

# *build*offsite



**Buildoffsite's Housing Hub and The Greater London Assembly** – inaugural precision-manufactured housing networking event.

**Buildoffsite's response** to the GLA Offsite Housing report and the GLA Housing Strategy.

**The Off Site Construction Show 2017.**

Now in its third year – the premier UK Show for exhibiting and networking.

**Innovative projects, skills and technology** being delivered by Buildoffsite Members including Bryden Wood, Cadco, Hochtief and Shay Murtagh.

**Latest news** on the Buildoffsite Hubs – ensuring that design and supply chain Members focus on improving value for specific markets, and set new standards for construction.



# Contents

<b>Welcome</b>	
<hr/>	
<b>Off Site Construction Show 2017</b>	
<hr/>	
Buildoffsite at the Offsite Construction Show 2017 11 and 12 October	4
Day 1: List of main Seminars & Workshops	5
Extra Member Seminar info Cadcoe, BRE & Eurobond	6
Day 2: List of main Seminars & Workshops	7
<hr/>	
<b>Frontispiece</b>	
<hr/>	
Summing up the Construction Market	8
<hr/>	
<b>News</b>	
<hr/>	
Buildoffsite: Our strategy to enable members to deliver far greater project value	10
Hub Updates	12
Addressing the Housing Challenge	14
Buildoffsite response to the GLA Offsite Housing report	15
Buildoffsite response to the Mayor's Housing Strategy	16
The Inaugural Buildoffsite Housing Hub networking	17
The Outlook for Construction Activity	18
Building Skills for Offsite Construction – six months on	20
The Rise of the Ageing UK: The Platinum Generation	22
Use and opportunity of robotics in construction	23
DIO to launch new Building Performance Standards: Delivering better, faster and more cost-effective developments	24
R&D Tax Incentives – helping you build the future	25
Building Change into Construction Conventions	26
BOPAS update	27
DfMA and BIM: Hot topics or still misunderstood processes that the UK construction industry is struggling to adopt?	28
Bryden Wood: Standardising Components for Programme Delivery	29
Full house for Cadcoe's fast-track CAD course	32
Caledonian's express check-in at Hinkley Point C	33
coBuilder: Member Update	33
<hr/>	
<b>Case Studies</b>	
<hr/>	
Elliott: Awarded Principal Contractor status for the ESFA	34
Elliott: Alexandra Park School	35
Eurobond: the Gateway Building	36
Hochtief: the Queensferry Crossing	38
McAvoy awarded contract to design and build new Romford Free School Academy offsite	40
Premier Modular: Glasgow University	42
Premier Modular: Queen Elizabeth Hospital	43
Shay Murtagh's Carter's Bridge Project wins award	44
Winners of the UK Tekla awards 2017 announced	45
<hr/>	
<b>New Members</b>	
<hr/>	
BRE	46
<hr/>	
<b>Events</b>	
<hr/>	
Visit to the National Composites Centre	47
Buildoffsite Direction Group meeting and dinner	47

# Welcome

**For further information about Buildoffsite please contact:**  
Louise Smith  
T: 020 7549 3306  
E: louise.smith@buildoffsite.com

**Buildoffsite Head Office**  
Griffin Court, 15 Long Lane  
London EC1A 9PN  
T: 020 7549 3306  
E: info@buildoffsite.com

**To advertise with Buildoffsite please contact:**  
E: info@buildoffsite.com  
T: 020 7549 3306

**Designed by Costello Palmer:**  
E: marie.grieve@costellopalmer.com  
T: 07743 091 165

**Front cover photo**  
©The Queensferry Crossing courtesy of Transport Scotland

## Welcome to the Autumn newsletter and our guide to the content programme for the Offsite Construction Show 2017.

The Offsite Construction Show is now in its third year and is hosted by Buildoffsite Member, Marwood Events. This unmissable show showcases the latest developments in offsite construction for all market sectors. As supporters of the show, Buildoffsite will once again be exhibiting and we invite you to visit us on our stand, C52.

It's been an exciting year so far for the built environment, and in the past five months since Tim Hall joined us and took to the helm of Buildoffsite, we see key players in the industry making major investments in new offsite capabilities and technologies. Contractors and housebuilders are finally recognising the opportunities afforded to them by changing their operating models to ensure they remain relevant in an ever expanding landscape. Therefore, the role of Buildoffsite has never been more vital to the delivery of greater construction value for our Members.

In our Housing Hub update you'll see that the recent GLA report highlights the contribution of offsite manufactured homes to solving London's housing crisis, and that the Mayor of London's Housing Strategy champions offsite and is allocating funds to aid its progress. Housing is certainly a challenge, but the new steps that are being taken will have a hugely positive impact on what has indeed been labelled for some time now as a "crisis".

Rebecca Larkin, Senior Economist for the Construction Products Association (CPA) tells us that the CPA's summer forecast expects growth in overall construction activity for the next three years, with key strengths being in private house building – private sector housing climbed to a record high in the first quarter of this year and is set to enjoy further growth.

The adoption of digital construction and the use of emerging technologies will always give an advantage and the offsite sector is embracing new digital techniques. Skanska for example continually invests in digital engineering and explores innovative and new ways of working, and right now sees the use of robotics in construction as the way forward.

An impressive feat of engineering is the world record breaking Queensferry Crossing, which spans 1.7 miles (2.7km), making it the longest 3-tower, cable-stayed bridge in the world. This was the largest infrastructure project in Scotland for a generation and was delivered through a 24-hour non-stop operation.

As always, we try to bring you the most current project information and offer insights on future trends and industry forecasts from our Board and Members, therefore we thank all of our Members for their continued support and for contributing to our Members newsletter. If you would like to contribute to our Winter newsletter, please contact us.

**Please note:**  
The new copy deadline for the December newsletter is now Friday 17 November

**And we hope you enjoy the Offsite Construction Show!**



# OSCS 2017

## Buildoffsite at the Offsite Construction Show 2017 – 11 and 12 October



The Offsite Construction Show at ExCeL in London Docklands is now in its third year. Hosted by Buildoffsite Member Marwood Events, this is the premier UK Show for exhibiting, networking and knowledge transfer on the latest developments in offsite construction for all market sectors. Buildoffsite will be exhibiting and we hope that as many people as possible will visit us on our stand (C52).

The UK construction industry is in transition. It is now generally accepted that reliance on traditional forms of construction is incapable of delivering the fundamental changes that are needed if the industry is to become more productive, able to deliver better quality for clients and customers and hopefully provide increased profitability for the supply side.

The future is offsite and it is really important that the great people who work in the industry come together to share information on business and project needs, debate solutions and collaborate to demand and drive the transition to an offsite enabled future. Buildoffsite at the Offsite Show and our Programme of Knowledge Transfer Events is wholly focused on supporting debate and discussion.

Over both days of the Show Buildoffsite will be hosting a Programme of Seminars covering the use of innovative offsite solutions in the rail, water, housing and education sectors as well as featuring a number of Keynote Sessions. This Programme will take place in the Buildoffsite Seminar Theatre (B51) which is close by the Buildoffsite Stand.



We will also be hosting a Programme of one-hour Workshops covering important and very practical issues, including advice on maximising R&D Tax Credits, Skills for an offsite enabled future, Digital Technology, the Buildoffsite Property Assurance Scheme, a Housing Advice Clinic, and the use of digital information to deliver design and construction excellence.

All Buildoffsite-hosted Seminars and Workshops are free to attend. Details are shown on the following pages.

Very many thanks to the Department for Business, Energy & Industrial Strategy for their generous support for our 2017 Knowledge Transfer Programme.

Seminars will take place in the Buildoffsite Seminar Theatre (Area B51 on the floor plan) and there is no need to book as places are available on the day.

Workshops will take place in the Buildoffsite Workshop area (Area C50) and, as spaces are limited, we will be taking advance bookings for these sessions.

Both areas are at the rear of the exhibition hall and are adjacent to the Buildoffsite Stand (C51). Please do pop in and say hello.

The programme of Buildoffsite Events is as follows:

The  
**OFF  
SITE**  
Construction Show

### DAY 1 WEDNESDAY 11 OCTOBER

#### 11:00-12:00

##### Buildoffsite Rail/Transport Hub: Accelerating Rail Infrastructure (Seminar)

*Demonstrating practical opportunities for offsite solutions to deliver the UK's Transport Needs.*

##### Speakers:

Nigel Fraser (Buildoffsite), Tomas Garcia (HS2), Simon Newton (Transport for London), Graeme Jones (C-Probe Group), Shaun Chivers (Mabey Bridge).

#### 11:45-12:45

##### Constructing R&D Tax Relief Claims (Workshop – pre-registration available)

*Opportunities for Offsite innovators to claim R&D Tax credits in recognition of their investment in Research & Development.*

##### Speaker:

Mark Davis (ela8)

#### 12:15-13:30

##### Buildoffsite Keynote: Achieving a step-change in UK Infrastructure Delivery (Seminar)

*Exploring how Government leadership, BIM and offsite solutions can align to deliver UK Infrastructure highly cost effectively and at scale.*

##### Speakers:

Tim Hall (Buildoffsite), Keith Waller (Treasury), Stephen Radley (CITB), Jaimie Johnston (Bryden Wood), David Harris (Premier Modular), Anna Evans (Ministry of Justice)

#### 13:00-14:00

##### Confidence in Light Steel Frame Building Lifecycle Management (Workshop – pre-registration available)

*How you can have complete confidence in the design model from the start of the project through design, manufacture, construction and to completion, and how it can be applied to all aspects of construction.*

##### Speakers:

Nick Coubray (Howick Engineering), Simon Mobley (Asbuilt)

#### 13:45-15:00

##### Buildoffsite Water Hub: Utilising Offsite Construction in the Water Industry – A Collective Approach for Standardised and Efficient Delivery (Seminar)

*Showcasing how the Water Hub is working across the supply chain to deliver additional efficiencies & innovation for water sector clients.*

##### Speakers:

Jon Rains (Mott MacDonald), Steve Wright (Yorkshire Water), John Browne (United Utilities), Dave Bennett (Laing O'Rourke), Mark Livingston (Ross-shire Engineering)

#### 14:15-15:15

##### Engineering Offsite Solutions (Workshop – pre-registration available)

*A change in thinking to enable Design for Manufacture and Assembly to deliver improved technical offsite solutions and costs.*

##### Speaker:

Jon Lock (Design4Structures)



# OSCS 2017

## Additional Member seminars

### Cadcoe

**Buildoffsite Theatre:**  
**10:00-10:45** | Wednesday 11 October

#### Taking Steps to Modernise Construction through Collaboration, Innovation and Education

Learn how three companies – TDS, Design4Structures and Cadcoe (the Construction and Design Centre of Excellence) are making headway to modernise the construction industry. Hear from group MD Daniel Leech on his approach to drive change through collaborative working using the latest in digital technology, whilst working towards reducing the projected skills shortage, through industry specific and relevant training. Having already attracted the attention of Mark Farmer, for his work through Cadcoe, Daniel will share with you his tips for best practice in ensuring as businesses we are able to face the external factors putting the industry at risk.



**Speaker**  
**Daniel Leech,**  
**MD for TDS,**  
**Design4Structures**  
**and Cadcoe.** Daniel cares passionately about improving the construction industry.

Having spent 17 years in the sector, he develops new initiatives with a clarity of vision that helps drive the group forward. As MD at TDS Group, he is proud to have worked on some of the most significant buildings in the London skyline. Committing to BIM as an early adopter has seen the TDS Group grow to include a training academy offering free training to employers and a Digital Engineering business helping partners construct better buildings. The drive to make the industry collaborative through BIM practices, upskilled for growth and sustainable for future generations has seen Daniel become an active and passionate Member of Buildoffsite.

### BRE

**Workshop Room:**  
**10:15-11:15** | Thursday 12 October

#### BPS 7014: A National Certification Scheme for Offsite Construction

The AMSCI program is funding the project: Advanced Manufacturing of Housing and Built Environment (AMHBI). The objective of this project is to support reduction of the UK's housing deficit by facilitating production of high quality homes manufactured offsite. BRE's role in the project is to establish a Standard (BPS 7014), providing the base for a Certification Scheme for offsite construction systems and components, for application to new build and refurbishment, 3-D and 2-D. A primary intent of the project outputs is to foster growth of the UK's offsite construction sector, for both the home market and overseas market. This wide ranging initiative is also intended to work in complement with existing offsite construction sector standards and initiatives, eg BOPAS.



**Speaker**  
**Mike Perry, Principal Consultant.** Mike has extensive experience of strategic and policy related projects in the built environment, with emphasis on energy

and future city systems, including refurbishment issues. He has actively contributed to understanding future city systems, and their role in resolving physical and social resource challenges in the UK and internationally. He has extensive R&D experience of Smart Energy: Community Energy Systems and Future City Systems. An important focus of current activities is on the AMSCI-AMHBI Project. In close collaboration with Buildoffsite he is forming an Industry Forum, a neutral intermediary to the BPS 7014: 'Standard for Modular Systems for Dwellings' and linked Certification Scheme, work intended to foster growth in the UK's offsite construction capability.

### Eurobond

**Buildoffsite Theatre:**  
**10:00-10:45** | Thursday 12 October

#### Meeting performance standards for external façades in offsite construction, utilising composite panels.

The presentation provides a greater understanding of non-combustible composite panels, and the products, services and certification offered by Eurobond, covering topics such as fire performance, structural spanning capabilities, and sustainability and their role in offsite construction



**Speaker**  
**David Wallach, Sales Director.** With over 30 years' experience in the construction industry with a variety of blue chip companies, David

has acquired an extensive understanding of how a building is designed and constructed. David specialises in applying his expertise and market knowledge to address new opportunities in an ever-changing industry.

*“The objective of this project is to support reduction of the UK's housing deficit by facilitating production of high quality modular homes manufactured offsite”*

This year's visitors will see over 80 leading companies exhibiting more than 100 brands and over 100 product categories – the very latest in offsite technology. Event Director Paul Shelley said:

*“With an excellent exhibitor line up, two theatres full with top class seminars and Workshops, plus a separate masterclass zone, we're able to say categorically that this really is the most comprehensive Off Site Construction showcase you can see this year in the UK – and possibly in Europe – whatever others may claim.”*

Nearly 40% of the exhibitors showing at this year's event are showing at OSCS for the first time. Paul Shelley continued: “The nature of this developing industry means we will see new exhibitors showing the latest in offsite technology, so for visitors it's a great way to see how the market develops from year to year.” Companies exhibiting for the first time include: Anyo, Concast Precast, Cornish Concrete, Creagh Concrete, Dafo Metal, Discreteheat, Extraspace Solutions, Forterra, GDVH (Dimplex), Hundegger Ibis, Marley Plumbing & Drainage, Owens Corning, Oscrete Construction Products, PCT, Poppers Senco, Sema, Telling Architectural, Wetherby Building Systems and Yara.

We look forward to seeing you at the show and events. The Off Site Construction Show is THE place to be for the latest and best in offsite knowledge transfer and networking. Don't miss out!

The  
**OFF SITE**  
Construction Show

### DAY 2

**THURSDAY 12 OCTOBER**

**11:00-12:30**

#### Buildoffsite Housing Hub: Offsite Housing – A practical approach to Harnessing the Supply Chain (Seminar)

Engaging with Clients (LAs, HAs, HCA, Funders and Developers) to show the fast developing potential of offsite solutions, and set the challenges for supply side innovation.

##### Speakers:

Dennis Seal (Buildoffsite), Stephen Kinsella (Homes & Communities Agency), Jeff Endean (London Borough of Lewisham), Geoff Pearce (Swan Housing), Vanessa Hale (Strutt and Parker), Karl Whiteman (Berkeley Group)

**11:30-12:30**

#### Beyond Lean – Improving Productivity and Value for Clients (Workshop – pre-registration available)

Projects continue to complete late despite progress in understanding and implementing Lean, BIM, Digitisation, Offsite and new forms of contract. The workshop will share a process that addresses the root cause of delays and to complete ahead of time with cost certainty and minimising opportunities for contractual claims.

