www.buildoffsite.com / April 18

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Trending in 2018 – an across the board recognition of the importance of offsite construction. Looking at this year's expectations for the construction industry.

Latest news on the Buildoffsite Hubs. Updates from the Residential and Rail sectors.

Quantifying the benefits of offsite construction. Looking at how increased adoption is addressing some of the construction industry's challenges.

Keeping in touch under the new data privacy law. New changes taking effect from 25 May. Find out what's happening.

McAvoy hands over education project 17 weeks early. One of the UK's largest ever modular schools and the new innovations that helped to achieve early completion.



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Welcome

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Front cover photo

Hinkley Point, Somerset. Site accommodation being assembled. Photo courtesy of Caledonian

No matter where you look in the media, there is growing recognition of the key role that offsite solutions will play in the delivery of the quality homes the UK needs and in the delivery of our vital infrastructure.

Government support for offsite solutions to deliver public sector projects is most welcome, as is the announcement of increased public investment to support innovation across the sector.

There is also an increased focus on skills to ensure that the industry has access to people who can work in the new ways, whether this be in terms of digitally enabled manufacturing, or in terms of the skills to enable rapid assembly and commissioning on site.

In all market sectors, manufacturers and constructors are developing new solutions and capabilities. This newsletter outlines some of the developments that are underway and gives a sense of the substantial investments that are being made to build the capacity that we need in the UK to deliver offsite solutions at scale, and in a way that supports the functioning of a competitive and increasingly mature market place.

> Buildoffsite Members are actively encouraged to contribute material on projects and other activities for the Newsletter, which is emailed to thousands of subscribers.

Send your submissions to: nathalie.quinn@buildoffsite.com

August edition: Friday 13 July

November edition: Friday 12 October

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We have included a number of examples of quality projects that are being delivered through the use of offsite solutions, which are delivering tangible benefits for clients and customers. Understanding these benefits and being able to assess these in a consistent way is clearly important and as you will see, Ciria in collaboration with Buildoffsite, has launched a project to do just that.

Perceptions of offsite are changing rapidly, but with so many developments in progress, opening the way for further areas of opportunity and collaboration, it has never been more important for businesses and stakeholders to engage with Buildoffsite through our Membership Scheme.

Help us to help you to build the future of construction.

Please note that the submission deadlines for the 2018 newsletters have been updated and are now as follows:

Trending in 2018 – an across the board recognition of the importance of offsite construction

There is an expectation that the horrendous events at Grenfell Tower will be a seminal moment for the development and implementation of Building Regulations across the UK. In addition to specific new regulations, there is an expectation that there will be increased focus on 'as built' performance and compliance of completed buildings against both regulatory and client requirements.

The start of any year is a boom time for pundits to speculate on the big trends that will influence the shape and performance of the UK construction industry in the year ahead. Just take a few minutes to search online and you will come up with any number of projections for 2018 drawn up by pundits from across the industry.

Now trend spotting can, of course, be a highly speculative activity for those attempting to project over the longer term. The track record of those who attempt this is rarely impressive. However, in the context of looking only 12 months ahead, then perhaps we can have more confidence in what the forecasters have to say. Particularly when the projections are coming from such a wide spread of interest groups, each with their own particular viewpoint, expertise and understanding of actual business deals being done.

In terms of the really big picture, the expectation seems to be that globally the construction industry will have a good year, growing strongly at a rate of around 4%.

That's a good solid number, predicting that the industry is on track to hit an annual value of around \$10 trillion by 2020. That is a huge number and, regardless of how the UK economy performs, it is clear that there will be significant opportunities for UK products, services and technologies in the global market place. The prospects for the UK economy and therefore for the UK construction industry seem to be rather less certain, although there is an expectation of growth driven in part by significant flows of international and institutional investment, and sustained spending on nationally significant infrastructure projects. In the case of housing, it would also be beneficial for talk about a step-change increase in construction activity to translate into actual programmes for the delivery of new homes

In terms of the predicted trends for the UK construction market in 2018, there is a significant degree of consistency of views being expressed. Many and perhaps most pundits have drawn particular attention to the following big issues that will have a significant influence on the operation of the market:

Skills: Generally, there are significant concerns about the implications on levels of activity and affordability, resulting from possible shortages of skills in many parts of the UK including in particular in London, the South East and in the other Metropolitan Areas. However, even those areas where local skill shortages are not seen as being likely to be a big issue, there is a recognition that high demand from hot spots may pull labour in and in turn create more general shortages, as well as driving up labour costs and potentially impacting on build quality and project programmes. The concerns become more pronounced for those who believe that overseas trade and professional skills may become scarcer in the run up to Brexit.

Fire Safety and Building Regulations:

An expectation that the horrendous events at Grenfell Tower will be a seminal moment for the development and implementation of Building Regulations across the UK. In addition to specific new regulations, there is an expectation that there will be increased focus on 'as built' performance and compliance of completed buildings against both regulatory and client requirements. It is too early for pundits to be clear what the practical implications might be, but it does not seem unreasonable that given the technical skills, systems and construction solutions increasingly available in the market, it really is time that building performance and durability of built assets should be a matter of fact and not aspiration.

Data and connected construction and

infrastructure: An expectation that evolution in the capability and capacity of Building Information Modelling, Virtual Reality, Augmented Reality and sensor technology will continue to develop and become ever more integrated into construction activity. There are clear implications here for performance in use, condition and environmental monitoring and asset management that collectively will contribute ever increasing quantities of data as part of an 'Internet of Everything' revolution that pundits view as being just around the corner.

Growth in offsite enabled construction:

An across the board expectation that the market for factory-made construction components, assemblies, pods and modules will continue to expand considerably. In part, this prediction is driven by a recognition that to significantly increase the number of new homes being built will require a substantial increase in the use of offsite construction methods. This is not necessarily being seen as a direct alternative to traditional methods. but rather as a supplementary source of supply that requires alternative construction assets and alternative design and site skills.

Close coupled with increased use of digital technology, there is also a significant expectation that additional investment by offsite suppliers will create increased capacity to deliver high performing, well designed structures that will deliver assured levels of right first time quality and performance in use.

Health, Safety and Environmental performance: An expectation that 2018 will see a significant focus on measures that will make a substantial contribution to improving the health and safety of those who work in the construction industry.

The adoption of construction methods that will minimise the use of resources and minimise waste, whilst ensuring performance in use of the completed buildings and structures, will increasingly be recognised as providing a valuable contribution to achieving sustainability and environmental ambitions.

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What is remarkable about these projections is the way in which they link together. An across the board recognition that the same old, same old ways of working and delivering construction projects is no longer fit for purpose. A recognition that the quality and performance of assets can be significantly enhanced by incorporating the technologies and approaches that are currently available, but which are still seldom all brought together into a coherent package.

Equally significantly, there is a recognition that in order to maximise the benefits of new ways of working the industry needs to have access to sufficient numbers of designers, engineers and technicians with the skills needed to enable these new opportunities to be embraced. This can't happen overnight, but there is a clear message here about a direction of travel for stakeholders and for those who have the responsibility for providing the skills training that a forward-looking industry needs.

From a Buildoffsite perspective, it is welcome that the messages we have been advocating for the past 14 years are increasingly being recognised across the industry. It is now clear that the role of offsite solutions to support the delivery of quality construction has been generally accepted across the industry. The Buildoffsite message that offsite methods sit alongside achieving excellence in design opportunities, intelligent application of digital technology in construction and use, and in delivering substantially better quality and value to clients and customers is also increasingly being recognised. So too is a recognition that achieving all of these benefits is wholly dependent on the availability of the necessary skills.

Construction is of course a huge industry and we understand there is much that still needs to be done. Turning around an oil tanker takes both time and sustained effort. It would be marvellous if others who share our ambitions for a better industry joined with us, so that collectively we can work to bring about the changes we all know are needed.

Pushing against an open door



Tim Hall, Director

For a long time, it has seemed that offsite thinking and supply has been struggling to get its voice heard and given a chance to demonstrate its potential. In sectors with particular challenges of labour access (prisons, airports) the case was clear, but until recently offsite was not seen as a mainstream option.

The last two years have seen a significant change in the tide and the industry is now pushing against an open door in many areas. This brings with it some new challenges for the supply side.

Firstly, there are clients who have been given enough insight to conceptually understand that there is value in offsite approaches, but do not yet grasp the implications of a shift to offsite thinking. I'm reminded of the 1980s when yuppie managers had to have a Filofax as part of their corporate uniform, but no one knew what to do with it once they had it.

One of Buildoffsite's key roles is to work with construction clients and their advisors to ensure that the concepts of Design for Manufacture and Assembly, Common Components, Repeatability and Scale don't just trip off the tongue, but also are well enough understood to ensure that the benefits of offsite are not lost by manufacturing serial prototype buildings in a factory. This is why we are successfully growing our client membership; particularly linked to Hubs.

