.

The biggest trends this year

Prefabrication

Prefabrication is important for sustainability in the embedded energy of construction. It takes a lot less energy and fewer mistakes are made, saving on energy consumption in the long run. China provides a good example of what can be done in terms of efficiency. The Mini Sky City in Changsha took just 17 days on site to build.
Closer to home, First Base's announcement of the Silvertown development is a good example of construction using a modular strategy. It's the tallest modular building in Europe, designed by HTA Design using Tide Construction and Vision Modular Systems. And it isn't just large tower blocks where this works; Berkeley has a target of 10-15% of homes being built prefabricated, whilst Your Housing Group announced a joint venture to create thousands of prefabricated homes.

On-site production innovation is on the increase, with examples such as MACE's radical factory at Stratford proving that the UK industry can still pioneer and is capable of moving forward to incorporate sustainability in all aspects of construction.

Building Information Modelling

Building Information Modelling (BIM) has the potential to include information about embedded energy of materials. Currently, this is not easy to track. However, with the available information put simply for architects and other stakeholders to handle, this should also decrease inefficiency between the office and site through better communication. The use of BIM helps improve productivity as projects progress because all information is contained in a single location. BIM tools are based on 3-D models, which helps planners avoid design clashes. Some companies are exploring adding dimensions such as cost, time and resources in order to smooth project management in the execution phase and to facilitate maintenance during operations. The two latter could work towards increasing the productivity of the construction sector as a whole, which has remained almost stagnant for 70 years.

'Performance Gap'

There is an acknowledged performance gap between efficient building design and efficient building use, with up to 200% extra energy used compared to design. BREEAM has proposed a Verification Stage to mitigate this in commercial buildings.
This change should increase the focus upon end-user education (30-100% of extra energy), drive up construction standards (20-60% of extra energy) through increased QA, create better subcontractor coordination, as well as working towards providing better commissioning and technology handovers.

HVAC

The biggest gains in terms of improving ongoing energy usage are to be found within the incremental change of temperature control.
Although not glamorous, we expect to see these savings driven by continuing improvement of insulation in roofs, walls and windows along with heat recovery systems.
Incremental changes include new algorithms driving efficiency of usage in different building types (particularly those without the scope to be engineered in full detail), decreasing complexity of maintenance and lowering water usage.

Material Longevity

We're seeing building control starting to enforce the expected lifespan of buildings (50-year lifespan in EU codes) along with greater ease of recovery. Prefabrication also allows significantly

easier material retrieval.
There is also an increasing trend towards the circular economy with many alternative building materials with higher recycled content like recycled plastic lumber, capturing market share.

On-site Generation

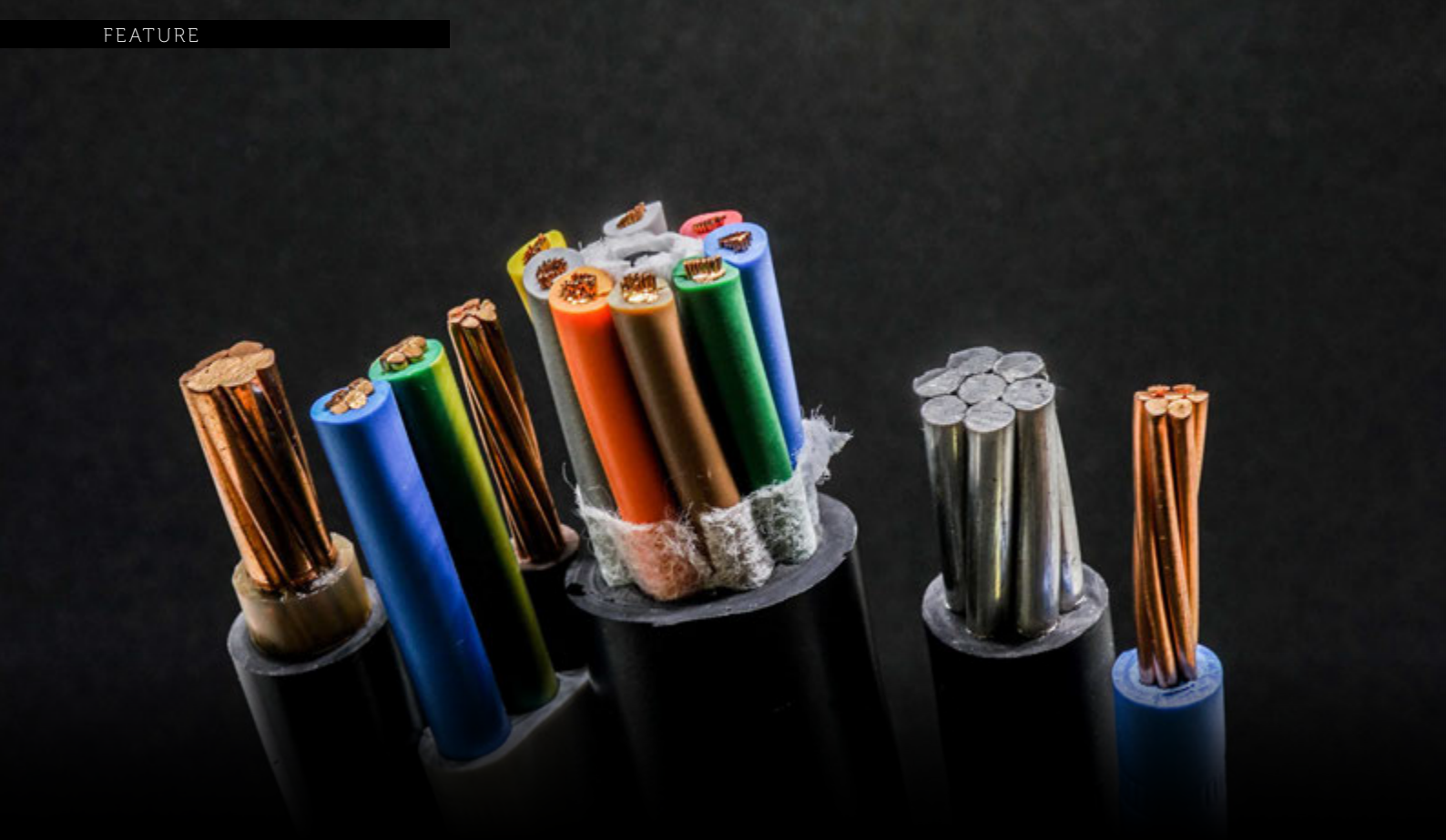
The Merton Rule continues to drive on-site generation, which is helped by the continuing fall of solar prices. The other gains are being made by the increasing use of CHP within district heating systems (eg Battersea, Citigen or Kings Cross), which can save 25% compared to standard gas.

Water Usage

Water usage could have an entire article of its own as it plays such a prominent part in green construction trends. Notably, we've seen an increasing interest in the use of grey water and dual plumbing systems, and will continue to do so in 2018. Greywater reuse provides benefits in the water supply subsystem by reducing the demand for fresh clean water. Similarly, dual plumbing works as two separate water piping systems which allows reclaimed water to be delivered to residential or commercial buildings.
Additionally, the increasing and correct installation of low flow toilets could save millions of litres of water a year. Similarly, vacuum toilet technology could become more widespread, reducing water usage by up to 75% as well as offering benefits to hygiene and design flexibility. This is just the tip of the iceberg in terms of the potential of water usage sustainability.

Moving forward

It's clear that there is still a long way to go in achieving sustainability excellence in the construction sector.
Despite this, we are seeing both incremental and larger positive steps in the right direction across various aspects of the sector, as discussed.
As we move forward, I'm confident that these are only going to become more prominent as customs and mindsets adapt to the changing landscape of construction to embrace sustainability.



18th Edition Intro: What Electrical Designers and Electricians Need to Know

If you are involved in the electrical building industry you will no doubt be aware that the 18th Edition to the Wiring Regulations (BS 7671:2018), is due to be published on 1 July 2018, and will come into effect for all installations designed after 31 December 2018.
It is essential that anyone working in this area is familiar with the regulations, and any changes that are distinct from the 17th Edition, BS7671 - Amd 3.
Details are subject to change up to the final publication of the regulations, but here we present some of the changes and what we know about the 18th Edition so far.

Energy efficiency

One of the most significant changes in the 18th Edition is the addition of regulations pertaining to energy efficiency. It was originally thought that this would form a whole new section (Part 8) of the regulations. It was confirmed in February 2018 that this section would not be added but a new entry in the Appendix (Appendix 17 – Energy Efficiency) will still be included.
This is the first time energy efficiency considerations have been set down in the regulations. Designers/installers will have to consider how to get the required performance and meet all safety standards for the lowest consumption.
The effects could be minor for some and substantial for others. Draft proposals, include allowing clients to specify required energy efficiency measures across a number of different areas, including lighting, electric vehicles, metering, and cable and transformer losses.
This is certainly one area where the final version will be of great interest to everyone.

Protection against electric shock

There are a number of additions and changes set to be included in Chapter 41: 'Protection against electric shock'.
Drafts now state, for example, that "metallic pipes entering the building having an insulating section at their point of entry need not be connected to the protective equipotential bonding".
This should lead to a reduction in both testing and installation work, due to the fact that these connections were formerly mandatory.
Regulation 411.3.2.2 is being changed in relation to automatic disconnection in case of a fault. Socket-outlets rated up to 63A must now disconnect at 0.4 seconds instead of the 5 seconds previously set down in the 17th Edition of the regulations.
Where socket systems with current ratings of up to 20A previously required 'Additional Protection' under Regulation 411.3.3, this maximum range is now being extended to 32A. All socket-outlets up to this rating and all mobile equipment for outdoor use up to

the same rating will need additional protection via an RCD, with a rated residual operating current not exceeding 30mA. There is an exception to omit RCD protection where, other than a dwelling, a documented risk assessment determines that the RCD Protection is not necessary (This was a change from the draft but has been confirmed in future documentation presented by the IET).
A new regulation is also being introduced that requires circuits with luminaires to be provided with Additional Protection. Again, this will be by means of an RCD with a rating not exceeding 30mA. Essentially, this means that more complicated and costly protective devices may need to be considered.

