

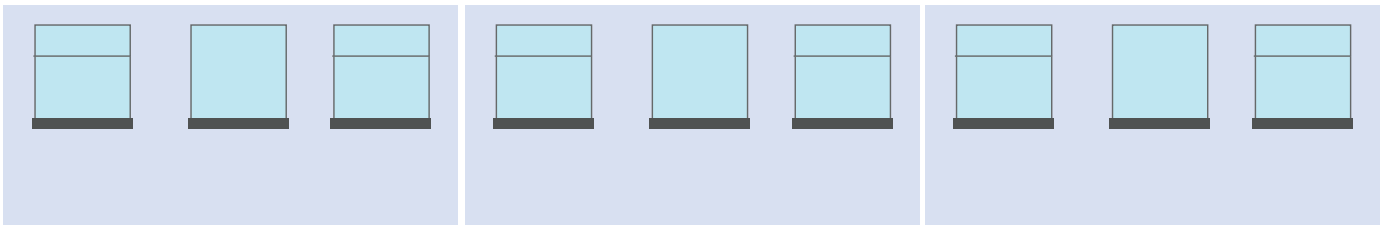
# Modular construction

Making modular work in Manchester  
and the North West



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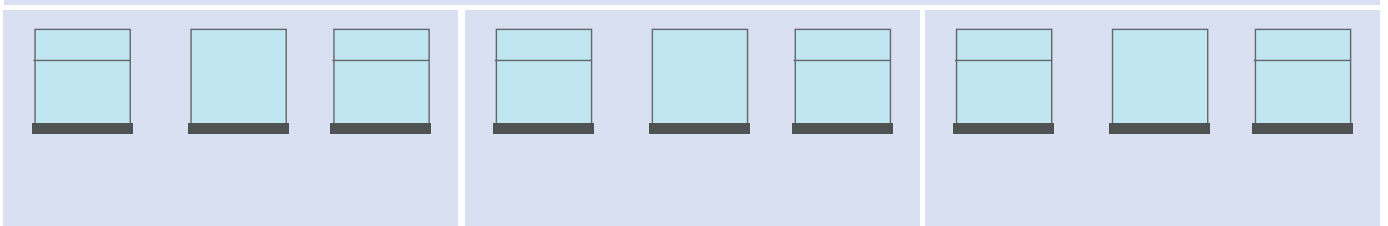
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## What is modular construction?

“Modular construction is a process in which a building is constructed off-site, under controlled plant conditions, using the same materials and designing to the same codes and standards as conventionally built facilities – but in about half the time. Buildings are produced in “modules” that when put together on site, reflect the identical design intent and specifications of the most sophisticated site-built facility – without compromise.”

[Modular Building Institute](#) (MBI)



# Foreword

Whilst the construction industry has been looking at ways to build more efficiently for many years, both in terms of speed of delivery and cost, modular and off-site construction is now firmly on the political agenda. The Government is looking at ways of solving the housing crisis by investigating how they can promote efficiencies in the build process. Earlier this year, the House of Lords Science and Technology Committee began gathering responses to its inquiry investigating the potential benefits, drawbacks and obstacles to the wider use of off-site construction.

The inquiry hopes to encourage economically and environmentally sustainable practices in the construction industry and is looking at whether changes in Government policy could help to facilitate the use of off-site manufacture, for example in the area of public procurement.

Having held a roundtable session in London at the beginning of the year on the issues and challenges surrounding modular and off-site methods of construction, we felt well-placed to input on the House of Lords enquiry and accordingly we submitted our response to the consultation. You can read our full published submission [here](#).

Around the same time, we held our second roundtable in our own ongoing modular initiative, this time looking at the particular challenges of developing modular accommodation in Manchester and the North West, as recently highlighted by Joanne Roney, Chief Executive of Manchester City Council. We explored the success stories as well as the barriers, and gauged the attendees' feedback on the aims of the House of Lords Committee and where they felt the Government could assist in delivering real change to boost off-site and modular developments.

The session was chaired by Michael Cleaver, Director at The Housing Forum, a cross-sector organisation with members from throughout the housing supply chain that seeks to act as a mouthpiece for the industry on issues around housing capacity and quality. Michael has over twenty years' experience working in the housing sector in property management, sales and marketing, communications and regeneration and is responsible for communications and policy at the Forum.

The session was attended by a number of organisations active in the modular and off-site sector nationally, but with a particular interest in the North West market with representatives from Mace, HTA Design, Levitt Bernstein, Osco Homes, Cushman & Wakefield, Fusion21, Procure

Plus, nvirohaus and the School of the Built Environment at the University of Salford as well as registered providers, Clarion Housing Group, The Riverside Group, The Guinness Partnership and the Places for People Group.

This report draws on some of the threads from that lively and engaging session and explores what this means for modular, off-site and other modern methods of construction in the North West.

## Thoughts from the chair - Michael Cleaver

There appears to be a head of steam building up behind off-site construction, which could well propel it into the mainstream of housing delivery. The roundtable discussion in Manchester backed this up, but also highlighted some potential barriers.

The need to accelerate housing delivery combined with a shortage of skills, concerns about build quality and low productivity in residential construction have highlighted the benefits modern methods of construction (MMC) brings. Concerns about the availability of warranties, insurance, mortgage lending (and the ability for landlords to secure finance against the properties) are all being addressed.

From the discussion it became clear that despite the success stories, clients in the North West are still to be convinced that there are sufficient benefits to them of committing to this method of delivery at the moment. The tried and tested methods still work for them and there is not yet enough incentive to switch. The requirement to commit to scale with no guarantee of savings is not easy to accommodate within a Housing Association's business plan or procurement processes.

However, there was sufficient enthusiasm in the room to suggest to me that, as more modular is successfully deployed and as the full financial benefits of getting homes on site more quickly are seen, modular homes will become a significant part of the solution to delivering housing in the North West.