##### Speaker:

Ali Mafi (Lean Thinking)

**12:45-14:00**

#### Buildoffsite Keynote: The UK's Productivity Imperative and the Role of Offsite (Seminar)

The UK must improve its infrastructure to support growth and prosperity. Construction can play a key role in increasing capacity and productivity to deliver cost effective housing and infrastructure

##### Speakers:

Tim Hall (Buildoffsite), Fergus Harradence (BEIS), Jade Lewis (Construction Leadership Council), Jamie Ratcliff (GLA), Sarah Daly (Sustainable Homes), Emily King (Portakabin)

**12:45-13:45**

#### Manage the Risk: Close the Performance Gap with BOPAS (Workshop – pre-registration available)

A workshop on achieving scheme assurance and insurance by the Buildoffsite Property Assurance Scheme (BOPAS) with BLP and Lloyd's Register

##### Speakers:

Jeff Maxted (BLP), Brian Minchin (Lloyd's Register), Terry Mundy (Lloyd's Register), Samantha Lee (Lloyd's Register)

**14:00-15:00**

#### Launch of the Go-Offsite Guide (Workshop – pre-registration available)

A practical approach for Local Authorities, Housing Associations and Developers to use Offsite innovation to deliver their Housing programmes.

##### Speakers:

Sarah Daly (Sustainable Homes), Tim Hall (Buildoffsite)

**14:15-15:15**

#### Buildoffsite Education Hub: Quality Educational Building Delivery with Offsite (Seminar)

The value of offsite construction to meet the particular challenges of schools and higher education.

##### Speakers:

Nick Whitehouse (Buildoffsite), Heide Moxon (Surface to Air Design), Paul Bandeen (Newcastle University), David Clark (McAvoy), Kevin Arthur (Elements Europe), Emily King (Portakabin)



# News

## Summing up the Construction Market

**With a marketplace as large and as vital as construction, it is probably always going to be a case of the market being characterised as a mix of opportunities, close coupled with significant challenges. How things are perceived and the resultant impacts will depend on where you or your business happens to be at any particular point in time – both physically and also in terms of the market sectors you are focusing on.**

With the cost of borrowing being maintained at historically low levels, now should be a great time to invest in built assets and in many ways this is just what is happening – at least in terms of the demand side. Take a drive down almost any suburban street and you will see domestic extensions and conversions running at a rate that is simply unprecedented in modern times. OK – in part this may be a prudent response by owners to Government action to hike stamp duty on property sales, but it also represents Joe Public taking a well informed decision to invest in construction in anticipation of sustained property prices over the long term.

*“Across the overall UK economy, there are now more people in work than ever before and job prospects are looking good”*

Investment capital is readily available for significant commercial and other projects offering prospects for decent rates of return, and the UK is still a global hot spot for overseas money looking for a safe and rewarding long term refuge. Reported selling on of some of the recently completed developments in London and elsewhere shows what a highly profitable business real estate can be.

Across the overall UK economy, there are now more people in work than ever before and job prospects are looking good. At one level this should drive confidence and encourage people to spend, which in turn should readily translate into investment in construction of all types. However, the flip side is that wage growth for many – and perhaps for most – is stuck at levels way below the rate of inflation (ie many people are getting poorer) and personal debt is escalating rapidly. So not all good news then.

House building has fully recovered from the nadir reached in 2008 and developers are turning up the volume in response to rising market demand for new homes. House price inflation in London and the South East seems to have come off the boil, which should be good news for those looking to enter the market or to rent at an affordable cost. Investment in social housing of various forms is also an increasing priority, with investments coming through to address shortages in those areas where people want to live and work.

Investment in vital public and private infrastructure projects is being maintained, which in turn is serving to underpin growth in the construction market.

Against some positive signs, the industry's supply side is having a tough time. In particular, many main contractors are finding it difficult to make decent margins, even in a market which has shown substantial growth in revenue. Recent surveys have shown that average profitability has shrunk to something like 1.5%, with a number of prominent names finding things particularly tough. Many companies are now looking to take cost out of their businesses and to take steps to increase profitability if they are going to have the resources to invest in developing their businesses.

One of the challenges that runs through all aspects of construction is that of productivity. Generally, construction globally is a tail end Charlie when it comes to getting anywhere close to the levels of productivity that are commonplace in other sectors of the economy. The UK is no exception to this characterisation. Productivity in the UK construction industry is not improving and may even be heading backwards. The reasons for this are complicated, but in part at least are down to an industry that is so fragmented in terms of the supply chain, where the tendency is still to seek to manage project risk by passing it down the supply chain, where the ability to deliver almost all projects is still substantially dependent on access to traditional labour skills which are in increasingly short supply, where for many lowest price is still seen as being synonymous with best value, and where there can still be a substantial divide between planned



performance and actual performance in use, is hardly going to add up to an approach that has any prospect of improving productivity.

Now nobody is going to claim that it is an easy task to turn around the oil tanker that is construction. However that said, it seems somewhat unlikely that keeping on with the same old same old methods and practices is going to suddenly deliver different, more positive outcomes. No other industry has been able to bring off such a trick.

The reality seems clear enough. If there is going to be any prospect of achieving significant improvements in construction industry performance, then this will be achieved by radically rethinking the way

in which the industry operates. This means a focus on the use of offsite construction products, the adoption of Design for Manufacture and Assembly, the intelligent application of information modelling, the development and application of new skills, and – just to put the cat amongst the pigeons – a significant reduction in the use of traditional (and highly unproductive) labour on site.

Buildoffsite has been supporting this approach for 13 years, and although more and more construction businesses accept and support this approach, there is still a very long way to go. As a famous retailer once said: “There is no Plan B”. How right they were.

*“Productivity in the UK construction industry is not improving and may even be heading backwards. The reasons for this are complicated, but in part at least are down to an industry that is so fragmented in terms of the supply chain.”*

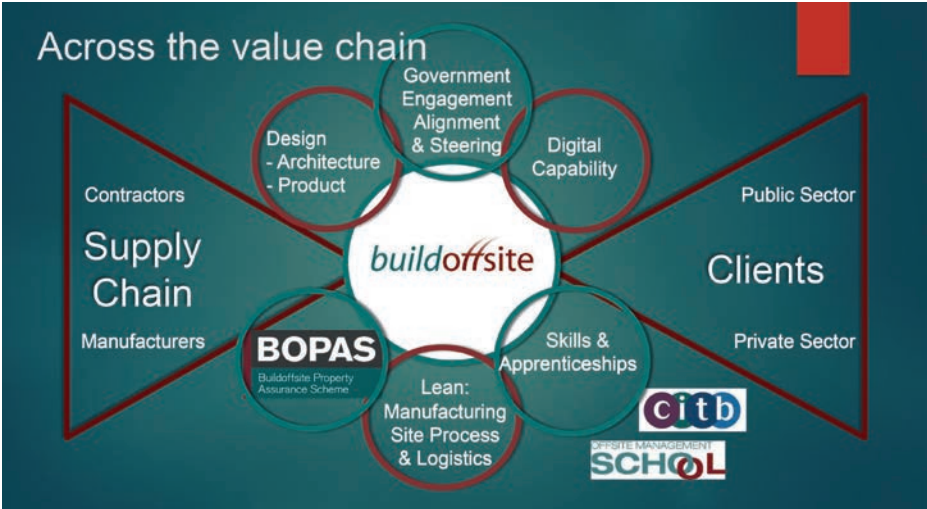


News

Buildoffsite: Our strategy to enable members to deliver far greater project value



Tim Hall, Interim Director



It has been five months since I took on the interim leadership of Buildoffsite and the time has flown. The construction landscape is incredibly dynamic at present, and there is widespread appetite for change and innovation.

Across the board the penny finally seems to have dropped – that sticking with traditional methods and mind-sets is not going to bring about the fundamental change the industry needs. Clients and manufacturers are investing in new capability and offsite thinking is at the core of many plans. Contractors and housebuilders are recognising the opportunity for changing their operating models to ensure they remain relevant in a changing landscape. Government, both national and local, has shown a willingness to invest to meet the particular challenges of productivity improvement and accelerated delivery.

In this context, Buildoffsite’s role of enabling delivery of greater construction value is vital as we work with Members to **Improve the Value Chain**. This is all about delivering high quality projects, faster and more cost-effectively. As a non-partisan group of clients and suppliers, Buildoffsite is uniquely positioned to challenge all players in the industry to raise their game. More importantly, we are launching approaches for Buildoffsite to act as the focal point for collaboration and improvement across the value chain.

“As a non-partisan group of clients and suppliers, Buildoffsite is uniquely positioned to challenge all players in the industry to raise their game.”

**Hubs** are client-led to set clear market requirements, and then work with supply chain and specialist members to improve project delivery. This can be with standard products and lean processes, or new contracting models. This collaboration benefits all parties by reducing the duplication of effort and adversarial negotiations of procurement-led contracts.

**Clients** may have specific requirements outside the Hub structure, so Buildoffsite works with project teams to clarify a challenge to the value chain. This could be a 10-week reduction in project programme, or delivery to a target cost without reduced specification. With a clear business case, the challenge is presented to the Membership and Buildoffsite facilitates the creation of new solutions. For clients that are making the first steps of offsite thinking, Buildoffsite acts as an impartial advisor to help them navigate the landscape; ensuring the shift to offsite is a sound business decision, rather than a leap of faith.

**Contractors** at times get criticism for a lack of innovation, but it is invariably the individuals who engage with Buildoffsite that are at the forefront of their company’s drive to deliver client value, reduce waste and deal with risk. Through the Hubs, many tier one contractors have demonstrated their openness to collaboration and sharing innovation, which enhances their reputation with clients. In addition, Buildoffsite provides connections to suppliers and specialists with the capability of giving contractors a commercial edge.

**Manufacturers** have a current challenge of increasing offsite demand, but with uncertainty of how long the growth will last. Making use of Buildoffsite’s unique client focus supports collaboration to create partnerships, rather than transactional supply. Manufacturers may also have the ambition to increase capacity or enhance products performance, but need additional support to make the change. With the breadth of design, manufacturing, improvement and skills development capability within the Membership, Buildoffsite enables new levels of performance.

**Specialist** organisations within Buildoffsite are often the hidden gems of Membership, with major contractors saving millions with R&D tax credit advice, clients linking with architects who fully grasp the potential of offsite, design teams up-skilling with digital apprenticeships, and manufacturers increasing capacity through design automation and lean manufacturing techniques. These organisations find a stage on which to shine in Buildoffsite, and will become increasingly valuable as the Hubs and Client challenges gain momentum.

**Government** has set a clear ambition to make a step-change in construction productivity and sees offsite as having huge potential to deliver greater value for money. Buildoffsite has an important voice for the sector and works directly with BEIS and DCLG, through the Construction Leadership Council, Infrastructure Projects Authority, and with the Homes and Communities Agency. Our role is to ensure that offsite innovation is given an opportunity to demonstrate its value in both productivity and increased capacity for infrastructure, building and homes in particular.

Equally, Buildoffsite will ensure the Membership is clear of the challenges and opportunities that Government is presenting, so that we can collectively respond and deliver. It is a fantastically dynamic time in our industry. There is some risk of ‘offsite hype’ and a rush for increased capacity without capability. Buildoffsite will strive to ensure this does not damage the sector’s reputation. Uncertainty and opportunity are both in abundance. Organisations can decide to step back and see what happens, or to collaborate with clients and suppliers to maximise their potential for growth.

Buildoffsite is firmly in the growth camp with new Members, additional staff to support new Hubs and activities, and a need for further Industry Advisors to support collaboration. Our ambition is clear: **Enabling Improvement Across the Value Chain**.

We envisage this leading to Members developing completely new Value Propositions which will put UK construction in a new league of capability and performance.

It has been a privilege for me to be part of Buildoffsite, working with the team and Executive Group to increase Buildoffsite’s influence and impact. I will continue to lead the team and support the membership until the permanent role is crystallised and filled. As many know, Buildoffsite becomes addictive and I will continue to play a part as long as I can add value. In the last five months it has been a rewarding challenge, but it is in the next five where Buildoffsite’s growing impact will become apparent.

“Buildoffsite is firmly in the growth camp with new Members, additional staff to support new Hubs and activities, and a need for further Industry Advisors to support collaboration”

# Hub Updates

**It is in the Hubs that the voice of clients is crucial – ensuring that design and supply chain Members focus on improving value for specific markets, and set new standards for construction as usual.**

The Water and Rail Hubs have clear client leadership; the focus is now on creating common approaches to achieve highly productive project delivery. Housing is a priority, with a huge amount of current activity and investment. Buildoffsite will take a lead to ensure that clients can have confidence in capable supply, and we will support manufacturers to scale sustainably and profitably. We are looking for strong client voices in the Housing Hub to steer the development of remarkable new products and value propositions

Hubs are launched and resourced in response to client and market needs. The Pharma Hub is at the client requirement phase, led by GSK and supported by Enterprise Ireland. There will be an opportunity for supply chain members to engage at the Off Site Construction Show.

There is plenty of opportunity for new and long-term Members to engage and benefit from market-focused Hubs. Buildoffsite will work with the lead Members to ensure Hubs are set up with clear objectives and are then supported with the right resources to deliver greater project value in their sector. We would encourage current and prospective Members to get involved early, to help shape the future for your markets.



### Rail Hub

The Rail Hub has been active this quarter, with the second of our Bridges and Viaducts DfMA Workshops held in July at ARUP. Attendees included representatives of HS2, London Underground and Network Rail.

The Rail Hub Client Group meeting a couple of weeks later at HS2 helped us shape what was needed for proposed events, projects and meetings for autumn 2017, starting with an offer from TfL/LUL to host an offsite workshop on their Step-free Access Programme in October and another client meeting to be hosted by HS2 in November to plan what is needed for 2018.

There will also be a Rail Hub seminar session at the Off Site Construction Show on 11 October.

Our industry is on the move and we envisage that spectators will get left behind. Buildoffsite is a not-for-profit organisation, focused on enabling greater project value. Make the most of Membership to ensure that your organisation is at the forefront of a dynamic industry.

We are working on events for 2018, including factory and site visits, digital technology focus and inter-sector events. Let us know if you would like to be involved with any of the Hubs or join their mailing lists by contacting [hubs@buildoffsite.com](mailto:hubs@buildoffsite.com).



### Water Hub

Under the leadership of Jon Rains, the Water Hub has been very active – both on client and supply chain sides – and is working on a number of projects aimed at standardising products within the water industry. Water companies from throughout the UK are actively involved in the Hub and will be using the standardised products as a tool to drive down costs.

The Water Hub area of the Buildoffsite website has been significantly improved and access is available to all Members to view the projects that are being undertaken.

Future events for the Water Hub include plans for a visit to Nomenca to demonstrate ‘end to end’ design, manufacture, install and commission process, plus a possible Director Level Conference in spring/summer 2018 to update senior executives from both clients and the supply chain on the progress of the Hub.



### Housing Hub

We have had a very positive few months in housing, with the recent GLA report *Designed, Sealed, Delivered: The contribution of offsite manufactured homes to solving London's housing crisis*, and the Mayor of London's Housing Strategy championing offsite and allocating funds to aid its progress. We still need to find additional support for the suppliers and manufacturers so that we can increase and maintain capacity within the sector, to achieve the required continuity levels that will in turn facilitate investment. This is something that the Buildoffsite Housing Hub is working on with its Members, following the very successful Direction Group dinner and meeting held in Cambridge on 29-30 August.