Protection against voltage and electromagnetic disturbances

This is covered in part by Clause 443 and, according to the Institution of Engineering and Technology (IET), this clause is likely to get a major overhaul.
Instead of considering whether protection against transient overvoltage is required, the new provisions will consider how any overvoltage could affect several different elements.

Transient overvoltage would have to be protected against where it affects:

- Human life or health (such as in medical and healthcare facilities)
- Public services and/or cultural heritage facilities (a loss of public services, museums, large-scale IT provision)
- Commercial and industrial interests (such as manufacturing, banks, hotels, farms and commercial centres)

In other cases, risk assessment will need to be carried out. In addition to the examples above, there is an exemption on the need for risk assessment in single dwelling units where certain criteria are met.

Protection against thermal effects

Protecting against the dangers of fire is an obvious focal point for electrical regulations. Chapter 42 is intended to provide protection for people, property and livestock against thermal effects caused by electrical equipment. As well as the risk of fire, this includes burns and overheating.

A new requirement may be introduced regarding the installation of arc fault detection devices (AFDD) to protect against the risk of fire initiated by an arc originating from a fault current. This is due to the fact that, while RCDs are able to detect earth faults and therefore reduce the risk of fires, they cannot mitigate the risk of fire due to series or parallel arcing across live conductors. This stipulation demands more details. It may be the case that space requirements in boards will have to be increased to account for the physical space requirements of AFDD units.

Drafts and future changes

There will be numerous other things to look out for, including additions and amendments to the installation of cables, earthing arrangements and periodic inspection and testing.
It's worth restating, however, that nothing is final until the 18th Edition is published in July 2018. The above information is based on access to draft versions but these are subject to change in the final document.

DRIVING TOWARDS NEW SUSTAINABILITY CHALLENGES

With the government investing in creating a sustainable UK in which we'll all be living in energy-efficient new homes and driving around in electric vehicles, Chris Evans, Deputy Managing Director of engineering consultancy Rolton Group, looks at what the future holds for built environment professionals working to construct this brave new world.

As 2017 drew to a close, the government made two major announcements that are set to shape development in the UK into 2018 and beyond. Measures to boost housing production, unlock land for development and remove stamp duty barriers to boost sales to first time buyers dominated the headlines following Philip Hammond's Budget announcement in November.

While the government has reaffirmed its commitment to achieving its new homes targets, what is less clear, however, is the way it intends to meet its commitments to tackle climate change – and this leaves us in a position of uncertainty over the future of the country's infrastructure.

The Chancellor's speech drew the spotlight away from the launch of its Clean Growth Strategy by the Department for Business, Energy & Industrial Strategy just six weeks before, which set out proposals for decarbonising all sectors of the UK economy through the 2020s. The document explains how the whole country can benefit from low carbon opportunities – making homes and commercial buildings more energy efficient, detailing a shift to low carbon heat sources, and paving the way for more electric vehicles (EVs) and an industrial transition to clean fuels.

These 'clean growth' themes were picked up by Mr Hammond in a series of Budget policies designed to improve air quality and promote electric vehicles. Further investment was announced in EVs, charging points and a new £220M Clean Air Fund to tackle pollution hotspots in England, as well as tax increases affecting the sale of new diesel

cars that do not meet latest emissions standards.
However, what was presented as "an ambitious blueprint for Britain's low carbon future" in October 2017 became somewhat diluted by the following month. The Chancellor confirmed there would be no fresh funds for new renewable energy projects levied through electricity bills until 2025, and little detail was offered on the future of the country's tax on carbon dioxide emissions from the power sector. The disconnect between proposal and policy has unsurprisingly left many industry professionals disappointed by the government's lack of ambition and clarity for the UK's low carbon future.

The sand foundations beneath the EV evolution

With the government tasking the construction industry with building 300,000 new homes a year by the middle of the next decade, developers should be asking themselves if they are fully prepared for the little-acknowledged impact EVs will have on the power supply for residential developments.
We're already seeing changes in energy supply and demand impacting on the infrastructure development required to support this transformation in our personal transport. As a result of private investment and a sustained push from government, the UK network of EV charging points has increased from a just few hundred in 2011 to more than 12,000 today. The November Budget announcements paved the way for this network to grow further, with £400M investment committed to improving the charging infrastructure for EVs and another £100M in subsidies to encourage consumers to buy EVs.
The challenge developers face is to use new technologies, engineering, and experience to deliver smart solutions that meet the evolving needs of homeowners – and that means having a robust, future-proof energy infrastructure in place. The government has made its commitment to EVs clear through investment in related R&D, and its announcement banning the sale of solely diesel and petrol cars by 2040 means the clock is now ticking for the developers and policymakers responsible for shaping our built environment. Alarm bells have already been ringing in some quarters as consumer demand for power continues to grow. As more and more owners seek to plug in EVs to charge at home, the National Grid has warned that people may have to make a choice between boiling a kettle or charging their car. Given that the charging of vehicles will often coincide with peak usage of power within the house itself – when the resident returns home from work and they are using other devices, ie: kettles, hobs, etc – there is clearly going to be power supply issue for individual homeowners. With the potential of streets full of electric vehicle owners all plugging in simultaneously in years to come, we could see more widespread implications as our energy demands outstrip supply, including a greater likelihood of regular brownouts. This is bad news, not just for residents, but also for businesses which require greater energy security to meet the UK's bold economic growth plans.
What we need to deal with is to ensure overloading the grid does not occur because of people's actions. For example recently, due to a gas outage, electric heaters were handed to consumers which subsequently caused the local transformer to blow – not a positive outcome!

A sustainable solution

Forward-thinking developers are starting to work towards energy solutions that marry meeting the UK's housing shortage with the growth in EV charging. The Greater London Authority, for example, now requires that all new housing developments include 20% active EV charge points, with an additional 20% passive capacity to allow for future connections.
Progressive housebuilders have an opportunity to differentiate themselves by installing charging points at new developments – this could boost house prices and sales, raise their brand profile and help meet sustainability targets.
Furthermore, installing communal charging areas – for example, in high rise city centre developments – could also provide an ongoing source of income. In time, there is even the possibility of EV batteries using the shared facility being combined as part of an energy storage solution (Vehicle to Grid system), providing an income stream by selling energy back to the grid at periods of peak demand.
The anticipated rollout of charging points to meet the needs of the increasing number of EV owners across the UK will bring to a head a fundamental challenge in terms of availability of power. The continuing influx of EVs is set to put increased pressure on our already overloaded National Grid. Whilst theoretically, the grid's capacity to provide the increase in power required for EVs can be facilitated in the short term, over the long term this poses more of a challenge. Furthermore, higher EV uptake in certain areas combined with lack of infrastructure investment has the potential to create imminent and significant local challenges.
One solution for developers could be the inclusion of decentralised energy generation, allowing less reliance on the UK electricity grid. Installing off-grid renewable power supply solutions, such as green waste to energy plants that utilise Advanced Conversion Technologies like gasification and pyrolysis, PV or wind turbines that would not only facilitate the power requirements for EVs (if not completely, then at least in part depending on the energy generation method selected) but would also secure future energy supply for a specific site. In addition, such renewable energy sources would go towards meeting developers' and international environmental targets, minimise landfill and maximise renewable energy generation.
It is a particular pity, therefore, that the government chose not to take the opportunity of the November Budget to give further clarity on how it is planning to bring new renewable energy projects forward, especially for less developed technologies like tidal and waste to energy schemes.
Indeed, by announcing no new support for projects post-2020 and a freeze on carbon taxes, the UK government seems to be turning its back on the renewables proposals it outlined in the Clean Growth Strategy just the month before. This lack of commitment could see a hiatus in much-needed infrastructure development, which could derail the whole plan before it even gets off the ground.

Outlook for 2018

One of the key boasts of The Clean Growth Strategy is its intention to escalate our economic growth in every sector whilst also ensuring that the UK continues to lead in the sustainable energy arena. It was quite rightly labeled as "ambitious" – and the good intentions to develop a comprehensive set of policies that aim to accelerate the pace of 'clean growth' are admirable.
The headlines depicting a sustainable UK in which we'll all be living in energy-efficient new homes and driving around in electric vehicles are only looking at the tip of the iceberg. If we are to achieve the government's aim to accelerate the pace of 'clean growth' - ie: deliver increased economic growth and decreased emissions – we cannot continue to ignore the infrastructure improvements required to cater for the paradigm shift in the UK's energy landscape going forwards. Our transport, energy and communications networks are becoming increasingly and inextricably linked with developments in the built environment, and a cohesive UK-wide strategy is vital. Cross-sector collaboration between government and industry is essential to ensure the UK continues to grow and flourish in the emerging brave new sustainable world.

Sustainable surfacing for roads and runways

Sustainable answers are everywhere within the construction industry, and the sector can provide a great contribution to reducing carbon emissions and hitting waste targets.

In this article we speak with Bruce Spencer-Knott, Director, Minster Surfacing, about sustainability in road surfacing.

Minster are one of the first companies in the UK to be recycling waste material to resurface roads using Foambase, which has been used in Canada, Australia and South America.

Bruce: I'm the first to admit that road surfacing isn't the first sector that comes to mind when you think of sustainable construction. Sticky, tar-coated aggregate, diesel pumping HGVs and large, filthy machines seem to be a staple of the industry, but we've proved that it doesn't have to be that way.

I've been working on the roads since I was 18 years old. Back then, it was a hard and thankless task with little regard for health and safety, carbon footprints or sustainability. Inspired by my dad's forward-thinking attitude and having moved from the roadside trenches to running a company with around 40 employees, I've been doing my bit to bring the trade into the 21st century.

Today, we're a major supplier to the Ministry of Defence, local authorities, major developers and local suppliers in the Lincolnshire area. We work on multimillion-pound infrastructure projects and we repair runways and refueling yards at RAF stations around the country.

While we work on a wide range of projects, we're always looking for new ways to improve our service and the way we work to make it cleaner, safer and more affordable and our biggest innovation so far has been in recycling.

Working with sister company, Alliance Recycling, Minster Surfacing is one of the only companies in the UK using technology that enables us to recycle and reuse the material we remove from old carriageways to create new road surfaces and binder course products. Using Foambase technology, we're able to recycle 50% of the material we remove from roads, including material containing hazardous coal tar which costs councils £100 per tonne to send to landfill. Even better, the production of Foambase produces 32% less CO2 than traditional asphalt.