# Roundtable

## List of participants

<b>The Housing Forum</b>	Michael Cleaver - Director (Chair)
<b>HTA Design LLP</b>	Jamie Ashmore - Associate
<b>Procure Plus</b>	Gwen Beeken - Managing Director
<b>nvirohaus</b>	Roger Burton - Architect
<b>Fusion21</b>	Rebecca Bennett Casserly - Associate Consultant
<b>Trowers &amp; Hamlins</b>	David Cordery - Senior Associate
<b>Levitt Bernstein</b>	Gillian Harrison - Senior Architect
<b>Clarion Housing Group</b>	Rachel Hollins - Head of New Business and Partnerships (North)
<b>Mace</b>	Chris Marrow - Project Director
<b>School of the Built Environment, University of Salford</b>	Peter McDermott - Professor of Construction Procurement
<b>HTA Design LLP</b>	Kwame Ohene-Adu - Senior Associate
<b>The Riverside Group</b>	Mark Patchitt - Director of Development and Growth (London)
<b>Cushman &amp; Wakefield</b>	Claire Pegg - Senior Consultant
<b>The Guinness Partnership</b>	Allan Ramsay - Director of Development (North West)
<b>Trowers &amp; Hamlins</b>	Katie Saunders - Partner
<b>The Places for People Group</b>	John Wright - Regional Development Manager

“

Modular has a significant part to play in accelerating the delivery of new homes”

— Michael Cleaver - The Housing Forum, Director

“

We have already seen examples of modular success in the North West, I am sure these are just the first of many”

— David Cordery - Trowers & Hamlins, Senior Associate





# Making modular work in Manchester and the North West

Joanne Roney, Chief Executive of Manchester City Council, recently highlighted the challenges of developing housing mainly manufactured off-site in Manchester and the North West. The opportunity to build faster at a lower price and improve quality is appealing to all clients building new homes both in the private and public sector, however achieving these objectives is inextricably linked to both land supply and a commitment by clients to the manufacturers to order the volumes required to make the factories efficient. Roney also flagged up the logistical problem of gaining access to inner city sites to deliver individual components, such as steel and timber frame.

## View from the market

At our Manchester roundtable we asked the participants representing public and private sector clients, contractors and manufacturers whether the challenges raised by Roney are hindering the take-up of housing manufactured off-site in the city and surrounding area and if these challenges are unique to the North West.

The participants described the market in the North West as an expanding and developing industry with pockets of best practice and success stories. However the market has not fully embraced modular as a preferred method of construction in either delivery of private residential or affordable housing, despite a number of factories popping up to take advantage of the demand for new homes, for example in central Manchester (Osco Homes), Speke (Ideal Modular Homes) and the L&G Homes factory slightly further afield in Yorkshire.

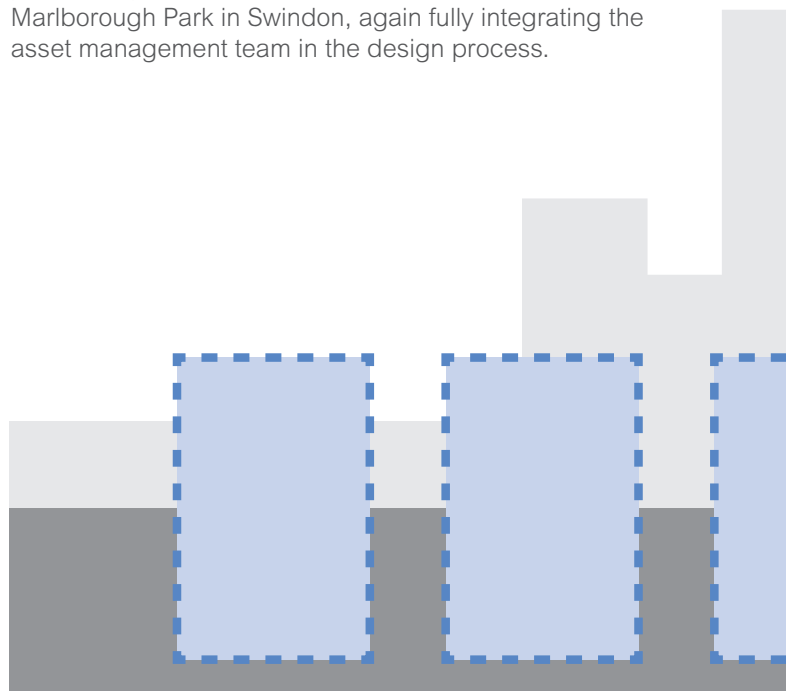
Nevertheless there is a strong track record of using off-site manufactured methods for delivery of schools, hospitals, hotels and student accommodation in the city and surrounding area. Mace, one of the country's leading contractors and consultants who have worked on many education and central government projects, pointed out that the public sector clients have already seen the benefits of improved quality and reduced delivery time in these areas. The question is whether this approach can be easily applied to help the housing crisis.

National registered providers operating in the North West are tentatively exploring different methods, but many of these are still currently pilot programmes.

## Success stories

Success stories were provided from Osco Homes, a developer using a factory-built steel frame panelised system, in partnership with Together Homes, who have delivered a mix of eight bungalows and two and three bedroom homes in Leeds. Their factory is situated in Hindley Prison in Greater Manchester and prisoners are trained to build the external walls, floors and ceilings. Osco Homes continue their training on release through apprenticeship and other trade or management recognised schemes and employ them to assemble and fit out the completed homes. As well as the obvious social and community benefits to this approach, the quality of the product was flagged as a major success factor since the factory environment permits detailed inspection and sign off before components are released to site and the margin for incorrect assembly on site is significantly reduced.