A second challenge is the risk of a 'rush for offsite', as with the Government's 'presumption in favour of offsite', there will be well intended but inexperienced, as well as potentially unscrupulous entrepreneurs looking to set up offsite factories; after all: "How hard can it be?" As many in the industry know, it takes more than ambition and a few good ideas to create a capable offsite supply chain and, particularly with peaks and troughs of demand, even good businesses can fail. In this area, a Buildoffsite membership logo is a declaration of intent that suppliers want to be seen as the most capable and collaborative in the industry. Clients join to get non-partisan advice on the most suitable solutions for them, working with Buildoffsite and membership enablers who can provide excellence in design, engineering, manufacturing, consultancy and skills. It is not Buildoffsite's role to exclude new entrants to the market; but it is in all of our interests that new entrants are capable and deliver high quality. We cannot afford the headlines of 'offsite ruined my construction project' that would set the industry back decades. In fact, as we go to press, there is the Miami University bridge collapse to focus the mind.

"As many in the industry know, it takes more than ambition and a few good ideas to create a capable offsite supply chain and, particularly with peaks and troughs of demand, even good businesses can fail."

Our offsite solutions need to be highly reliable, well-engineered and digitally accountable to ensure the sector is seen as the solution to the quality issues of the past, not as a new incarnation of defects and snagging.

An emerging challenge is that of standard designs and standardisation. It is tempting for manufacturers to design unique systems with patented details that differentiate their offering. A key disadvantage however, is that this diversity means a client can only get supply from a single manufacture and this increases their risk. This is particularly true for repeat clients, where there will be a need for increasing capacity. Common design attributes and interface details are a way to increase client confidence, and also deliver reduced costs with scale.

You have heard me use the USB charger for mobile phone analogy in the past – why design yet another connector? Instead, focus design and innovation efforts on the aesthetics and the performance of the product. The corollary in offsite is clear: if our leading manufacturers design for common interface details (as promoted by our own Nick Whitehouse 20 years ago) and interoperability of systems, it follows that there will be increased confidence from the client side as capacity grows and they have security of supply.

A final challenge for this piece is the ability to assure quality of design, manufacture and installation of offsite solutions. Linked with the ability to insure and provide a building warranty. The Buildoffsite team, working with the Ministry of Homes, Communities and Local Government (MHCLG) and Mark Farmer, have been striving to build on the benchmark BOPAS offering, and get other organisations to share the ambition of creating a common gold standard of insurance and assurance. This is still work in progress, but we are having considerable success in understanding what clients and investors want in order to treat offsite as a reduced risk, and an obvious choice when they are looking for additional capacity and assured quality and performance in use.

Wherever we look there is an appetite for offsite solutions and the industry's time has come but (and it's a BIG but) the industry is only as good as its last failure. The offsite community of clients, suppliers, consultants and constructors needs to ensure that the sector succeeds and grows - we cannot afford high-profile failures of supply or performance which undermine market confidence.

to tackle these challenges and ensure the industry follows the growth and productivity curve both our membership and the UK desperately needs.

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Buildoffsite is the vehicle for collaboration

"Common design attributes and interface details are a way to increase client confidence, and also deliver reduced costs with scale."

The Industrial Strategy Challenge Fund

"This ISCF challenge will bring together the construction, manufacturing, energy and digital sectors to revolutionise how we deliver the buildings the UK needs."

Perhaps out of sight of members and readers, the Buildoffsite team and member representatives have contributed to the development of the Industrial Strategy and shaping of the Construction Sector Deal which was announced by the Department for Business, Energy and Industrial Strategy last November.

'Creating an economy that boosts productivity and earning power throughout the UK.'

UK Infrastructure Upgrade is one of the five key pillars of the strategy that includes transport, utilities, energy and social infrastructure; including housing, education and health. In fact, many key areas in which Buildoffsite members operate.

Our contribution has been made through the Construction Leadership Council and strong connections with the Infrastructure Projects Authority. The key aspects, for those of us who want to see a transformation in construction, are:

- A £170m sector deal to invest in innovation and skills across the sector
- A presumption in favour of adopting offsite construction by 2019 across suitable Government capital programmes where this represents best value for money

The presumption in favour of offsite is a major step forward for the offsite sector, and gives us a stage on which to demonstrate the value offsite thinking can deliver for clients, contractors, suppliers and enabling consultants. Five departments are taking the lead - the Department for Transport, the Department of Health, the Department for Education, the Ministry of Justice and the Ministry of Defence.

The £170m of funding will be invested in two key areas. Firstly, in building collaborative centres of excellence where cross-industry expertise and academia will come together

to innovate and address the challenges of Productivity, Capacity, Quality and Performance. Secondly, providing Innovate UK funding for collaborative projects where there is potential to deliver improvement which can be scaled across the sector.

What does that mean for Buildoffsite members? The Innovate UK funding shows there is an appetite for offsite thinking within Government and gives all of us who want to demonstrate the value of offsite a focus for collaborating to deliver better construction. The most successful Innovate UK projects have partners from across the value chain and Buildoffsite can be your mechanism to develop a bid for funding. This can be done directly through one of the Hubs, or in discussion with Industry Advisors to help develop a proposal. Having Buildoffsite as part of a bid will also be an asset as not for profit, cross-industry organisations are given enhanced funding, as well as being seen as a good vehicle for sharing the project successes.

In the education sector, Buildoffsite members McAvoy and Elliott working with Portakabin are already developing a schools' standardisation project for Innovate UK and the DfES.

Don't miss out: Which projects do you have in mind that would benefit from both match-funding from Government and a raised public profile through Innovate UK? Share your ideas with the Buildoffsite team or at one of our events

News

The Industrial Strategy Challenge **Fund is Recruiting 10 Challenge Directors**

 Industry competitive salaries plus attractive benefits

- 3-4 year fixed term contracts (part-time and secondment optional)
- London or Swindon-based - National travel

Industry-led, powered by multi-disciplinary research and collaboration between academics and business, the Industrial Strategy Challenge Fund (ISCF) will develop UK industries that are fit for the future, driving progress in technologies where the UK can become a world-leader in their research and commercialisation.

The ISCF was announced in November 2016 by the Prime Minister as part of the Government's wider industrial strategy. It is delivered by UK Research and Innovation, a new organisation with a combined budget of more than £6 billion that brings together the seven Research Councils, Innovate UK and a new organisation, Research England, to ensure that the UK research and innovation system is fit for the future.

The Fund is challenge-focused and Challenge Directors, experts in their field, will oversee the individual challenges and ensure that they deliver maximum impact for the UK. To deliver on this ambition, we are looking for 10 outstanding leaders who will provide industry expertise, oversight and strategic direction for their respective challenge, as follows:

- Audience of the Futu
- Transforming Constr
- Prospering from the
- Next Generation Ser
- Data to Early Diagnostics and Precision Medicine

Each Challenge Director will shape and deliver an exciting, high-profile agenda through a UK-wide industrial programme of research and innovation. These are outstanding opportunities to shape and build programmes that will have a tangible impact on the UK economy and the future of our society. If you think you have the skills, experience, passion and drive to help us deliver our objectives we want to hear from you.

For further information about these opportunities and to apply, visit: www.ukri-iscf-appointments.com. Closing date: Monday 30 April 2018.





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- Quantum Technology
- Healthy Ageing
- Transforming Food Production
- Medicines Manufacturing
- Robotics in Hazardous Environments

Quantifying the benefits of offsite construction

(courtesy of Planning & Building Control Today)



Hinkley Point, Somerset: Site accommodation being assembled (photo courtesy of Mott MacDonald)

CIRIA working with its members, industry partners and Buildoffsite is poised to start work on producing good practice guidance for 'Quantifying the benefits of offsite construction'. This guidance is needed now, it would seem, more than ever to encourage and accelerate its uptake into mainstream construction practices.

Offsite construction techniques have been with us for some time but its increased adoption is certainly seen as one way of addressing some of the challenges the construction industry faces. Poor productivity is one such challenge and is most clearly represented in the current housing shortage. High quality modular house building is seen as a possible solution, once other obstacles are tackled, such as planning.

Productivity, or lack of improved productivity, is an issue the industry has been challenged with addressing for years. The Government in partnership with industry set out its

strategy for change in Construction 2025 (July 2013), and since then great strides have been made towards realising the ambitions of the strategy with offsite construction playing its part admirably well through better integrated supply chains and the use of digital technologies.

Most recently, the Government has confirmed its commitment to industry through the £170 million construction industry sector deal, with the objectives the same as originally set out in Construction 2025. Industry will play its part with a £250 million contribution to the sector deal.

The policy from Government is therefore clear and it is up to industry to not only rise to the challenge but to lead the transformation to improved productivity and the ambitions of Construction 2025.

CIRIA (www.ciria.org) in its role to improve the performance of the construction industry is working with its members, other industry organisations and leadership groups to

produce an industry guide that allows the benefits of offsite construction to be quantified. The difficulty at present is that there is no independent industry standard methodology for assessing the benefits of offsite techniques against traditional construction practices. As a result, there can be a reluctance to change from the tried and tested due to a lack of certainty.

