



CEO Forum “Offsite Manufacture 2018 - Tipping point or false dawn”

Hosted by Baily Garner 21 February 2018



The conclusions of the CEO Forum are

- Central Government and Combined Authorities are clearing the way for MMC in residential development, encouraging the development of the supply chain through public construction and facilitating the conditions for a level playing field for mortgage finance.
- Other drivers are the skills shortage, advances in digital technology, Build to Rent and the recognition by housebuilders that it can drive profitability.
- There needs to be a shift in thinking from project to product, more inter-operability of systems, but also rationalisation of typologies by designers.
- It poses a challenge for architects to deliver great buildings and places, within tighter constraints on form. Architects are in general rising to the challenge. There is a skills shortage in the profession so it can help with productivity.
- In development, if not designed in from the start, contractors who are asked to bear risk under design and build contracts will default to on-site construction with some components assembled off site.

- MMC's reputation suffers from its chequered past and an untested present. However, there is an alignment of key drivers that suggest we are indeed at a tipping point.

John Milner introduced the CEO Forum and referring to the title noted that he felt that it was important that we had some commonly understood terminology to help gain traction. The convergence of digital technologies, the skills shortage, the quality agenda and wider adoption meant that we probably were at a tipping point.

Graham Sibley set out some of the context for the discussion. The skills shortage outlined in The Farmer Report, the requirement for accelerated delivery and Brexit were influencing policy in the area. He then went on to briefly discuss the accelerated construction fund, MHCLG Select Committee and the GLA Report 'Design Sealed Delivered'.

NHBC have seen an increase in modular construction, particularly in Build to Rent and affordable rental markets due to the ability to achieve quicker builds and earlier rental income. This has been less evident in the volume house builder market, although there are now more coming through, such as L&G, ilke Homes, Berkeley Homes and Swan.

The challenges for warranty providers relate to quality and durability. NHBC offers the same warranty for modular as it does traditional build. This then should satisfy the stakeholders who require adequate warranty provision to manage financial risk: mortgage lenders, investors, valuers and building insurers.

Confidence needs to be engendered around:

- Quality - Independently Certified with a 60 year design life
- Transport and Storage of Components
- Assembly of Components

As underwriters, NHBC wish to ensure the risk of performance failures or claims is mitigated. They would also like to see manufacturing capacity increased and more standardisation of systems.

Mark Farmer reported that within the Autumn Statement, there was a major announcement regarding five major government departments moving towards a presumption to use MMC by 2019. This represents a multi-billion capital building programme covering physical and social infrastructure sufficient to potentially re-shape the supply chain and perhaps even a move towards 'product platforms' for different building asset classes. Ultimately, this could also have an impact on the housing sector.

Mark also confirmed that he was leading a working group looking at MMC, the primary aim of which is to ensure the broader availability of mortgage finance and building insurance to

purchasers of various forms of innovative or modern construction. There is currently an apparent disconnect between the use of MMC and the ability to secure consistent mortgage valuations and buildings insurance terms. The working group is exploring new ways in which manufacturing assurance and completed scheme warranties can work better together to drive market confidence in technical standards and compliance and hence the underwriting of risk. An announcement on the outputs from this group should be expected later this year.

Comment:

Contributors looked back at some of the reasons large HAs, lenders and contractors might be cautious about MMC. It is still a small element of the overall development programme, and some organisations are dealing with problems from the last period in which it was promoted. Issues such as resale values, maintenance costs and general customer perception were raised. The GLA supports MMC and sees potential growth in the Build to Rent market and space in that market for housing associations.

Several noted both the onus on the private sector to drive MMC in the residential market and also the fact that this was starting to happen, e.g. Berkley Homes commitment to 20% of output being MMC.

Robert Clark said digital technology will be the driver of the shift to MMC. Light gauge steel frame first came across in the 1990s but failed to take off because of a lack of software to aid design.

Despite the assertion by some that the industry will not switch to MMC as it is perceived as 'turkeys voting for Christmas', the sector needs to change. This will be driven by housebuilders as they recognise the financial benefits. Persimmon is a case in point. It is no coincidence that their timber frame and panel operation, Space 4, provides 30% of their output and they can sell homes at the lowest price while delivering the best margins. Others have identified this and are acting accordingly.

To successfully transition to a factory built approach we need to move from a world of project to world of product.

BIM is an important enabler as MMC needs X, Y, Z axis precision. BIM is increasingly affordable and effective but change has to come from the people delivering who tend to be happier with what they know.

Nigel Ostime reported that architects have been rather wary of off-site manufacturing on the presumption that it limits creativity and the ability to provide a bespoke solution that optimises the conditions of a particular site. This attitude is starting to change with a recognition that

market forces are driving the need to improve productivity, alongside the impending skills shortages in the industry, both of which MMC can help address.