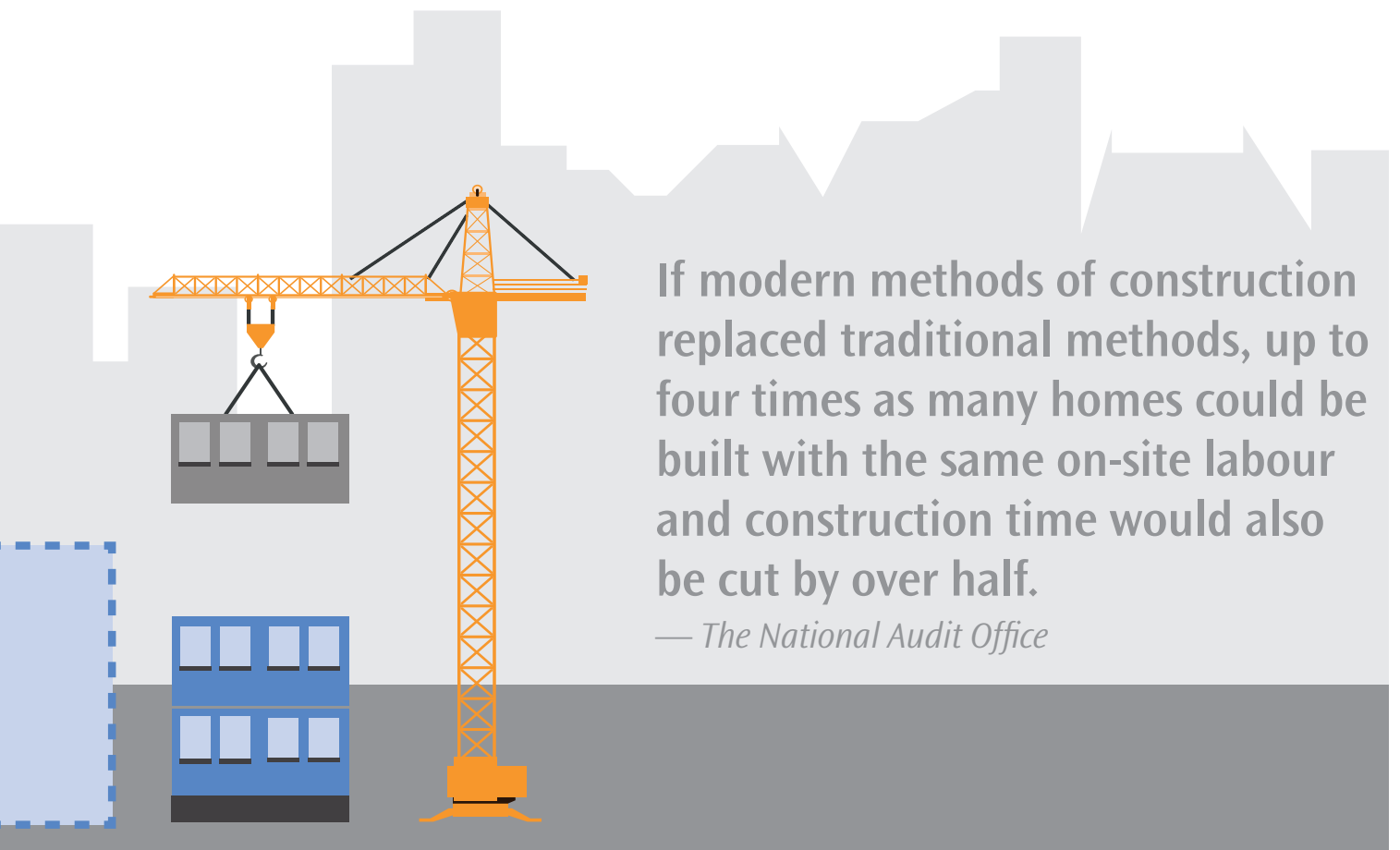
The Places for People Group, the UK's largest registered provider and an active participant in the build to rent market, have adopted a delivery model that looks to harness the advantages of partnering with private developers to achieve its aims. This approach has been effective in one of The Places for People Group's joint ventures with Urban Splash, with whom they have been working at the award-winning Smith's Dock in North Shields. The two have collaborated to make sure that the team that will eventually maintain the asset is fully involved at each stage, which means that practical maintenance solutions can be designed into the development at a very early stage. The Places for People Group have also acquired an interest in a modular company, ModularWise, and have already had positive experiences on the 73 modular units built so far at Marlborough Park in Swindon, again fully integrating the asset management team in the design process.



The Viaduct Housing Partnership, which is a development partnership between Stockport Homes Group and Stockport Council, focusing on building more affordable homes in Stockport, has delivered 14 affordable homes in the town.

In the private sector examples of modular construction in the city itself are more likely to be seen in the development of hotel accommodation rather than residential accommodation, although developers such as Rowlinsons have used precast concrete frame and envelope with modular bathroom pods for two blocks of 164 apartments for a build to rent project at Pomona Wharf, Manchester Waters. Urban Splash, whose joint ventures we have already mentioned, is also taking on the modular challenge in its own right, rolling out its innovative hoUSE brand at Irwell Riverside in the centre of Manchester.

However there are still relatively few examples of housing schemes in Manchester itself. Michael Cleaver of the Housing Forum confirmed that only 1% of homes in the city are being delivered using off-site manufacture. So, as Roney has hinted, are there barriers to developing housing manufactured off-site in Manchester?



**If modern methods of construction replaced traditional methods, up to four times as many homes could be built with the same on-site labour and construction time would also be cut by over half.**

— *The National Audit Office*

## Barriers

The Modular Allianz, a group of registered providers, have been working with Manchester City Council to aggregate demand. However the registered provider members confirmed that they have found it difficult to agree on standardisation of house type and design and the programme for demand in order to provide manufacturers with the required pipeline of orders and certainty to secure factory slots. The Riverside Group, one of the leaders of the consortium within the Modular Allianz, acknowledged that many registered providers are too fixated on their individual needs. They have different development targets, such as different tenure mixes and commercial drivers such as the desire to achieve cross-subsidy from outright sale, which inevitably affects the development of a standard design. In addition, the lack of grant funding for affordable housing for rent has affected registered providers commitment to using off-site fabrication and other modern methods of construction which on a small scale pilot are still unlikely to create significant cost savings and indeed may be more expensive than a traditionally-built project.