As developers and public bodies become more conscious of their social responsibility and the need to reduce their carbon footprint, more and more clients are seeking out our green techniques which also cut their costs. Last year, we recycled 75% of the 8,000sq m of concrete we replaced at RAF Waddington's refuelling yard and we're currently using recycled product to create the newly designed entrance to RAF Brize Norton, where we also have a 24/7 runway patch repair service.

Our mobile batching plants enable us to recycle and reuse the material we remove on site and we're planning to increase our Foambase production further with the addition of a new plant at our headquarters in future, but there are other ways in which we're cutting waste.

We've recently been issuing our delivery drivers with QR codes which can be scanned by the team when they arrive on site. This allows us to use GPS to accurately log where each delivery of material is used, helping us with quality control. Because every surface is tested before we move on, if there are any issues with quality, we can quickly and easily identify the areas which need relaying without needing to remove any surfaces which are up to standard. This reduces waste and disruption and, again, we can recycle the material we remove.

Another innovation is our recent purchase of a new widener, which will enable us to repair and strengthen road edges faster, greener, safer and with less disruption that other methods. We'll be the first company in the country to use the machine, which is already improving roads in Eastern Europe, the United Arab Emirates and the USA.

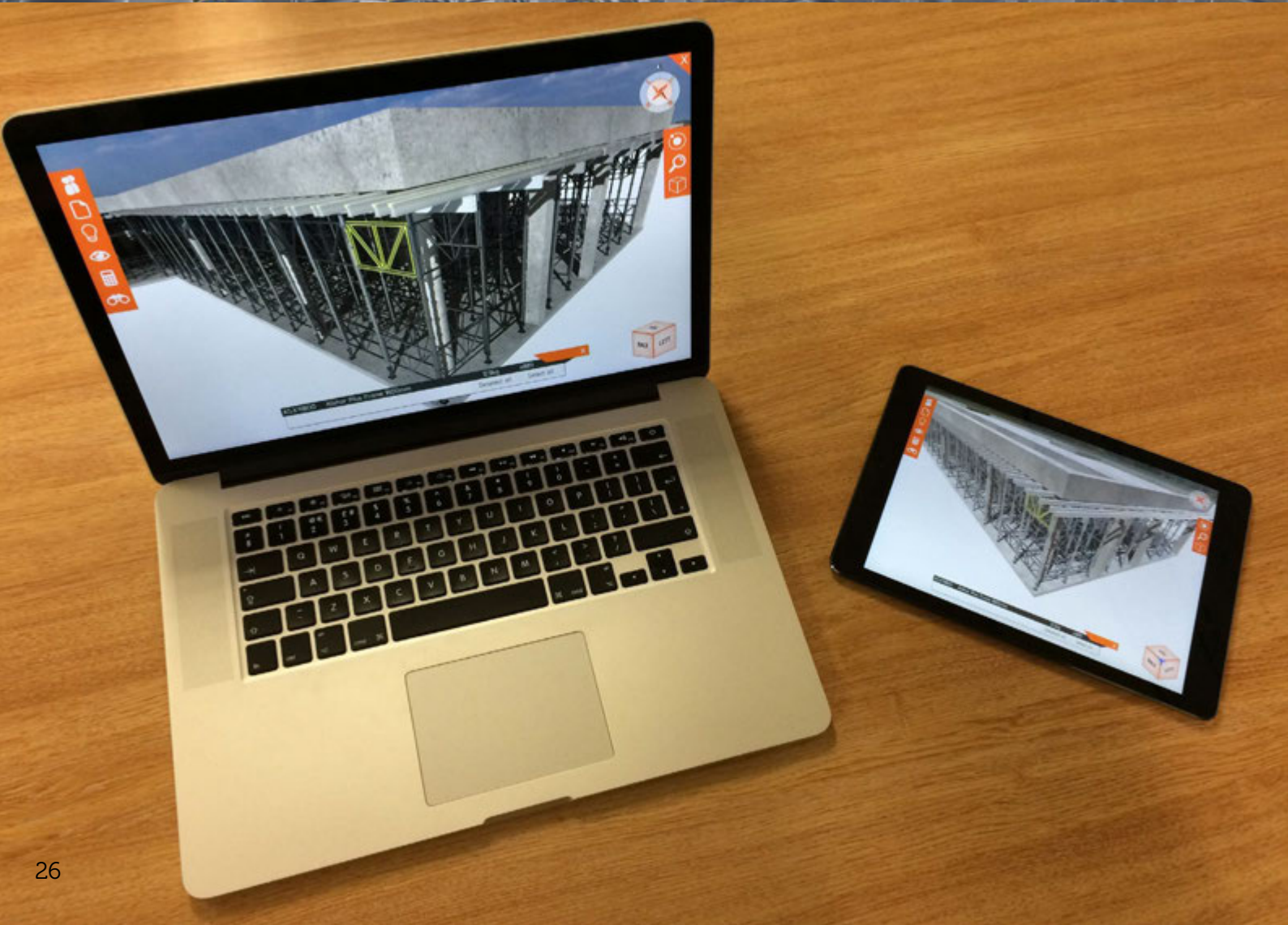
There seems to be a preoccupation within the road surfacing sector to continue working as we have done for decades, with backbreaking, dirty work being all too common throughout the industry. Road surfacing will never be glamorous, but it can be made cleaner, safer and more efficient by embracing technology and looking for new techniques which improve upon the old.

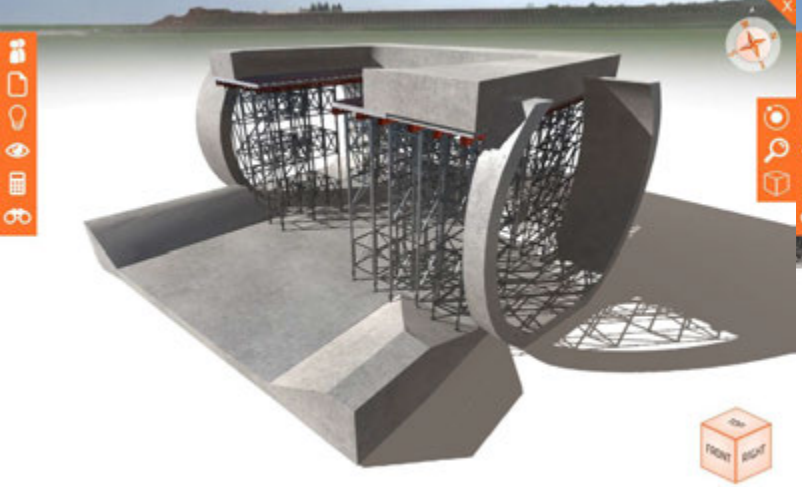
There's never been a better time to start winning construction tenders

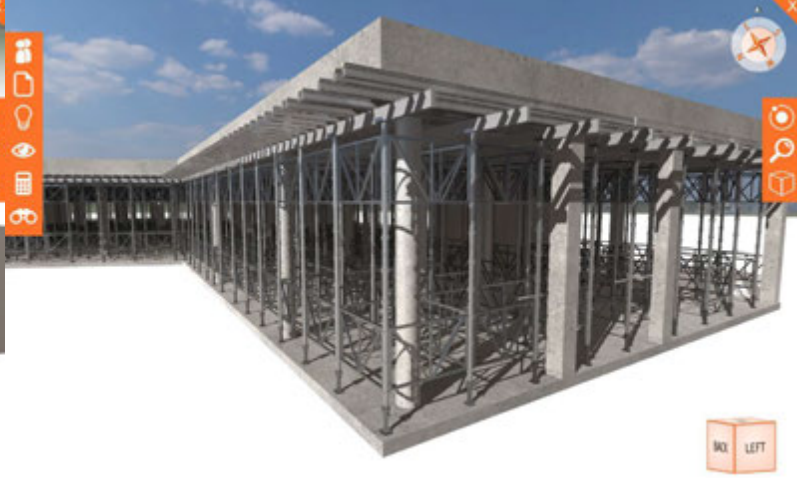
Become the superhero of your company today!

Register for FREE – www.supply2govtenders.co.uk


RSX30002 Rapidshor Brace - Short Adjustable 8.09kg x94
X
Selected brace extension set to 1146mm
Select extensions greater than 500 mm
Deselect all
Select all
FRONT







RMD KWIKFORM: THE ROLE OF TEMPORARY WORKS IS CHANGING

In recent years, the roles of suppliers have changed as client and main contractors require more visibility and data from their construction sites. Due to the requirements of BIM and the adoption of digital processes, it is no longer the role of a temporary works business to simply provide formwork and shoring

At RMD Kwikform, it is now our responsibility to interact with the entire supply chain to support the overall method of construction, including its design and processes.

Simon Dowd, Major Project Manager at RMD Kwikform, said: *"We recognised some years back that the industry would move away from 2D drawings. It has been a slow trend; but as we work closer with customers, particularly on larger infrastructure projects, it's clear that 3D drawings should now be standard practice. We quickly learned that in order to service our customers, and by extension their clients better, we must evolve and work smarter alongside them."*

RMD Kwikform has since evolved its 3D capabilities and designed solutions to automate highly realistic rendered 3D models, using an in-house developed visualisation tool, LocusEye. These models can be viewed on a PC, iPad or mobile phone, providing customers with a realistic model of how any solution looks on site. Flexible in functionality, LocusEye allows for changes to be made instantly and for solutions to be re-examined.

Simon Dowd, continues: *"The industry needs smart solutions, and with the growing adoption of BIM and the mandatory aspect of it in major projects, our customers are now demanding IFC BIM compliant models of our temporary works solutions. In response to our customer's needs, we're now building, automating and converting 3D AutoCAD models into IFC BIM compliant models. Through this system, on site clashes can be detected plus data can be captured to better manage equipment and plan construction phasing."*

RMD Kwikform's new visualisation tool - LocusEye - has already been used across a number of national and international projects; including the UK's Mersey Gateway and University College London Hospital, Australia's Ventilation Facility and a number of Access Towers in Saudi Arabia.

"Some of the feedback we've already had is around the responsiveness of the models and how easy they are to interrogate. However, more importantly we've seen how much of a positive impact this has had in allowing main contractors to visualise the overall management, build ability, and future planning of the site.