The Housing Hub exists to promote and implement offsite housing across all tenures, including social and affordable rented, PRS, market rent, shared ownership, shared equity, starter homes, self-build and custom build, and the private housing market by finding the best solutions that will lead to an increase in the number and affordability of pre-manufactured housing solutions which are being delivered to the market year on year.

The Hub's strategic ambitions are:

- Supporting a substantial increase in the use of offsite construction methods, to increase the supply of new homes in the UK
- Increasing awareness and a greater understanding of Buildoffsite, through the operation of a relevant and effective Hub
- Growing the Buildoffsite Membership by offering advice and technical support to housing clients

We had a prestigious Buildoffsite and GLA networking event for over 80 attendees at City Hall on 27 September, with Jamie Ratcliff, Mark Farmer and Rosie Toogood presenting alongside ourselves, and a fantastic opportunity for HAs and LAs to meet with suppliers, manufacturers and more.

You can see our report on this event on page 17.

In October, Legal & General will host ‘Collaboration to Support Housing Delivery at Scale’ with an impressive programme of speakers and presentations. You can find more details on the website: [www.buildoffsite.com/events](http://www.buildoffsite.com/events).

More events for 2018 are in the final planning stages and we also welcome suggestions for other events from Members.

Join us at the Off Site Housing Exhibition on 11 and 12 October at The ExCeL to find out more.



### Pharma Hub

The Pharma Hub industry group chaired by John Dyson, Head of Capital Strategy & Design at GlaxoSmithKline, is a collaborative body of clients, specialists and manufacturers with a collective ambition to deliver measurable improvements to the outcomes of the design and construction process of pharmaceutical and clean room facilities.

Building on the successful format of the Water Hub, the next meeting will take place during the Off Site Construction Show. The session will bring together a broad range of clients including GSK, AstraZeneca, Takeda Pharmaceuticals, Allergan, Lilly, the University of Cambridge, Fuji Biosynth, Bayer, Merck, Novartis and Amgen.

The meeting will build on presentations of best practice from both inside and outside the sector, with a view to developing our own roadmap for further industry collaboration. The ambition at this stage is to scope the potential value from standardisation of construction and M&E services within GMP clean room environments.

Supply chain members who have an interest in contributing as the Pharma Hub develops should register their interest through Buildoffsite by emailing: [louise.smith@buildoffsite.com](mailto:louise.smith@buildoffsite.com).





# News

## Addressing the Housing Challenge

**Many offsite suppliers and manufacturers, especially those involved in the housing sector, have been watching the progress of Housing Associations (HAs) and the Build to Rent (BtR) markets with interest. We believe that the opportunities generated by both markets would give a much-needed boost to the offsite sector and provide the sort of ‘continuity of supply’ we so desperately need, but never seem to achieve.**

In part, we have made some progress (offsite housing delivery is up significantly on previous years), but maybe not as much as we had hoped for. We need to look for more opportunities and the good news is there is now a new player in the market who has the potential to take delivery of offsite housing into a different league. What makes them so special is they have the potential to do this without the major house builders’ input if necessary. Who are they? The Local Authorities (LAs).

Since the White Paper was released earlier this year, the LA housing market and its use of offsite delivery solutions has gained significant traction. There is no doubt that the Farmer report came along at the right time, as it highlighted the potential for self-destruction within the sector, especially if we continued with our blinkered view that traditional housing methods could sustain, let alone increase, housing supply.

What a shame no one actioned the recommendations of the 2013 offsite housing review sponsored by both BIS and DCLG. It would have saved us a lot of time.

With 418 principal LA and Unitary Authorities in the UK, and the increasing housing targets being imposed on them, it should be quite clear to everyone that this has enormous potential. If every LA required and delivered 500+ homes a year, the total output would be close to 200,000 homes. We know that not everyone will want this much housing, but then again some may want more. If we added just 100,000 of these homes every year from 2021 onwards, we are sure everyone would be delighted. Existing housing delivery output at 150,000 homes annually, plus the 100,000 generated by LA homes as identified above, could provide an annual output of 250,000

homes per year. This is a key industry benchmark and a key delivery target, so we should not overlook it.

In truth though, while 100,000 homes may be desirable now, it may be nearer 2026 before we can achieve such outputs, because we need a number of things to come together to make this happen. There is clear support from the DCLG, HCA and GLA via the Home Building Fund (£3 billion), Accelerated Housing Fund (£2 billion) and the new DPP (£8 billion) targeting housing growth across the UK. There is also the £2.3 billion housing investment and infrastructure fund. Much of this funding, acceleration and growth is predicated on greater use of offsite housing solutions. Funding support for offsite housing solutions that increase the housing supply between now and 2021 are likely to be well supported. Beyond 2021 and leading up to 2026, support is most likely to be achieved where LAs can demonstrate a business maturity model that offers much higher levels of predictability over its housing delivery, and lower cost of supply for its own housing supply and potentially those of others.

Increasing and maintaining housing supply to meet local demand within any LA area will need to be established with due regard to the importance of the supply chain. There is a need to consider how groups of Authorities or suppliers/manufacturers can collaborate together to ensure predictability and affordability of its housing supply. Success (and ultimately lower costs) is likely to be derived from a wider, more efficient supply chain and not necessarily a focus on a single provider. Manufacturing homes in a factory in lieu of building them on site will inevitably require different processes and delivery structures, as well as embracing social and economic benefits. Industry suppliers/

manufacturers and industry experts (consultants, architects, surveyors and engineers) could collaborate to offer solutions that could enable the grouping of a number of opportunities to create both volume and continuity of supply.

Despite the positive start outlined above, we still need to find additional support for the suppliers and manufacturers so that we can increase and maintain capacity within the sector, to achieve the required continuity levels that will in turn facilitate investment. This is something that the Buildoffsite Housing Hub is working on with its members, following the very successful Direction Group dinner and meeting held in Cambridge on 29-30 August.

The Housing Hub exists to promote and implement offsite housing across all tenures, including social and affordable rented, PRS, market rent, shared ownership, shared equity, starter homes, self-build and custom build, and private housing market) by finding the best solutions that will lead to an increase in the number and affordability of pre-manufactured housing solutions which are being delivered to the market year on year. The Hub’s strategic ambitions are:

- Supporting a substantial increase in the use of offsite construction methods, to increase the supply of new homes in the UK
- Increasing awareness and greater understanding of Buildoffsite, through the operation of a relevant and effective Hub
- Growing the Buildoffsite Membership

Join us at the offsite housing exhibition on 11 and 12 October at the ExCeL to find out more.

Look out for further information by following us on Twitter: @buildoffsite or on LinkedIn: buildoffsite To keep up-to-date on the Housing Hub specifically, check our Hub and Events pages on [www.buildoffsite.com](http://www.buildoffsite.com) or get in touch with Nathalie by email: [Nathalie.quinn@buildoffsite.com](mailto:Nathalie.quinn@buildoffsite.com)

# News

## Buildoffsite response to the GLA Offsite Housing report

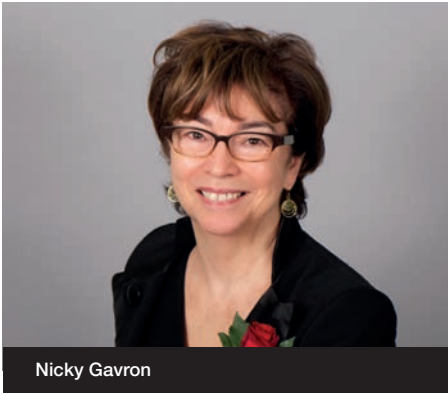
**Designed, Sealed, Delivered is far more than another catchy title for the GLA’s review of the potential for offsite manufactured homes. There is real clarity of both the opportunities and challenges for housing in the UK’s capital. With the Mayor’s leadership and the current alignment of market and supply chain conditions the time is right for Offsite solutions to deliver the additional, high quality homes the UK market has been lacking for more than two generations.**

The report, its predecessors and Buildoffsite all recognise that the many, rapidly developing offsite solutions are not a panacea to solve London’s housing needs. However, there is growing recognition that the evolution of precision engineered housing models has helped to shift offsite from a maverick niche alternative, to a mainstream and increasingly first-choice approach to construction. Offsite is about generating additional housing capacity, rather than trying to displace traditional methods.

Two of the report’s strong messages are the need for Leadership and Collaboration. Easy to trip off the tongue; harder to achieve in practice. On the leadership front both housing clients (HAs, LAs, developers) and the supply chain need certainty that the policy landscape will be consistent over the medium to long-term. A short term-stimulus in favour of Offsite solutions will not encourage clients to migrate their approach to new solutions. GLA leadership, supported by the innovation fund, will give a clear and consistent message that Offsite will have an opportunity to demonstrate its potential as part of the supply mix. Collaboration is equally easy to pay lip service to, but we must shift away from the ‘transactional’ nature of housing delivery from end client through developer, designer and contractor to the manufacturers. The real prize of improved performance and productivity comes when the whole value chain collaborates, over multiple projects. Creating the landscape and opportunities to enable this level of collaboration is Buildoffsite’s core purpose and we look forward to continuing our support for the GLA’s ambition.

The precision manufacturing of components, panels or whole modules gives Offsite the potential to deliver greatly improved value to the client and occupants. Specification can be tailored to maximise energy performance and sustainability, at a lower cost than is achievable with traditional approaches. The speed of delivery Offsite can provide is well documented and halving of the traditional on-site programme should be the ambition for all developments. Certainty of programme and cost is the over-arching concern of almost every client we talk to. By industrialising much of the build process and eliminating weather dependency the variability of time and cost can be greatly reduced. It is Buildoffsite’s firm belief that as demand, manufacturing capability and capacity grow; we will soon reach a point where the cost of equivalent Offsite solutions will drop below that of traditional construction. As with Saville Row suits and off the peg from M&S – in future a home ‘hand-built’ on-site will attract an artisan premium over the precision engineered home.

To consistently deliver these improved outcomes will need some significant changes in the way the industry works together. Collaboration between clients, designers, manufacturers and contractors will support the optimisation of designs, processes and the elimination of waste. This is enabled both by a common approach of Design for Manufacture and Assembly (DFMA) and Building Information Modeling (BIM). It is the whole system, integrated approach that Buildoffsite is working with client, contractor and manufacturer Members to deliver.



Nicky Gavron

There are however, one or two words of caution for the approach the GLA are proposing, as the team themselves have already identified. Firstly is a concern from Buildoffsite’s wider understanding of the supply side that there is something of an ‘Offsite Gold Rush’ on the horizon. The supply shortfall is rightly seen as an opportunity to invest in capacity, but there are some who seem to take the approach of “let’s build a factory – how hard can it be?” If well-intended but incapable suppliers enter the market it risks undermining the credibility of Offsite more widely. Buildoffsite will continue to support existing and new entrants to develop their capability in line with the GLA and industry requirements. Secondly, with the ambition to create a Manufactured Housing Design Code care should be taken to build on what exists rather than to create another new standard. The Home Quality Mark can be the focal point for raising standards in UK housing.

It is in the wider industry’s interest that the London Plan for housing delivers more homes, to a high standard, with consistently increasing levels of productivity and cost-effectiveness. In support of this Buildoffsite and its Members from across the client and supplier communities will fully support the intent of Designed, Sealed, Delivered and contribute to the Independent Panel going forward. We encourage all housing sector stakeholders to engage, contribute and shape the way forward.

To view the full report, visit: [https://www.london.gov.uk/sites/default/files/london\\_assembly\\_osm\\_report\\_0817.pdf](https://www.london.gov.uk/sites/default/files/london_assembly_osm_report_0817.pdf)



# News

## Buildoffsite response to the Mayor's Housing Strategy

The Mayor's 2017 housing strategy starkly highlights the many challenges for Homes for Londoners. The picture is similar in other parts of the UK, but London is certainly where things are most acute. The report strikes a good balance between proposing long-term solutions to systemic issues, and urgent action to make a difference to people's lives now.

The solutions are not in the gift of any one organisation and it will require leadership plus a concerted, collaborative approach to make both an early and sustainable impact. We can be confident that the Buildoffsite membership, from across the client and supply sectors will fully support the 13 identified action areas.

Of these, there are six where innovative construction and offsite thinking can have a direct impact:

**Diversifying the homebuilding industry:**

New players and business models will support additional capacity and improved propositions for London homes. One of Buildoffsite's core remits is to encourage product, process and commercial innovation.

**Improving the skills, capacity and building methods of the industry:**

Creating additional capacity of high quality homes is part of the DNA of Buildoffsite Members. A modern, precision manufactured housing industry will be better able to attract new employees and address the construction skills gap.

**Ensuring homes are genuinely affordable:**

Scaling and industrialising the offsite sector will have a major impact on construction costs. Working with developers to shift from today's 'Saville Row' bespoke approach to housing to repeatable, but diverse 'off the peg' products has the potential to support a significant reduction in costs.

**Working towards half of new homes built being affordable:**

Industrialisation through collaboration will reduce costs and increase the proportion of affordable homes.

**Well-designed, safe, good quality, and environmentally sustainable homes:**

High quality and sustainability should come as standard for offsite homes. Clarity of requirements from clients, fed in through the Buildoffsite Housing Hub, will ratchet up standards with minimal impact on cost.

**Meeting London's diverse housing needs:**

The paradigm that modular solutions are unattractive is being dispelled by the range of formats and finishes from the offsite sector. With requirements for accessibility and flexibility designed in from the outset offsite housing solutions can deliver the diversity needs in form, function and aesthetics.

Indirectly Buildoffsite thinking is equally successfully applied to utilities and transport infrastructure and so can unlock Investment in homes and infrastructure. The value is in greater certainty of programme and cost certainty to de-risk projects and, with repeat projects, further reductions in time and cost.

On behalf of the innovators in the Buildoffsite Membership, we unequivocally support the Mayor's ambition and strategy. We are already engaged with the GLA, with London Boroughs and developers to stimulate change and increase supply. Where there is a need for significant improvement in housing delivery Buildoffsite will act as the conduit and catalyst to enable new solutions that unblock stalled sites and increase the speed and quality of building.

To view the full report, visit:  
[https://www.london.gov.uk/sites/default/files/2017\\_london\\_draft\\_housing\\_strategy.pdf](https://www.london.gov.uk/sites/default/files/2017_london_draft_housing_strategy.pdf)

# News

## The Inaugural Buildoffsite Housing Hub networking

Buildoffsite Housing Hub and The Greater London Assembly: Offsite and precision-manufactured housing networking event.

Wednesday 27 September 2017, City Hall.



The Buildoffsite Housing Hub networking event on 27 September at City Hall brought together a broad range of people from across the housing landscape: London Boroughs, G15 and other HAs working in London, developers, house builders, funders, investors, suppliers, manufacturers, consultants and architects. With over 80 participants, the over-subscribed event gave individuals an opportunity to connect with at least 40 different organisations during the session. This was followed by an opportunity to meet others and talk in more depth over the informal lunch.

We received positive feedback on relationships being forged and envisage this leading to Members developing completely new value propositions for tackling London's housing challenges.

If you would like more information about our Housing Hub or would like to be involved, please email: [hubs@buildoffsite.com](mailto:hubs@buildoffsite.com)



Jamie Ratcliff (Programme, Policy & Services, Housing & Land), Mark Farmer (Cast Consultancy, Author of Modernise and Die) and Rosie Toogood (Legal & General Modular) set the scene for the audience before the networking sessions began. From Jamie's opening remarks to the closing comments from Tim Hall of Buildoffsite, there was unanimous agreement on three key points:

- There is an acute housing need in the UK and nowhere more so than in London
- Current build rates and industry capacity is insufficient, and new approaches are needed to add to traditional methods
- Precision manufactured homes can play a crucial role in accelerating the delivery of high quality and cost-effective homes.

There are two aspects where there is less certainty:

- On the demand side, landlords and developers have a pipeline of work, but will need help to present client briefs and opportunities to the supply chain in a way that allows precision manufactured homes to demonstrate their value
- On the supply side, there is a need to listen to landlords and developers, and ensure that their technical solutions and procurement models align with current ways of working.