Another issue highlighted in our Manchester roundtable that chimes with the messages coming from our London session and feedback from the market generally is that the sums invested in particular developers' and manufacturers' agreed designs mean that there is a huge concern over the ownership of the intellectual property in the design. This can create a barrier to information sharing and collaboration generally.

Uncertainty about the long term maintenance of the finished product is also a concern, especially for registered providers who will hold the asset for many years to come; a theme which we explore in greater detail later in this report (see "How does modular stack up in the long term?").

Many public sector clients cite the public procurement regime as a barrier to establishing relationships with manufacturers, when much work may have gone into agreeing specifications and designs, only for them then not being able to follow through with an order without a public procurement exercise. In an attempt to overcome the procurement hurdle, a number of public sector clients have established joint ventures with manufacturing partners or are looking to select partners through frameworks. The London Housing Consortium, Fusion21 and Procure Plus are three well established procurement groups used by public sector housing clients who have recently launched new modular frameworks for this purpose. The challenge posed by the public procurement regime and the options available for public sector clients seeking to surmount them is considered later in this report (see "Manoeuvring the manufacturing market through public sector procurement").

Another barrier is the necessary cultural change which is required to build housing manufactured off-site, since the manufacturer plays a central role in the project compared with a traditionally-constructed housing project where manufacturers of components such as kitchens and bathrooms usually liaise only with the main contractor. On housing projects manufactured off-site, the manufacturer needs to engage directly with the client and their design teams must work together with the main contractor who is usually still responsible for undertaking site set up and assembly. Some of the academic institutions that have turned their minds to trying to resolve these barriers, such as The School of the Built Environment at the University of Salford, have highlighted the need to rethink the business model on off-site manufactured projects and embrace Government recommendations to engage with the supply chain, including the main manufacturer and contractor at an early stage and use BIM to bring forward design decisions.

HTA, who have worked with a number of clients especially in the housing sphere to design and deliver their modular schemes, have long been advocating that the industry needs to accept a different, more inclusive role for designers. They need to be engaged early to ensure that the project is designed and submitted for planning on a modular/off-site basis rather than switching from traditional construction later on in the design process. Levitt Bernstein, a multi-disciplinary practice of architects, landscape architects and urban designers, reiterated the importance of placemaking, particularly where greater standardisation of dwelling design is utilised. Consideration of context, appropriate street patterns and urban grain, building scale and landscape treatments are all vital elements in the creation of successful neighbourhoods, and with the use of modular construction methods it is vital that the space between buildings is not forgotten.

Funding models, whether through Homes England grants or private sector loan finance, need to change to reflect the upfront investment into design and the commitment to the factory as well as improving understanding of the funders about the security of the completed product.

Homes England are using their influence to encourage more housing built off-site by placing requirements on developers to build between 5% and 20% of new homes using modern methods of construction, such as modular. Whilst this is a powerful message, we have had feedback from various sources that there are limited numbers of house builders in the North West who are prepared to bid for these types of schemes. The fundability of housing manufactured off-site will be the subject of Trowers' future roundtable events in the Autumn.



## Future of modular in the North West

Whilst many of the themes explored in this article reflect national challenges and are not necessarily unique to this region, in the context of Manchester and the North West, leadership from both Manchester City Council and the key national agencies, such as Homes England, are considered to be crucial, particularly reflecting on the example set by the GLA, who have already made progress in offering funding to modular and off-site schemes through their Innovation Fund. The autonomy of Manchester City Council through devolution and its elected mayor, increasing its ability to influence the planning framework, is an advantage for modular methods being adopted more widely in the North West. This offers reasons to be optimistic for the likes of Joanne Roney and feeds into the aims of the Government's Industrial Strategy and the Construction Sector Deal in terms of being able to deliver social value through increasing the number of jobs in manufacturing across the North West.

The success of collaborative efforts between developers, shown in the delivery of projects already undertaken by the likes of Together Group and Stockport Homes, as well as other collaborations in the public sector such as the Modular Allianz, point to the realistic possibility that a buoyant modular market can be generated in Manchester and the North West in the next few years.

**"The beauty of modular construction is that many different design options are possible, meaning that developers in the North West are able to give a regional flavour to their schemes in a way that is sympathetic to the existing built environment."**

— *David Cordery*

# Manoeuvring the manufacturing market through public sector procurement

One of the recurring themes amongst the participants at our Manchester roundtable was their concern that the public sector procurement regime was a hindrance to the development of more homes using off-site manufacture. Whilst many recognise the need for the public sector to aggregate demand in order to feed the factories such aggregation usually triggers a public procurement exercise.

Some, like The Riverside Group, acknowledged that whilst a group of public sector housing clients may decide to take the plunge and go to the market to appoint manufacturers to deliver their aggregated housing programme, the critical step is making sure that those clients follow through on their commitments to avoid the procurement exercise ultimately being futile and costly.

Most public sector clients will be familiar with the Public Contracts Regulations 2015 in general but it is helpful to unpick how the procurement requirements apply to housing projects manufactured off-site.

Firstly, what is actually being procured? If a procurement is simply for a contractor to produce and/or procure the supply of pre-fabricated materials, the procurement is likely to be a supplies contract, which, if the total contract value exceeds £181,302 (ex VAT), must be publicly advertised. A supplies-only contract assumes that employers will install modules or components fabricated off-site by their own means. Public sector bodies therefore need to consider whether they have the resources and experience, either in-house or via existing third-party contractors and consultants, to manage the logistical complexities of a modular build and to properly install and monitor the installation of modular units and other off-site components.

Since only a few registered providers have an in-house contractor to construct units on site it is more likely that public bodies will expect a contractor to take responsibility for the manufacture, delivery and installation of modular units. Under the Public Contracts Regulations, this would be classified as a works contract, which has a higher threshold of £4,551,413 (ex VAT).

Once the specifics of the procurement have been established, public sector bodies then need to think about how best to engage with the market. With many modular factories working near or at full capacity, finding suppliers and contractors may be difficult. Strategic use of early market engagement before running a tender exercise can be a useful way for public sector bodies to gauge marketplace interest and capacity, and how best to structure a proposed contract to appeal to bidders. Employers are free to consult with potential bidders,

provided that this does not result in individual bidders being unfairly favoured or discriminated against. Likewise, procuring pilot projects may be useful to give employers, and clients, a taste of the likely scope of work, before committing to large-scale programmes.