"Any construction site needs to be flexible; it's just the nature of the job, the site demands change. With BIM compliant models, and through LocusEye, our customers are able to see what impact said change will have on a site. How does this change and affect planned phasing; how does it impact delivery of equipment? As the models are already embedded into the BIM model, our customers are able to manipulate processes, change phasing, and target specific elements of any model. This puts the control back in the contractor's hands and grants complete visibility.

"With BIM compliant packages, and the added advantage of LocusEye, customers can use their own tacit knowledge to look at practicalities for delivery, erection and dismantling of kit; where access and egress can be placed, and how the temporary works solution accommodates for other works on site. It's all about the better management of the site in order to ensure even safer working practices, and ultimately reduce time and costs."

Formwork, falsework and specialist solutions, including façade retention, are all part of the RMD Kwikform armoury, supported by our comprehensive product range and ability to design and supply unique supporting equipment.

For information visit:

www.rmdkwikform.com

Waste not, want not

With contractors under increasing pressure to reduce their levels of site waste, as well as facing scrutiny over the sustainability of their practices, the need to adopt more efficient methods and materials within the supply chain has become an absolute necessity. Robert Clark, Head of Business Development at offsite light gauge steel manufacturer Fusion Building Systems, discusses the opportunity.

The traditional UK construction industry produces more than its fair share of waste – a staggering 32% of all landfill in fact. Every year over 400M tonnes of materials are delivered to site and of that, around 60M tonnes is waste – often down to over-ordering or damage. DEFRA commented in its Digest of Waste and Resource Statistics report in 2015 that while some efforts have been made to address and reduce this, very little has really been achieved in recent years.

This isn't the case (broadly speaking) for offsite methods of construction. Because products arrive on site pre-manufactured, the waste which is typically generated through the production process is contained and managed by the manufacturer, and recycled. However, depending on what type of offsite method you use, you may still need to factor in some level of on-site waste.

If you're using a timber frame structure, your site waste will be considerably less than if you were building using traditional methods – it would include, for example, the protective plastic packaging used during transit, as well as the stillages and the timber props for the assembly process. For projects constructed using volumetric modular systems on the other hand, you're enjoying having the finished product delivered to site with all fixtures and fittings in place, so site waste would be kept to a minimum.

The other offsite construction option is panelised light gauge steel. This solution produces virtually zero waste on site – and actually very little in the manufacturing process too. Any steel offcuts which are collected in the very small bins in our factory for example, are simply bent through 90 degrees to make brackets, or melted down and recycled. Panels also don't need to be shrink-wrapped for their storage or journey to site, and reusable materials are used in the assembly process.

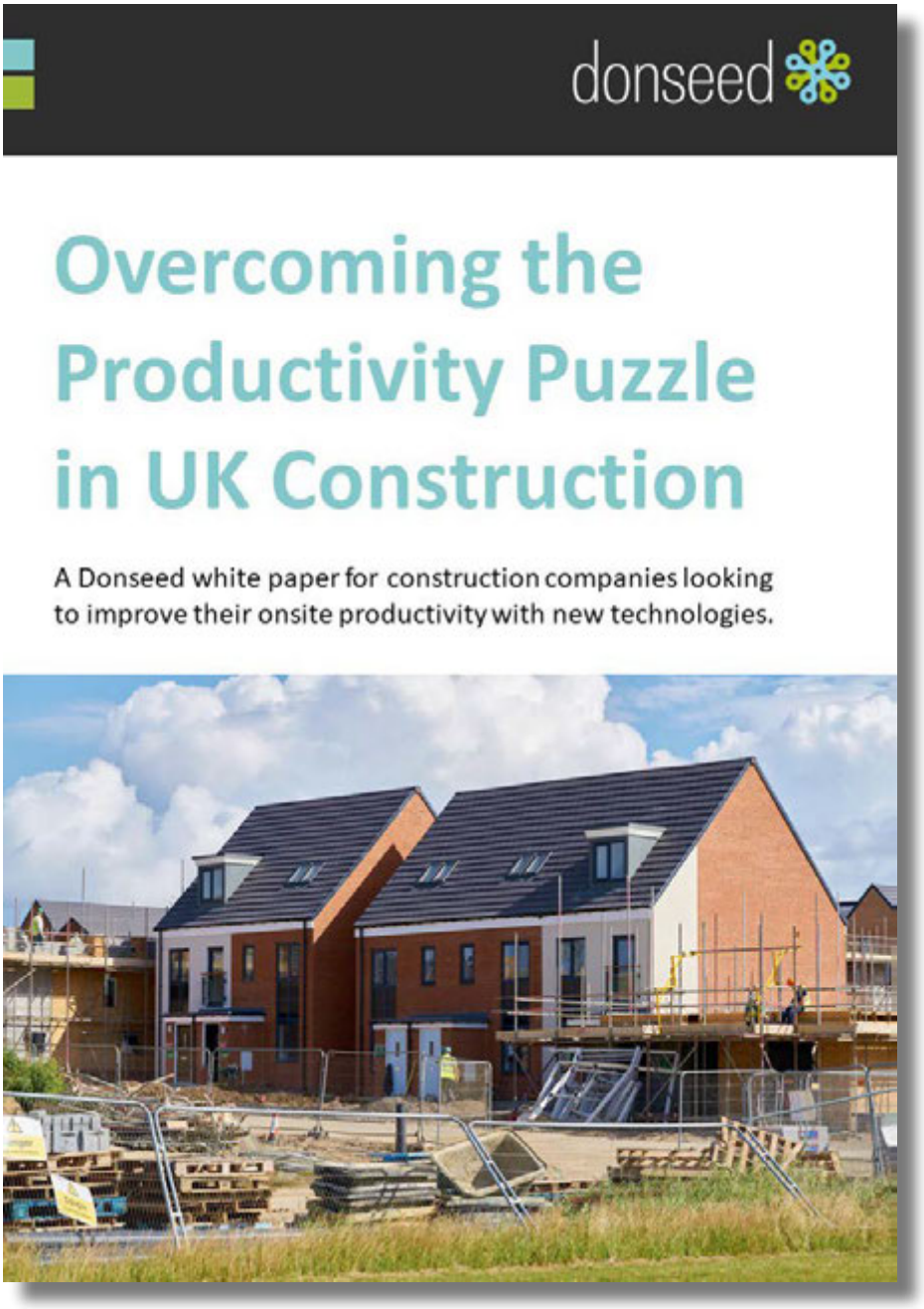
The sustainability discussion encompasses more than material waste, however, and it's fairly standard practice now for large developers and contractors to scrutinise their supply chain on factors such as the locality of their workforce, or the carbon footprint of their logistics operations. Local authority contracts now insist on local employment, but how are suppliers addressing this when their work requires skilled craftsmen?

Well, again the offsite approach can offer many benefits. Fewer personnel are required on site compared to traditional methods of construction. This is regardless of which system is being used because the labour required for the manufacturing process is located back at the factory. For our projects, we typically only have three or four skilled erectors on site – and these are people who will lodge locally until the contract is complete to save on unnecessary travel. If more personnel are required, we'll recruit locally, having our trained erectors working alongside them to ensure the job is completed to the high standard our clients expect.

In terms of transport, we've calculated it takes five times fewer lorry loads to transport our light gauge steel panelised structures to site than it would for the equivalent requirement for traditional building materials to be transported. This not only has a considerable impact on the carbon footprint of the construction process, but is also significant in managing the logistics of the build programme, especially when working on a site with restricted access – not least because of the reduced impact on local residents.

Finally, a conversation about sustainability in construction can't be complete without reviewing the environmental credentials of the finished product. But, whatever new technology is installed, however advanced the performance of the materials are, or whichever energy self-generation systems are specified, a building constructed using offsite methods will always have a far better 'ecohouse' performance rating than one built using traditional methods.

This is because the overall credentials of a property are calculated based on mass, rather than efficiency – and for that, offsite systems will always top the sustainability charts.



NEW WHITE PAPER:
Overcoming the Productivity Puzzle in UK Construction

A new **Donseed white paper** has put the spotlight on the productivity puzzle facing the UK construction industry and highlighted the need for further technology adoption.

The productivity issue is a significant one confronting all corners of society today and this latest white paper details how construction companies can work together to save time and resources by using technology.

Written by the team at Donseed, who provide leading biometric workplace management solutions to the construction industry, the white paper considers the challenges facing construction companies as well as the multiple opportunities and benefits that further technology adoption in the supply chain could bring.

What is productivity? Productivity is the measure of the efficiency of a person, organisation, sector or country, calculated by the rate of output per unit of input. Typical inputs are labour and capital, and these, along with inputs such as technical or organisational innovation, form 'total factor productivity' (TFP). A partial measure of productivity is 'labour productivity', which measures output per worker or number of hours worked and is a measurement of the efficiency of the workforce.

The white paper suggests that while national questions may require long-term visionary thinking from government, construction companies can do a lot today to improve their own fortunes.

The white paper focuses on:

- **The outlook for construction companies**
- **Why construction need to keep-up**
- **New ways of working smarter**
- **The right level of decision-making**

Download the white paper for free here

CompeteFor®

In association with Supply

The National Supply Chain Portal for major buying programmes

www.CompeteFor.com

CompeteFor is supported by

Transport for London

Crossrail

nationalgrid

hs2 engine for growth

CARILLION EIFFAGE KIER

London Business Network

Tideway

Brent

SOREC

Harrow COUNCIL LONDON

SIG INFRASTRUCTURE

Discover more UK construction contracts & project leads with Tracker Intelligence

Bringing buyers and suppliers together for over **30 years**

Try Tracker for free:

www.trackerintelligence.com/ukc

tracker

Sherford, leading the revolution in sustainable development

Having spent over two decades in planning, and located in one of Devon's most picturesque areas, Sherford is set to be a revolutionary £1Bn community, eventually home to over 12,000 people. Its development is being led by the Sherford Consortium, a network of national, award-winning homebuilders, which includes Bovis Homes, Linden Homes and Taylor Wimpey.

More than just a new housing development, Sherford is set to have its own unique way of life, run by its residents, for its residents. It will be a town which integrates into and enhances the surrounding environment, while also providing all the amenities needed to support a modern new community including 5,500 high-quality homes, over 80,000sq m of retail space, three primary schools and a secondary school, as well as a 500-acre community park. It will also provide a range of community facilities including a leisure centre, town hall, health centre, library and youth centre.