These aspects are far from insurmountable, but need a forum where clients and suppliers can discuss changes in their approaches to procurement, planning, design and asset management. This is what is needed to confirm the compelling business case for precision manufactured homes.

The Buildoffsite Housing Hub will play a growing role as a non-partisan forum where challenges can be openly discussed and, most importantly, solutions are developed to enable more high quality housing to be delivered – much faster and more cost-effectively. We encourage innovators and all those looking for a new approach to housing delivery to register their interest in the Buildoffsite Housing Hub and to become part of this catalyst for accelerated housing delivery.

Future events will focus on turning the interest this session generated into practical activity and delivery programmes. Our focus will be on dismantling barriers to the innovative delivery of precision manufactured homes. Following the success of this event, the Buildoffsite Housing Hub and the GLA will now be developing options for further networking events in this format, to give the wider UK housing industry the chance to enjoy the same opportunities. There is further appetite from other UK regions for similar events; so we have certainly found a topic of significant interest. Details of future events for Members will be promoted on the Buildoffsite website.



News

# The Outlook for Construction Activity



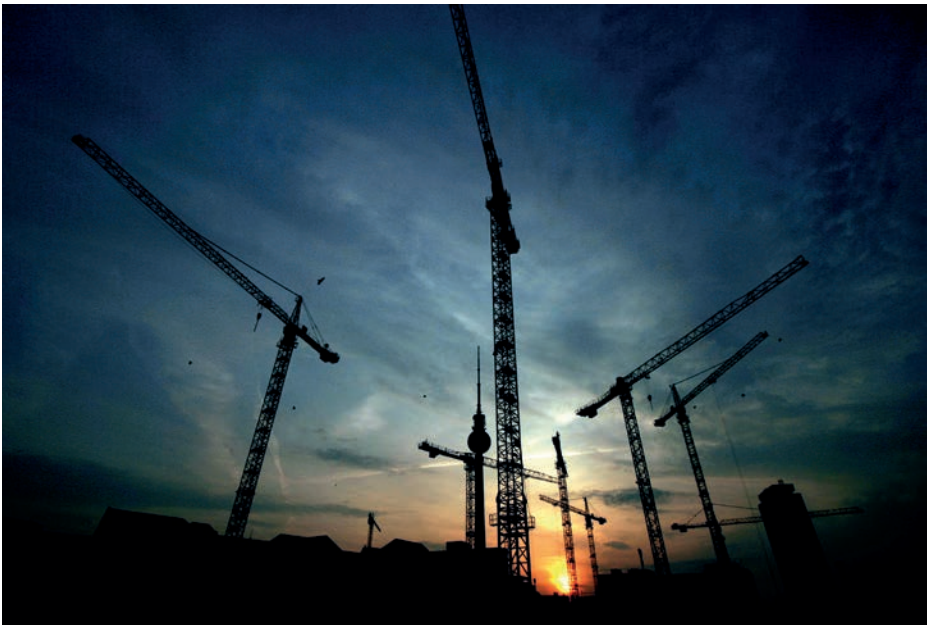
Rebecca Larkin  
Senior Economist, Construction Products Association

**The Construction Product Association's (CPA) summer forecast expects growth in overall construction activity in 2017, 2018 and 2019. However, growth rates are set to slow to the weakest in six years next year and looking at the outlook on a sector by sector basis, highlights the varying fortunes across the industry, with strength in private house building and infrastructure contrasting with the falls in output expected in the commercial and industrial sectors.**

Private sector house building climbed to a record high in the first quarter of this year and starts in England, an early indicator of upcoming activity, were 15% higher than a year earlier in the second quarter. Despite inflation outpacing growth in wages since February and the potential for a tightening of purse strings, demand for home-buying has been maintained by record low interest rates and the Help to Buy equity loan. The latter involves the Government providing a loan for 20% of the equity in a new build home purchase. In the last 12 months, Help to Buy has been used on a third of new build completions, whilst for the top 10 house builders, this proportion is reported as closer to a half. Indeed, the scheme appears to be skewing demand towards new builds, particularly for first-time buyers who currently appear the most active in the housing market, according to mortgage lending data. Help to Buy is set to last until March 2021 and given that house builders are starting to look beyond this period for their strategic planning, it is unsurprising that they are keen to see the policy extended.

Public housing, provided by housing associations and local authorities, was constrained in 2015 and 2016, due to a series of changes to the Affordable Homes Programme, the sector's main funding mechanism. This meant that business plans had to be rewritten to account for a 1% annual cut in rental revenues until 2019/20, assets being sold through the extension of Right to Buy to housing association tenants and a subsequent shift in Government funding to focus on shared ownership, rather than the affordable rent tenure that formed the mainstay of policy up to 2016. With there now being greater certainty over programme funding until 2021, this is expected to lead to a rebound in building activity lasting throughout the remainder of 2017 and 2018.

Infrastructure is forecast to be the strongest-growing sector of construction over the next 2-3 years. Growth will be driven by main works commencing on major projects such as the Thames Tideway Tunnel, HS2 and offshore wind farms. Output growth of 7.4% is expected this year, 6.4% in 2018 and 9.8% in 2019 as HS2 work ramps up. Although the sector is a standout performer, the CPA has downgraded its forecast from earlier in the year due to delays and cost overruns on Hinkley Point C, set to be the UK's first new nuclear power station in more than 25 years. Main works are now not expected until 2020 at the earliest. The project was first proposed in 2007 and was intended to be operational by now. This emphasises the difficulties in getting Government approval or financial guarantees for significant infrastructure projects, further demonstrated by delayed decisions over airport expansion in the South East.



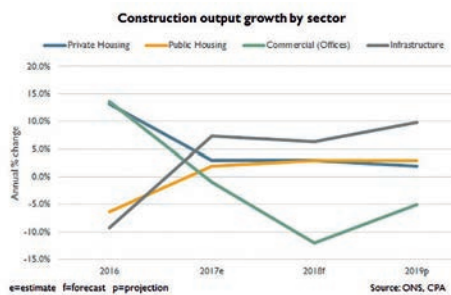
Showing the importance of the sector's performance to construction activity, when infrastructure is excluded, construction output would be expected to remain flat at best over the next two years.

Our forecast period falls in the midst of the UK's unprecedented Brexit situation. Whereas housing and infrastructure activity has largely been unaffected, commercial offices is the sector hardest hit by the uncertainty resulting from the EU Referendum last year. Contract awards fell sharply in the second half of 2016 immediately after the vote and other industry surveys have shown a persistent weakness in the sector. Between 2013 and 2016, offices was one of the most buoyant areas of construction. A backdrop of growing uncertainty over the economy and future EU labour arrangements is deterring businesses from committing to new office space. In the capital, projects over the last few years were concentrated in the banking and financial



services sector. However, it is here where some of the largest question marks over cross-border financial operations post-Brexit are being placed. Widely publicised contingency plans see banks relocating staff to other European cities, underscoring a reluctance to invest in new offices in the UK. For the sector, as existing work drops out of the pipeline, output is forecast to decline 12% in 2018 and another 5% in 2019.

It is this reluctance to invest large sums upfront when long-term returns are subject to even more uncertainty than usual that is also expected to hold back activity in industrial factories and warehouses construction. For exporters, the short-term gains of Sterling depreciation are offset by a lack of clarity on what trade barriers (or not) will be in place once we leave the EU, again prompting manufacturing firms to withhold decision making on new factories. Warehouses construction is closely linked to economic



conditions, particularly consumer spending. Whilst the sector has benefited from a strong increase in e-commerce and the associated need for storage and distribution space, a fall in construction output and new orders in 2016 is forecast to continue during 2017 and 2018 as retailers react to a deterioration in consumer sentiment as real wages fall and speculative development is reined in.

All in all, during this period of heightened economic and political uncertainty, although the construction industry appears to be keeping its head above the water, it is vital to look beyond the headline figures and consider the nuanced outlook for each sector individually. The overall risks expand beyond Brexit-related uncertainty though, with the construction industry also facing rising costs, low availability of skilled labour and weak political will to initiate long-term upgrades to infrastructure.

For more information, contact  
**Rebecca Larkin** by email: [rebecca.larkin@constructionproducts.org.uk](mailto:rebecca.larkin@constructionproducts.org.uk)  
or call: 020 7323 3770  
or visit: <http://www.constructionproducts.org.uk>



# News

## Building Skills for Offsite Construction – six months on



Ben Lever, Future Skills Manager, CITB

**In March, the CITB published its landmark report: *Faster, Smarter, More Efficient: Building Skills for Offsite Construction*, which detailed how the development of skills in offsite construction could revolutionise the construction industry, and help to provide a solution to the sector's low productivity and UK housing shortage. The report, with its foreword by industry expert Mark Farmer, encouraged everyone in the sector to embrace change, and define their future skills needs through collaboration between industry, educators, training providers and Government.**

It is widely accepted that contractor needs are changing and the construction industry is responding to that. Activity is set to become increasingly industrialised and digitally-led, which is leading to a demand for people with competencies in manufacturing, digital processes and multi-trade skills. Our research has led us to work closely with those in the manufacturing sector – particularly those who are already working with construction companies – to provide joined-up and effective training as the boundaries between traditional building sectors become blurred.

Our offsite report highlighted that 42% of construction employers expected to use offsite methods in 5 years' time – a significant increase on the 10% of industry output it



currently makes up. In the months since the report's publication, we've been encouraged to see that this trend is gathering pace, with a raft of new projects and industry announcements. These include the launch of several modular-only housing association contractor frameworks, along with offsite having been placed firmly at the centre of Heathrow's extension plans.

London Mayor Sadiq Khan recently launched the Skills for Londoners project. It puts analysis from the report into practice, to inform its plans to ensure all Londoners have the opportunity to train in the skills the economy actually needs right now. A Construction Academy Scheme is being planned to increase the number of workers skilled in offsite construction methods in order to help meet London's housebuilding targets. The recently published London Housing Strategy states that making the shift to more precision manufacturing of homes is a key priority for investment in London's skills system.



Our report detailed the six key skills and functions needed for successful offsite construction, including digital design, estimating/commercial, offsite manufacturing, logistics, site management and integration, and onsite placement and assembly. It's clear these skills will become increasingly important as technology advances. We've used them to guide our current review of offsite-related standards and qualifications, and we've set up a new industry working group to incorporate the widest possible range of views, experience and offsite expertise.

The report is also helping to support CITB's important work with the Construction Leadership Council by informing the skills plans for a sector deal that delivers on the modernisation agenda.

Our offsite research also continues to feed into the CITB careers strategy and industry initiative Go Construct, which strives to promote a more diverse, digitally-led, innovative and attractive career option to those considering construction.

With such encouraging uptake of our findings on the skills needs for offsite construction so far, we look forward to continuing to work closely with industry colleagues to help shape an exciting and lucrative future for the entire industry.

**To view the full CITB report, visit:**  
[https://www.citb.co.uk/documents/research/offsite\\_construction/offsite\\_construction\\_full\\_report\\_20170410.pdf](https://www.citb.co.uk/documents/research/offsite_construction/offsite_construction_full_report_20170410.pdf)

**To view the London Housing Strategy, visit:** [https://www.london.gov.uk/sites/default/files/2017\\_london\\_draft\\_housing\\_strategy.pdf](https://www.london.gov.uk/sites/default/files/2017_london_draft_housing_strategy.pdf)

**For more information on Go Construct, visit:** <https://www.goconstruct.org/>

**For more information on the CITB email:**  
[Ben.Lever@citb.co.uk](mailto:Ben.Lever@citb.co.uk)



# News

## The Rise of the Ageing UK: The Platinum Generation

Vanessa Hale, Partner – Research, Strutt & Parker



**The UK has an ageing population. In fact, according to the ONS, the size of the 65+ cohort in 2015 was nearly 12 million people (roughly 18% of the UK population) and is expected to be closer to 19 million (roughly 25% of the UK population) by 2045.**

That's a 58% increase over 30 years! This generation, commonly referred to as the Baby Boomers, were born in the years following the Second World War, and they have high expectations when it comes to the quality of life and standard of accommodation they want to enjoy as they age and move through retirement.

However, it is important to highlight that there is a shortfall of housing for this growing demographic. Currently, only 2% of the UK's stock is designated as retirement accommodation, which houses just 1% of Britons in their 60s. This compares with 17% of Americans, and 13% of Australians and New Zealanders, who live in retirement housing. This lack of supply is part of a long-term trend. In an echo of the overall housing market, the number of retirement homes being developed has decreased over time, from about 30,000pa in the 1980s to 8,000pa today. This is significantly under-delivering for the level of demand, with Age UK estimating that 25% of over-65s (potentially up to 3 million people) would be interested in buying a retirement property. The current lack of suitable accommodation is having a negative impact on the wider housing

market. With empty nesters lacking an incentive to downsize and deciding to stay in their existing homes, there is less housing stock available for younger buyers.

Recently, I collaborated with Octopus Healthcare – a long-term investor, developer and innovator in the healthcare market – to investigate the needs and desires of this generation in respect to their retirement housing. By surveying over 2,200 respondents from across the UK aged 65 years or older, the survey revealed four key insights into retirement accommodation:

- 73% of respondents have no plans in place for retirement accommodation, or their care provision in later life
- 42% believe there is a lack of suitable properties in the UK to downsize into
- 41% would like a 6-month trial before permanently moving into a retirement community
- 17% would consider living in a professionally managed rental product, in other words a Build to Rent (BtR) model

The research also shows that there is a clear need for a new breed of retirement communities in the UK. The Baby Boomers have voiced objections to living in the same way as their parents in retirement. Often in good health, with decent pensions and active lifestyles, they want to live where they can continue to enjoy their established way of life,

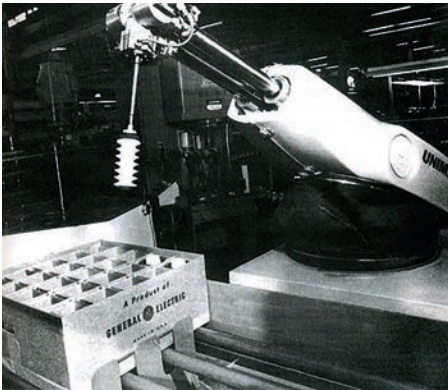
minus the day job. They want access to local culture and recreational facilities – such as theatres, farmers' markets and swimming pools – but also accommodation that is flexible enough to meet their future care requirements. Consequently, retirement developments that incorporate good public transport, a sense of community, and access to health and leisure activities are most likely to succeed. The accommodation will also have to match the high expectations of older buyers, with homes that are spacious, accessible, manageable and inexpensive to run. As older residents find themselves becoming less physically robust, housing that assists with ageing well, such as single-level living, even floors and wider doorways, will also be important.

Additionally, the research identified six 'Platinum Generation' tribes whom we believe exist throughout the UK. And while a minority are financially footloose, and able to make use of their increased spare time with travel and leisure activities, the majority are concerned about the affordability of future health and care needs, their ability to stay independent, and their access to friends, family and companionship. It is these factors that will determine much of their decision-making. The diversity of these tribes will demand a range of housing options from the property industry to support their wide spectrum of needs. To that end – and to effect change – developers must meet the aspirations of these tribes imminently, as the new Platinum Generation enters the property market.

To download the full report **Housing Futures: Platinum Generation**, please visit: [www.struttandparker.com/housingfutures](http://www.struttandparker.com/housingfutures)  
[https://www.london.gov.uk/sites/default/files/2017\\_london\\_draft\\_housing\\_strategy.pdf](https://www.london.gov.uk/sites/default/files/2017_london_draft_housing_strategy.pdf)

# News

## Use and opportunity of robotics in construction



**Almost 60 years ago, the first industrial robot was installed in a General Motors factory in New Jersey. The rest, so they say, is history. After an incredible delay, robots are finally starting to be used by some of our leading construction businesses. With the dramatic increase in offsite manufactured construction solutions, are we starting to see a new future for the construction industry? The following piece is from Skanska's Innovation Manager, David Lewis.**

Skanska has invested consistently in digital engineering, exploring innovative and new ways of working, and sees the use of robotics in construction as a fantastic opportunity. It has the potential to improve productivity and de-risk activities, providing greater certainty in project delivery.