Clear, demonstrable benefits to the client and end user are needed to drive change, and allow clients to understand the risks the benefits and make informed decisions. Lowest construction capital cost is often a key driver in the decision-making process but what about the whole life cost? How does offsite construction measure up with traditional construction costs and how is this assessed?

Most assessments are made through the client's tender process on a case by case basis. This may not provide for an easy comparison between approaches on a particular scheme, identify all the possible benefits that are available or act as a record for future projects.

The client's own procurement practice and supply chain should also be receptive to the potential case for offsite solutions; integrated and digitally enabled for best results.

Other benefits associated with offsite construction include better quality control and fewer defects on completion due to manufacture in a more controlled factory environment.



Shorter on-site construction programmes may be a sought-after benefit where there is the need to minimise disruption to existing operations typified by railway, highway or airport infrastructure which run on a near 24/7 basis. Modular construction aims to fix the scheme design at an early stage in the project to start the manufacturing process. There is little in the way of making fundamental changes to the design whereas traditional build can remain as flexible for the client for as long as possible. Some might see the fixing of the scheme design at an early stage as giving the project a degree of certainty and allow the project to move forward whereas maintaining design flexibility keeps the project in the design phase. The guide aims to highlight the differences between modular and traditional construction in an objective way throughout the design and construction lifecycle.

Modular construction requires investment in Building Information Modelling (BIM) to integrate and test the design of work packages. Although this might mean more effort at an early stage the benefit can lead to a snag free design and ultimately fewer snags on site. A BIM approach using standardised structural grids also allows for a better comparison between options eg concrete or steel frame. It also allows the client to better understand the whole life cost of the structure when BIM modelling is used from the start of the project.

CIRIA will provide a summary report of key metrics and a methodology to enable the comparison of benefits of offsite construction with more traditional techniques.

The project's key objectives will be to:

- · Identify common project drivers in more detail; approach to risk, innovation and procurement
- · Identify the benefits of offsite techniques against more traditional approaches by collecting data in a format that will enable comparison
- · Enable clients, designers, specifiers, contractors and others to quantify for themselves the benefits of off-site construction techniques when compared to typical construction approaches

The guide will support a holistic, multi-disciplinary approach at an early stage of the design process with contributions across disciplines eq structures, facades, mechanical and electrical, and public health.

The project's data scope will cover a number of sectors including housing, schools and hospitals where repeatability of standard solutions can add value.

The project started in February 2018 with a funders' meeting to define the scope in more detail and publication is planned for Spring 2019.

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The project is being coordinated by Kieran Tully, BEng CEng MICE MIET, Associate Director. Kieran is a chartered civil engineer, and he leads CIRIA's Civil Engineering Infrastructure and Process and Technology programmes of research.

Lowest construction capital cost is often a key driver in the decision-making process but what about the whole life cost? How does offsite construction measure up with traditional construction costs and how is this assessed?

The Offsite Construction Show 2018





NEW DATES: Tuesday 20 and Wednesday 21 November 2018 at ExCeL, London.

We have changed the dates of this year's Show, to avoid a clash with other construction-related events.

The Offsite Construction Show is the only UK event that brings together the client and supply side for all sectors of the rapidly expanding offsite construction sector. OSCS is a show for all sectors, and provides a business to business networking opportunity for those funders, clients, designers, constructors and suppliers who wish to improve the quality, performance in use, asset value and value of construction – both building and civil engineering.

The Offsite Construction Show is again

OSCS is the show for professionals working in or with the construction industry. It delivers a really high-quality audience who are all either already using or looking to use offsite construction in their latest projects.

Who came last year and why did they come?

- 67% of visitors came to see what's new in the industry
- 37% of visitors came to source/purchase new products
- 17% of visitors were design professionals
- 48% of visitors were in top management
- 48% of visitors came to network and attend seminars
- 64% of visitors either influenced or made the final, major purchasing decisions

working in partnership with Buildoffsite to deliver the Show and in particular, to present a Seminar programme that will provide a knowledge transfer and networking opportunity for those who want to benefit from the product and process improvements that the intelligent use of quality offsite components, assemblies and systems can enable. As such, the Show and the Seminar programme will include hands-on mentoring in the use of modern project delivery and management techniques, including Building Information Modelling, Lean, and Design for Manufacturing and Assembly.

Many companies have already booked their stand space, including Trimble, Howick Ltd, Poppers Senco, Scott & Sargeant, Yara UK, Shuttlelift, StrucSoft, Modulek, Wetherby Building Systems, Shay Murtagh Precast, Actavo Building Solutions UK, JJ Smith, Marley Plumbing & Drainage, TDS Midlands, Cadcoe, Cornish Concrete Solutions, Morland, Creagh Concrete, Hadham International, Discrete Heat, Veka UK, the Offsite Management School, TMP and Eurobond Laminates.

This exciting event is now a must-visit for anyone seriously involved in any aspect of the construction industry. All of our exhibitors and partners are working with us, so that visitors can see what is new in the market and demonstrate why offsite is the UK's fastest growing construction method.

For more information on the Show, please contact: Paul Shelley 020 3086 9296 ext 3 or Eddie Milton 020 3086 9296 ext 2 at Marwood Events

*build*offsite at OSCS 2018



The Offsite Construction Show (OSCS) takes place on Tuesday 20 and Wednesday 21 November 2018 at the ExCeL in London's Docklands. OSCS is the only Show in the construction industry calendar that is wholly focused on addressing the information and product needs of the fast-developing offsite construction market.

For the fourth year running, Buildoffsite is working closely with our Member – Marwood Events – to support the development of the Show, so that this continues to match the growing needs of the industry. As in previous years, we will be both exhibiting, and also delivering an unmatched programme of free to attend knowledge transfer and networking events and opportunities. Our events programme is under development, and once again Buildoffsite will work to deliver the most comprehensive programme of free to attend events to support awareness and growth in the use of offsite methods, as well as creating incredible opportunities for business to business networking.

OSCS 2017 worked incredibly well for Buildoffsite, enabling us to connect with hundreds of new and existing contacts, to promote awareness of offsite to an increasingly enthusiastic industry and to support the interests of our growing Membership. We will be working hard to ensure that OSCS 2018 is even better – not just for Buildoffsite, but for all those who attend.

Make sure that you put 20/21 November at ExCeL London in your diary.

The Offsite Construction show is again working in partnership with Buildoffsite to deliver the Show and in particular, to present a Seminar programme that will provide a knowledge transfer and networking opportunity for those who want to benefit from the product and process improvements that the intelligent use of quality offsite, components, assemblies and systems can enable.

Hub Updates

















Residential Hub

The Buildoffsite Housing Hub has changed its name to the Buildoffsite Residential Hub in order to meet the growing demands and interests of its housing-focused members. The Residential Hub has a Chair (appointed by Buildoffsite), and the Secretariat is in place to promote its activities to the wider market and it is now looking for representatives.

Representatives will be invited to join the Leaders' Group (drawn from the membership) and invited to head up one of the following Sub Groups:

- Residential
- Affordable
- Build to Rent (PRS)
- Custom/Self-build
- Student Accommodation
- Older Persons' Accommodation

The fundamental purpose of the Buildoffsite Residential Hub Leaders' Group is to provide direction for the Residential Hub. A copy of the Buildoffsite Residential Hub Leaders' Group constitution will be made available on request.

The new name was announced at the recent Residential Hub event held at



Rail Hub

Discussions have been ongoing with Rail Sector clients regarding how to introduce innovation and accelerate the introduction of Step-free Access, which will lead to wider member involvement in the coming weeks.

The Bridges and Viaducts DfMA Guide will be published in April. Illustrations are currently being finalised and permissions to use them being sought.

Churchill College's Moller Centre in Cambridge on 14 March. Over 120 individuals and companies registered for the event.

The Speakers and a Panel debate with representatives from the East of England Local Government Association (representing 52 Local Authorities in the area) were all very well received by the attendees. Networking opportunities at the beginning and midway through the event provided significant opportunities for the attendees to form new contacts and to build on existing relationships.

The next Residential event is Enabling Housing Delivery on 11 April in Newcastle and members are advised to register as soon as possible in order to ensure a place.

More events are planned for June and September, so please watch the Events Calendar on the website for updates: www.buildoffsite.com/news-events/ upcoming-events.

This is an exciting time for residential development in the UK and an even better time to be a part of the growth in offsite manufactured solutions.

If members have any images that they feel should be considered for inclusion, please email them to Kate Abley for review: kate.abley@buildoffsite.com.

A Rail Hub meeting will be held on the afternoon of 26 April, so please reserve this date in your diary.