Sustainability has always been at the heart of the project, and its development has advanced through close consultation and collaboration with the public, local authorities and professionals, all of whom worked together to help shape the vision of Sherford. Creating a sustainable, high-quality, inclusive and diverse community has been a key driver of the project, not only to support the economic growth of the local area, but also to ensure that it will be one of the most environmentally friendly areas in the South West.

The shared objective has been to create a community which not only respects and enhances the surrounding environment and its diverse wildlife, but also enables and supports sustainable methods of construction.

The first residents are already benefiting from sustainable ways of living, including significantly reduced energy supply requirements and energy-efficient homes.

To date, the Sherford Consortium has invested more than £1.6M towards eco-friendly initiatives onsite, so far. Although still in the first phase of development, as part of their commitment to sustainable building and construction practices and initiatives at every level, the Sherford Consortium is working with the local environment during each development phase. This includes looking in detail at the topography and geology of the land, and implementing systems which support the natural landscape, such as sustainable urban drainage systems, wildlife corridors and greenways, while also ensuring residents have access to ample amounts of green space and outdoor areas.

Sustainable community infrastructure

Sherford was progressed to meet not only the needs of the local housing market, but also the demand for sustainable communities on a national scale. Sherford has been planned and designed to support social cohesion by offering a high quality of life, while making best use of natural resources and the local landscape.

It provides everything needed to support a sustainable community infrastructure, providing a range of high-quality homes and access to jobs and services, as well as offering connections to extensive open and green outdoor space, helping to encourage healthy, active lifestyles.

Work has also begun on the town's first outdoor spaces and facilities, including multi-use games areas, sports pitches

and tennis courts, as well as play areas and allotments – all of which will be available within walking distance of Sherford homes.
Additionally, the town is designed to reduce car use, with the inclusion of cycle, pedestrian and public transport links throughout the community.

Developing the Masterplan

The original Sherford Masterplan was developed over two decades ago. Following an extensive review process in 2017, it was determined that some changes were necessary to enable Sherford to become more sustainable and to make it easier to integrate innovative technologies across the site. For example, the amended Masterplan includes more effective solutions for dealing with surface water. A new sustainable drainage solution is proposed, which will see the layout of the town alter to bring spacious green fingers of land up through the site, including residential areas, which will act as natural drainage zones.
Within the first phase of construction, 3.5 miles of sustainable drainage systems have also already been placed, which mimic nature in the way that rainwater is managed.
New wildlife habitats have also been created across the town, which includes the construction of extensive wildlife corridors. These form a network of green spaces connected across the site, enabling wildlife to thrive, while encouraging biodiversity. Additionally, 2.3km of existing hedgerows have been carefully transplanted to save important seed banks.
An impressive 400m long vertical planted wall has also been constructed at the main entrance to Sherford. This has been planted with over 30,000 plants, including climbing daisies, ivies, gorse and ferns that have been transplanted from the existing site during construction.
Sherford's sustainability credentials have already been embraced by residents, businesses, contractors and the public. Its development will bring considerable new business and commercial opportunities to the area, injecting £2Bn into the local economy, with approximately 5,000 jobs expected to become available within the new town's shops and businesses.
Materials procurement is also monitored for sustainability, and wherever possible, materials are sourced from South West suppliers – supporting the local economy and business landscape.

Holistic approach

The commitment to sustainability is holistic, extending to the Sherford workforce as well, with a revolutionary new £370,000 Skills Training Centre currently being constructed onsite. Designed to help address the skills challenge on a local and national level, the training centre will engage military veterans, apprentices and local contractors, as well as those currently working at Sherford, boosting manual skills by providing training and experience across a number of major construction trades.
As well as winning funding from the CITB, the development of the training centre is being part-funded by the Sherford Consortium and will be delivered alongside partners, including leading local training groups and education providers.
The training centre will include two classrooms, a workshop and an outdoor training area, providing participants with the unique opportunity to learn and train on a large-scale construction site.
By identifying gaps in the local trades market and following analysis of the skills most required at Sherford, the centre will focus on providing training initially across five key areas: bricklaying, traditional roofing, specialist carpentry, drylining and sealants.

Developing Technology

By revisiting the town's Masterplan, the Sherford design team has ensured that the project continues to integrate and implement modern construction technologies. This includes using new sustainable drainage systems, helping to ensure the town can manage surface water effectively, and make better use of the natural resources available onsite.
Sherford is set to be a revolutionary new community, and it is vital that the town integrates into and supports the surrounding area, communities and residents – their engagement and support is essential in helping to ensure Sherford is a success. From its conception to construction, the local surrounding communities have been consulted throughout the duration of the project, and this will only continue as construction progresses.

A sustainable future

Sustainability is the future of construction, driven by consumer demand. Today, people want to live in energy-efficient, eco-friendly homes which work with, not against, the surrounding environment. Creating a community which embraces sustainability on every level is not only an attractive selling point but is also ensures that Sherford meets the needs of its residents both now and in the future.
By embracing sustainability, Sherford will not only be a prosperous new community, but will also safeguard the surrounding environment by integrating it into town life, protecting and encouraging local wildlife to thrive alongside residents.
By putting the tools and resources in place to support a sustainable construction workforce, Sherford is taking a significant step in helping to address the national skills challenge, providing contractors, veterans and the unemployed with the opportunity to learn the skills and trades which continue to be in high demand across the UK.
Despite this being the only the first phase of the 20-year project, Sherford's sustainability credentials have already been recognised. The project recently won an award from sustainability assessment scheme, CEEQUAL, as well as being shortlisted in the RICS Awards South West.

BIM

Using modelling technologies such as BIM is a vital part of design developments within the industry, enabling greater collaboration at every level. By offering evaluation and analysis tools, ecosystems can be compared easily before implementation, allowing for more efficient design decisions to be made at earlier project stages.
With obvious advantages such as greater predictability, efficiency and long-term cost savings, BIM adoption is only likely to increase directly alongside eco-construction technology, helping to guarantee long-term performance and future-proof schemes.

Heathrow flies into the future

The sustainability objectives of the expansion of Heathrow Airport were set out in Heathrow 2.0, launched last year. The strategy explains the airport's aims for sustainability leadership that goes beyond simply reducing negative impacts to delivering positive impact in a way that enables others to thrive as the airport grows.

The report sets out a series of goals that will guide the future of the airport as it expands, as well as guiding plans for the development of the new northwest runway.

As part of the policy, earlier this year Heathrow Airport launched a search for partner logistics hubs to aid in the expansion of the airport.

Heathrow will be the first major infrastructure project in the UK to pioneer the large-scale use of logistics hubs – aiming to build as much of the project off-site as possible. The hubs will work by pre-assembling components off-site before transporting them in consolidated loads to Heathrow, as and when required. This method will boost the project's efficiency and cut emissions by transporting components to site in fewer lorries.

Research by WPI Economics recently revealed that integrating an off-site manufacturing supply chain into a major project has the potential to reduce the overall cost of the project by as much as 25% whilst speeding up delivery by up to 30%.

Lord Deighton, Chairman at Heathrow Airport, said: "Heathrow Expansion is a once in a generation opportunity to transform the UK construction industry, build for the future and deliver a lasting skills legacy for future generations. All of this comes at a pivotal time for our country, as it prepares itself to leave the EU and where we need to build for our future in both travel and trade.

"An expanded Heathrow is for all of Britain and the Logistics Hubs are instrumental in our aim to ensure that expansion spreads the huge potential of its £187Bn in economic benefits across the UK, whilst minimising the impact on the airport's local communities. Off-site construction is an innovative way for these balances to be met and we can't wait to see for ourselves the opportunity we have in working with the best businesses in the country."

UK Construction Excellence (UKCE) spoke to Matt Palmer, Heathrow Expansion Development Director, about the plans for the airport and how they aim to ensure sustainable development.

What are the sustainability objectives for Heathrow's expansion?

MP: *Heathrow 2.0 is the airport's plan for sustainable growth and our commitment to encourage sustainable aviation. Heathrow's plan is to expand in a way that creates a positive impact on our community, environment and economy.*

How are you implementing this?

MP: *Heathrow 2.0 details our aspiration that, as Heathrow grows to meet demand, with a new runway, there would be no net increase in carbon emissions: "carbon neutral expansion". The initiative attempts to decouple aviation growth from climate change – a world first.*

We have developed a carbon plan as part of the overarching strategy. Heathrow is committed to a range of measures including operating a zero-carbon airport, reducing carbon in Heathrow's supply chain, increasing UK access to Heathrow via sustainable means and addressing the challenges of passenger transportation and vehicles.

As we prepare for Heathrow's expansion, we plan to work very closely with the teams delivering other large infrastructure projects, such as HS2 and Crossrail, to bring this vision to life.

How has sustainability affected the plans for Heathrow expansion?

MP: *Sustainability will play a key role in the expansion project. We want to deliver sustainable growth and we stand by our 'triple lock' guarantee to deliver expansion in accordance with the UK's legal air quality obligations. This includes meeting our existing commitment to improving air quality by not increasing the amount of airport-related vehicle traffic on the road and supporting improved surface access connections,*

ensuring further measures are ready to be introduced if required to reduce traffic, and binding our commitment by guaranteeing that extra capacity at an expanded Heathrow will only be released when it is clear that the airport's contribution will not delay compliance with legal obligations on air quality. The objectives are both environmental and economical.
The Logistics Hubs are essential in ensuring Heathrow expansion delivers for the whole country by spreading jobs, boosting productivity and modernising the construction industry outside London and the South East. They will ensure that 60% of procurement spend will be outside London, spreading the benefits of local investment up and down the country. As well as the direct benefits, new research from WPI Economics shows that, if adopted more widely, the approach could spur growth in off-site construction and lead to a productivity boost worth £30Bn for the industry outside London by 2025.

Are there any new technologies you are implementing through the sustainability initiatives?

MP: We're still in the early stages of the expansion programme, having recently closed the UK's largest consultation on the options that will be used to develop the preferred masterplan. Although we're refining our plans, we've made clear that the businesses interested in helping to deliver the new runway will need to demonstrate a complementary commitment to sustainable innovation in order to be considered. Suppliers and successful hubs will need to show consideration for local communities and the environment, will need to help ensure the project delivers for the whole of UK and use innovative techniques and cutting edge technology.

