The Housing Corporation funded CABE to commission a piece of research on the implications of the use of Modern Methods of Construction on the quality of design of social housing schemes. The research looked at projects that received money from round one of the Challenge Fund, and has sought to determine to what extent, and in what ways, the use of modern methods of construction has affected the design quality of these schemes.

The project was led by HTA Architects Ltd, a company specialising in housing, supported by the Department of Architecture, Oxford Brookes University.

Nine schemes were studied. The findings demonstrate that there is no direct correlation between the use of MMC and quality design. MMC techniques can be used in a variety of ways; to provide an expressive framework, be disguised behind independent cladding systems or be used as the basis for a traditional vernacular style. In any of these cases they can be used to create high quality design, as evinced by architectural award winning schemes incorporating MMC.

A number of other themes emerged which, whilst not necessarily statistically significant, due to the small sample, are of importance and indicate areas for potential improvement or future research.

**THE CONTEXT**

The Challenge Fund programme was set up in order to finance the delivery of approximately 8,000 new homes in London and South East England, with around 3,800 for key workers and 2,600 to be built using modern methods of construction.

The Challenge Fund had three aims:
- Provide additional housing in London and the surrounding areas
- Secure a step change in the construction industry by encouraging the use of Off-Site Manufacturing systems
- Produce this new housing more quickly and more cost-effectively than through the use of traditional methods

**METHODOLOGY**

RSLs with projects that had received money from the Challenge Fund for projects that incorporated MMC were invited to submit relevant project drawings for review. Questionnaires were also sent both to RSLs and their consultant architects to gather further detail about the types of MMC incorporated and the reasons for their use. Finally the research sought information about some of the process issues dealing with project programmes and types of contract.

Due to the tight time scale, sufficient information was not received for all of the potentially eligible schemes to be included in the study. The desk study using these information sources, although not statistically significant due to the small size of the sample, did indicate clear areas of commonality or difference between the schemes.

The desk study was followed by a workshop hosted by CABE. The participating RSLs were invited to attend, together with representatives from interested organisations and industry experts. During the workshop a number of other relevant issues were raised which were, strictly speaking, outside the remit of the study. However, as they are all of significance to organisations working in this field, they have been included in the report.

**FINDINGS**

- There was no clear evidence of a relationship between design quality and the use of MMC
- None of the Challenge Fund schemes reviewed exhibited outstanding design quality
- Schemes had modest aspirations with respect to the incorporation of MMC
- The majority of schemes used MMC for reasons of speed
- No construction cost saving was expected from using MMC and some reported that projects would cost more than if traditionally built

**OBSERVATIONS**

- Two of the objectives behind the Challenge Fund were to provide quick site starts and to effect a step change in the UK housing industry through the use of MMC. These objectives encouraged RSLs to opt for systems that met the need for short term speed gains as a priority. These are inevitably systems requiring less research or development input and are hence not necessarily those that might produce higher quality long-term or be effective in industry change
- There was no requirement in the Challenge Fund to achieve high design quality
- Due to the tight timescales involved in gaining access to the Challenge Funds, it was a pre-requisite that detailed planning permission had been granted, which may have affected the type of MMC chosen
- Early commitment to MMC significantly enhances the potential benefits that can be gained
- A significant proportion of Round One Challenge Fund went to projects procured under Section 106 agreements where design work had been undertaken prior to purchase, and where design quality was not a significant driver
- Although some were satisfactory, none of the schemes reviewed exhibited outstanding design quality
- Performance standards likewise were generally not exceptional
- There are substantial risks for all those involved in pioneering constructional techniques. These inhibit take up and hence reduce the potential for improvements to be developed
- There is still not enough information available about the more complex MMC systems. This is lacking in terms of cost, general technical limitations, and the effect of integrating them into construction programmes
- Accurate cost information will encourage RSLs to make informed decisions earlier in the design process, providing designers with more time to work with the particular system employed and thus improving the opportunity to increase design quality
- Project teams that work together over numerous phases or projects, have the opportunity to learn lessons and fine tune design over time and ultimately reduce costs
- The Challenge Fund raised awareness of MMC in the social housing sector

**SUGGESTIONS FOR FUTURE FUNDING ROUNDS**

- Provide a regular platform for discussion and experience exchange. Perhaps an organisation such as The Housing Forum should be encouraged to set up an MMC Club for its members, similar to the Benchmarking Club
- Provide a subsidised site for a national housing exposition of innovation in housing to be open to the public
- Continue to provide funding which specifically encourages the use of MMC to keep it on the agenda. This may also encourage early decisions on the use of MMC to be made
- MMC requires significant design time at the early stage of projects. It would be helpful if any funding mechanism could be adjusted to recognise the cost of the increased professional input required
executive summary

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