News

Housebuilding Report 2018

The Lloyds Banking Group has recently published its third Annual Report which outlines the growth strategies for housebuilders across the UK. The Report identifies the growing interest and investment in offsite methods. Also flagged up is the issue of access and retention of labour, alongside professional and management skills. The full text of the Report is downloadable from: https://resources.lloydsbank.com/pdf/ house-building-report-2018.pdf

The survey supporting the 2018 Report has identified:

• 5-year growth forecasts for housebuilders have increased marginally to an average of 29% of current annual turnover. Measures to mitigate risk with development includes: 33% of respondents pursuing partnerships; 32% looking for investment from external investors; with 31% planning to rely on their reserves



- Interest in innovative construction methods is growing rapidly with 61% of respondents making use of offsite methods including panelised systems, modules, pods, sub-assemblies and components
- Access to skills is a growing concern, although at present 66% of respondents report that there is currently sufficient labour. However, Brexit is reported as making it harder to recruit - including in particular staff for permanent roles. Research from the HBF has found that 17.7% of the homebuilding workforce is from a European Union Country outside of the UK. In London this figure rises to 49.5%

Driving Innovation in the Water Industry

The Linking Innovation To Societal Needs (LITSoN) project is producing a database of innovation relevant to the water sector. It will accelerate uptake of new solutions by water businesses through improved collaboration and by identifying opportunities for the supply chain. Water companies representing over 80% of the market undertook a successful pilot in 2017 and have committed to using LITSoN to help coordinate their innovation programmes and target engagement with SMEs.

The database will be a primary source for identifying innovative solutions in the UK water sector, accessible to all UK Water Industry Research members - and participants. As such, it will also provide market information on water company needs that are not being met by existing products and services, and to identify new collaborative partnerships.

Businesses sharing details of their R&D, product development and innovation projects with LITSoN will receive free access to the database, managed by UK Water Partnership.

• 69% of homebuilders are investing in staff development with almost half setting up apprenticeship programmes. The Report suggests that homebuilders plan to create 139,000 new jobs in the next 5 years.

Contact points for more information on the Lloyds Bank Report are available through https://resources. lloydsbank.com/pdf/house-building -report-2018.pdf

The survey and supporting information can be found here: https://www.theukwaterpartnership. org/litson-review-of-innovation-in-uk -water-utilities/

Caledonian's HPC accommodation right on time, first time



Newark-based Caledonian is currently well advanced in manufacturing and delivering 1,496 high quality worker accommodation units to the Hinkley Point C (HPC) nuclear power station in Somerset.

The accommodation units for the Hinkley and Bridgwater campuses are being delivered 96% complete, with all en-suite rooms fully fitted-out. This enables each module to be completed on site within weeks, meaning both campuses are exactly on schedule for workers to move in from June and September respectively.

Caledonian was awarded the £50m contract by main contractor Laing O'Rourke, because it demonstrated that it had the resources and expertise to manufacture the 1,496 volumetric modules over a 51-week period and, just as importantly, get them right, on time, first time. The company competed with an international supply chain to win the contract with Laing O'Rourke.

The benefits to EDF of choosing a modular solution from Caledonian include a significant reduction in the schedule of over half compared to a conventional build, assured levels of quality, and minimal environmental impact both on site and within the wider Bridgwater area, due to fewer deliveries. Each 34-bedroom block will then be completed on site within just 8 weeks from delivery, compared to an average of 32 weeks to build just one house.

The Bridgwater Campus is the largest of the developments, with Caledonian providing 29 accommodation blocks, each providing en-suite rooms for 34 workers. A further 15 buildings will be located at the Hinkley site, providing direct access to the construction zone. The three-storey buildings have been sympathetically designed to blend into the surroundings, with natural timber and stone-effect cement cladding.

Nigel Cann, HPC Programme and Construction Delivery Director, said:

"I'm pleased to see the first accommodation units arrive for HPC on schedule, showing the progress we're making on the site. We've worked hard to make sure that the impact on the community is a positive one and were mindful that the accommodation units needed to arrive on time so that we didn't affect local B&B accommodation for visitors to the area."

Hinkley Point C will require about 5,600 workers during peak construction. Around two-thirds of workers will rent privately in the local area or be home-based.

Paul Lang, Chief Executive Officer at Caledonian Modular, said: "The investment we've made in our production facility and the dedication of all our staff means we're exactly on schedule at Hinkley Point C. We're delighted to have delivered the first accommodation suites to site and the others are now following in quick succession."



Blueprint for UK housing crisis

A growing number of large infrastructure projects in the UK now consider the amount of existing accommodation that is available in the surrounding communities and how it can be best matched with workers, so that adverse impact on the local population is avoided. Paul added: "The Hinkley accommodation modules provide a blueprint for other large construction projects that are looking to attract a high-quality workforce, whilst avoiding issues with local housing supply. Being able to house nearly 1,500 workers in hotel-grade accommodation at Hinkley in a matter of weeks sends a clear message to housing providers - that our accommodation modules have the ability to solve the UK's housing crisis.

"As a result, we have recently signed a collaborative partnership agreement with Arcadis, focused specifically on the residential sector. Arcadis will work with us to develop new modular designs, and to build additional capacity in the commercial and technical delivery of new housing. In our opinion, the use of modular technology will become

increasingly popular in the residential sector and its benefits have already been demonstrated at Hinkley."

The Bridgwater campuses will operate for six and a half years, and are designed with amenity buildings, which include a canteen, laundry and gym. One full size and two 5-a-side pitches will also be available on the site for use by workers and members of the public at certain times. After being used by EDF Energy, the accommodation suites at Hinkley will be removed, but some key infrastructure will remain and be gifted to the local community for future redevelopment and use.

About Caledonian

Caledonian is the UK's leading offsite permanent building solution provider, with a unique approach to offsite manufacture and construction, built on collaboration and exceptional people; and underpinned by strong corporate values and commitment to outstanding customer service.

Key sector experience includes turnkey solutions for education and residential, as well as custodial and military.

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We continually drive value and efficiency through Smart Construction, and by promoting the intelligent use of Building Information Modelling (BIM), Design for Manufacture and Assembly (DfMA), and employing Lean Manufacturing techniques to eliminate waste.

Working either as Principal Contractor/Lead Designer or as a specialist Subcontractor, we have the capability to deliver projects from conception through to handover from the single largest offsite manufacturing facility in the UK.

For more information about Caledonian Modular, call: 01636 821645, or visit: www.caledonianmodular.com

Lucideon: The Centre of Excellence for Offsite Construction Testing



The offsite industry is experiencing an increased demand for modular housing and construction infrastructure. This will continue to increase as the Government has highlighted modular homes as a part solution to the housing crisis, and approved plans for the Heathrow Airport expansion and HS2.

Realising a rise in demand for offsite construction, Lucideon has extended its existing consultancy, testing and R&D services to become the recognised Centre of Excellence for offsite construction testing. Lucideon's large-scale structural testing laboratory, multiple environmental chambers and analytical testing laboratories enable the performance of products and systems to be assessed and verified before going into service

Lucideon is supporting the industry in these changing times by providing comprehensive and integrated solutions for offsite and modular buildings. Many of the systems and products developed to meet the increased demands of industry fall outside of current standards. The engineers and experts at Lucideon design customised



test programmes in order to prove new designs, and establish both their structural integrity and durability, thus providing manufacturers with confidence in the long-term performance of their products.

Lucideon's testing services cover both individual components and full systems:

- Laboratory-based conformance testing (structural integrity, durability, weather resistance and serviceability. materials characterisation)
- Onsite testing (proof of performance, thermal imaging, acoustic, water tightness, air tightness, materials characterisation)
- · Elemental analysis (wear, corrosion, chemical, fatigue, metallographic analysis)

The environmental chambers enable the long-term performance and aesthetic acceptability of full-scale systems to be tested. Products can also be subjected to structural testing to ensure their adequacy for the design life of the system. Methods can also be formulated to test systems for an extended design life of 60 years or more for unique projects, such as nuclear.

The full-scale laboratory is also able to accommodate large-scale precast samples, including tunnel linings, bridge decks and bridge bearings. This facility provides manufacturers with an opportunity to prove their product performance by test rather than design, and is often a far more economical approach when developing a new component. Within this laboratory, long-term fatigue loading using tensile and compressive rigs can cycle loads or deformations simulating wind or traffic loadings, or foot traffic.

Product and system testing helps to increase the confidence in offsite construction and ensures a quality building is produced.

Materials Development and Commercialization

For further information, contact Joanne Booth, Business Manager -Construction by tel: 01782 764410, email: joanne.booth@lucideon.com or visit the website: www.lucideon.com/buildoffsite

News

Keeping in touch under the new data privacy law



On 25 May 2018, one of the biggest changes to UK data privacy law comes into effect.

What does this mean for you staying in touch with Buildoffsite?

In the coming weeks, we will be writing to all of our contacts, including Buildoffsite members, collaborators and all other contacts outlining how we will continue to communicate with you in line with the requirements of the new privacy law.

Our members and collaborators (including project group members, funders and supporters) will receive an email outlining how we will continue to deliver benefits as part of your own or your organisations' continuing involvement with Buildoffsite.

At the same time, all of our other contacts will receive an email to seek consent so that we may continue to contact you with relevant information that you have expressed an interest in previously.