As with many issues in construction, investment in off-site manufacture is affected by size and scale. As we have seen elsewhere, off-site construction requires significant upfront investment from developers and contractors, and even for those who can take a longer term view, such as registered providers, they will still want to see a return on their investment at some point. Small-scale demand for off-site manufactured housing, or projects which require bespoke rather than ready-made design solutions, may be more difficult to advertise and attract bidders for, often resulting in a more expensive contract.

Registered providers may be able to attract greater market interest by running collaborative procurement exercises, either by joint advertisements or by setting up consortium structures, pooling their individual requirements to create larger and more commercially attractive contracts, although our roundtable discussions reminded us that often, in practice, collaboration is not as easy as it sounds. Many public sector consortia, such as London Housing Consortium, Fusion21, Procure Plus and CHIC, use framework agreements, where individual contracts can be awarded to contractors and supplies on an as-and-when-needed basis and have successfully applied this approach to manufacturers of off-site housing. Frameworks provide flexibility for employers, who have no commitment to guarantee work or minimum spend – but these may work less well for modular procurements, where contractors and manufacturers will often be unwilling to invest upfront unless they are guaranteed work.

Joint venture partnerships between public and private sector partners may be a more attractive model, providing security of work supply and incentivising long term investment, though these can be time-consuming and costly to procure, and difficult to unwind.

Joint procurement exercises can create significant efficiencies – as demonstrated by the previous Government's National Change Agent programme for social housing – but they require individual public bodies to align their requirements and synchronise procurement timetables, which can be challenging. Collaborative procurement of modules requires, to varying degrees, commonality of design and product which may deter housing providers with different geographical locations and different housing needs. Collaborative procurement does not necessarily

mean that many modular buildings will end up looking the same, registered providers should actively work to avoid the standard cookie-cutter, “one size fits all” product.

Public sector procurers are also required to use procurement exercises to generate social value, both in the tender process and in the end product being procured. With this in mind, social housing bodies should ensure social value considerations and targets are built into evaluation and award criteria, and encourage bidders to identify opportunities for apprenticeships and community engagement in all stages of the modular building process. As mentioned above, this is an area that manufacturers such as Osco Homes have focused on; delivering employment opportunities in their factory for offenders and ex-offenders. It is an approach that resonates with the recommendations of Mark Farmer, Founding Director and CEO of Cast (who also chaired our London roundtable) in his “Modernise or Die” review of the construction labour market model by encouraging more entrants into the construction sector by offering skilled opportunities in a factory environment.

Modular and off-site construction provides exciting opportunities for increased productivity and output and significant reduction in price but the barriers to public sector procurement require careful navigation. If modular and off-site projects are going to succeed in the public sector, providers will need to familiarise themselves with the options available, and be prepared to engage with the market to identify interest.

### Hackitt Review 17 May 2018

“The way in which procurement is often managed can reduce the likelihood that a building will be safe. The contracting process determines the relationships, competencies and processes that exist between all the parties in the build and management processes. Procurement sets the tone and direction of the relationships between the client, designer, contractor and their subcontractors, as well as determining the formal specification of the building. Issues at this stage, for example inadequate specification, focus on low cost or adversarial contracting, can make it difficult (and most likely, more expensive) to produce a safe building.

The aim of the procurement process should be to obtain best value, rather than lowest cost. Clients should be aiming to construct buildings that have a long life cycle. The best value is dependent on establishing a collaborative partnership between the client, the contractor and their supply chain – those responsible for the technical detail and those responsible for commercial negotiations need to work together effectively.”

**“ The Hackitt review has highlighted that all housing providers need to focus on quality of housing supply and off site manufacturers should be taking advantage of the government focus on improving the nation's housing to promote modern methods of construction.”**

— *Katie Saunders*

# Collaboration and long term strategic relationships

At our London roundtable back in January 2018, there was much discussion around the potential advantages to be gained from collaboration in the off-site manufacturing market. In our previous report ([Modular Construction - Is it time that we started taking modular construction seriously?](#)), we explored in detail whether collaboration between clients and the supply chain could be the key to helping modular succeed. This theme was explored further during our roundtable in Manchester.

## Research into model forms of contract

For the past few months, Trowers have been supporting Kings College London on research for the Construction Leadership Council (CLC) into model forms of contract (see the Construction Leadership Council publication, [Innovation in Buildings Workstream research into model contracts for smart construction](#)) to support the required collaboration by setting out the parties duties in binding obligations. The findings of the CLC's initial research have [recently been published] and identify current standard forms which can be used by clients to deliver modular and off-site manufactured housing programmes.

The CLC recognised that there was a need to unlock the supply and demand conundrum affecting the provision of additional housing adopting smart construction. In order to do this, there should be model forms of contract with appropriate measures to manage risk investment and reward transparently and collaboratively.

## Framework Alliance Contract

The research has developed a Model Form Framework Alliance Contract (FAC) for long term strategic relationships designed to govern the procurement of new build housing and by which one or more clients can integrate housing programmes that are delivered through smart construction linked to separate design, construction and operation contracts.

The aim of the FAC, which is based on the Association of Consultant Architects Framework Alliance Contract FAC1 and already used by many public sector housing clients and contractors, is to bring clients together as Alliance Members and commit volumes of their new build programme to selected delivery partners who would also form part of the alliance and sign the FAC.

The Alliance Members would work together to agree standard designs, plan the factory delivery programme and common pricing and success measures and targets. If more than one contractor/manufacture is appointed to the Alliance a process for selection through direct award or mini competition would be included in the FAC.

When a client wishes to award a particular modular/off-site manufactured housing project, either following a mini-competition or through direct selection, the client would enter into a delivery contract for that project. The delivery contract could be drawn from an industry standard suite such as JCT, NEC or PPC adapted for use on a modular project, as we have explored previously (see [Modular Construction - Is it time that we started taking modular construction seriously?](#)).

