House of Commons Housing, Communities and Local Government Committee: Modern Methods of Construction

The Royal Institute of British Architects champions better buildings, stronger communities and higher environmental standards through the practice of architecture and our 40,000 members. We provide the standards, training, support and recognition that put our members – in the UK and overseas – at the peak of their profession. With government and our partners, we work to improve the design quality of public buildings, new homes and new communities.

The RIBA welcomes this inquiry. We are committed to raising housing standards and improving the quality of the built environment. If undertaken with the right approach, the increased use of modern methods of construction (MMC) has the potential to increase the rate at which homes are delivered, as well as improve quality and deliver better outcomes in relation to sustainability.

To better achieve these ends, we recommend that the Government should:

- Change its procurement process to recognise the wider benefits of development and move away from a focus on best price;
- Promote the use of Post Occupancy Evaluation;
- Support the RIBA in promoting the importance of design in the built environment, which will be central to challenging existing negative public perceptions around the use of MMC;
- Support SMEs by providing them with the required long-term certainty to increase investment in MMC;
- Support the recommendations in the Letwin Review to subdivide large sites and create more variety in the housing market;
- Work with the RIBA to develop skills in the sector and improve understanding of the potential benefits that MMC can deliver.

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What are the benefits of MMC, and how can they sustainably boost the housing supply?

1) The potential benefits of MMC are substantial. They can result in a 20%–60% reduction in construction programme time, 20%–40% reduction in construction costs, 70%+ reduction in onsite labour, which creates improved outcomes in health and safety for workers, as well as delivering greater programme certainty[1].

2) The potential environmental benefits are equally significant. Half of the total waste produced in the UK comes from construction[2]. The built environment is also responsible for 30% of the UK's direct and indirect carbon emissions[3]. The need for a greener approach to building is evident. Research by WRAP reports that MMC can reduce energy consumption by 67% and reduce waste onsite by 70 – 90%, in addition to reductions in deliveries to site of 90%[4].

3) UK Government's Construction 2025 strategy, published in 2013, sets ambitious targets for 50% faster delivery, 50% lower greenhouse gas emissions, and 33% lower costs – all by 2025. These are repeated in the Construction Sector Deal published last year. It's difficult to see how the Government intends to meet these targets if not through a serious commitment to increasing the use of MMC.

4) MMC can also improve quality. Our members have found that by bringing designers into the means of production to work in collaboration with manufacturers, products are designed and delivered to exact planning specifications, without the opportunity for quality to be removed during the construction process to reduce cost. This a crucial element of ensuring that design quality is improved by the increased use of MMC. New technologies can allow significant design freedom and precision if the process is led by design from the start, and not constrained by other factors, such as software driven design.

5) MMC can also help to meet some of the concerns around workforce shortages in the traditional construction sector. Some estimates suggest that we can expect a 20-25% reduction in the sector workforce over the next decade[5]. Moving to a manufacture approach enables a more diverse range of people to enter into the employment market. It shifts focus away from needing skilled labour on-site into a more controlled factory setting, improving safety outcomes for the workforce, opening new opportunities in terms of skills and creates a more inclusive work environment, for example, by enabling more women to enter the sector. Women currently make up just 12% of the construction workforce[6].

What are the primary risks to increasing the use of MMC?

6) In order for the increased use of MMC to be a success it cannot result in poorer quality development. We support increasing the use of MMC as long as it is done in a way that adds value to the process without reducing quality. Ensuring there is no resultant constraint on design is therefore essential. There is an existing issue with public perception when it comes to MMC that will be exacerbated if new housing delivered is of poor standard of design. Pre-fabricated housing built in the post-war era has left an enduring legacy of modular housing being attributed to temporary and low-quality development. If we are to avoid following the same path, the government's approach to increasing the use of MMC needs to be design led.