The General Data Protection Regulation (GDPR), is a positive step towards you having additional control over how your data is used and how you're contacted in the future.

These emails will also allow all of our contacts to update and manage their preferences, so that we only send you information based on your interests.

You will of course have the right to opt out from these communications at any time. If you choose to opt out, you will miss out on communications surrounding news about Buildoffsite research projects, events, training, publications, opportunities to share case studies of projects or to take part in surveys we conduct, as well as special offers and more.

What do you need to do?

is in safe hands.

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You don't need to do anything right now - rest assured your personal data

Our commitment

- 1 We use your personal data to help provide great customer service, that includes tailoring the information we share with you to ensure it's relevant, useful and timely
- 2 We respect your privacy and work hard to ensure we meet regulatory requirements
- 3 We don't share your personal data unless we have a legal requirement to fulfil

The General Data Protection Regulation (GDPR), is a positive step towards you having additional control over how your data is used and how you're contacted in the future. This notification is our reaffirmation that Buildoffsite is as committed as ever to ensuring your rights and interests are protected.

To reflect these changes, we've updated our privacy policy, which you can review on our website www.buildoffsite.com. Please be aware that further changes relating to GDPR may be made to our Privacy Policy in the future, so do keep a look out for this.

McAvoy wins place on £1bn modular buildings framework



"An important factor in our appointment was our ability to develop virtual models of our clients' buildings to facilitate more informed decision making and enhance stakeholder engagement."

appointed to the LHC Modular Buildings Framework, which has a combined value of more than £1 billion. The LHC is one of the UK's longest-established public sector procurement specialists. McAvoy has secured the opportunity to provide permanent and bespoke modular buildings and interim facilities for education, healthcare and emergency services schemes across England, Wales and Scotland for the next four years. McAvoy was successful in 15 lots and achieved the highest scores for education buildings, factory processes and BIM. McAvoy also finished top in the work-stream WS1 for permanent or interim education and healthcare buildings. Public sector clients can award contracts directly to the company.

The McAvoy Group has been

The Group has already secured its first scheme following its success on the Framework – an interim classroom project for Cardiff Council. The building will accommodate 60 children at Court Special School for three years, to help meet the rising demand for school places. Commenting on this major framework appointment, Managing Director of The McAvoy Group Eugene Lynch said: "Our success in so many lots of this prestigious framework highlights the scope and quality of the offsite solutions that McAvoy can offer to public sector clients across the UK. An important factor in our appointment was our ability to develop virtual models of our clients' buildings to facilitate more informed decision making and enhance stakeholder engagement. This innovative use of advanced technology helps clients to reduce risk, save time and really optimise the speed and efficiency benefits of offsite construction."

The Group's appointment follows a rigorous selection process, which included a visit to McAvoy's factory, a demonstration of its market-leading virtual reality technology, and a thorough assessment of the quality and technical performance of its offsite building systems for both permanent and interim use. The LHC Frameworks give public sector building clients the benefit of faster and more efficient procurement. best value pricing, instant access to project data, the reassurance of higher quality, guaranteed service levels, and faster project commencement. The Modular Buildings Framework can be accessed in Scotland via the Scottish Procurement Alliance and in Wales using the Welsh Procurement Alliance.

News

coBuilder's new VP Global Sales



CoBuilder

coBuilder is happy to announce Andrea Minerdo as the company's new VP Global Sales as from 19 February. Andrea will bring his invaluable expertise in developing cross-cultural business development strategies and best practices to coBuilder's expanding international sales force.

At coBuilder, Andrea will focus on delivering results for international organisations with focus on SMEs looking to expand their global growth and increase profitability through standard-based digital data solutions.

coBuilder is a company with over 20 years' experience in delivering sustainable information management solutions to the

Offsite methods to shape the future of quality UK Homes



For more information, contact Architectural Leader Dominic Boyes by email: dboyes@laingorourke.com mobile: 07471 144294 or visit the website: www.laingorourke.com

over the next 5 years.

The partnership will aim to undertake two substantial projects annually in London and the South-east to speed up the delivery of much needed quality new homes.

The first project involving a £200 million investment to transform a former industrial area in Southall. West London will see the construction of 550 new homes. The development will provide a mix of homes for market sale, for private rent plus a significant number of homes for shared ownership and affordable rent. The scheme will also include retail and commercial developments. The aim is to submit a planning application in

construction industry. The company has developed systems that make use of digital processes such as BIM in order to help businesses standardize their information management functions and leverage their data assets.

For more information, contact VP Global Sales Andrea Minerdo by email: minerdo@cobuilder.no or mobile: +39 348 841 3300 or visit: www.cobuilder.com

Buildoffsite Member Laing O'Rourke has signed a partnership arrangement with developer Stanhope and housing association Network Homes that could provide £2 billion worth of housing projects being constructed using offsite methods

Spring 2018 and achieve a start on site in early 2019, with the development completed by mid-2021.

The ambition for the partnership is to disrupt current models for delivering new homes by adopting offsite manufacturing techniques to deliver quality new homes at a rate that can't be matched by traditional construction methods.

The Southall project will be supported by modules and other products from Laing O'Rourke's offsite manufacturing facilities at Steetley, Nottinghamshire and Oldbury in the West Midlands.

McAvoy hands over education project 17 weeks early



The McAvoy Group handed over the £20m Lynch Hill Enterprise Academy in Slough 17 weeks ahead of programme, allowing the school to benefit from earlier occupation. The project is one of the UK's largest ever modular schools. It demonstrates a number of new innovations which contributed to its early completion and reduced the programme by around six months compared to site-based construction. Lynch Hill is a 1,140-place academy free school campus specialising in science, technology, engineering and maths. In recognition of its success, the project has already been shortlisted for five industry awards. You can view a video of the Lynch Hill scheme here: https://youtu.be/ Cx7ftoXaWTc.

The use of a McAvoy offsite solution reduced the build programme to just 53 weeks and helped to address the issue of restricted access to the brownfield site. Around 65% of the building's construction was completed offsite, and the 146 steel-framed modules were installed with doors, windows, ironmongery, internal walls, plumbing, electrics and joinery already in place.

Phil Clarke, Project Manager for the Lynch Hill scheme at the Education & Skills Funding Agency said: "The main driver for offsite construction for this project was speed – and to see a building of this scale constructed so quickly was amazing. The McAvoy construction team demonstrated a high level of skill and flexibility. The combination of steel-framed construction and the offsite solution works really well and is seamless. You would never know this was a modular build." Lynch Hill demonstrates a number of technical advancements including steel-framed modules that were pre-clad in the factory. Larger 15.6m long units and a new lifting system were specially engineered for the project, reducing time, transport and installation costs, and further improving construction efficiency.

Around 65% of the building's construction was completed offsite, and the 146 steel-framed modules were installed with doors, windows, ironmongery, internal walls, plumbing, electrics and joinery already in place.

News

Great Results from McAvoy

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The McAvoy Group, one of the UK's leading offsite construction specialists, has announced a record financial year in 2017, achieving a 10% growth in turnover to £60m. The business is on track to achieve £100m turnover by 2020 and its £10m investment programme is now well underway.

McAvoy has also announced it is working on over £20m of new projects, which includes office schemes for the Homes and Communities Agency in Northstowe, Cambridgeshire and projects for two pharmaceutical companies. The Group is also progressing new building contracts at Eden Girls School in Walthamstow and King Alfred's Academy in Wantage, Oxfordshire. Commenting on the record financial performance Eugene Lynch, Managing Director of The McAvoy Group said: "We have further strengthened the business in a number of areas - from new board appointments to our skills growth training programme. We have continued to increase staffing levels to support our expansion and are building on our market-leading success in the education buildings sector with diversification into offsite solutions for transport and infrastructure, student accommodation, housing and healthcare projects. These factors have all contributed to a record year in both revenues and profit and are testament to the hard work of our teams across the business."

The McAvoy Group wholeheartedly supports the Government's commitment to prioritising the use of offsite manufacturing and modern methods of construction to improve the cost effectiveness, productivity and speed of construction delivery. There is a clear need for transformation in the construction sector to make it more efficient, faster, more sustainable and to make better use of technology including digital.



About The McAvoy Group

The McAvoy Group is one of the UK's leading offsite construction specialists. An independent, family-owned business and an established principal contractor, McAvoy has been providing bespoke offsite solutions and interim modular buildings for more than 40 years. It delivers fast-track projects of the highest quality for the health, education, commercial and infrastructure sectors, with less impact on the environment and greater assurance of completion on time and on budget.

For further information about offsite construction solutions, visit: www.mcavoygroup.com call: 028 8774 0372, or email: info@mcavoygroup.com

Tekla Structures sails ahead on offshore projects



Pinnacle Consulting Engineers has utilised Trimble's Tekla Structures on two impressive offshore projects, thanks to it being able to handle the most complex of structures, while creating accurate 3D models.