FAC was always flexible enough to accommodate any supply chain structure and team leadership by a main contractor or lead manufacturer. The enhanced smart construction FAC includes commitments as follows:

- forward annual volume requirements over three to five years;
- behavioural and cultural change;
- early contractor/manufacture involvement through supply chain collaboration;
- measures to manage risk transparently and to increase performance, capacity investment and rewards.

## Early Contractor/Manufacturer involvement

The importance of early contractor/manufacture involvement is critical to preserve the integration of the design, construction and operation recently highlighted as a recommendation by Dame Judith Hackitt in her report "[Building a Safer Future](#)" (May 2018) to address the often disjointed approach undertaken on many projects.

The FAC brings together the clients and the supply chain in the design and planning stages even before a site is available and a project is live. The contract also includes the option to adopt early contractor involvement through the choice of the delivery contract which could include integrated project insurance, two stage open book procurement in line with the [Government Construction Strategy](#).

## BIM

The FAC provides the option for Building Information Modelling (BIM) to underpin the agreed approaches to design, supply chain engagement, costing, risk management and programming.

This can be achieved through the transparent multi-party structure, agreed software, integration of documents supporting BIM and flexibility to bring in BIM contributions from supply chain members.

Through the Alliance BIM data can be shared to reduce risk of errors, delays and misunderstandings.

## Collaboration

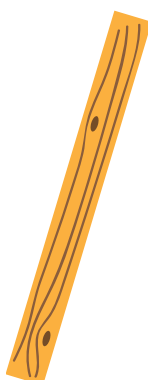
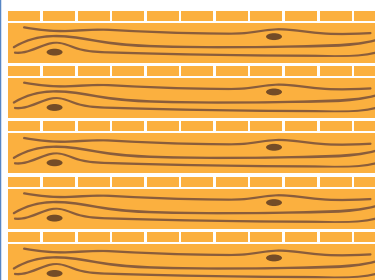
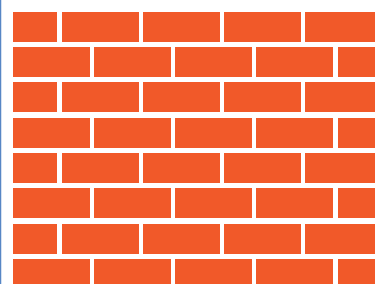
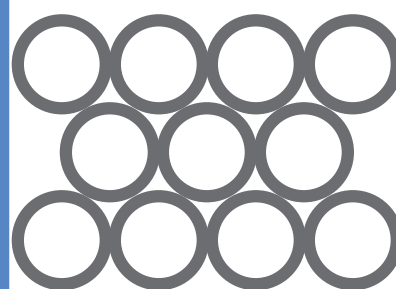
FAC like the other Alliance Forms is drafted on the assumption of collaborative decision making embodied by the mechanism of the Core Group. In working together to standardise design, collaboration and, in some cases, an element of compromise is key. We have found throughout our roundtables and other discussions that developers find that being able to agree a standard design which suits all members, to date, has been a barrier to aggregating volumes. However, the consensus decision making of the Core Group has been tried and tested to act as an enabler rather than a blocker to progress.

## Term Alliance Agreement

If developers are still reluctant and do not want to aggregate programmes with other housing providers but do want to collaborate with their supply chain on a series of modular and off-site projects then Kings College London have proposed a Model Form based on the Association of Consultant Architects Term Alliance Contract TAC 1.

This allows clients to integrate projects through a self-contained order system and still access the benefits of early contractor/maker involvement, BIM and collaboration.

Adopting the model forms and thinking collaboratively and strategically to join up supply and demand is a step towards overcoming the failure to realise the efficiency that modular methods can bring to the housing sector.



The correct choice of construction materials and techniques is crucial if the UK is to meet its target of a 34% reduction in CO2 emissions by 2020.

— BOPAS

# How does modular stack up in the long term?

Understandably, much of the focus of modular and off-site has been on the construction and delivery phase. This might give the impression that all developers are simply interested in how they might achieve handover of a project to purchasers, operators and occupiers in the quickest time possible. However, there are many developers, including providers of affordable housing, whose interest does not cease on practical completion and who will be responsible for the buildings well into the future. Whilst modular and off-site solutions can be effective for most types of development, the advantages in terms of time of delivery to site and lifecycle costs lend themselves particularly well to those operating in the build-to-rent and long term housing sectors. These types of developers are not simply focused on how quickly they can bring the product to market (although that is a consideration) but also on the costs of operating and maintaining the building for years to come.