What are the aims and objectives of the Logistics Hubs? How will they work?

MP: *During the site tours the Logistics Hubs will have the opportunity to demonstrate strengths in a range of areas. Bidders will not only need to illustrate the merits of their site, but they will also need to demonstrate a skilled and dedicated workforce, and the capability to collaborate on the nationwide project and good connectivity, allowing output to be easily transported to Heathrow.*

What will be delivered by the Hubs?

MP: *For this project, we will need sites that can be used to pre-assemble the components of an expanded Heathrow. These components could be a range of things including materials within the terminal buildings themselves or on the expanded airfield. Other sites will be used to consolidate loads before they are transported to Heathrow. With the two types of sites working together, we can reduce the number of vehicles on the airport's surrounding roads, cutting congestion and emissions.*

What are the benefits of off-site construction?

MP: *These Logistics Hubs will help ensure that businesses across the UK can form part of the airport's supply chain, enabling Heathrow's new runway to deliver a legacy of construction excellence across the UK. The sites will play a key part in helping to spread the £187Bn in economic benefits and 180,000 in new jobs that the expansion is expected to bring.*
The hubs will also play a key role in supporting expansion's efficient delivery, helping us to deliver the new runway on time and on budget whilst mitigating the impact that concentrated construction activity would otherwise have on the airport's local communities.

How will this affect the skills market in the UK?

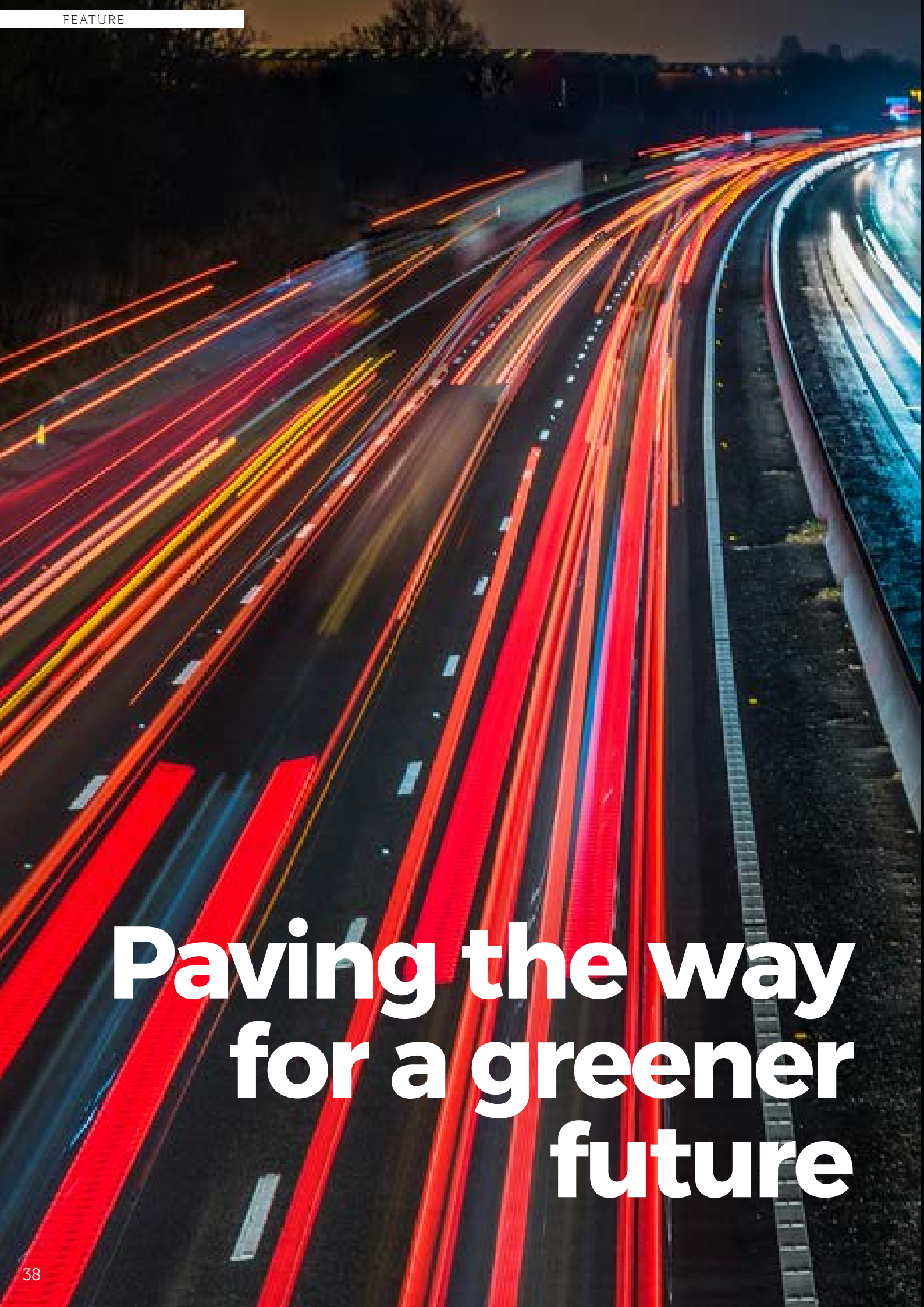
MP: *Heathrow expansion will be the first major infrastructure project to pioneer the large-scale use of Logistics Hubs and these sites will play a key role in developing skills and boosting growth outside London and across Britain. The Hubs are just one of the ways that Heathrow is working to develop construction skills across the UK. In 2017, we announced the launch of the Heathrow Skills Taskforce, chaired by Lord Blunkett. The taskforce was a UK-wide online forum to gather independent views on the airport's future education, employment and skills strategy. The expansion project is expected to create as many as 100,000 jobs outside London and the South East, and we set out to identify the best teaching, employment and career progression opportunities to make the airport a role model for social mobility and diversity.*

What legacy do you want to leave with the project?

MP: *Heathrow expansion is a major national infrastructure project and a once in a generation opportunity to transform the UK construction industry, build for the future and deliver a lasting skills legacy for future generations. All of this comes at a pivotal time for our country, as it prepares itself to leave the EU and where we need to build for our future in both travel and trade.*
The Logistics Hubs feature in the Government's Industrial Strategy, listed as an example of how to develop skills across the UK and create conditions where successful businesses can emerge.

Do you think larger infrastructure projects should embrace this method?

MP: *We believe that this method is instrumental in our aim to spread the benefits of expansion up and down the country and have begun working with other major infrastructure companies to explore how the final sites could be used for future projects. When looking for the final four Logistics Hubs we will be considering their longevity and potential to collaborate with other projects in the hope that other large infrastructure projects embrace this method.*



Paving the way for a greener future

When Highways England introduced its Road Investment Strategy: 2015 to 2020, it was designed to provide a network for the future, that will be smoother, smarter and more sustainable. This involves the efficient movement of people and goods, utilising technology to deliver safer roads and ease congestion and delivering economic, environmental and social benefits.
The strategy supports Highways England's design vision "to put people at the heart of our work by designing an inclusive, resilient and sustainable road network; appreciated for its usefulness but also its elegance, reflecting in its design the beauty of the natural, built and historic environment through which it passes, and enhancing it where possible."
The Road Investment Strategy was followed by the launch of Highways England's first Sustainable Development Strategy last year.
Its aim is to encourage economic growth, while protecting the environment and improving safety and quality of life for current and future generations, with Highways England adhering to the principles of sustainable development in everything it does.

There are five main concepts in the Sustainable Development Strategy:
• Financial capital, or the capacity to invest
• Human capital, or the knowledge and capacity of the workforce and stakeholders
• Natural capital, or the natural resources and services
• Social capital, or the relationships, networks and communities
• Manufactured capital, or the infrastructure and technologies

For each 'capital', Highways England has identified a 'vision' and 'ambition' in the Sustainable Development Strategy.
To turn the visions into a reality, the company is setting about delivering a series of focused actions.
The 2015-2020 roads period will be a time of significant investment in England's roads. Through this investment, Highways England will improve the condition of its assets and increase its ability to cope with change.
Assets are designed using rigorous standards to produce infrastructure that lasts, and the company is seeking to ensure resilience to climate change so it is embedded in its business activities to reduce costs and increase safety.

The sustainable strategy will ensure climate change is considered in the future standards within the Design Manual for Roads and Bridges. This begins with a general requirement that the goals of sustainable development shall be delivered throughout the design lifecycle, including that the design shall aspire to be resilient to future climate change. Existing adaptation plans are also being reviewed.
The agency aims to deliver a meaningful contribution to the UK Government target of an 80% reduction in greenhouse gas emissions, against the levels in the 1990s, by 2050.
Carbon reduction is a key requirement of Highways England's licence and the Road Investment Strategy makes commitments to adopting low carbon technology. This has seen Highways England investigating low carbon technology use on the strategic road network.
The Sustainable Development Strategy describes the unique priorities, visions and ambitions for sustainable development. This strategy is designed to communicate the company's approach and priorities for sustainable development to its key stakeholders. This, alongside other strategies and plans, will contribute to the sustainability of the company and the strategic road network. Highways England is keen to ensure its actions in the future will further reduce the adverse impact of its activities seeking a long-term and sustainable benefit to the environment and the communities it serves.
Current objectives for the agency are to: remove energy-inefficient lights from the network; improve the operation of energy-consuming assets; and to get inventories accurate.
One project on which Highways England has implemented this policy is on the M62 and M621 near Leeds, where 1,618 street lights have been replaced with modern efficient LED lighting units.
New efficient technology for signals and road lighting can achieve a 30% energy reduction if converted to LED, plus, another potential 20% through smart management of lighting levels.
On the M62 J22-J25 scheme, Highways England approached specialist lighting companies in order to adapt sodium lighting technology for the motorway. This type of solution is commonplace for architectural ornamental lighting, such as monuments and halls, but this is the first time it is being used to light a highway.
The new lighting is 53% more efficient, saving more than 700 tonnes of carbon a year, energy equivalent to powering the homes of 20,000 people and 389,000 loads of washing.
Further benefits include the need for minimal maintenance, meaning less disruption for drivers.
Works also included the upgrading of power supply equipment on both roads, while a remote monitoring system was also installed to control the new lights.
Highways England's Service Delivery Team Leader for Yorkshire and Humber, Mark Ramsden, said: "This is a true example of taking innovation from another industry, modifying it for the highways sector, and improving value by locking in safety, customer, cost efficiencies and environment benefits.
"We have replaced the conventional lighting with the newly developed lighting to provide bright, effective illumination to highways and road signs – reducing maintenance and road closures for drivers."
Another example of the policy in action is on the A160 upgrade scheme. The upgrading of the A160 between the A180 Brocklesby Interchange junction and Immingham Harbour was seen as a priority project for Highways England to improve access to the Port of Immingham.
The scheme started in spring 2015 and was completed in spring last year. Highways England worked collaboratively with its suppliers to deliver the much-needed upgrade.
More than two years before work started on site, the project partners undertook a rigorous research programme to ensure the design and delivery of the scheme had sustainability at its heart.
Core samples taken from the existing road identified tar-bound asphalt, a hazardous waste material – a constraint.
To divert the 2,800 tonnes of planings from landfill, a supplier suggested that they be encapsulated in the sub-base cement-bound granular mix material as part of a total of 30,000 tonnes of recycled aggregates used in the project – the opportunity.
Early engagement across the supply chain also ensured that innovations such as lower temperature asphalt were built into the road design, saving more than 200 tonnes of carbon dioxide equivalent.