Pinnacle is a regular user of Tekla software - especially when it comes to offshore projects, where high levels of steel detailing is required. Matt Bvatt, Director at Pinnacle. said: "As Tekla Structures was developed as a steel detailing package, it makes sense for us to use it on the majority of our offshore projects, as they are predominantly steel structures. At Pinnacle, our employees that model and create drawings on Tekla software have had at least 10 years' experience of steel detailing before joining the company, which means that they have the knowledge and understanding of what fabricators require to help an offshore project run smoothly and on time."

Models created with Tekla software contain accurate, reliable and detailed information needed for successful Building Information Modelling and construction execution. Tekla Structures was created to improve the way users work in their own offices and with their partners by creating more accurate ways of working and streamlining collaboration between all parties, at all stages of the construction project

Pinnacle was appointed as the structural engineering consultant to help develop and structurally engineer a safe and reliable boat landing station off the coast of Holland, from which personnel could access and return from the gas platforms. The principal engineering challenges were to create landing structures fixed to the existing jackets, between the sea level and the platform's 'spider deck'. The landing structure had to allow safe access from the chosen vessel within a 2m tidal range and, once on the landing, easy access to spider deck level via a safe and secure stair.

Once all of the design actions and combinations resulting from wind, wave, tidal and impact conditions were assessed, the boat landing structure was analysed, designed and then fully detailed using Tekla Structures. Pinnacle then had to ensure that the project could be phased to facilitate transport and installation on the project. The goal was to minimise the number of components whilst staying within the size and weight limitations of transporting and lifting onto the platform.

"At Pinnacle, our employees that model and create drawings on Tekla software have had at least ten years' experience of steel detailing before joining the company."



Pinnacle was able to guickly build a 3D model using original as built drawings. This initial model formed the basis for creating early scheme designs for the structure and clamps. From this, Pinnacle could produce a BIM sight model (including pre-set views created to show specific details) to use at meetings with the client and the installation company in Holland. The clarity and detail of the images presented meant that its client's team was engaged immediately with the proposed design. This helped to raise key issues early, so that adjustments could be easily worked into the design. It also helped to highlight the fine tolerances required and the need for an accurate site survey.

The Leman Alpha ICCP Project is located in the Southern North Sea, for Pinnacle's client Shell and formed part of a series of upgrade projects, which were designed to extend the life of the existing gas platforms. Pinnacle was engaged in early 2016 to structurally design and detail, in collaboration with Shell and their team of specialist contractors, two new I-tubes, which were to be installed within empty conductor guides from the platform's cellar deck to the sea bed. These new I-tubes were to house large diameter cables to the seabed forming part of an Impressed Current Cathodic Protection (ICCP) system to extend corrosion protection, and thereby the serviceable life of the Leman Alpha jacket structures.

The ICCP process consisted of installing three Retrobuoys (a 500 Amp ICCP Anode Sled) on the seabed and connecting them via a power cable to the jacket structure. In order to protect the primary cables as they travelled up to the platform deck level, two new 610mm diameter I-tubes were installed within two of the spare Conductor Guides - one each on the north and south side of the platform.

There were a lot of challenges that Pinnacle came across on this project, such as, for the pulling operation to be a success, it had to take into account the bend restrictions of the cables at the entry point on the seabed. In order to do this, two bellmouth openings had to be created vertically - 2m apart - to allow the pullhead mechanism to pass through these tubes and winch the cable to the top.

Matt continued: "Tekla Structures helped us to overcome these challenges as we were able to solve any problems early on in the project, check for any clashes and ultimately, distribute the IFC model. Once our models are created in Tekla Structures, they are then sent to the steel fabricators, so they can add all of their elements to the model, which means the whole process is streamlined and guick."

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With Tekla Structures being the backbone of these two complex projects, it's easy to see how the collaboration and detail created in the software was critical to Pinnacle's success in engineering these models.

For more information about Tekla software, please visit www.tekla.com/uk/solutions.

Employers head to the Midlands for Offsite Construction Skills event



An event which took place at Dudley College of Technology in February brought employers from throughout the UK to find out more about skills and training, specific to offsite construction.

For more information, please contact **Business Development Executive** Kirsti Wells by email: kirsti@cadcoe. com, phone: 01952 605549 or 07720 619948, or visit the website: www.cadcoe.com



Kevin Arthur (Elements Europe) and Nick Whitehouse

As part of Buildoffsite's monthly meetings, members TDS and The Construction and Design Centre of Excellence (Cadcoe), hosted the seminar ahead of National Apprenticeship Week, to debate the growing demand for relevant training where modern methods of construction are concerned.

The panel of speakers, which included Elements Europe, the CITB, Encon, Action Sustainability, the Offsite Management School and Professor Nick Whitehouse, shared their research and thoughts around the need for developing new skills within the industry. Tim Hall, Buildoffsite's Director, led the proceedings. He commented: "It's clear that in order for the UK construction industry to survive and to accelerate growth for offsite methods, we all need to understand that we're now talking about digital skills, predominantly around manufacturing and engineering. This presents a total new level of opportunity for the next generation of employees looking to forge a successful career in construction."

The event concluded with a tour of Dudley College's Advance II facility - a state of the art training centre for advanced construction technologies, and where Cadcoe delivers it fast-track digital CAD and BIM courses.

Event hosts, TDS and Cadcoe, are no strangers to the continuous demand of a changing construction industry. A design and detailing company for structural steelwork and architectural metalwork, TDS established Cadcoe as a training provider in order to develop the skilled CAD engineers the business needed. Seven years later and now a national provider. Cadcoe has evolved to service the skills needed for 2D and 3D design within offsite construction, for structural engineering and also conventional steelwork design, through its advanced engineering construction apprenticeship. Working in partnership with Dudley College, all apprentices complete a 16-week intensive training course, before joining their employers full-time.



In the past 12 months, Cadcoe has seen increased growth in demand for CAD technicians and engineers from both employers delivering offsite services and young people looking to join the industry. Managing Director, Daniel Leech sees this as no surprise: "The demand for our design services for offsite projects at TDS has boomed and there is a very obvious need to recruit more highly digitally skilled staff to meet this. We've already tripled the number of apprentices we're recruiting to the company, welcoming five in the last six months alone. As a country, we need to invest in our young people. They are already naturally equipped with the digital skills the construction industry is crying out for, which is complemented perfectly through relevant training schemes such as those available through Cadcoe."



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Tekla Developer Centre and Partner Programme



Today, software is like an organic, living thing - constantly changing and evolving to meet the way we work with and use our software. Since 2006, Tekla Open API (Application Programming Interface) has been available to allow customers and partners create tools and applications that help them use Tekla Structures more effectively.

Many of our customers have taken advantage of this open approach, for example AB Strängbetong (a Swedish precast concrete manufacturer) has used API to develop functionality that enables them to automate much of their design work, such as cast-unit drawings for all standard elements and even in some cases automatic generation of buildings such as Strängbetong Bashallen (Strängbetong's modular long span buildings).

Ricardo Farinha, BIM Application Development Manager, Sweco believes that: "Sweco has saved many thousands of hours per year over time by using automation tools.

And these tools and Open API have allowed us to stay competitive in fast changing markets. If we think that for example in Sweco we have about 900 users using Tekla Structures and they are saving one minute every time they use it, we're getting a lot of time savings in the design and then we can focus more on engineering."

With the 2018 version of Tekla Structures. Trimble is introducing the Tekla Partners Programme, which is designed to help our partners and customers develop complementary applications and integrations that add value to Tekla Structures. Anyone can become a member of the Tekla Partner Programme by purchasing a Tekla Structures Partner License. You are then able to develop, sell, market and distribute applications to third parties. You also have the opportunity to reach Tekla customers by distributing your applications in Tekla Warehouse, and get data from it about the success of your application with download statistics and analytics.

But you don't have to be a large company to realise the benefits of Tekla Structure's Open API. It gives everyone the ability to customise reports and templates, automate routine tasks such as creating daily reports and create standard connections for your business for regular use. The possibilities to use Open API to create applications that save time and the easiness of adapting Tekla models to constant project changes are endless.

Alongside the Partner Programme, Trimble is also launching the Tekla Developer Centre, which is the hub for all Tekla Open API information: API reference, programming guides, exercises, code examples, community for asking questions and sharing best practice, and more. It brings together all of the information required to start developing into one place.

To find out more, please talk to anyone at Trimble, or visit: https://developer.tekla.com

Case Study

Elements Europe delivers offsite solution in Bath

Case Study: Green Park House, Bath Modular Manufacturer: Elements Europe Main Contractor: Berkelev Homes Number of Modules Delivered: 604



With an ever-growing demand for faster and more efficient construction methodologies, offsite construction provides the perfect solution enabling quicker build programmes whilst not compromising on the aesthetics of a project. Modular construction can be used in a variety of different projects from hotels to residential. When people pod products as well as utilising other think of offsite construction they typically visualise box type pods and roof cassettes. which are restricted to block style buildings, yet this is not the case.

and budget schemes, enabling clients with cost and programme certainty, consistently high-quality factory finishes and unsurpassed flexibility as well as innate sustainability.