### What is possible now?

Currently, Skanska has a number of R&D projects that will help to define how industrial robots can be applied. Our early adopters have concentrated on artificial intelligence and visualisation, such as remotely piloted vehicles, and virtual and augmented reality headsets. The current technology being adopted paves the way for us to be able to adopt robotic technology, which helps to de-risk the typically higher cost of the robot hardware and the necessary peripherals that go with it.

### Techniques and robotic applications soon to be exploited

Skanska is working on a number of research and development projects. The aim is to demonstrate the efficiencies that can be gained to help lead to its wider adoption in the industry and supply chain. An example of one of these R&D projects is outlined below.

### 3D concrete printing

Skanska is currently working with a consortium of industry leading partners to develop a robotic platform to print complex shaped concrete components that are too difficult to cast. It offers cost and time savings compared to traditional casting processes. Some of the potential benefits of 3D concrete printing are:

- Ability to print complex geometries and overhangs that are not possible with casting, enabling better design and functionality
- Reduction in transportation costs
- Fully automatic process – no human interaction required during printing
- Alignment with digital way of working; components can be printed directly from latest BIM revisions

### Looking ahead to the future

In order to meet the Government's 2025 construction targets of 50% improvement in exports, 33% lower exports, 50% lower emissions and 50% faster delivery, it is essential that we embrace new ways of working across the industry. This includes the application of automation through the use of industrial robots. Industrial robots have the ability to be reprogrammed and reconfigured to undertake almost any task we can think of. They can work to much higher standards, and increase product output when assigned repetitive tasks that require consistent quality and accuracy, such as welding, painting and assembly. Industrial robots can be run 24 hours a day, 7 days a week and, through the research and development projects that we are currently undertaking, it is very much our plan to make the whole process as portable as possible. This allows robotic assembly modules to be delivered to site, perform a task, and then be packed up and transported to a new site to perform another within the space of hours. Robotic cells such as these will truly be 'modern flying factories', reducing or eliminating the need to hire large warehouses close to site.

For more information, please contact Innovation Manager David Lewis by email: [david.lewis@skanska.co.uk](mailto:david.lewis@skanska.co.uk)  
or visit the website: <https://www.skanska.co.uk/about-skanska/innovation-and-digital-engineering/innovation/>





# News

## DIO to launch new Building Performance Standards: Delivering better, faster and more cost-effective developments



Volumetric modular single living accommodation in Wiltshire



Off-site construction prior to external cladding in 2013 at the Royal School of Military Engineering



Completed off-site construction at the Royal School of Military Engineering

In November 2017, the Defence Infrastructure Organisation (DIO) will be releasing a revision of the current accommodation standards, which will set new standards for the Ministry of Defence's new and refurbished infrastructure. It will also enable the use of more types of off-site construction by providing more dimensional flexibility, allowing for different forms of off-site delivery to be adopted.

This review of the standards was in response to the Government's Construction Strategy for reducing the time, cost and impact of construction, and the MOD's Strategy for the Defence Estate which aims to reduce the Defence estate by 30% and focus investment into 'centres of gravity' for the Armed Forces. In November last year, as part of that strategy, the MOD announced a £4 billion investment in its built estate, which is in addition to the current £1.8 billion investment under the Army Basing Programme.

The revised standards have been broadly divided into eight main categories to separate living, working and training with further subdivisions for the various types of facilities. Each Building Performance Standard details

the required space, provides the necessary schedule of areas and permits a quick estimate of likely costs to help inform early investment decisions. Each type of facility is supported by a cost benchmark, room data sheets (finishes, fixtures, fittings and the M&E requirements) and a design library to demonstrate a solution that is acceptable to the MOD.

The scope of the standards has been expanded to support the MOD's aim to provide flexible and efficient accommodation to the right standards. For example, they include master planning requirements to consider the construction phase, and the utilisation of land and buildings with associated guidance, such as providing 'local energy centres' with packaged plant rooms. The criteria aligns with regular industry standards to improve building efficiency and, where appropriate, adopt other Government departments' building standards. A more onerous Defence specification for security and protection is only added when necessary.

The standardisation of rooms and components is introduced to reduce future costs and programmes, and the process is being expanded from the initial publication

to support the digital plan of work and common components. Standardisation proposals are generally restricted to the functional space, leaving the contractors to finalise the fabric, structural solution and the actual dimensions (with set tolerances such as +2% and -8% in area). The standards are expected to deliver better, faster and more cost-effective developments.

For more information, please contact the DIO JSP 315 Project Manager David Holmes by email: David.Holmes583@mod.uk

# News

## R&D Tax Incentives – helping you build the future

To stimulate innovation and growth, the UK has generous tax incentives for businesses undertaking Research and Development (R&D) activity, valuable relief that could reduce your R&D costs by as much as 33%. Companies working within the construction industry are eligible for these incentives, with numerous successful claims made for work in offsite construction and associated fields.

### Are you eligible?

The tax definition of R&D is widely drawn and applies to a range of activities within the construction sector. Eligible activity can be found throughout the disciplines involved in a construction project, from early design within an architectural practice, through to building engineering, construction methodologies, specialist contracting and beyond. There will be eligible activity at most phases of complex or innovative building projects. Successful claims have been made in relation to:

- Offsite construction: Building systems, manufacturing
- Green technologies: Sustainability, energy efficiency
- New or improved construction techniques
- Building Information Modeling
- Holistic full-life design
- Novel IT systems, often with onsite and mobile aspects

Any project, development or activity involving technological change, new green and sustainability targets, or associated with the Government's championing of offsite construction methodologies, BIM and digital infrastructure is likely to be eligible, as is any work that is technically demanding, creates advances in processes, materials, products or services, and seeks to resolve technical uncertainty.

### Making a claim

Securing relief can be complex. Navigating the regimes is difficult, especially for first time claimants and even well-established claims can be understated simply because the eligible work is too narrowly defined. The key to a successful claim is combining accountancy, technology and scientific acumen, so that the claim is carefully constructed, accurately calculated and documented in a manner satisfactory to HMRC. This is where ela8 can help.

### Getting support:

Established in 2007, ela8 pioneered R&D claims within construction, architecture and related sectors, and has helped numerous companies, including many Buildoffsite Members, to claim millions of pounds of relief. Our experience and expertise allows us to add significant value to our clients' businesses and Buildoffsite recommends us as provider of choice to their Members. We offer a free, 'no obligation' consultation to review eligibility and work on a contingent 'no win, no fee' basis to ensure you get maximum value from your claim without financial risk.

In the coming months, ela8, in partnership with Buildoffsite, will be producing a simple R&D guide that will be available to Members. Ela8 will also be running a free to attend workshop at the Off Site Construction Show at the ExCeL on 11 October.



If getting support for your claims is of interest, or if you would like to explore whether you are eligible, please call Teresa Latch on tel: 020 3740 7172 mobile: 07889 727075 or email: teresa.latch@ela8.co.uk or come and talk to us at the Buildoffsite stand at the Off Site Construction Show on 11 and 12 October.



# News

## Building change into construction conventions



Foryd Harbour Bridge – AM Structures



**There is a drive to change within the construction sector, fuelled by known issues including skilled labour shortages, quality, cost, low margins, time on site and site safety.**

Asset owners are also looking for better value through life, reduced maintenance costs, future proofing against climate change, and reduced carbon footprint in both construction and operation. The launch in July of the Technology Roadmap for UK Construction and National Infrastructure, in a development led by Infrastructure Industry Innovation Platform i3P addresses these issues, encouraging a change to more

collaborative contract models, promoting innovation and reducing adversarial behaviours. The full utilisation of digital technology, the evolution of BIM systems and the evaluation of project outcomes (rather than on as-built cost) will increase the use of offsite factory manufacture, and more innovative systems and materials solutions.

**An established material set:**

Fibre reinforced composites materials (FRPs) have an increasing role to play within this. The materials already see well established niche use across construction in diverse applications including storage tanks, vessels, pipes, access equipment, odour containment covers and flow equipment in the water industry, trackside equipment, railway platforms, modular bathrooms, dormer and bay windows, doors, cladding panels, architectural features, large and novel structures, roofing systems and roofs.

In other industry sectors there has been a substantial uptake of FRPs. Aerospace is leading the way, driven by the need to improve efficiency through weight reduction and this same drive is emerging in the automotive sector. Offshore engineering is also adopting composites, partly for their intrinsic corrosion resistance, but also for the reduction in load or expensive buoyancy. The leisure end of the marine industry is one of the breakthrough applications for composites since the 1970s, with the majority of leisure craft up to around 50m constructed in composites, the benefits being weight saving on complex 3D multifunctional forms, low build cost, intrinsic finish and corrosion resistance.

**Evolution and the NCC role:**

FRP composites technology is evolving year on year – design processes are becoming smarter and more efficient, manufacturing processes are increasing in speed and efficiency to meet the huge growth in aerospace and expectations of high-volume automotive, and material performance is improving from an already high benchmark through the addition of nano-scale additives such as graphene, and performance enhancers such as anti-microbials for improvements in both impact and corrosion resistance.

Historically, high-performance FRPs could only really be produced slowly compared to lower-performance grades. This landscape is changing and it is now possible to produce high-performance FRPs rapidly, and increasingly for larger structures. The National Composites Centre (NCC) is one of the main global players developing and understanding these new processing methods. Excitingly, the NCC is also working to bring through less developed technology, including generative



HVM Catapult Intelligent Composites Structure project

design, genuine 3D printing of FRPs and applying Industry 4.0 to existing processes.

Opportunities: Against this backdrop of changing priorities from the construction sector and evolving FRPs, there is great scope for increased uptake in construction. The general benefits that composites bring include multi-functional materials and components, complex geometric forms, lightweight, low thermal conductivity, corrosion resistance/low-maintenance, low-carbon footprint and factory manufacture using digitally controlled processes. Areas of emergent use include bridges, gantries, power distribution, large roof structures, cladding systems and modular constructional panel systems.

**The National Composites Centre:**

The NCC is the UK's leading Centre of Excellence and Innovation in composites technology, and exists to accelerate the growth of UK industrial output by enabling design and manufacturing enterprises to deliver winning solutions in the application of composites in the UK. This can be via strategic process development programmes and industrial research projects, signposting to best practice technology from other sectors, or more basic support to SMEs to develop, upskill or upscale their offer. The work of the Centre involves the provision of solutions for the design, manufacture and application of thermoplastic and thermoset composites, and multi-materials, and includes a focus on research, technology, and knowledge transfer and people development.

See the 'Events' section for details of a Buildoffsite organised visit to the NCC. For more information on the NCC, please email: [enquiries@nccuk.com](mailto:enquiries@nccuk.com) or visit the website: [www.nccuk.com](http://www.nccuk.com)



## BOPAS update

There has been a surge in the level of interest in BOPAS post-Grenfell, as uncertainty appears to exist around the results of the inquiry and the extent to which credibility associated with traditional certification may be eroded. There are currently 26 offsite manufacturers who are registered on the BOPAS website as either accredited or progressing the assessment. This includes 10 manufacturers from continental Europe and Asia. In addition, there are a further 20 offsite manufacturers in the sales pipeline and who anticipate progressing the scheme within the next 12 months.

A BOPAS presentation will be delivered at the Off Site Construction Show at the ExCeL on 11/12 October.

A new BOPAS brochure has been developed to promote the scheme and can be downloaded here: <https://www.blpinsurance.com/downloads/download/bopas-buildoffsite-property-assurance-scheme-134941/>

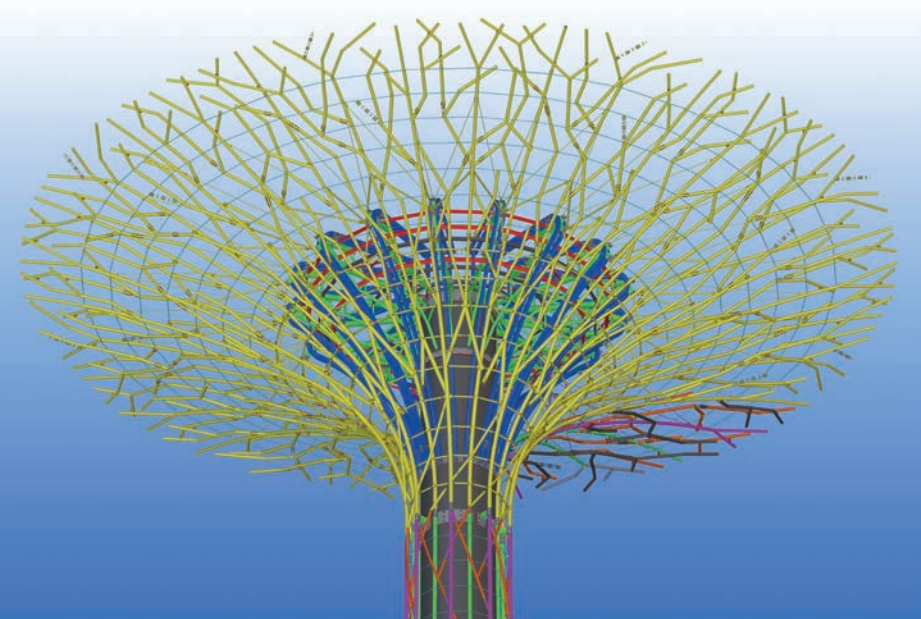
For more information on BOPAS, visit: [www.bopas.org](http://www.bopas.org)



# News

## DfMA and BIM: Hot topics or still misunderstood processes that the UK construction industry is struggling to adopt?

Duncan Reed, Digital Construction Process Manager, Trimble Solutions (UK)



With the industry awash with reports, case studies and opinion pieces, it is unlikely that anyone working in construction will not know about BIM – it has been and still is the buzzword of the industry. Perhaps less well known, however, is the Design for Manufacture and Assembly (DfMA) and the RIBA DfMA overlay to its Digital Plan of Works (DPoW).

In conjunction with the Offsite Management School, the RIBA published DfMA in September 2016, in order to encourage architects (and the wider industry) to engage with offsite manufacturing and assembly. By providing a ‘DfMA Overlay’ to the DPoW, which itself underwent a massive update by RIBA in 2013, the industry has been given an informative document to show how digital processes and offsite manufacturing can –

and should – be linked together. Indeed, both BIM and DfMA offer many practical benefits, which facilitate greater offsite manufacturing and minimises onsite construction.

DfMA isn’t the same as offsite construction, or even offsite manufacturing. It takes the processes further: from construction to assembly. Assembly is an engineered manufacturing process that includes:

- Correct first time products and components
- Accurate manufacturing and assembly tolerances

When you add design to the assembly process, it becomes clear why BIM and DfMA are such ideal partners. Design, an inherently virtual process, can be carried out digitally to ensure that the components, modules and assets are defined and detailed in accordance with the customer requirements; tested

virtually before manufacture; coordinated for assembly; and approved by all of the necessary stakeholders first – which are all BIM processes. Therefore by adopting BIM first, it gives individual parties and the wider team a perfect opportunity to roll out DfMA as one of the BIM processes on a scheme.

DfMA, like BIM, requires a cultural and behavioural change in the mind-sets of everyone, from the customer, design team and supply chain, through to the operators and maintenance teams responsible for the asset. If just one of these parties isn’t aligned, the project at best will not be as good as it could have been, or at worst will ensure the existing prejudices against DfMA and offsite are perpetuated.