Environmental monitoring and its role in the life cycle of a construction site

How did it happen? When? What do we do next? These are phrases that ring out across construction or industrial sites, fortunately not that often, but when they do, the penalties can be severe.

If pollution and environmental damage has occurred, the Environment Agency will come down hard and the size of fines has been steadily increasing. At the top end, the fines can be steep, such as the £20M that Thames Water was fined for polluting the River Thames. This is unusual but there is definitely an upward trend in the scale and level of punishment with legislation moving towards not just financial penalties but environmental civil sanctions and restoration. Writing a cheque is no longer good enough; ongoing environmental responsibility and restoration are now just as important.

If your site suffers a pollution incident, how do you go about repairing the damage? Knowing the baseline starting point is key because not all waters are pristine even if we wish that to be the case. The recent Environment Agency Report on water quality (February 2018) provides some horrifying statistics:

- In 2016, 86% of river water bodies had not reached good ecological status
- Water quality issues were the cause of 38% of all fish test failures in rivers in 2015
- Water quality issues were the cause of 61% of macro-invertebrate test failures in rivers in 2015.

An operator may therefore wonder why they should have to re-establish a river to a condition it did not meet to start with. This is where defensive monitoring plays a very important role in ensuring that companies are not forced to undertake unnecessary remediation.

A review of any historic water quality data and previous upstream pollution events should be the starting point. This is often missed, but is critical in setting the baseline scene, and having this information is helpful in establishing the parameters and location of your own water quality monitoring programme.

In addition to water quality data, Environment Agency open source data includes information about macroinvertebrates such as stone fly and caddisfly larvae, fish and invasive non-native species like zebra and quagga mussels. The value of these data sets is that they provide an overview of the condition of the water as an ecosystem and are also used by the Environment Agency for Water Framework Directive compliance assessments. The water quality may be good at the time you undertake spot sampling but the long-term water quality will be reflected in the abundance and variety of the macroinvertebrate species present. The contrary also applies.

The presence of non-native invasive species has a slightly different driver to pollution. The Infrastructure Act 2015 brought in responsibilities and liabilities surrounding the introduction of invasive species from one water body to another. This is an untested legal area but knowing whether invasive species are present in a water body where kit was last used before re-use is critical to ensuring translocation via mobile plant is avoided. The Environment Agency open source data is one place where this data can be found. In addition, data is held by the regional offices of the Association of Local Environmental Records Centres (ALERC).

So what do we recommend before commencing construction work in or near water courses?

There are two initial elements:

- Strong due diligence
- Precautionary monitoring involving a biosecurity plan and a review of historic data covering water quality, macroinvertebrates, fish, and invasive species.

This should be combined with an ongoing monitoring programme that covers all these aspects to ensure that any changes in the baseline before works commence are recorded and that a targeted before, during and after monitoring programme is undertaken to demonstrate the 'actual condition' of the water over a predetermined period of time.

The evidence base collected, together with the responsible action of undertaking the programme voluntarily, are all factors that will influence the outcome should an incident occur. This is despite all the sensible and practical measures that are put in place as part of a pollution prevention management plan. After all, accidents do happen. Being prepared makes commercial sense and will soon become an operating norm.

Article submitted by Dr Phil Aldous, Director of Water, Thomson Ecology

Reduce costs by reducing waste

Hazardous waste poses a substantial threat to our health and the environment. Despite this, we are still producing more than 400M tons each year. That's nearly 60kg per person – and this is only increasing according to a report from the World Wildlife Fund (WWF). Here, Richard Bastable, of NCH Europe's Parts Cleaning innovation platform, explains how reducing waste can improve productivity, save companies money and make for a healthier working and living environment.

Hazardous waste is often a by-product of manufacturing processes. For most companies, much of this waste is created by using commercial products to clean a facility, equipment or parts and the misconceptions around water-based solutions. Traditionally, water-based products are believed to be less effective than cleaning products with harsh chemicals.

However, the reality is that not only do water solutions clean effectively, but they also result in less harmful waste and can reduce the frequency of waste collection. While the waste will still be hazardous due to the contaminant or dirt being cleaned, water-based technologies minimise the hazard by not adding more harsh chemicals into the mix, thus in turn also making that waste easier to recycle.

Waste created in industrial settings will often contain elements classified as hazardous. Some contaminants result in deposits forming on internal and external parts of equipment that are difficult to remove.

Traditionally, engineers must manually brush the affected areas often after soaking parts overnight. This is a time-consuming and inefficient process, demanding the attention of an engineer and keeping machines out of operation for longer than necessary.

Plant managers can resolve this by investing in automatic or high-pressure parts washers. Yet traditionally, most parts washers make use of harsh chemical solutions that add an extra chemical into the already hazardous run-off. When the time comes to dispose of this waste, the chemical solution has exacerbated the hazard classification of the waste.

In many countries, management of hazardous waste involves the completion of waste consignment forms, which comes at a cost to the waste producer. The fees involved are normally driven by the type and frequency of waste, rather than volumes, so reducing the frequency of waste movements can reduce your costs. Extending the lifecycle of the chemistry is key to reducing the waste being generated.

The producers of waste must also keep records and provide information about the composition and quantity of all hazardous waste to authorities. The information must be provided through a series of waste recovery, disposal, transport and transfer documents to ensure the process is carried out properly. The producer is ultimately responsible for the waste up to the point of final disposal, the so called 'cradle to grave' concept.

This is understandably a time-consuming and costly process, particularly if a plant produces lots of hazardous waste. Using water-based solutions and extending the lifecycle of the chemistry will subsequently reduce the frequency of waste movements and the associated costs.

Reducing the quantity of waste that facilities generate can significantly ease a company's regulatory burden, as direct contact with solvents and the fumes produced in the cleaning process can be harmful to engineers. This means that companies must consider how chemicals are used, the different chemicals they are exposing workers to and ultimately how the waste is disposed of.

Therefore, it is recommended that businesses should partner with a service provider that offers an all-inclusive service that meets regional regulations to ensure safe handling, carriage and disposal of hazardous waste without elevating costs.

Of course, this is only a partial solution. To decrease the amount of hazardous waste from the WWF's reported 60kg per person, plant managers must address the problem at the source. This means finding alternatives to traditional chemical solutions where possible, be it in plant, equipment maintenance or parts cleaning.

Bureau Veritas calls on construction industry to give part 8 the green light

With just a few months to go until the arrival of the 18th Edition of the IET Wiring Regulations, Bureau Veritas is calling on construction industry to embrace the changes brought by the new Part 8 section – stating it is an important step forward in the UK's green agenda.

As one of the most successful countries in its carbon reductions, the UK continues to make huge headway in its target towards reducing emissions by 80% on 1990 levels before 2050 – with the adoption of more energy efficient solutions integral to this.

Yet until this point, there has been no official best practice regulation around the design and installation of energy efficient technology – meaning it has been all too common for installations to be completed with little regard to energy use and emissions.

Cue the arrival of the 18th Edition this July (2018) which, for the first time, will go beyond just looking at safety requirements to include a section dedicated to energy efficiency in installation – a move which Bureau Veritas states will bring renewed focus on the energy efficiency plight.

Mahendra Mistry, Technical Manager for electrical systems at Bureau Veritas, said: "Although it's been the subject of much debate, with some stating that the Wiring Regulations should be confined solely to safety requirements, the introduction of an energy efficiency section is an vital step forward in ensuring the most current and relevant guidance possible.

"Until now, energy efficiency has all too often been a 'nice to have', with it all too common for installations to be chopped and changed, with little regard to the distribution of electricity or potential losses.