The client's architect worked closely with Elements Europe's design team to ensure the highest level of specification was achieved to deliver 461 student room pods for a student scheme in Bath. Several room types

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Elements Europe has delivered offsite solutions for a variety of different architectural styles, whether it be a renovation of a listed building or a new build with curved walls and sashed windows. Not only this but each project can feature several different types of accommodation layouts and styles using our room pod, kitchen pod and bathroom modular systems such as stair, corridor

Offsite construction is suitable for both luxury





were manufactured, ranging from cluster flats with communal dining and kitchen areas, to studio apartments and apartments for double occupancy.

All of the modules were designed with the local architecture of Bath in mind, each room featured Georgian sash windows and the external façade was stone. In addition to the room modules, all stair cores and corridor cassettes were manufactured offsite, bringing the total number of modules to 604.

For more information, please contact Sales Director Kevin Arthur by email: kevin@elements-europe.com phone: 01952 767100, or visit the website: http://elements-europe.com

Case Study

McAvoy Case Study: West Hill School

Value: £2.86m

On site: 29 weeks

Building size: 910m²

Partners: HBS Architects



Project Summary:

An extension at West Hill School in Leatherhead - an Ofsted outstanding special school - was required to accommodate the change from secondary education provision to a 2FE primary school. The scheme, built offsite by The McAvoy Group, links the traditionally-constructed main building and an existing modular classroom block on a highly constrained, fully operational school site. McAvoy has completed over 40 education building projects for Surrey County Council – ranging from single classroom buildings to a £5m nursery, infant and junior school extension at Danetree Primary School near Epsom.



The Offsite Solution:

The new building provides additional teaching spaces for children with learning and additional needs. It was manufactured offsite by McAvoy to reduce disruption and was ready for occupation on time and after less than eight months on site. An offsite solution was also developed to build a teacher training centre on the upper floor as West Hill is a Teaching School and National Support School. The use of offsite construction avoided any disruption to teaching and the children despite the site constraints. 28 steel-framed modules were installed in just four days and McAvoy restricted working times to maintain access and accommodate the children's arrival at and departure from school.

Project Challenges:

- · Both of the existing school buildings at West Hill had to remain in use throughout McAvoy's construction of the new facilities
- Gradient differences of 870mm were incorporated within corridors using a specially-engineered double floor beam design which also maximised offsite construction. This avoided the need for steps inside the building which would have caused issues for children with mobility issues
- Challenging ground conditions required complex piled foundations and a supporting steel frame
- As West Hill is a school for children with special educational needs and located near the M25 motorway network and under a flight path, the building specification demanded outstanding acoustics both internally and externally. McAvoy developed a twin modular wall system and a specially-designed offsite roof solution to achieve the enhanced acoustic performance
- The building was required to be mechanically ventilated and this equipment had to meet the noise sensitivities of the children

Digitising Construction:

This project featured extensive use of BIM to help address the complexities of the site. An offsite solution was engineered to accommodate significant height differences between the main school and the existing modular teaching block.

- 3D modelling was invaluable to better inform the groundworks and module installation phases and the models were used on tablets on site
- BIM facilitated decision making with stakeholders, with the use of 3D models and virtual reality, rather than traditional 2D line drawings. The school was able to see each room and experience the space and it allowed decisions to be made at an earlier stage
- BIM gave teaching staff the opportunity to assess how the training centre could work located as a second storey to the new classroom block rather than as a freestanding building which was originally envisaged
- The digital techniques allowed for streamlined co-ordination of workflows throughout the project, which led to savings in time against the overall programme
- The BIM models provided the whole supply chain with a better understanding of the building design and so enabled them to better plan their elements of the build process
- Clash detection between the structural and M&E elements was also invaluable to reduce the risk of any re-working either in design, manufacturing or on site.

Design Features:

The new facilities accommodate a food technology classroom, an open-plan library, classrooms with direct access to the outdoors, small group rooms and a teacher training centre on the upper floor. The building has created a covered and controlled link between the main building and an existing teaching block, and a new courtyard provides a secure play area where a sensory garden will be developed. McAvoy was also

responsible for some alterations to the school's existing facilities to help accommodate the change from secondary to primary education.

A Design for Special Educational Needs: Design features of the building to address special educational learning and additional needs included:

- Wider corridors to help children who have mobility or balance issues
- · Break-out rooms to allow different educational needs and styles to be accommodated for individual or small group learning
- Hygiene rooms equipped with a hoist to assist children in wheelchairs
- Provision for hoists in two classrooms and for further hoists to be installed in
- · Ease of access between the new building and the existing facilities, and to the external play areas
- Enhanced acoustics to avoid disruption to children's learning.

The Customer Perspectives:

Judy Nettleton, Head Teacher, West Hill School: "The offsite solution generated massive time savings which were invaluable from an educational perspective. The McAvoy team had outstanding communications throughout, and their work was well planned and highly respectful of the challenges we were facing, both as a special needs school and in the transition from secondary to primary education provision. McAvoy was able to accommodate an urgent requirement for an extra floor and our new teacher training facility is a brilliant resource. This space could easily be converted into three additional classrooms if we need to expand capacity in the future. The building has a high level of acoustics which is key for a special school to avoid disruption to children's education, and the size of the hygiene rooms, the wider corridors and breakout spaces for individual and small group learning are all invaluable features."

"The use of offsite construction avoided any disruption to teaching and the children despite the site constraints. 28 steel-framed modules were installed in just four days."

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- other areas around the building

Giorgia di Sarno, Project Manager at Surrey County Council: "We had a very positive experience working with McAvoy on this scheme. Their site management was excellent and they communicated brilliantly with the school which was so important in enabling the teachers to prepare the children. This is vital when carrying out construction works at an SEN school. The finished building is great and was designed according to the special needs nature of the school. Classrooms are light, airy and welcoming. On this project, offsite construction allowed us to develop a bespoke building with the benefits of better quality control in a factory environment. It was essential to reduce time on site to avoid disruption to the school. A shorter construction period on site is hugely beneficial to any school but particularly to special needs children. McAvoy was also able to add value to the project and inform its design by being involved at the project's inception. This allowed the addition of a further storey."

Awards:

In recognition of its industry-leading application of BIM technology for the West Hill School project, McAvoy won the RICS BIM4SME Award for Best Virtual Reality BIM.

New Member



For more information, please contact: Joe Govier **Managing Director** T: 01524 812 899

E: joe.govier@ connect2cleanrooms.com www.connect2cleanrooms.

Cleanrooms



Connect 2 Cleanrooms produce high quality modular cleanrooms that provide contamination control for some of the world's leading organisations. We design and supply FM compliant panel system cleanrooms with user-centred designs that fit both facility and process to create a mission critical environment.

Working with end users and tier 1 contractors, we can deliver a fully validated cleanroom within just 6-8 weeks, achieving ISO 14644-1 compliant particle counts. Through off-site construction techniques we are able to offer clients a reduction of up to 50% on a traditional build cleanroom project lifespan. For complex builds Building Information Modelling (BIM) leads to accurate design which complements the existing facility.

Our bespoke, classified environments use the latest technology to drive efficiencies. Our powerful control panels provide closed-loop control integrating with Building Management Systems (BMS).

The pre-engineered design leads to an effective assembly and build on site, so clients benefit from less snagging and defects, and reduced wastage.

We are ISO 9001:2015, ISO 14001:2004 and OHSAS 18001:2007 accredited, proving that we meet customer expectations through the applicable statutory and regulatory requirements. We are also SafeContractor and CHAS approved for achieving excellence in Health & Safety.

We design and supply FM compliant panel system cleanrooms with user-centred designs that fit both facility and process to create a mission critical environment.

New Member



please contact:

Andrew Slaymaker

T: 0845 258 6326 or

E: andrew.slaymaker@

flagship-group.co.uk

www.flagship-group.co.uk

T: 07827 870869

Strategic Land Manager



Flagship is a housing association providing more than 22,500 affordable homes for people in housing need across East Anglia. Our core business is to manage and maintain our homes, and we aim to build about 500 new properties every year.

We have a number of subsidiary companies: RFT Services (repairs and maintenance), Flagship Homes (homes to let and for sale) and Gasway (gas services).

Since we started in 1998, we have provided much needed affordable homes for rent and sale for communities across East Anglia, and working with public and private sector partners we have built thousands of new homes

Today, we employ over 800 people, consisting of 300 Flagship Group employees, 300 at RFT and 200 at Gasway

Since we started in 1998, we have provided much needed affordable homes for rent and sale for communities across East Anglia, and working with public and private sector partners we have built thousands of new homes.

The Group's turnover is around £135m, the company is rated A2 by Moodys, and has the highest grading from the industry regulator in Governance and Financial Viability.

We are keen to grow our service offer, working with other housing associations and local authorities, and developing a wider range of commercial services for private sector customers.

We are passionate about providing high guality, affordable homes and strive to be the best at managing affordable homes in the UK. As in other parts of the country, our region faces a huge challenge where demand for affordable homes dramatically outstrips supply. Our ambitious goal is to solve the housing crisis in the East of England.