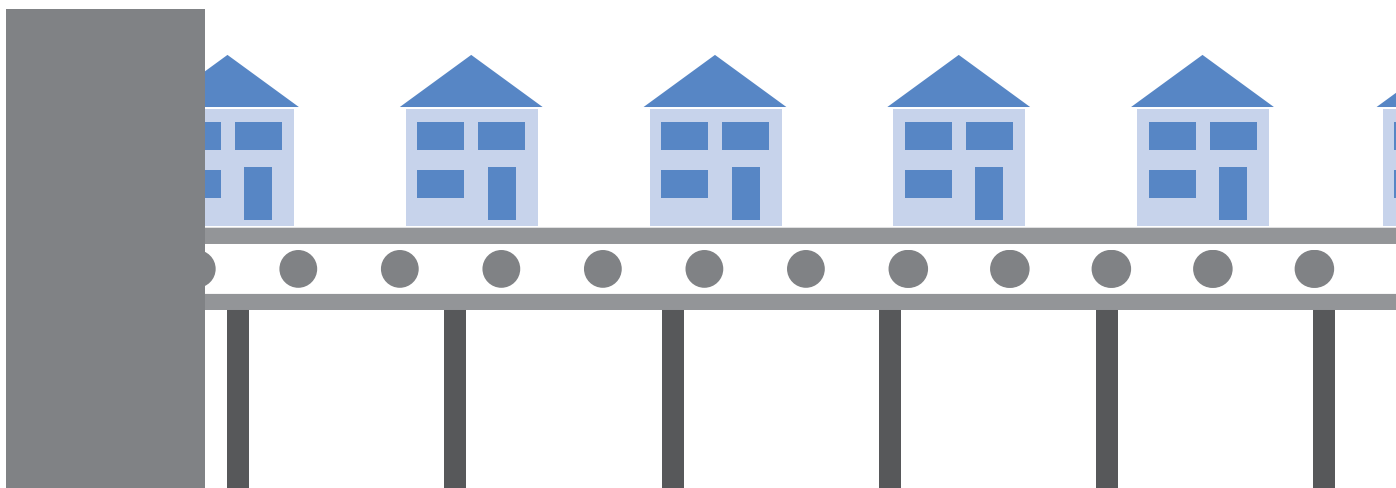
Those developers, including a number of large registered housing providers who are moving into the build-to-rent market to supplement their business model, can deliver off-site and modular schemes to site much quicker than a traditionally-built project and therefore start the revenue streams flowing much sooner. Along with being one of the country's largest housing providers, Clarion Housing Group, also has a significant development pipeline, with delivery being supported by its private developer arm, Latimer. Clarion has set itself the ambitious target of building 50,000 homes over the next ten years and to this end has committed an investment of £13 billion. They see modular and off-site construction as essential to helping them deliver those ambitious targets and this is a view that is shared by many registered providers who have been tasked with helping to deliver the Government's target of 300,000 new homes per year by 2020; a target many feel simply is not achievable using traditional methods.

Procure Plus, a not-for-profit organisation that seeks to promote more efficient and fairer procurement practices for housing schemes have also had positive experiences of delivering modular projects to site quickly. In working with Osco Homes, they have cited construction within approximately two days to install a semi-detached house and four to five days to finish off internally. The approach has been to produce housing that is designed to look like it is traditionally built, but that in fact has been delivered through modular construction in order to meet their stringent delivery deadlines. Procure Plus point to the benefits of the pre-manufacture meaning that the tolerances and alignment are perfect, greatly reducing the construction time.

As we have found time and again whilst running our roundtable events and discussing off-site and modular projects with clients, investment is seen as a pre-requisite to success. The Places for People Group, who we mentioned earlier, have recognised the need to bring the asset management team on board at an early stage to work collaboratively with the development team. Given the approach that they have taken in trying to integrate long term asset management into the design and build process, it is significant that it was the asset management arm that recently announced the launch of a £550 million fund for investing in build-to-rent.

The importance of long term management for registered providers as opposed to some private developers is that they are looking at long term investments of 30 or 50 years, or even longer in some cases. They also have duties to their Regulator and statutory obligations as landlords.

The consequence of the tragedy at Grenfell Tower last year is that landlords of all residential accommodation and in particular high rise blocks are under massive scrutiny over the management and maintenance of their homes and the



importance of health and safety compliance has rightly been elevated to the top of the agenda. It has never been so critical for landlords to demonstrate that they have built and are maintaining buildings which are fit for purpose. The Hackitt review published in May 2018 accused the sector of a lack of focus on quality and failure to prioritise safety in favour of doing things as quickly and cheaply as possible. It is an allegation that the industry will need to work very hard to rebut.

At our roundtable, The Housing Forum highlighted how they have worked on recommendations for Stopping Building Failures and their report was published just after the Hackitt review. One recommendation is the adoption of innovation, including modern methods of construction to improve the quality of new build projects as well as improving the sustainability of the asset in the long term. The report also focuses on procuring on the basis of life cycle costs and long term maintenance rather than simply assessing on lowest price.

The Guinness Partnership, who have committed to building 2,000 homes this year, told us that the accounting assumptions that they use for their housing stock are based on 100-year lifecycle costs. Against this background, maintenance costs are a big factor. Registered providers are interested in how the product looks for its entire life and it has long been a criticism of off-site and modular housing that the product starts to deteriorate sooner than a traditionally built unit. Whilst the processes used in other production industries are being adopted in the housing market, the products being produced for buildings are fundamentally more permanent. Modular developers point to the advances that have been made in recent years and claim that their developments can perform as well as traditional builds. Added to the look of the building itself, developers, and registered providers especially, are putting emphasis on placemaking and the public realm; increasingly ascribing value to the environment surrounding the asset as well as to the asset itself.

The other advantage of modular and off-site construction is the environmental performance that can be achieved. In the northwest, the 10 Greater Manchester councils have been working to produce the Greater Manchester Spatial Framework; a joint plan for Greater Manchester aiming to deliver to land in desirable locations and to deliver the homes and jobs that the region requires up to 2035, along with new infrastructure such as transport, schools, health centres and utility networks required to achieve this. Whilst a draft Framework was produced in October 2016, the second draft is due to be published in July 2018 and we understand that Manchester's Mayor, Andy Burnham, has made a commitment to a sustainability concept that originated in Germany and is now making an impact in the UK - 'passive house' (from the German, Passivhaus). The passive house standard aims to produce ultra-low energy buildings with an almost zero carbon footprint. Off-site and modular construction, with the ability to design to low tolerances and better quality, is able to deliver these types of houses. Again, the advantages of sustainable and high energy performing buildings will be a benefit for those holding and operating assets for the long term, by reducing electricity, heating and other household bills.

**"A massive selling point for off-site manufacture is the improved quality of the build and that they get it right first time. Now manufacturers need to demonstrate the reduced cost of maintaining their products to draw in investment from the public sector housing providers ."**

— *Katie Saunders*



# Final word: The Trowers view

The familiar challenges persist, as well as some regional-specific ones. As opposed to modular and off-site construction in the South East, for example, we have found fewer North Western developers looking overseas for modular suppliers and manufacturers and are more willing to test the domestic modular supply chain due to the geographical proximity of a number of established manufacturers in Yorkshire and the North East and increasingly a number of new manufacturing facilities in the North West. This reduces the risk and costs of logistical issues such as shipping but means that some of the benefits of cheaper overseas labour and materials costs may be missed.