Despite structural steel fabricators, precast concrete and modular offsite manufacturers understanding the benefits of DfMA, designers, customers, end users and more importantly, principal contractors, can regularly be reluctant to incorporate it within a project. With this in mind, if the industry is to develop, move forward and even begin to consider ways to deliver on the Government Construction 2025 report, then it has to consider DfMA from the outset, combining this with the rigorous digital processes that BIM offers. As noted by Mark Farmer in his review of the UK Construction Labour Model, which was published just a month after the RIBA DfMA overlay, it really is ‘Modernise or Die – time to decide the industry’s future’.

For more information about Tekla software please visit:  
[www.tekla.com/uk](http://www.tekla.com/uk)

# News

## Standardising components for programme delivery



Jaimie Johnston  
Director and Head of Global Systems

In order to reduce cost or programme, typical value engineering strategies are in fact exercises in reducing specification or compromising the design vision. Other cost reduction exercises focus on the supply chain, where savings of a few per cent may be achieved by squeezing suppliers.

Bryden Wood is working with several clients on large building and infrastructure programmes, the scale of which warrants a more informed strategy by truly understanding value and seeking to:

- Design solutions that deliver the maximum functionality for the minimum whole life cost
- Develop standard, repeatable solutions that increase quality and certainty of delivery
- Engage the supply chain in a way that facilitates continual improvement, rather than constant reinvention
- Protect supplier profit and overheads, as these are positive aspects that support the wider economy and ensure that the programmes are seen as attractive to potential suppliers in a highly competitive market
- Focus the time and effort of designers on the bespoke elements of projects, while optimising the use of digital tools and standardisation to automate the production of repetitious information, which is often resource-intensive but adds little value
- Streamline the delivery process to create a high volume of quality information, while deploying creative skill where it is most valuable. This could reduce or redistribute design fees, while still providing profitable and creatively challenging work
- Focus on reducing that proportion of the construction cost and programme that has no residual value, but is related to risk, rework and waste during the construction process

Rigorously seeking to find the most efficient way of delivering a project inevitably reduces the resources required (whether this is measured in carbon, cost, time, waste or labour) while increasing positive aspects (health and safety, certainty, quality, morale, reputation and competitiveness). The approach therefore seeks to:

- Ensure maximum integration of design disciplines
- Reduce duplication of effort
- Drive down total costs
- Engage with the supply chain in a planned and timely fashion, drawing on expertise and innovation where it adds value
- Facilitate waste reduction through strategic and collaborative procurement using common components, material and construction processes
- Blend highly standardised, mass customisable and bespoke elements together to create solutions that are finely tuned to suit context
- Optimise the use of traditional, modular, flat pack and system build elements where they add the most value, eg to maximise off-site labour where appropriate and to improve the efficiency of in-situ construction
- Facilitate deconstruction and flexibility through the creation of standard components which can be readily adapted to future changes in policy, regulations, etc (through interchanging elements, re-configuring or extending facilities) and eventually disassembled.



This article has been produced from Bryden Wood's book: *Delivery Platforms for Government Assets: Creating a Marketplace for Manufactured Spaces*. To download the book, visit: <http://www.brydenwood.co.uk/news/delivery-platforms-for-government-assets/bp68/>

For more information, please contact Director and Head of Global Systems Jaimie Johnston by email: [info@brydenwood.co.uk](mailto:info@brydenwood.co.uk)

Continued from previous page

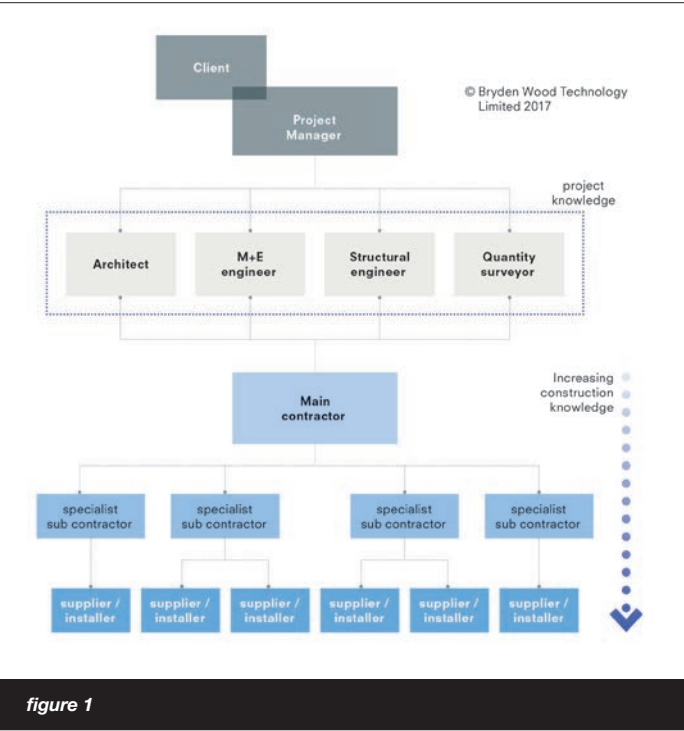


figure 1

In a traditional, one-off project, each asset is modelled, and information for design, tender and construction created individually. The design team can only afford to describe the proposed solution to a certain level of detail, which is then developed by the contractor in conjunction with their supply chain. Typically the degree of repetition at project level is low and only warrants highly detailed analysis of a few key areas.

That the design development (project knowledge) often takes place in isolation from the supply chain is a significant source of missed opportunities to optimise the design and leverage best in class construction knowledge. In addition, most of the construction knowledge sits within the supply chain – see figure 1 – which may be fragmented and have little opportunity to collaborate. This is a significant source of rework and duplication of effort. As a result, any benefits that are generated by innovation generally remain within the supply chain and are not passed on to the client for wider use. Any knowledge that is gained through the project cannot typically be captured,

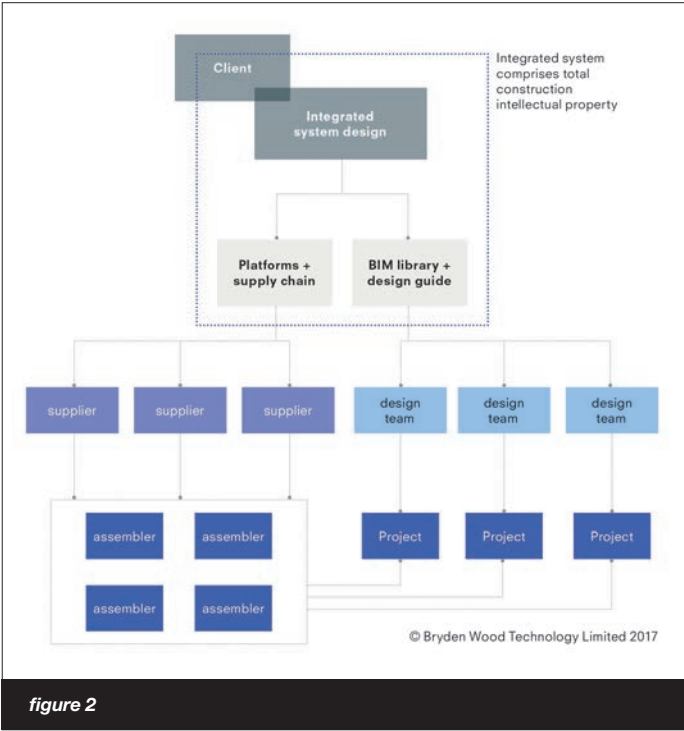


figure 2

disseminated and improved upon to the benefit of other projects. Considerable value can therefore be generated through the creation of a suite of standardised solutions and repeatable elements that are simply configured differently for different sites and project requirements. Developing components for a large scale deployment, where knowledge is captured and retained for further collaborative refinement, would facilitate continual improvement (as is common in the automotive and aerospace industries) as opposed to constant reinvention (as is common in traditional construction) see figure 2.

Analysis of schedules of accommodation for various asset types yields a wide range of spaces required. However, within this large number of types and levels of complexity, the characteristics that define spaces and indeed entire assets will, for the vast majority, sit within some well-defined ranges. Understanding these characteristics and the ranges within which most buildings sit will provide some valuable insights into what type of platforms might be most useful. It is hypothesised that a

small number of platform types would be able to create the complete range of space types that would be needed across the majority of the public and private sector estate. Their chief characteristics would be:

**Physical dimensions**

The physical dimensions of any space will have two primary factors:

- Clear span
- Clear height

Figure 3 shows the location of a number of common space types in a number of sectors. Note: There is a large cluster towards the bottom left (relatively small spans and clear heights) with a few building types requiring significantly larger clear heights and spans.

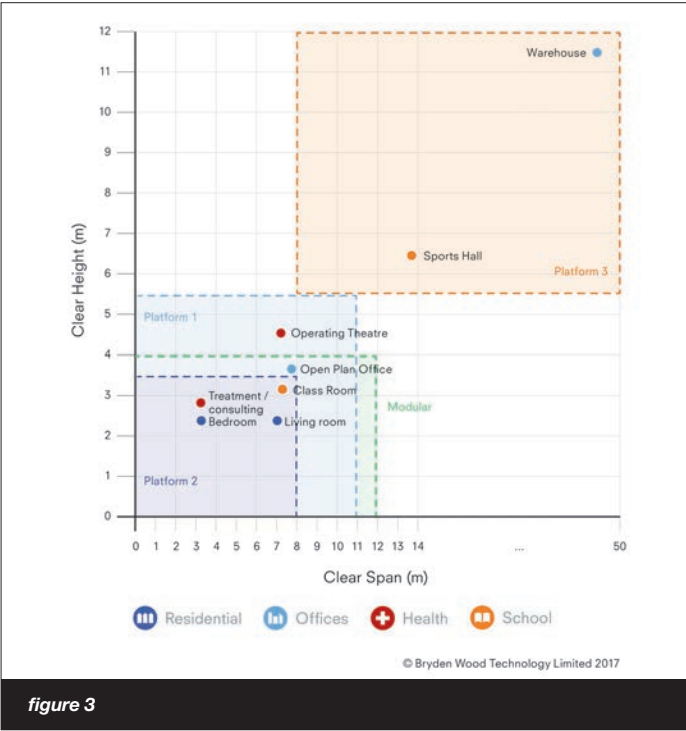


figure 3

**Building height**

The total number of storeys is another key factor, again with a limited range:

- Large span spaces tend to be 1-2 storeys
- Small scale domestic buildings and school/prison buildings tend to be 1-4 storeys
- Mid-rise office/domestic sits within 5-15 storeys
- High-rise office/domestic will generally be 16-25 storeys; while of course there are numerous buildings that are taller, they make up a relatively low proportion of all buildings and may not warrant a 'platform'

*“The design team can only afford to describe the proposed solution to a certain level of detail, which is then developed by the contractor in conjunction with their supply chain”*

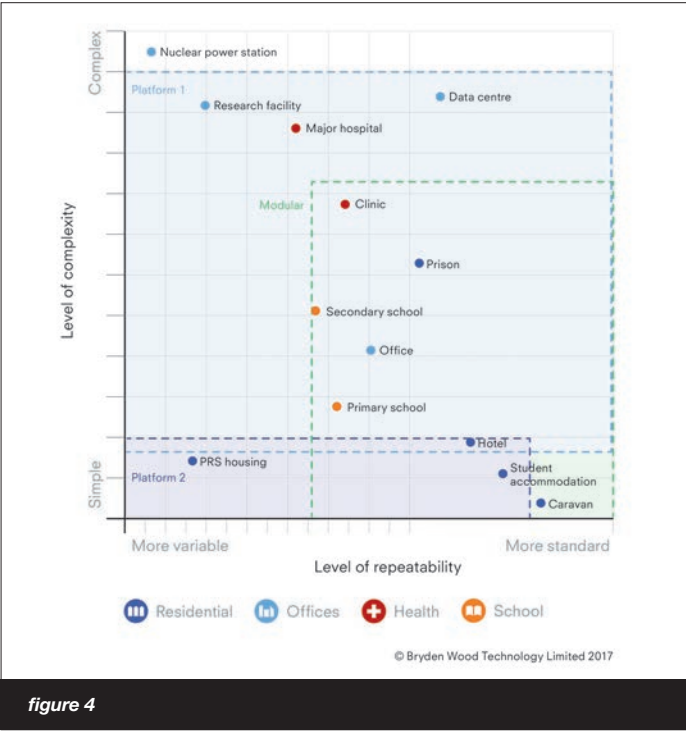


figure 4

**Level of complexity**

The space type analysis will suggest an overall complexity of the asset type, from heavily serviced buildings with high operational and maintenance costs, to simple buildings with relatively straightforward provision in terms of heating/cooling, lighting, power distribution, etc.

**Level of repeatability**

This would describe the overall degree of variation between the types of space or groupings of spaces within a particular building. For instance, a typical housing scheme will have a mix of unit types from small flats to large apartments, with a different layout on different floors and is therefore highly variable. By contrast, student accommodation is highly standardised, with little meaningful variation between the majority of spaces and floors. Figure 4 shows the same space types plotted on these axes.

**Number of buildings**

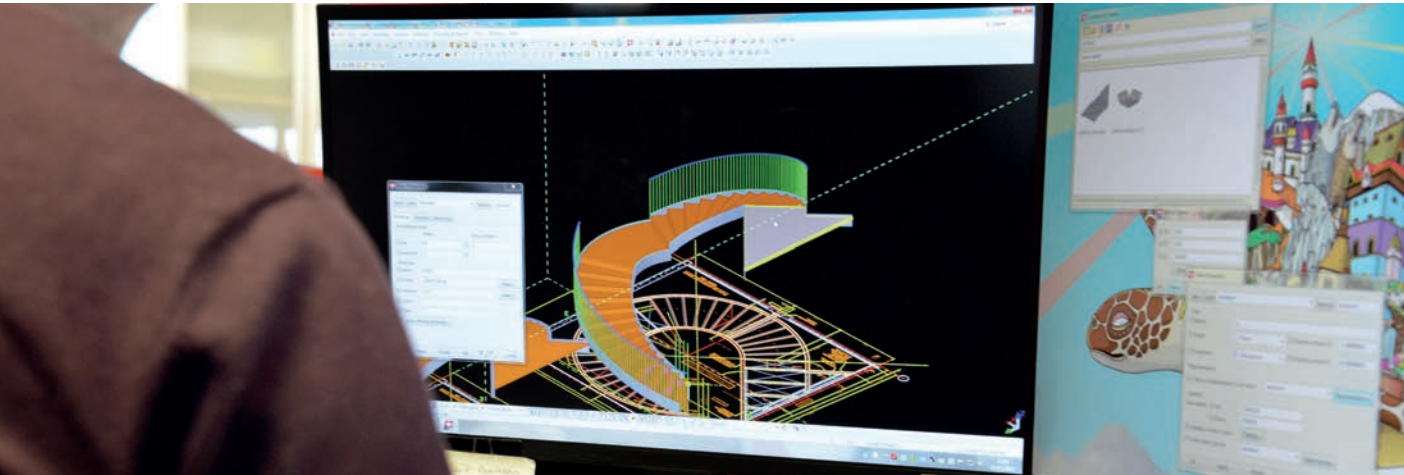
While the creation of platforms should extend beyond any single programme, the need for a high number of very similar, or even identical buildings (eg the EFA priority schools programme, or house blocks for the MoJ prison estates programme) will warrant a particular focus, as the amount of repetition will have a multiplier effect in leveraging the benefits of standardisation.

Based on the considerations above, it is possible to hypothesise three platform types that might be appropriate for the majority of the space and asset types, as shown on figures 3 and 4. Bryden Wood is now actively developing these solutions and proposes to make a number of them available as 'open source' components.