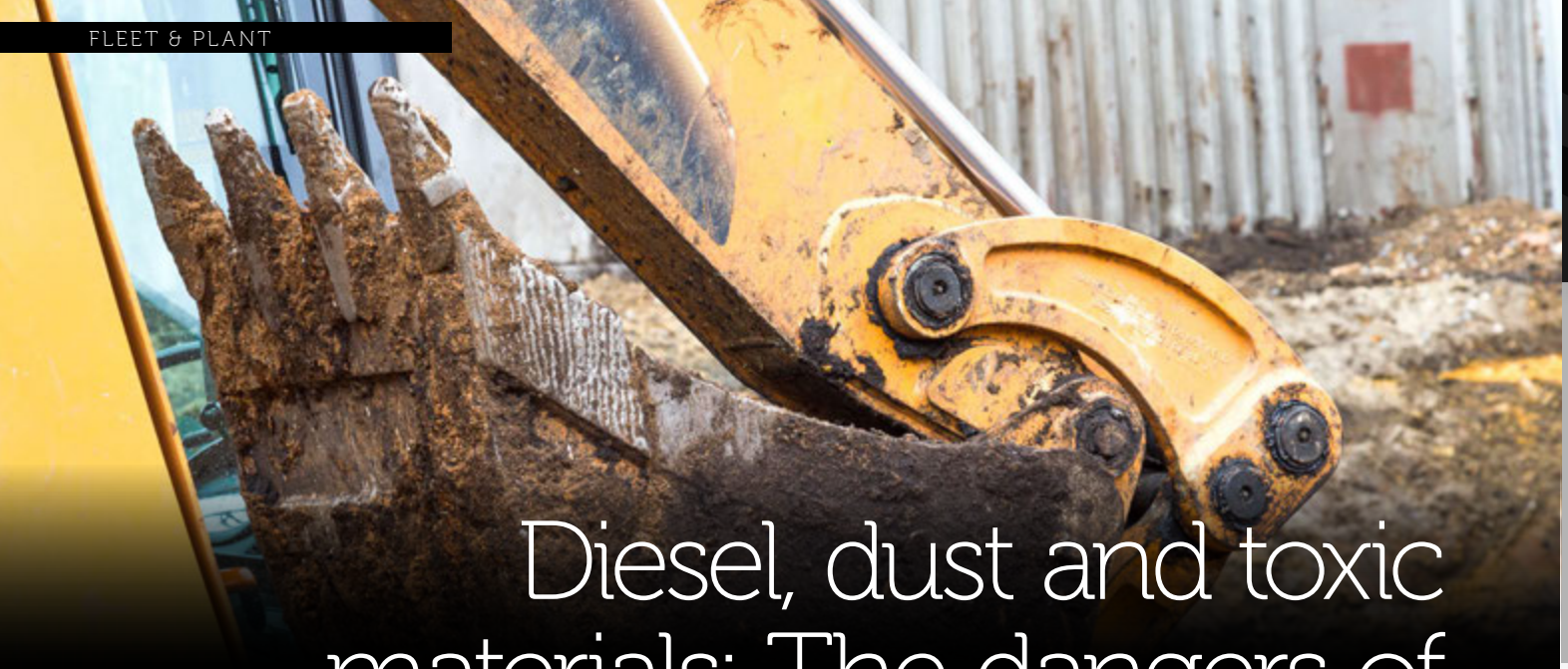
However, by making energy efficiency a primary focus from the offset, we can look to ensure that each and every installation is completely as safety and sustainably as possible."

Comprising 25 pages, the new Part 8 section provides guidance on ensuring the energy efficiency of electrical installations with a view to lessening environmental impact, reducing energy losses, using energy only when required and potentially at a lower tariff, reducing maintenance by ensuring equipment is installed correctly and enhancing lifetime efficiency.

The consensus is that the change could help to drive increased demand for smart solutions, such as electric vehicles, LEDs, power factor correction and the like, while, in turn, opening up new business opportunities for electrical contractors.

Mahendra adds: "As an industry, we still have a huge job to do in terms not just of meeting carbon reduction commitments but ensuring a sustainable infrastructure; which Part 8 will help to more adequately address. Indeed, it may mean more change for construction sector and contractors to get to grips with but it is an important regulatory reform which not only aid our sustainability plight but create new opportunity."

To find out more about Bureau Veritas, visit www.bureauveritas.co.uk



Diesel, dust and toxic materials: The dangers of construction site emissions

As our understanding of the effects that poor air quality can have on our health increases, so has the drive to improve it, we speak with Matthew Pencharz, Non-Executive Director at Off-Grid Energy, about the concerns and learn that construction has an important part to play in lowering pollution.

With approximately 50,000 deaths attributable to air pollution in the UK in 2015, as well as the detrimental effect it has on children's lung development, it is shameful to note that the UK is still predicted to be ten years behind in achieving the legal pollution targets. The Government has also lost a run of cases in the courts during the past year, which have ruled that it is not acting fast enough to improve air quality.

The UK Government has unveiled a plan for zones in towns and cities which older, more polluting vehicles will be charged to enter as well as launching a £260M clean air package to combat pollution, focusing primarily on road transport with electrical charging points, cycle routes and concessionary travel schemes.

Yet whilst vehicles are a prominent part of the problem, these measures do take time and there has been less focus on other pollution sources.

Vehicles are only part of the problem

What can the Government do to improve the UK's poor air quality, and how can individuals do more?

An important source of air pollution emissions in our towns and cities is often overlooked: construction sites. Reports show that in London they are responsible for approximately seven per cent of damaging nitrogen oxide emissions, of which 25% is due to temporary power generators. Furthermore, energy and fuel used on construction sites accounts for approximately 33% of total emissions from England's construction industry. But whilst a small amount of this – roughly one per cent – is dust from general and necessary site activities such as demolition, the majority comes from the thousands of diggers powered by diesel, generators and other machines operating on the sites.

Yet this type of harmful machinery is not held to the same emissions standard tests by most councils as on-road vehicles.

London has brought forward robust but reasonable regulation on construction plant – Non-Road Mobile Machinery (NRMM) – to ensure that only the cleanest equipment is used on construction sites in the busiest and densest parts of the capital and has ordered the replacement of equipment more than ten years old to cut down on pollution. Along with other government bodies across the country, the UK Environment Agency has been increasing pressure on construction companies to encourage the reduction of pollution so environmental regulations are met. These sorts of measures are not to be thought of as a burden on business but, on the contrary, lead to a triple win of lower emissions, lower cost and growth of a clean tech sector, which the UK is a world leader of.

The potential for using energy on these sites more efficiently and safely – delivering huge fuel cost savings – should not be underestimated.

The solution – battery storage technology

By using innovative solutions such as battery storage technology, which utilises reserved energy and allows diesel-powered generators to be turned off when batteries are fully charged, and allows for much smaller plant to be used while saving overall consumption, it is possible to see improvements in air quality and also lower emissions coming directly from construction sites instead.

Battery energy storage technology is a specialist field and, as with any new technology, requires specialist know-how to ensure effective installation and successful operation.

The cross-hire offering means that genset rental companies can deliver the technology to their customer base with the confidence that systems will work and deliver reliable power but without necessarily having to invest in either the assets or the specialist expertise. A battery and diesel generator can also be used in tandem to create a hybrid system just as in a bus or car. In times of low load, just the battery runs, while in times of high load or when the battery needs charging, the generator is switched on, saving up to £500 a week in fuel costs and 2.5 tonnes of CO_2.

There is no question, implementing cleaner technology into construction sites is a triple win – healthier air, less CO_2 and lower cost.

'Greener' power systems, which can deliver not only an improved and safer environment, but also provide financial benefits, are an important measure to deliver real results for better air quality across the UK. Cross-collaboration must happen between councils and the construction trade, for a rapid improvement in air quality and reduction in pollution-related deaths.

We have a responsibility to deliver a safer and better world for the future generations, and this clean storage technology is something we should be embracing now.

FORWARD FEATURES **2018**

Construction Media incorporates the **UK Construction Online** website and **UK Construction Excellence**, along with bespoke media and marketing solutions for those working for or looking to engage with the construction supply chain. Our forward features list for 2018 encompasses the key themes and topics shaping the industry now and for the future.

UK Construction Online is the go-to resource for the latest news and insight for the construction industry. Our content keeps industry professionals ahead of breaking developments and fully informed on the factors influencing this multi-billion pound sector.

UK Construction Excellence is our flagship magazine, which showcases the very best in British building, high-end projects, construction suppliers and influential construction companies.

The publication is credible, vibrant and a voice for the industry. It offers a platform to position our client's company, products and services, and acts as the perfect vehicle to build a business's profile and brand in a publication which is read by the construction industry's leading players.

UK CONSTRUCTION ONLINE™

UK CONSTRUCTION EXCELLENCE™

June | Skills shortage

Deadline: Editorial - 14/05/17
Artwork – 21/05/18

Having weathered the economic downturn, the construction industry now contends with a worrisome shortage of skilled workers. This month we reflect on the contributing factors, the implications of the EU referendum for migrant workers, and the ways in which the industry is fighting back. Developing skills across the construction industry is core to ensuring it remains viable and effective.

July | Health & Safety, legislation, finance, adjudication

Deadline: Editorial - 18/06/18 **Artwork – 22/06/18**

Health & Safety is of paramount importance in the construction industry. From workwear to working at heights, we take a look at what's happening across the industry, together with the latest comments on litigation and adjudication decisions that affect the sector.

August | Housing

Deadline: Editorial - 16/07/18 **Artwork 23/07/18**

Tackling the housing crisis. Hand-in-hand with the skills shortage, the UK's much-publicised housing shortfall continues to dominate headlines nationwide. The government has pledged to build tens of thousands of homes ahead of 2020, and during August we evaluate what is being done to address this, and what opportunities exist within the construction supply chain.

September | Technology in Construction

Deadline: Editorial - 18/08/18 Artwork 25/08/18

Advances in technology are transforming the construction industry. From digitisation to drones, innovative new technologies are helping to increase quality, reduce costs and improve safety in all areas. This month we focus on the innovations that are moving the dial and helping to shape the construction industry of the future. Themes include software, BIM, UAVs and the Internet of Things.

October | Education

Deadline: Editorial - 17/09/18 **Artwork – 22/09/18**

As the nation opens its doors to a new school intake, we explore the opportunities for the construction industry arising from the Government's education agenda. From renovations and refurbishments to the building of new and interactive learning environments, what is happening and how can construction play a positive part in improving educational standards?

November | TBC

Deadline: Editorial - 15/10/18 **Artwork – 19/10/18**

December | TBC & Annual review

Deadline: Editorial - 16/11/18 **Artwork - 20/11/18**

We take a retrospective look at some of the year's biggest stories.

Additionally, each month the magazine features a project focus, as well as articles on BIM, construction software, legislation, Health & Safety, sustainability, fleet, and plant.

Telephone: 0845 557 1316 - Sales emails to: enquiries@ukconstructionmedia.co.uk
Editorial emails to: vicky.maggiani@ukconstructionmedia.co.uk

UK CONSTRUCTION ONLINE™

COMMUNITY

STAKEHOLDER

E-BOOKS

VIDEO

WHAT DOES THE CONSTRUCTION INDUSTRY NEED TO KNOW ABOUT YOUR ORGANISATION?

WITH 110,000 CONSTRUCTION PROFESSIONALS EAGERLY AWAITING YOUR GUIDANCE, WHAT WOULD YOU SHOW THEM TODAY IF YOU COULD?

For more information please contact us on 0845 557 1316 or email: enquiries@ukconstructionmedia.co.uk

UK CONSTRUCTION™ ONLINE