An enabler of MMC is the use of standard flat types, bathrooms and kitchens. Armed with these, architects can use the time saved in re-designing them for every project - often with few significant differences - to focus on the rest of the building and the public realm; the areas that add most value to a development. We should aim for designed sets of flat types (as parametric 3D models) and engage with modular providers leading to inter-operability.

Most value is added at RIBA stages 0-3 with Stage 4 offering little value. MMC has the potential to reduce or eliminate Stage 4 completely.

Hawkins\Brown have set up a group of architectural practices interested in MMC with a view to shared learning and R&D opportunities. The group is called DesignOffsite and is closely aligned with the Offsite Management School, which has been set up by tier 1 contractors to ensure the skills exist to construct using MMC.

If now is to be a tipping point, it has to be driven by commercial factors, bolstered by regulation. The huge housing need and the skills shortage seem likely to be major factors, alongside the enormous and disruptive changes through digital technology, which in many ways goes hand in hand with DfMA.

MMC also provides an opportunity to de-fragment the procurement process by virtue of the collaborative, front-end input by suppliers that is required. The current fragmentation reduces quality and a by-product of MMC would be fewer defects. D&B is unsuitable for procuring off-site manufactured buildings so new forms of procurement will be needed, such as the alliancing contracts being championed by Mark Farmer and others.

Comment

Discussion took place around the benefits of designing for constructability while delivering great places. In a time where there is a shortage of architects DfMA, BIM and MMC all provide opportunities for efficiencies at design phase. The point was raised that BIM asset data from models at the moment are more than asset managers need or could cope with.

Eamon O'Malley set out that developers in London generally might steer away from MMC due to absorption rates and potential loss of control over build rates.

Contractors are normally approached at RIBA Stage 4 to consider MMC and this is too late in the process for it to be a viable option. If the client wants to use MMC then there needs to be a greater understanding and sharing of risk. Potentially, the MMC manufacturer may become the main risk bearing contractor with traditional contractors providing ground works and other services.

The question of risk and reward is key. Contractors work on lower margins than manufacturers

and are expected to shoulder significant risk. Investors in manufacturing plants would expect a return on capital significantly higher than contractor margins.

Particularly, the London market with complex sites and rights of light issues, leads to multiple types of unit design, which make MMC less viable. In London with the site constraints and building at height, it is questionable whether MMC would be able to provide the same returns it might offer on large developments of houses and low-rise flats.

The experience for the contractor of BIM is that it has benefits, but the supply chain is not yet geared up to use it. Overall there is an expectation that MMC will gain traction, but it will not happen overnight.

Comments:

General agreement that MMC does not work with design and build.

Alliancing models may be appropriate with contracting expertise, logistics and value chain with multi contractors, a designer integrator, and an integrated project insurance model with technical due diligence.

SMEs would benefit from common product platforms, mass customisation, open source data and sub-assemblies.

There is also a place for modular homes for meanwhile use and Inland Homes have developed a product for this.

In response to the debate about sameness, it was pointed out that Swan are offering numerous different configurations.

At the moment, to the client modular is seen as more expensive and there are added costs pricing in the risk of insolvency and factory issues. Whole life costing needs to be better understood in order to counter the perception of high cost.

The following took part

Hosts

- Andy Tookey, Managing Partner, Baily Garner
- John Milner, Partner, Baily Garner
- Michael Cleaver, Director, The Housing Forum
- Matt Hornsby, Surveyor, Baily Garner

Guests

- Robert Clark, Head of Business Development, Fusion Building Systems
- Jamie Ratcliff, Assistant Director, Programme & Policy Services (Housing & Land), GLA

- Jon Milburn, Group Development Director - South, Guinness Partnership
- Nigel Ostime, Delivery Director, Hawkins Brown
- Sally Ingham, New Business Manager, Inland Homes
- Eamon O'Malley, Director, Mulalley
- Amy Simmons, Head of Policy, National Housing Federation
- Graham Sibley, Market Development Manager, NHBC
- Bunmi Atta, Director of Construction, Optivo
- Andrew Beharrell, Senior Partner, Pollard Thomas Edwards
- Geoff Pearce, Executive Director of Regeneration & Development, Swan Housing Group
- David Gannicott, Group Business Development Director, The Hyde Group
- Bob Heapy, Chief Executive, Town & Country Housing Group
- Adrian Fennessy, Operations Director, Wates
- Simon Leadbeater, Residential Managing Director, Willmott Dixon
- Mark Farmer, Partner, Cast Consulting

The Housing Forum is grateful to Baily Garner for hosting this CEO Forum