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DESIGNS ON MMC

A new generation of architects is championing the use of MMC and creating innovative, exciting buildings. However, as **Andrew Brown** explains, high quality design in residential building using MMC will only come from designers adopting a partnering approach

The use of MMC in the residential building sector grows year on year. Government support continues and more developers embrace the benefits that off-site production has to offer. In spite of this, many architects are still reluctant to adopt these new methods, believing that it restricts creativity and compromises the quality and individuality of residential design.

It is not that MMC cannot produce outstanding design solutions. There are many examples worldwide of exceptional buildings, which utilise MMC techniques. It is that design teams need to gain a better understanding of the available products and they need to take a more active role in developing new products that are flexible enough to deliver the innovative solutions they seek in partnership with developers and manufacturers.

THE EXISTING MMC SECTOR

The Rethinking Construction report of 1998 led by Sir John Egan promoted partnering as a way of streamlining the delivery of buildings and improving the quality of the end product. Unfortunately, the entrenchment of traditional working practices has resulted in only a limited number of partnering success stories within the industry.

The story is different within the MMC sector, which has embraced partnering to create dedicated manufacturing supply chains, incorporating product suppliers, manufacturers and development bodies. These are now being extended to include end-user organisations. This gives designers a real opportunity to involve themselves, through partnerships, to influence design quality and flexibility at an early stage in the residential-development process. The Government's 'Design for Manufacture'

competition was launched in 2005 with a brief for delivering well-designed homes for under £60,000 using MMC techniques. The initiative has encouraged designers, manufacturers and developers to work together to create design-led solutions, to meet the needs of the modern household at an affordable price.

Although this initiative has had its critics, it has demonstrated that by adopting a partnering approach and by incorporating established products and MMC technologies, a wide variety of differing residential solutions can be created. To achieve this, each member of the development team had to gain a detailed understanding of the MMC technologies involved when meeting the end user's requirements.

Tom Paul of Kingspan – part of the SixtyK consortium – a stage II winner, said: 'It was critical to the success of our bid that the design was developed in partnership with all of



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the key stakeholders. We had an established working relationship with the design team and this meant that they were already aware of the technologies involved. This allowed us to concentrate on the important design development of our proposals."

PROVIDING THE CATALYST

The 60k Competition has succeeded in publicising the benefits of MMC technology and has provided the catalyst for a wide range of innovative housing product designs. It has also been the vehicle through which new partnerships and supply chains have been established. There is a danger, however, that the teams not chosen to progress their proposals will split and the shared expertise that they have developed will be lost. It would be preferable for their solutions to be developed further, the problems resolved

and the results shared with the industry and ultimately implemented on future sites. Only by undertaking this level of research and development into exemplar designs can the flexibility of these products be refined to provide impetus for further innovation.

Although exemplar designs are an excellent way of demonstrating product potential, the manufacturers alone cannot design and develop whole building solutions. The key to achieving well-designed buildings is not solely for the products to be flexible and to provide for design choice, it is for designers to be involved at the inception of each product. This is even more important, whilst the UK MMC industry is still in its infancy.

There is a need for a wide range of components which are flexible enough to be assembled to deliver a portfolio of housing solutions. Many of these components are already available, but the

benefits of using them in innovative ways are not being fully realised. The car-industry analogy is a much-used element within most commentaries on the state of the MMC Industry, but the lessons to be learned from this comparison are there for all to see. The VW Golf, VW Beetle and the Audi TT, for example, reportedly share 80 per cent of their component parts. However, each vehicle has its unique identity and it cannot be said that they look or perform in the same way. It is this innovative use of standard components that can be incorporated into the creation of memorable residential buildings

OPPORTUNITIES IN THE RESIDENTIAL SECTOR

There is great potential for the use of MMC in the residential sector. The use of standard elements to deliver a variety of residential developments is nothing new for developers. Although Architects see the pattern book as a taboo, its flexibility is well demonstrated in the housebuilding industry. Most major housebuilders have their own range of preferred housetypes, which are flexible enough to be used in a variety of forms, traditional and contemporary, across the country. The Housing Corporation also has a system for approving housing-plan types for layouts complying with the Scheme Development Standards (SDS). Recently, many residential developers have launched new housing ranges using MMC products.

Such standardisation will benefit the MMC industry and will hopefully lead to greater efficiencies and will, in turn, allow for factory production to become more cost effective. The key to retaining quality of design using these standard types is to make sure that the concept of standardised components leading to mass customisation is delivered. Designers need to involve themselves in the development of these new housing ranges, working with the major housebuilders to deliver design-led standard product ranges.

PARTNERSHIP IN ACTION

Crest Nicholson has been working with Design Group 3 Architects to carry out a comprehensive review of its apartment and housing range with a view to taking full advantage of the greater efficiencies of MMC.

Stephen Stone, Chief Executive of Crest Nicholson, said: "In order to address the many challenges the housebuilding industry now faces, we needed to fully review our product in line with the PPG3/PPS3 agenda. The market is rapidly changing and there is a need to improve our competitiveness, create greater efficiencies and meet the needs of our customers in a creative and innovative way whilst retaining our reputation for design and build quality. The use of MMC is an integral part of this process."

Crest Nicholson's 'next generation' housing range provides a series of highly flexible solutions, which address not only their current market needs but also an emerging move away from apartments towards intermediate-density family homes. All their products can be delivered using either traditional construction methods or a variety of MMC solutions without compromising design quality or flexibility.

Stone says: "This flexibility was only achievable through the close working relationship we have developed with our designers who have an established record within the MMC sector and the MMC supply chain. It is something we will continue to develop in order to deliver a better product to our customers."

IMPROVING BOTH PROCESS AND PRODUCT

The coming together of Crest Nicholson and Design Group 3 Architects is just one example of the many alliances being formed throughout the residential construction sector to investigate and adopt MMC in order to improve both the process and the product. There have been many well-publicised trailblazers, some more successful than others, over recent years. What has become clear is that close collaboration between designers and constructors is an essential ingredient in a maturing MMC marketplace. New products and companies are entering the market every month as can be seen at Interbuild this year where the number of exhibitors in the off-site section has doubled compared to those there in 2004. The off-site section is now one of the largest in the exhibition.

A new generation of architects is championing the use of MMC and creating innovative, exciting buildings. For MMC to successfully transform the way we build, we need more architects and designers within the supply chain. The provision of high-quality components requires that 'design' is given a high priority at all stages of the procurement process. This requires new thinking on the part of the architects and designers as they are no longer only bringing together an established kit of parts in an innovative way to procure the design and construction of a project, they are also helping to procure the manufacture of the kit of parts, to incorporate inherent design flexibility. In doing this and to achieve true quality in design using MMC, architects and designers must ensure that they become a key part of the product-development process ■

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