# News

## Full house for Cadcoe's fast-track CAD course



**Cadcoe has got off to a flying start with its 16-week intensive CAD course at Dudley College's brand new training facility for advanced construction technologies, with 34 apprentices joining the programme.**

The course, which forms the front end of an advanced apprenticeship in engineering construction, started in September in Cadcoe's new home at Advance II at Dudley College. In March this year, the training provider partnered with Dudley College of Technology in order to offer employers and new entrants access to the most current training for our industry. In a first of its kind in the FE sector, Advance II offers students training in the latest construction techniques, technology and off-site fabrication in order to modernise skills development across the construction industry. Cadcoe students will be based in the digital technologies area, where they will have access to the most up-to-date software, technology and equipment, which includes a BIM cave.

Managing Director Daniel Leech has been really pleased with the response to the new partnership and is encouraging more employers from within the offsite arena to consider apprenticeships as a way of recruiting their future workforce and bringing new skills into their business: "In recent months, Cadcoe has seen a noticeable increase in demand from

volumetric/offsite manufacturing businesses who are looking to increase their in-house design and detailing teams. The way our apprenticeship programme is designed, means employers will gain a proficient and work-ready candidate from day one of full-time employment."

Current supporters of the Cadcoe Apprenticeship Programme are Fusion Build Systems, based in Northampton. In September 2016, Ewan James joined them on the apprenticeship and this year the company has recruited a further two apprentices as a result. Design Office Manager Andrew Plumb has reaped the benefits first-hand through Ewan's progress: "Ewan went to Cadcoe not knowing too much CAD/design-wise and came back as a solid user, with an understanding of how design interfaces with other disciplines. A year on, he is now capable of running a project, albeit with some supervision and guidance from others. Ewan has grown in knowledge and confidence, and in essence has turned from a shy school leaver into a young professional in just 20 weeks.

A lot of credit goes to him for that, with his willingness to learn, enthusiasm and ability to work hard. It benefits us to be able to keep encouraging trainees through the business so we can grow the design team and hopefully give them a long career at Fusion. Adding young and enthusiastic people to a business is always a benefit."

A total of 34 students and employers alike have taken up the apprenticeship this September, with a further 34 due to join in March 2018. With 100% of Cadcoe Apprentices moving into permanent employment on completion of training, the proof is in the statistics of the value they bring to an employer.

To find out more about Cadcoe and how to get involved, give Operations Director Declan McDonnell a call on: 01952 605549 or email: [declan@cadcoe.com](mailto:declan@cadcoe.com)

# News

## Caledonian's express check-in at Hinkley Point C



**Caledonian has successfully delivered the first of 1,496 offsite accommodation suites to Hinkley Point C Nuclear Power Station in Somerset. The business was appointed by EDF Energy to both design and build what is the largest hotel-style development in Europe since EuroDisney.**

Caledonian tendered for the £50m project with Laing O'Rourke as part of an international supply chain. Equivalent to a 3-star hotel, the accommodation suites are delivered to Somerset 96% complete, ready for rapid

completion. With only 4% of the build on site, each 34 bedroom block will be completed in just 6 weeks from delivery. The benefits of manufacturing at Caledonian's 40-acre site near Nottingham include up to a 50% reduction in the schedule compared to traditional builds, assured levels of quality, and minimal impact both on site and within the wider Bridgwater area.

Delivering the first suites to site are testament to the commitment of the Caledonian project team and the reputation of the company to meet its commitment to customers. Paul Lang, CEO 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, with the others now following in quick succession."

Hinkley Point C will require around 5,600 workers during the peak of construction. Around two-thirds of workers will rent privately in the local area or be home-based. The remaining workers will be accommodated in the hotel-style Caledonian modules on site. The campus is designed with an amenity building which includes 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. Expected to operate for just over six years, the development will leave a positive legacy because, after being used by EDF Energy, the buildings will be removed, but key infrastructure will be maintained for future development. The offsite construction of the campus accommodation is managed by Caledonian in partnership with Laing O'Rourke.

For more information, please contact Caledonian Modular's Marketing Manager, Dennis Hollingworth by email: [dhollingworth@caledonianmodular.com](mailto:dhollingworth@caledonianmodular.com) For more details about the Hinkley Point C Accommodation projects, please visit: <http://bit.ly/2t6YvaR>



### Member Update: coBuilder

Buildoffsite Member coBuilder is delighted to announce the appointment of Pete Foster as our new Director of Digital Innovation UK. Starting from 30 October, Pete will be taking over the role previously held by Nick Tune. Pete has a very strong background in the construction industry and BIM, and is an active participant in UK BIM initiatives. He has in-depth knowledge and experience with coBuilder products and services, and has already contributed to our work.

After Pete starts to work with us, he will be fully focused on supporting new and existing clients in delivering their projects, as well as developing coBuilder's products and processes. coBuilder has gained real traction in the UK with clients such as BAM, Skanska, Willmott Dixon, Tata Steel, Knauf and Wienerberger.

Pete will be a key driver in reaffirming coBuilder's strong foothold in the UK.

coBuilder is a company with over 20 years' experience in delivering sustainable information management solutions to the construction industry. The company has developed systems that make use of digital processes such as BIM in order to help businesses standardise their information management functions and leverage their data assets.

For more information, please contact Pete Foster after 30 October by email: [foster@cobuilder.com](mailto:foster@cobuilder.com) or mobile: 07467 949976 or visit the website: [www.cobuilder.co.uk](http://www.cobuilder.co.uk)





# Case Study

## Elliott Awarded Principal Contractor status for the ESFA



Elliott has been awarded Principal Contractor status for the Education Skills Funding Agency Component Framework (Primary Schools). We are currently working on the first batch of 9 Schools, the value of which is circa £45 million.

### FRAMEWORK OBJECTIVES

#### Key objectives

The high level objectives of this framework are to:

- Maximise off-site assembly and
- Minimise on-site disruption.

#### Quality objectives:

The solution must be fully compliant with the ESFA's Component Primary Design Brief

#### Cost objectives:

The solutions must be matched to the ESFA's prescribed funding rates

#### Programme objectives:

The overall objective of the programme is for the initial 9 schemes to be handed over ready for occupation of the schools by 31 August 2020

By employing off-site construction of repeatable elements, we deliver high quality solutions and have the potential, through standardisation, to deliver best value and

highly sustainable solutions with less waste. When standardising and constructing components in a controlled environment, costs of design and assembly can be reduced and time savings realised to streamline the process of delivering a new school or block.

By maximising off-site assembly, the time on-site will be minimised and therefore disruption reduced for the school. Site works will be limited to site preparation, foundations and installation, and the most disruptive site activity will be carried out during the school holiday periods when the children are absent.

### COMMERCIAL

- Our proposals have saved 45 weeks and up to £1/2 million of construction preliminaries across the first batch alone
- Our large scale 18m modules drive cost efficiencies and transport saving.



### THE DESIGN SOLUTION

- Evidenced at 79% off-site assembly
- Enables rapid concept space planning, facilitating early engagement with all relevant design and professional bodies (M&E, planning, etc)
- Meets the ESFA's key daylighting ventilation and overheating criteria at ANY UK location and in every orientation
- 'Clusters' create a 'pattern block' to deliver ALL primary schools
- 'Physical' and 'BIM enabled' models
- Reduces transport loads by use of an 18m module
- Planning grid adopts 7.2m class depth plus a storage zone either side of the corridor
- Deeper plan by taking all 'short' storage and cloak spaces to the back of the classroom
- Modules coursed to brickwork dims as standard
- Wider circulation space and recessed entrance into classrooms
- Allows 'choice' and client engagement of preferred solution

- Breaks the preconception that modular design imposes a template 'cookie cutter' approach on the client during the engagement process

### TYPICAL DESIGN PROGRAMME

- Week 1-6: Initial design period, agreement of layouts, site specific external works requirements, development of Structural, M&E, FF&E and ICT Strategy, development of cost plans
- Week 7-8: School Engagement Meetings
- Week 9-10: Planning Consultation Event/ Submission
- Week 11-20: Further design period
- Week 21-25: Contract Award
- Manufacturing: 12 weeks site preparation, 2 weeks component installation, overall construction typically 30 weeks

To view a video on the Component Primary Schools Framework, visit: <https://vimeo.com/201673803>



For more information, please contact Bid Coordinator Michaela Peters by email: [michaela.peters@as.elliottuk.com](mailto:michaela.peters@as.elliottuk.com) tel: 0113 393 6940 or visit the website: [www.elliottuk.com](http://www.elliottuk.com)

## Elliott: Alexandra Park School

Elliott provided a classroom solution to Alexandra Park School in the 2017 summer period. This was required due to increased demand for pupil places within the local area. The school opted for a modular solution due to the speed of delivery and the ability to meet tight deadlines, as buildings can be completed up to 50% faster than traditional construction.

Elliott supplied this solution from their premium Progress range, which provided design flexibility both internally and externally, allowing the customer to specify their exact requirements. The building consisted of 16 bays, erected over 2 floors.

The ground floor comprised of 4 general teaching classrooms, 1 office, male and female toilet facilities, and a large lobby area. The first floor comprised 4 classrooms and an open plan office area.

Minimal disruption was essential for the Secondary School, so Elliott's subcontractors worked closely with the school and used the exam timetable to ensure no distractions were made at this crucial time. The Elliott team successfully completed the construction programme on budget and ahead of schedule.



# Case Study

## Eurobond: the Gateway Building



**The Gateway Building is the first phase of the University of Reading's ambitious project to build a highly collaborative and innovative science park. The completed Thames Valley Science Park is expected to create up to 5,000 jobs and provide 74,000 m² of laboratory and office space in a campus-style setting.**

The Gateway Building is the first building of the new 50-acre development and has been designed to deliver a vibrant, high quality atmosphere with flexible office and laboratory space.

The client wanted the first building to have a striking design, as the Gateway Building can be seen from the motorway and would be the first building viewed when entering the campus. A watertight building was needed at the earliest stage of the building programme to allow the extensive internal fit-out to begin. The project needed to be delivered in phases, providing cutting edge facilities and services to create a dynamic environment for knowledge enterprises seeking an excellent business and research location with connectivity to the M4 corridor.

Eurobond Rainspan was specified as the ideal structural support to the Corten Steel façade option, a steel façade that naturally rusts over time, producing a striking oxidized finish. Eurobond's non-combustible composite panel system delivered all the technical properties required including acoustics, thermal, passive fire protection and weather tightness, whilst also being able to support the load of the rainscreen. Rainspan not only removes the façade installation from the critical path, but also creates a flat external metal face ready to receive the system carrier whilst cleanly integrating with the curtain walling and windows.



The Eurobond panels can be cut on site or even post-installation, adding greater flexibility and integration with other façade materials. A clean finish to the external face has been created by disguising the drainage behind the panels; Eurobond provides the required strength to achieve a cantilever past the last fixing point to achieve a free-standing parapet. Eurobond Rainspan spanning capability has enabled the panels to be fixed to the outboard of the slab without any intermediate secondary steel, freeing up the full slab to be utilised for external space and maximising internal square meterage.

Due to the high load of the Corten Steel panel it was critical that the supporting structure was able to take the weight of the rainscreen system. Eurobond Rainspan has

been tested for structural and weather integrity performance to CWCT standards and fire resistance tests conducted in accordance with BS EN 1364 Part 1 to ensure 'built in passive fire protection'. Specified in Colorcoat HPS200 Ultra® Pure Grey, the pre-finished steel provides exceptional performance and corrosion resistance for building envelope applications.

A distinctive durable exterior has been created by utilising Eurobond Rainspan as the backwall, the Corten Steel rainscreen has been left untreated to develop its own unique finish. 6,500 square meterage of specialist space has been produced for approximately 20 innovative technology based companies resulting in a flexible collaborative environment.

The building was completed on time, with tenants secured early on, allowing for consent to be granted to build 15 more buildings at the site over the next 20 years.

For more information, contact Sales Director David Wallach by email: [david.wallach@eurobond.co.uk](mailto:david.wallach@eurobond.co.uk) call: 07881 958770 or visit the website: [www.eurobond.co.uk/case-studies](http://www.eurobond.co.uk/case-studies) You can also follow Eurobond on LinkedIn for news on the latest projects.



# Case Study

## HOCHTIEF: the Queensferry Crossing



This issue's cover image is the Queensferry Crossing, which was officially opened by Her Majesty The Queen on 4 September. Forth Crossing Bridge Constructors (FCBC) was awarded the contract to design and build the Queensferry Crossing in April 2011. FCBC is a fully integrated joint venture partnership between HOCHTIEF Solutions AG (Germany), American Bridge (US), Dragados (Spain) and Morrison Construction (UK).

### World class and world record breaking

- The structure spans 1.7 miles (2.7km) making it the longest 3-tower, cablestayed bridge in the world
- The biggest infrastructure project in Scotland for a generation
- New world record in 2013 with the largest continuous underwater concrete pour. The 24-hour non-stop operation successfully poured 16,869 cubic metres of concrete into the water-filled south tower caisson
- Prior to the completion of the final closure sections on the deck, the balanced cantilevers which extend 322m north and south from the central tower (644m tip to tip) were recorded by Guinness as the longest ever
- Highest bridge towers in the UK at 210m
- Longest free-standing balanced cantilever in the world. Centre Tower deck fan was 644m wide prior to being connected to rest of structure

### Engineering facts

- Although the central tower of the bridge is constructed on top of Beamer Rock in the centre of the Firth of Forth, the two flanking towers are each actually founded below river bed level on a giant steel cylinder, the largest being the height of the Statue of Liberty. The structure rises 210m above high tide (683ft), equivalent to approximately 48 London buses stacked on top of each other
- Over 23,000 miles of cabling was used on the bridge – almost the same distance as the circumference of the earth at the equator (24,874 miles)
- At the height of production, the concrete batching plant on Rosyth docks was producing 120 cubic metres of concrete every hour
- Concrete barges pouring the South Tower underwater foundation made 273 separate journeys continuously to and from Rosyth, covering almost 2,000 kilometres – roughly the same distance as John O'Groats to Land's End
- Over 2,500 concrete pours executed across the project since June 2012, latterly pumping to heights of above 200m for the 3 towers. 21 of the pours in excess of 1,000m³
- Construction took approximately 10,000,000 hours
- 3 CEEQUAL Excellent awards

### Managed motorways

- The overall scheme is 13.7 miles (22km) long, which includes major motorway upgrades to the north and south of the bridge
- The first ever use of variable mandatory speed limits in Scotland to smooth traffic congestion via an Intelligent Transport System. This also controls dedicated bus lanes within the motorway hard shoulders – another first in Scotland
- Combination of overhead gantry mounted infrastructure at 50 regularly spaced locations across the corridor and verge mounted infrastructure providing benefit in emission reduction, improved journey times (between 5-10 minute reductions already evidenced on Fife ITS and M9 J1a schemes) and journey time reliability, as well as improved safety through reduction in number of accidents

For more information, please view the online exhibition at: <https://www.queensferrycrossingexperience.com/exhibition>



# Case Study

## McAvoy awarded contract to design and build new Romford Free School Academy offsite



**The McAvoy Group has been awarded an £8.2m contract for the design and offsite construction of a new 630-place primary school for Concordia Academy in Romford. The start on site has been marked with a ground breaking ceremony and children planting a time capsule.**

The 2,972m<sup>2</sup> three-form entry free school will create an exemplar learning environment for local children, reflecting the academy's vision and ethos, increasing parental choice, and providing a valuable facility for the community. Funded by the Department for Education via the Education and Skills Funding Agency, the school will be operated by REAch2 Academy Trust – the largest primary only academy trust in the UK.