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[1] https://www.architecture.com/-/media/gathercontent/riba-plan-of-work/additional-documents/ribaplanofworkdfmaoverlaypdf.pdf

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/487916/UK_Statistics_on_Waste_statistical_notice_15_12_2015_update_f2.pdf

[3] https://www.theccc.org.uk/publication/2017-report-to-parliament-meeting-carbon-budgets-closing-the-policy-gap/

[4] http://www.wrap.org.uk/sites/files/wrap/VOLUMETRIC%20-%20Full%20case%20study.pdf

[5] http://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2016/10/Farmer-Review.pdf

[6] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes#datasets

7) An approach that treats design as of secondary importance carries the risk of stifling creativity in new buildings and creating a drab and uniform built environment. We have already seen that neglecting the importance of design has severely damaged public trust in new homes in the current housebuilding model. The majority of new homes developed in this country are not designed by an architect. When they are, they have often been procured through design and build contracts that often lead to design architects being side-lined after planning permission is granted. A process of 'value engineering' then takes place in which costs are reduced as far as possible as the expense of the quality of development. A report published by the APPG for Excellence in the Built Environment in 2016 entitled More Homes, Fewer Complaints identified that the industry was suffering from a "quality gap between customer demands and industry delivery"[7]. This has led to a widespread lack of trust in the quality of new homes. A survey carried out for the RIBA revealed that 75% of people would not buy a property built in the last 10 years.

8) MMC have the potential to reverse the negative perception of the sector. The most recently published annual customer satisfaction survey 2016/17 from the National House Building Council revealed that 99% of customers had reported problems with their new build property to their builder, with 41% reporting more than ten problems[8].

9) The increased precision allowed through a manufactured approach could reduce the issues that currently plague new housing delivered through traditional methods. Our members have reported a far higher quality in finish when using MMC, with reduced defects in the final product. To truly understand the potential benefits of a manufactured approach, the government must introduce an effective method of post occupancy evaluation. We currently have a poor understanding of how housing projects are performing against their original targets due to the failure to effectively collect data.

10) However, it needs to be recognised that adopting a manufactured approach cannot be an afterthought bolted on to the end of the design process. It needs to be a key feature integrated from the initial design concept stage. This also needs to be reflected through procurement models, with far more collaboration at an early stage between builders, designers, planners and the supply chain. Architects are well placed to take a central role in embedding MMC into the design process. They can act as the bridge between developers and suppliers and are in a strong position to improve the public understanding of the potential benefits of MMC in delivering new housing. The RIBA has a number of programmes aimed at improving awareness and understanding of the role of design in the built environment.

How could the Government, Homes England and local authorities (a) increase demand for MMC to meet its homebuilding targets and (b) support the construction industry in increasing the use of MMC?

11) The Government and its agencies will need to take a leading role if the use of MMC is to be substantially increased. It's unclear that the current lack of uptake is primarily due to lack of demand, either from within the sector or among the public. The more significant barriers lie in the existing funding models for delivering housing and the infancy of the supply chain.

12) The cyclical nature of the housing market and consequent lack of certainty it creates discourages long-term funding decisions. Some forms of MMC require a higher level of upfront investment than traditional construction which creates added risk in the event of a downturn. The report published by the House of Lords Science and Technology Select Committee into MMC last year identified this financing model as one of the barriers to uptake in MMC[9].

[7] https://policy.ciob.org/wp-content/uploads/2016/07/APPG-Final-Report-More-Homes-fewer-complaints.pdf
[8] https://www.hbf.co.uk/documents/7471/HBF_CSS_Brochure_2018v2.pdf
[9] https://publications.parliament.uk/pa/ld201719/ldselect/ldsctech/169/169.pdf

13) An equally significant issue is the lack of incentive for volume housebuilders to adapt their business model to this kind of approach. A large amount of the innovation in this area is therefore coming from SMEs, who have far less capital to invest in the required research and development to make rapid progress. Directing government investment towards this would drive advances in the sector.