What we have found particularly refreshing in the approach to modular construction and to placemaking generally in the North West is a real willingness to develop products to suit the existing built environment; with a recognition that there is different housing stock around the country and a desire to build “homes for Manchester based on Manchester-style housing”. The aim is to avoid the perception of “cookie-cutter” housing where the occupier could be looking at exactly the same development in Manchester as they might see in a central London development.

This regional angle can be helped by the change of power structures heralded by the advent of elected Mayors, more recent for Manchester. Attendees at our roundtable were keen to explore whether lessons could be learnt from London, such as the outcomes for social values; one of the key aspects in expanding modular and off-site construction. As mentioned in this report, the current Mayor of Manchester, Andy Burnham, has already made a commitment to improving environmental performance, with the adoption of the “passive house” standard within the Greater Manchester Spatial Framework. The feeling is that modular and off-site construction can be the answer for meeting these objectives in producing better quality housing and a better quality end product.

Despite a number of high profile success stories and an increasing openness to considering new methods of construction across the country, there is still a perceived lack of commitment to modular and off-site construction in the North West and a distinct nervousness around adopting these modern methods of construction. Many are looking to larger organisations to take the lead. Smaller and mid-sized developers and contractors usually do not have the experience or resources to deal with modular construction. However, larger developers have plenty of existing, traditionally planned and consented, projects in the pipeline so have less incentive to use innovative, and in some cases, untested techniques on these projects.

During the roundtable session we have learnt a lot about the success stories and challenges of modular and off-site construction in the North West. If the appetite for this approach to building can be turned into complete buy-in by both public and private sector organisations (with a little help from regional and national governments) then it does seem like modular construction can be more widely adopted in the North West.

The next roundtables in our ongoing modular initiative will continue to look at the particular challenges facing modular construction in the regions, namely Birmingham and the Midlands, and Exeter and the South West, and also, in our next London roundtable, exploring concerns around financing (including mortgage lending) and insurance (including defects insurance). We welcome ongoing contributions from anyone who has input they would like to share.



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**Modular construction**  
Is it time that we started taking modular  
construction seriously

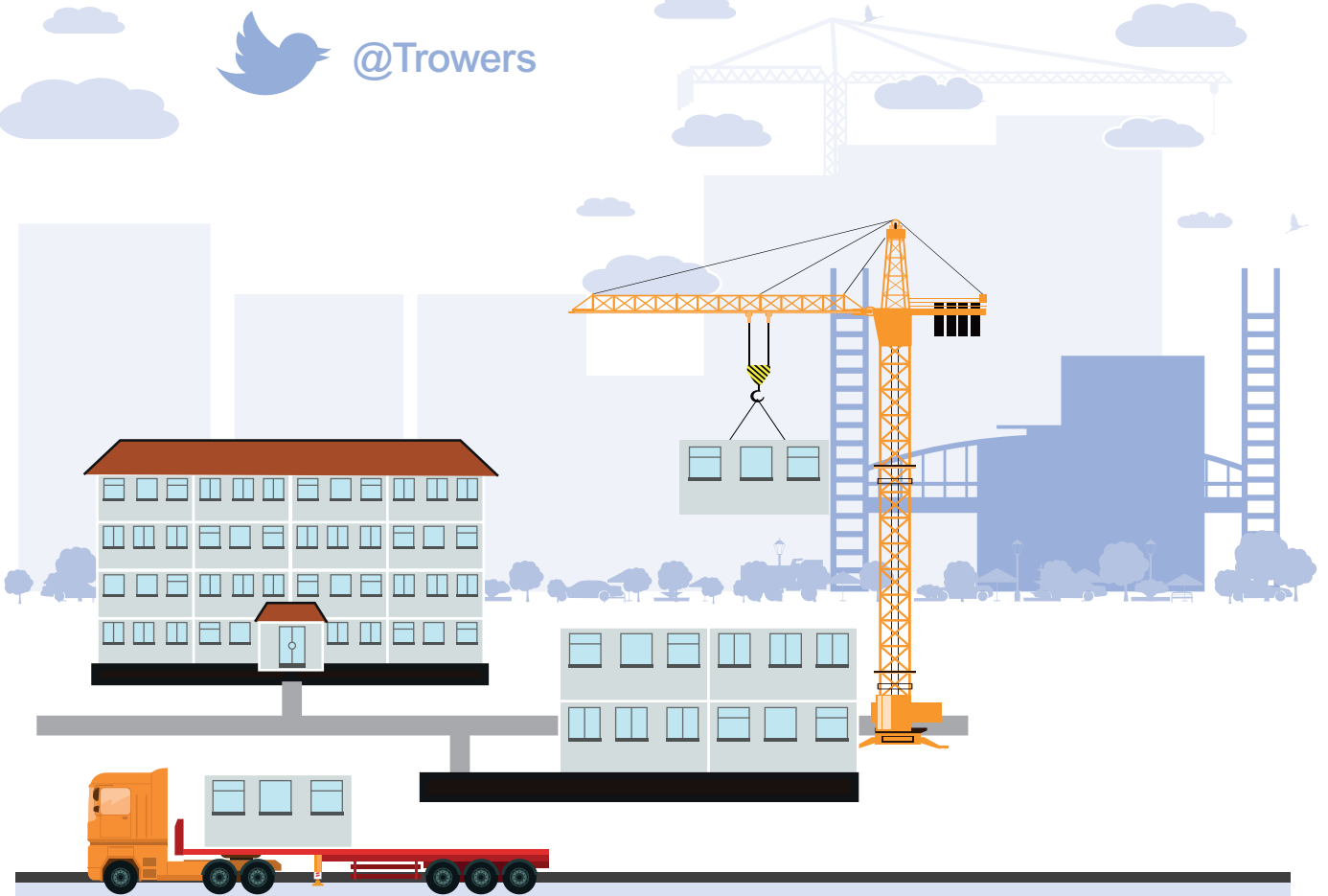
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