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HOUSING MARKET IN FOCUS 02.07.16

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Coming of age

An established build to
rent sector looks to the
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Necessity is the mother of invention. With demand for homes far exceeding supply, rising costs and limited availability of land, the gauntlet has been thrown down for the industry to innovate.

Step forward modular housing, which is developed off site and brought to the site in ready-formed pieces (see box). It is not a new idea but it is a niche one and a concept that hasn't always found favour with investors, insurers and mortgage lenders. Could it work on a larger scale and win over sceptics?

Some heavyweights entering the market think it can. In February 2016, Legal & General announced it was to invest £55m in setting up a modular housing factory in a 550,000 sq ft Leeds warehouse. Similarly, Laing O'Rourke announced a £125m investment in offsite building.

Gavin White, director of structural engineer Ramboll, says: "Housebuilders are under increased government pressure to deliver homes more quickly

Next-generation modular housing is on the march, but can its champions overcome the historic conservatism of insurers, funders and house buyers?
Neil Tague reports



COST SAVINGS

At Dalston Lane in Hackney, Regal Homes is delivering the UK's tallest cross-laminated timber scheme, at 108 ft (pictured). Comprising 121 apartments, the scheme is proving how the numbers stack up. Gavin White, director of structural engineer Ramboll, says: "At Dalston Lane, we finished the first six-storey block in 12 weeks and knocked 15% in costs and eight months of construction time off the project."

The sustainability credentials are impressive too. On top of the reduction in site traffic and waste, the embedded carbon here is 2.5 times less than in an equivalent concrete frame.

Similarly, at Rogers Stirk Harbour & Partners' Merano Residences, due to complete this year, offsite manufacture resulted in savings of almost 10 weeks on a 12-month construction programme.

Then there is the construction skills problem. Too few young people are joining the industry, pushing up wages and overall construction costs.

Richard Hyams of architectural firm AStudio, who has launched a new business, 63000Homes, says: "The twin problems facing UK society are a lack of homes, and a skills and jobs issue. Wouldn't it be beautiful to tackle the two together? Out of crisis comes innovation. The tenure range is broadening, there are self-build projects, PRS is rising – it's an exciting time. The old ways are no longer meeting housing need."

All this is fine – but ultimately, it is the suits who will determine how far this will go. If the funders, insurers and mortgage providers are not convinced by the modular movement, it will limit its application.

Mark Farmer, chief executive of

and to a better quality – two of the key strengths of modular home building. Working offsite can lead to superior quality of finish, economy of scale, increased productivity and safer construction."

The shorter on-site construction period means lower costs. Schemes already under way demonstrate the savings to be made. For example, the Rogers Stirk Harbour & Partners-designed luxury Merano Residences on the South Bank in London saved nearly 10 weeks on a 12-month build using off-site manufacture (see box).

Other advantages to modular housing include reduced onsite wastage and more accurate costing, says Peter Huf, lead architect at HUF HAUS UK. "Through thoughtful engineering, modular affords the opportunity to eliminate the majority of the challenges commonly associated with traditional build," says Huf.

It is a manufacturing solution to a construction problem – and if there's been one area the UK government has

favoured with high praise and hefty funding since 2010, it is manufacturing.

Nick Whitten, associate director at JLL, says: "A hundred years ago, Henry Ford built the first assembly line and revolutionised the way cars were built. Manufacturing workers are between 1.5 and two times more efficient than construction workers, and with build cost inflation at 5-6%, the industry needs innovation."

MODULAR – WHAT IS IT?

Modular housing boils down to a building constructed in a factory rather than onsite. A lot of construction uses modular elements – such as the bathroom pods or bedroom/bathroom units craned into steel-framed budget hotels or student blocks. Other solutions include "panellised" systems, where wall units, including windows and other fittings, and floor and ceiling units arrive flatpacked onsite.

Chris Atkins, managing director of structural engineer Symmetrys, says: "There's a lot of misunderstanding around modular. Basically, if it's three-dimensional when it arrives onsite, it's modular, if it's it's prefabricated."

The UK has yet to see modular used on major housing schemes, with different sizes, shapes and configurations of housing. That might be changing.

residential consultancy Cast, says: "The reality is that with new warranty products available and an improving awareness in the debt and investment finance sectors of the benefits of a pre-manufactured approach, innovative approaches no longer have to be risky. Historic problems securing mortgages and developers obtaining development financing for pre-manufactured housing are starting to be overcome."

Circle Housing's Jerry Harkness, who is head of construction and design at the housing association, says it wouldn't use any modular system that didn't have an insurance-backed guarantee. "We've got to be able to sell it. It's got to be robust, designed thoroughly to last as long and perform as well as any other new dwelling," he says.

From an investor's point of view, there are advantages. Adam Jaffe, originator at Investec, wrote in *EG* in April that Investec would be "delighted" to fund modular projects, saying that the de-risking of construction is a huge plus. It's easy to see why – the banks stand to get their money back faster, for one thing. If a given modular system is approved by the relevant bodies, the way is clear.

Another potential hurdle is one of cultural change. The British house buyer is a conservative breed – for every funky Passivhaus in the broadsheet supplements, a thousand buyers will plump for a bog-standard brick semi.

However, the utter starkness of the housing shortage might be leading more people to consider something different. It's not like modular houses even look that different nowadays. Ian Killick, director at architect shedkm, says: "Visually, once the buildings are in place, it is very difficult to tell how they have been made. The first hurdle we faced was the mortgage providers, but once they saw the quality, they were all happy to back it."

Technology has advanced, and modern products are a world apart from the system-build horror stories of old. Modular schemes using materials such as cross-laminated timber have seen a surge in uptake, thanks to their now-proven track record in delivering cost-effective, attractive buildings. And 3D software can help with design and assembly processes.

How L&G and Laing O'Rourke's schemes progress will no doubt be a litmus test for modular construction on a bigger scale. They have the weight to make this work, because in manufacturing, scalability is key. Modular construction techniques could also allow homes to be added on to existing buildings or above transport nodes (see panel).

There is a strong impetus from the industry and plenty of opportunity and potential application. If British home owners buy into it, it is an idea that could really take off.

FULL HOUSE FOR SPLASH AND SHEDKM

In Manchester, Urban Splash and regular collaborator shedkm have teamed up to offer housing where not just the surface details but the whole layout is designed by the buyer – following the commercial trend for developers to offer a stripped-back "shell and core" product. HoUse was launched at MIPIM 2016 and its first site, in the New Islington regeneration area, (pictured) has sold out.

This is not an overnight success. Ian Killick, director at Shedkm, says: "It's been quite a long journey. There's been

a lot of R&D to get to where we are."

The DIY design point drove the initial project, he says, but when the manufacturer said that with a slight tweak, it could factory-build the systems, horizons expanded.

At New Islington, 43 units have been installed. Around half are occupied, the other half being finished off.

"It's gone well," says Killick. "People have really explored the full flexibility in terms of their options." Next up: Tyneside and Salford. So what can the scale of this be?

"Ultimately, we're aiming for 1,000 a year. Even that is a small percentage of new homes required. This will probably always be a niche thing. But I think people are prepared to make the leap – they think 'there must be a better way'."