New Member



For more information, please contact: **Graham Cleland** Director

M: 07876 848 946

E: graham.cleland@ berkeleygroup.co.uk

www.berkeleymodular.co.uk

Berkeley Modular

Berkeley Modular is a newly-formed company, founded to produce a volumetric modular housing solution for the Berkeley Group.

From its purpose-built, technologically advanced manufacturing facility in Northfleet, Kent, the company's highly skilled workforce will produce a range of modular housing products designed to the same high specification and excellent build standards that customers demand from the Berkeley Group.

To achieve this, Berkeley Modular is undertaking in-depth research in order to deliver a modular housing product which is high quality, high performing and highly comfortable, and which delivers an improved correlation between design intent and the performance of the built product.

Berkeley Modular is investing to create a volumetric modular manufacturing facility which will provide system flexibility so as not to limit architectural freedom, and which will support lean manufacturing principles integrated with advanced manufacturing technologies to support true Design for Manufacture and Assembly to ensure the new facility operates efficiently.

The ultimate aim is to create a product solution and manufacturing process that is controllable, scaleable and productive.

Construction work is about to start at the new facility, and the company will be looking to recruit a host of full-time, directly employed, permanent staff, as well as apprentices. Currently, Berkeley Modular is developing links with key recruitment partners and colleges in the local geography to ensure that it recruits a highly-motivated workforce to support its vision.

Events

Newcastle Residential Hub (and opt-in Direction Group Dinner)

DATE:

Wednesday 11 April

TIME: 14.00-19.00

LOCATION:

Barbara Strang Teaching Centre, Newcastle University, Newcastle NE1 8QB

THEME:

Enabling housing delivery how pre-manufactured homes are being used to increase housing supply

| Influential speakers, en |
|---------------------------|
| this event is essential f |
| developing, purchasing |

| 14:00 | Registrations |
|-------|--|
| 14:15 | Welcome |
| 14:25 | Buildoffsite H |
| 14:45 | Brian Ham, H for selecting |
| 15:00 | Graeme O'Do of modular ho |
| 15:15 | Brendan Ger solutions that |
| 15:30 | Michael O'Do of manufactu |
| 15:45 | Afternoon Tea |
| 16:30 | Political over |
| 16:45 | Panel Debate role as enable Strategy Cha |
| 17:15 | Open Discus |
| 17:45 | Other Busine |
| 18:00 | Drinks and N |
| 19:30 | Dinner (£30 p |
| | |

Panellists to be announced shortly



Berkeley Modular is undertaking in-depth research in order to deliver a modular housing product which is high quality, high performing and highly comfortable, and which delivers an improved correlation between design intent and the performance of the built product.

ngaging content and excellent networking opportunities, for anyone involved in UK housing, off-site manufacturing, g and procurement.

Housing Hub

Home Group – Capabilities and guiding principles offsite solutions

oherty, McAvoy – A balanced view of the benefits lousing

raghty, GTA – Creating more homes using good design suit offsite

oherty, One Public Estate - Opportunities & challenges ured housing

ea and Networking

view

e theme – Collaboration. Encouraging & exploring Buildoffsite's ler of collaborative projects through Innovate UK and the Industrial allenge Fund

ssion

ess

Networkina

per head for dinner to non-members)

To register for the event or for more information,

please email: nathalie.quinn@buildoffsite.com



Events

Newcastle Residential Hub

(and opt-in Direction Group Dinner)

DATE:

Thursday 12 April

TIME:

10.00-14.30

LOCATION:

Barbara Strang Teaching Centre, Newcastle University, Newcastle NE1 8QB

THEME:

University Estates and Student Accommodation

| The next Buildoffsite Direction Group Meeting theme is University Estates |
|---|
| and Student Accommodation. |

| 09:30 | Registration and Networking |
|-------|---|
| 10:00 | Welcome and Introductions |
| 10:10 | Presentations to include: Rachel Davis, Premier Interlink Peter Boundy, Kier Paul Bandeen, Newcastle University |
| 11:10 | Construction Leadership Council Update – Construction sector deal |
| 11:40 | Digital futures overview – emerging issues – Peter Foster, CoBuilder and Garry Fannon, Willmott Dixon |
| 12:25 | Communications and Events: The Offsite Construction Show Newsletter Collaboration with other organisations (HCA, Offsite School, Housing Forum) |
| 12:40 | Member Feedback Session |
| 13:00 | Close, followed by networking and lunch |
| 14:00 | A visit to the CIMC student accommodation which was delivered utilising manufactured 'modules' |
| | |

For those involved with or interested in the Residential Hub, please note there is a workshop from 14:00-19:00 on Wednesday 11 April - see page 35 for details. Please register separately for either event.

A Members' Dinner will take place on the evening of 11 April for those who will be staying overnight. The dinner will take place at Cote, 120-122 Grainger Street, Newcastle-upon-Tyne NE1 5AF from 19:30. We hope that as many members as possible will be able to join the dinner.

If you plan to stay over, please find below recommended hotels: www.motel-one.com/en/hotels/Newcastle/hotel-Newcastle www.newcastlegateshead.com/accommodation

For more information on this event or to register, please contact anna.whiting@buildoffsite.com



Events

Buildoffsite Rail Hub General Meeting



DATE: Thursday 26 April

TIME:

13:00-17:00

LOCATION:

CIRIA, Griffin Court, 15 Long Lane, London EC1A 9PN

THEME:

Buildoffsite DfMA Guide for Bridges and Viaducts

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All Buildoffsite members are invited (room capacity permitting) to the next Rail Hub meeting. The Buildoffsite DfMA Guide for Bridges and Viaducts has been produced with input from the group. The session will explore what can be done to support the London Underground Step-free Access Programme and how offsite can help to deliver the vision outlined in the WSP report 'Out of Thin Air: Building above London's rail tracks'. It will be an interactive session, looking for ways of helping members to collaborate to offer greater client value. Spaces are limited, so prompt booking is essential in order to ensure a place.

Members can book a place at: www.kulahub.net/forms/webform/3317?cl=746

Non-members, please email: kate.abley@buildoffsite.com





Events

DATE:

Thursday 3 May

LOCATION: Irish Embassy, 17 Grosvenor Place, Belgravia, London SW1X 7HR

THEME:

London Housing – What Next?

A knowledge and networking session jointly hosted by Buildoffsite, Enterprise Ireland and Invest Northern Ireland. The population of London is growing at a rate unseen for 70 years. There is already a shortage of decent, affordable homes. Against the current record of building around 46,000 new homes, the Mayor of London Sadiq Khan has called for a programme to construct 66,000, and for 60% of these to be affordable. The big question for this session is how can offsite construction methods contribute to a step change in new homes at scale?

DATE: Tuesday 19 June

LOCATION: Bradford - tbc

THEME: Pre-Direction Group dinner

Further details to be confirmed shortly.



DATE:

Wednesday 20 June

LOCATION: Hosted by NG Bailey in Bradford

THEME:

Direction Group meeting - offsite in high rise residential

Further details to be confirmed shortly.



DATE: Tuesday 28 August

LOCATION: Aylesford - tbc

THEME: Pre-Direction Group dinner

Further details to be confirmed shortly.



DATE: Wednesday 29 August

LOCATION: Hosted by Polypipe in Aylesford

THEME:

Direction Group meeting - raising our game for the manufacturing supply chain

Further details to be confirmed shortly.



Events

DATE: Wednesday 19 September

LOCATION: ARUP, 8-13 Fitzroy Street, Bloomsbury, London W1T 4BQ

THEME: Member to member event hosted by Arup

Further details to be confirmed shortly.

ARUP

DATE: Tuesday 30-Wednesday 31 October

LOCATION: Details to be confirmed

THEME: Direction Group dinner and meeting

Further details to be confirmed shortly.

DATE:

Tuesday 20-Wednesday 21 November

show.co.uk/contact/

LOCATION: ExCel, London

THEME:

The Offsite Construction Show, in association with buildoffsite



20th - 21st November 2018 ExCel, London

DATE:

Wednesday 19 December

LOCATION: London

THEME:

Direction Group meeting, followed by Christmas lunch

Further details to be confirmed shortly.

See page 13 for more information. To register your interest in attending please visit http://offsiteconstruction



EXTERNAL EVENT Raising the bar for offsite housing

DATE:

LOCATION:

THEME:

This free to attend workshop will explore the wider context of UK offsite housing construction and its housing challenge. The session will methods and schemes operating to systems. The programme includes the work of MHCLG's MMC Working Group, and will inform discussion about delivering client, customer and insurer confidence in offsite enabled housing.

https://www.bre.co.uk/eventdetails. jsp?id=15804



The only Show in the construction industry calendar wholly focused on addressing the information and product needs of the fast-developing offsite construction market

A must-visit for anyone involved in any aspect of the construction industry

Visitors can see what is new in the market and demonstrate why offsite is the UK's fastest growing construction method



Make sure you put 20/21 November at ExCeL London in your diary!