The use of a McAvoy offsite solution for the project is allowing the development of a highly constrained brownfield site. The new building will be just 1.5m from the site boundary to the front elevation. Modular construction will significantly reduce disruption to the

surrounding residential area and will cut the build programme to just 12 months. The first of 67 modules will arrive on site in the autumn. McAvoy has also provided a suite of interim school buildings for the academy, until its new building opens in September 2018. Raymond Millar, Construction Director of principal contractor McAvoy, said: "We're delighted to be building this wonderful new school, which will provide much needed primary school places for the local community in Romford. We'll be using the latest advances in education design and offsite construction to create an inspiring environment for teaching and learning, and an outstanding school to help every child realise



their highest aspirations. Offsite construction offers clear benefits for the delivery of new education facilities. On this project, the solution from McAvoy is enabling the development of a very restricted and challenging brownfield site, and with much less disruption to the local community. It offers the opportunity for increased value for money, greater quality control and programme benefits because the construction work can progress offsite in the factory while groundworks are put in place on site. Speed of construction is key when the demand for school places continues to rise, and we need to reduce disruption to residents as much as possible."

Due for completion for the start of the 2018/19 academic year, the new state-of-the-art school will help to address the urgent need for additional primary places in the South East. The London Borough of Havering has seen a significant increase in birth rates and this is projected to continue. The local population is set to rise by 11.2 per

cent by 2021, further intensifying the pressure on school places. Designed by Blue Sky Architects, the Concordia scheme will occupy the site of a disused nurses' home. The curriculum areas will be organised in clusters of three for each year group, and with a linear band of classrooms either side of a central corridor. The teaching spaces are designed to be flexible, allowing adaptation to support future modes of curriculum delivery or advances in technology. Facilities will include a music and drama studio, main hall with adjacent smaller hall, 14 classrooms, full catering kitchen, activity room, small group learning rooms, staff room and administration offices.

The design solution maximises the external play space within the site and the landscaping will create an inspirational external environment to reflect and support the school's educational needs. There will be a hard surfaced games area for high-energy play; an informal outdoor learning area with tensile fabric canopy to provide a shaded

area; a garden space with raised planting beds; a dedicated, secure reception play area along the southern elevation, and a natural habitat ecology zone. The contemporary design for the new school combines strong lines, bold geometric shapes and a palette of materials that includes red brick, timber-effect cladding, render and high levels of glazing. Elements of colour provide bright accents to reflect the school's corporate identity and emphasise the architectural features. There are brick and rendered bays to the curriculum wing, with full height glazing to the recessed areas which allow light into the break-out and circulation spaces.

**For further information about offsite solutions for schools and academies, visit: [www.mcavoygroup.com](http://www.mcavoygroup.com) call: 028 8774 0372, or email [info@mcavoygroup.com](mailto:info@mcavoygroup.com)**



# Case Study

## Premier Modular: Glasgow University



**Premier Modular was appointed to work with Graham Construction to provide a semi-permanent 4-storey maths education block at the Western Infirmary Site adjacent to the existing University Campus. The block is part of a 10-year, £1bn campus expansion plan to develop capacity, to build on their world-leading reputation in teaching and research, and introduce new teaching methods by providing a combination of flexible and specialist teaching space.**

The maths block was required as part of the minor construction works to facilitate these changes. The timescales were extremely tight and immovable, due to lease dates and demolition work taking place, therefore offsite construction was the only solution. Premier was chosen due to their ability to meet the required timescales, whilst having the design capability to provide some key features, such as high ceiling heights for the lecture theatres and a glazed entrance atrium. Offsite construction also gave the flexibility the University needed in terms of removal of the project after 10 years. The modular solution can be uninstalled, reutilised elsewhere, or sold as a second-hand building, bringing revenue back to the university. A traditional build solution would have to be demolished, causing a high capital loss and negative environmental impact.



The 4-storey accommodation provides a mix of lecture theatres and communal space on the ground floor, and further teaching spaces, graduate offices and learning pods on the remaining three floors. The building is clad in a cost-effective two colour Isoclad composite cladding system to all elevations, with a variety of window shapes and sizes to give a modern finish. The block was finished two weeks ahead of contract, and has had extremely positive feedback from both Graham Construction and the University.

## Premier Modular: Queen Elizabeth Hospital



**Birmingham's Queen Elizabeth Hospital required additional patient space which required the Facilities Management team to relocate to a new office building at the front of the hospital. The new building was installed in a prime location on the busy main entrance road, which provides 24-hour access/egress for the hospital.**

The project team considered offsite construction to be the best solution in order to minimise disruption. The majority of the building could be finished off site and then the modules lifted in over a few hours at the quietest times of the day, rather than multiple material deliveries, different trade vehicles and a larger cordoned off construction area. The substantially shorter programme also minimised the disruption to the hospital and helped accelerate the overall project programme, so the patient facilities could be delivered more quickly.

Premier Modular was chosen to construct the building due to their experience working in live Healthcare environments, and their ability to offer a high quality finish internally and externally. The building is single storey, and comprises 12 modules providing open plan



and individual offices, a reception, meeting room, boardroom, kitchenettes and toilet facilities. External finishes were a combination of Trespa and Eternit cladding panels, with large curtain wall glazing incorporating solar shade fins being a key feature of the building. Premier Modular carried out a full turnkey project, including construction of new ramps and steps with galvanised handrails, hard landscaping to the perimeter of the new building, and soft landscaping including new trees and planting.

For more information, please  
call: 0800 316 0888  
email: [sales@premiermodular.co.uk](mailto:sales@premiermodular.co.uk)  
or visit: [www.premiermodular.co.uk](http://www.premiermodular.co.uk)



# Case Study

## Shay Murtagh's Carter's Bridge project wins award



Well known precast company Shay Murtagh Precast were delighted earlier this year when the Carter's Bridge Project in Wigan won the Medium Civil Engineering Project of the Year at the Institute of Civil Engineers (ICE) North West Awards.

Construction & Commercial Director SMP Liam McGovern said: "This was an excellent example of collaboration between all stakeholders to deliver a stand out project on schedule and to budget, which are the cornerstones of offsite construction."

The original structure was in poor condition and the capacity had been limited to 3T. Working with J Murphy & Sons, Network Rail and TGP, Shay Murtagh manufactured and delivered 2 pairs of 40m long girders, which were lifted into place with the stringcourse, parapet and permanent formwork in place. This allowed for the beams to be lifted with edge protection in place and reduced the overall construction programme. As site conditions limited delivery to a maximum length of 25m, the pair of girders were manufactured in two pieces. The two pairs were lifted into place, spliced and an in-situ section cast to complete the stringcourse. Trial assembly of the bridge was conducted

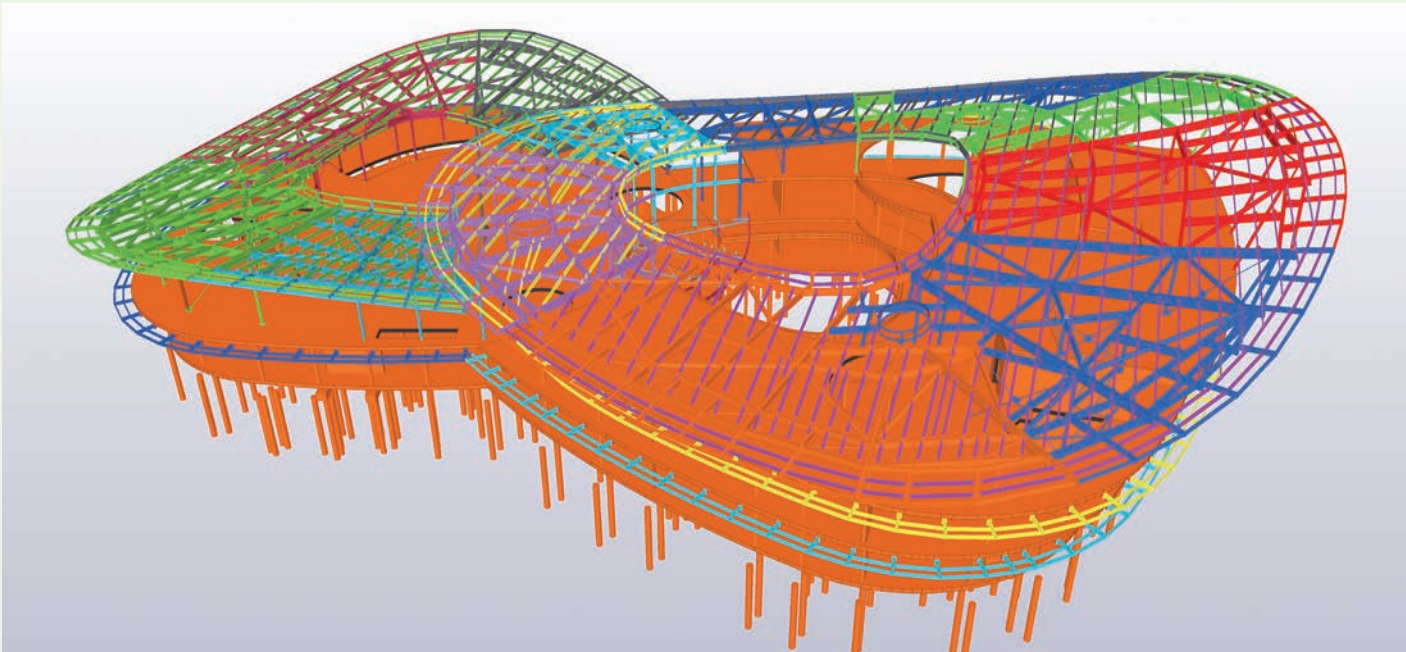
in the factory for inspection before delivery to site, all of which was carried out by the Shay Murtagh crew and fleet. Darrell Matthews, ICE's North West Regional Director, said: "The engineers achieved this by ingenuity in design and construction, including the prefabrication of bridge components offsite, so they could be installed using a large capacity crane during a single 29-hour closure of the railway line."

Other projects Shay Murtagh are currently working on include the Mersey Gateway Project, Aberdeen Western Peripheral Route and Deephams Waste Water Treatment Works.

For more information, contact Liam McGovern by email: [liam.mcgovern@shaymurtagh.co.uk](mailto:liam.mcgovern@shaymurtagh.co.uk) or visit the website: [www.shaymurtagh.co.uk](http://www.shaymurtagh.co.uk)

# Case Study

## Winners of the UK Tekla awards 2017 announced



Trimble is pleased to announce the winners of the annual UK Tekla Awards 2017. With impressive projects entered into all six categories, the winners were recognised as the best in their category.

To find out more about the winning projects, visit: [www.tekla.com/uk/bim-awards](http://www.tekla.com/uk/bim-awards). For more information about Tekla software from Trimble, visit: [www.tekla.com/uk/solutions](http://www.tekla.com/uk/solutions)

The annual Tekla Awards focuses on projects of all shapes and sizes, which have used Trimble's Tekla Structures as part of the process for designing and modelling structures.

Managing director at Trimble Solutions (UK) Ltd, Richard Fletcher, said: "We're delighted with the number of entries that we have received this year – and as usual it has been an extremely difficult task to choose the winners, as all of the entries have been of such high calibre."

"The Tekla awards were designed for our customers, in order to help them raise their company profile and attract potential new clients, as well as impress existing ones. The awards showcase and reward the hard work and innovation that goes into using Tekla software to solve engineering challenges, working collaboratively and delivering better outcomes for all involved."

- The winners of the UK Tekla Awards 2017 are:
- Commercial Projects**  
ICARUS: Vita Student – Westgate Road
  - Public Projects**  
Total Steelwork Fabrication: Caudwell CIC
  - Industrial Projects**  
FP McCann: Dift 3 - Plot 1
  - Infrastructure Projects**  
CTS: Finzels Reach Footbridge
  - Small Projects**  
Pinnacle: Boat landings for AME-2 & AWG-1
  - Sports and Recreation Projects**  
TDS: Battersea Arts Centre
  - Public Vote**  
Billington Structures – Project Beagle

The winners will receive their trophy during an awards day, which will be organised by Trimble Solutions (UK).



# New Member



For more information, please contact:

**Mike Perry**  
Principal Consultant

T: 01923 664875

M: 07800 622886

E: [mike.perry@bre.co.uk](mailto:mike.perry@bre.co.uk)

Visit: [www.bre.co.uk](http://www.bre.co.uk)

Alternatively, contact:

**David Gall**  
Associate Director

T: 01923 664527

M: 07827 831365

E: [david.gall@bre.co.uk](mailto:david.gall@bre.co.uk)



BRE is an innovative group of researchers, scientists, engineers and technicians working to make the built environment better for all. BRE generates new knowledge through independent research, creating products, standards, qualifications, testing and certification to help ensure buildings, homes and communities are safe, efficient, productive, sustainable and enjoyable places to be. Our customers use BRE expertise and services to deliver their social, environmental and economic goals.

BRE's primary engagement with Buildoffsite is through its engagement with the AMSCI-AMBHI Project. The AMHBI (Advanced Manufacturing of Housing and Built Environment) Project is part of the AMSCI (Advanced Manufacturing Supply Chain Initiative) Programme. The objective of the AMHBI project is to support reduction of the UK's housing deficit by facilitating production of high quality modular homes manufactured offsite.

BRE's role in the project is to establish a Standard (BPS 7014), providing the base for a Certification Scheme for offsite construction systems and components, for application to new build and refurbishment, 3-D and 2-D. A primary intent of the project outputs is to foster growth of the UK's offsite construction sector and additionally helping create export opportunities for overseas markets. This wide ranging initiative is also intended to work in complement with existing offsite construction sector standards and initiatives, eg BOPAS.

Working in close collaboration with Buildoffsite, BRE is creating an Industry Forum to provide a neutral intermediary to facilitate market engagement with BPS 7014 and linked Certification Scheme.

# Events

## Buildoffsite Direction Group meeting and dinner

**Hosted by:**  
Legal & General

**Theme:**  
Collaboration to support housing delivery at scale

**Dates:**  
24-25 October 2017

**Location:**  
London

**Dinner:**  
7.00pm, 24 October

**Meeting:**  
10.00am-1.00pm, 25 October

For more information and to register please email:  
[anna.whiting@buildoffsite.com](mailto:anna.whiting@buildoffsite.com)

## Visit to the National Composites Centre

Buildoffsite has teamed up with the National Composites Centre to offer our Members and invited guests an opportunity to visit the Centre at Emmerson's Green near Bristol on Tuesday 14 November.

Although advanced composites are already extensively used to deliver client and customer benefit in the automotive and aerospace industries, their take up by the construction industry is still modest. This visit will provide a great opportunity for delegates to get a better understanding of advanced composite materials, their attributes and potential applications. The visit will also provide for delegates to tour the NCC facilities and to meet with technical experts. A briefing note on the work of the National Composites Centre can be found on pages 26-27 of this newsletter.

This visit will provide a great opportunity for Members to gain a valuable insight into what for many will represent a new generation of materials that will enable new applications, new solutions and new opportunities within the sector. The programme for the visit is being finalised and will be shared as soon as possible.

The Centre is able to accommodate up to 100 visitors. Buildoffsite Members who wish to attend this visit and look into the future of construction should email: [anna.whiting@buildoffsite.com](mailto:anna.whiting@buildoffsite.com)



**Date:**  
14 November 2017

**Time:**  
10.00am-3.00pm, with breakout available for one-to-one networking until 4.30pm.

A late start and early finish is recommended to avoid congestion from local roadworks.

**Event:**  
Tour of the National Composites Centre

**Venue:**  
Feynman Way Central,  
Bristol & Bath Science Park,  
Emerson's Green,  
Bristol BS16 7FS

## Upcoming Buildoffsite Member Events

For full list of Buildoffsite events visit [www.buildoffsite.com/news-events/upcoming-events/](http://www.buildoffsite.com/news-events/upcoming-events/)



An aerial, high-angle photograph of a large, modern stadium under construction. The stadium's tiered seating bowl is visible, surrounded by a dense urban landscape with various skyscrapers and buildings. The image is in black and white, with a dark, moody tone.

# BE INSPIRED.

THE DEFINITIVE VIDEO  
CHANNEL FOR CONSTRUCTION

THEB1M.COM