14) Public housebuilding programmes can also help to remedy this. Firstly, they can provide countercyclical investment in the event of a downturn and help to insulate developers from the effects of a volatile market. Secondly, they can provide certainty of pipeline to SMEs, enable them to increase production and invest in research and development. Using public programmes to provide this long-term certainty to allow housebuilders to invest in MMC will be essential in encouraging greater uptake and helping to develop and expand the supply chain. The removal of the local authority HRA borrowing cap last year alongside encouragement from the Government for local authorities to "kickstart a new generation of council housing" is encouraging in this respect[10].

15) There are levers available to the Government to ensure that its funding programmes contribute directly to the increased use of MMC. Attaching conditions for the use of MMC to funding is an important tool. The commitment by Homes England in its Strategic Plan to incorporate this into lease disposals and to encourage development partners to commit to using MMC was welcome[11]. It will be important to monitor how effective this is in practice in increasing the use of MMC on these sites.

16) Procurement is a key area of focus in encouraging greater use of MMC. Our members have identified that cost is generally the determining factor in successfully bidding for public tenders due to the significant weighting it is given when assessing proposals. If government wants to increase the use of MMC in housebuilding it will require a change to its own procurement practice that recognises the wider benefits provided by the use of MMC, at the expense of focusing primarily on seeking best price. The importance of this holistic approach to assessing the success of projects has been recognised in other areas of government[12].

17) The skills required among professionals across the built environment for design for manufacture and assembly will inevitably need to be developed if use is to be substantially increased. The RIBA is well placed to take a leading role in developing understanding and building this into training in the architecture sector.

How can small and medium sized housebuilders better utilise MMC, including to support innovation and competition in the construction industry?

18) A number of the measures referred to previously would support SMEs in increasing the use of MMC, particularly in relation to providing security of supply to enable longer term investment decisions.

19) SMEs are responsible for the delivery of a far smaller proportion of homes than they were thirty years ago and were hit particularly hard between 2007-09 at the time of the financial crisis. Yet, as stated above, we are finding that a significant amount of the innovation in the use of MMC is coming from SMEs. This will no doubt increase if the Government can remove the barriers currently facing SMEs in the market, including certainty of supply, access to finance and access to suitable sites.

[10] https://www.insidehousing.co.uk/news/news/malthouse-percentage-of-social-rented-housing-being-built-is-not-enough-59272
[11] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/752686/Homes_England_Strategic_Plan_AW_REV_150dpi_REV.pdf
[12] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664920/transforming_infrastructure_performance_web.pdf

20) In his review of build out rates, Sir Oliver Letwin identified the need to increase diversity of homes being delivered on large sites to speed up delivery[13]. Allowing local authorities to subdivide masterplans and allocate sites to SMEs would provide the variation required to achieve this. As long as the procurement process for these sites is genuinely run in a way that recognises the whole life value of a project, this would be effective in increasing the use of MMC[14].

How can challenges related to access to finance (for both homebuyers and developers) be overcome.

21) Some of our members have reported issues with accessing mortgages on homes built using MMC. Further investigation will be required to determine the extent of this issue and what assurances can be provided to mortgage lenders to ensure homebuyers can access financing for new homes. The Build Offsite Property Assurance Scheme (BOPAS) and NHBC's published list of systems that have been reviewed and are covered by the Buildmark warranty are welcome steps. The RIBA looks forward to the outcome of the work being done by the Joint MMC Working Group on Assurance, Insurance and Finance, chaired by Mark Farmer, in relation to establishing a framework to ensure under-writing mortgage lending and building insurance in the use of MMC.

22) In terms of access to finance, government programmes could be extended, such as the Home Building Fund, and the conditions be updated to explicitly state that greater weighting will be given to bids that include the use of MMC.

[13] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/752124/Letwin_review_web_version.pdf

[14] http://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2018/07/RLB-Procuring-for-Value-18-July-.pdf