



I TopHat

Modular and Off-Site Construction

Building the future

Case Study: TopHat Homes

TopHat Enterprises, which was established by US businessman Jordan Rosenhaus and has been making modular homes since 2016, describes itself as 'the UK's leader in technology-driven modular housing construction. It recently appointed Matt Evans as Chief Technology Officer, having recruited him from Airbus, where he was Vice-President of Digital Transformation.

TopHat is involved in a 1200-acre joint venture between Urban & Civic and Aviva at Houlton, Warwickshire. In the first phase it supplied 38 homes that were manufactured in single-storey modules at TopHat's factory in Derby before being transported to the site. It is also working on the Kitchener Barracks development at Chatham in Kent.



“Modular housing, for TopHat, began with a focus on design and on quality, but also with the idea of opening up the market and creating the ability to deliver homes by taking advantage of manufacturing skills,” Matt Evans explains. “We are bringing new people into the housebuilding industry, from automotive companies, from aerospace and other sectors.”

TopHat builds for both the public and private sectors. Its products are characterised by being aesthetically pleasing to the eye, while fitting in with the local vernacular and meeting contemporary challenges.

“They’re designed to be very sustainable, by which we really mean that they’re highly energy efficient.”

High energy efficiency has been known to involve high capital investment but TopHat claims to have squared that particular circle.

“We deliver our homes as modules; an entire ground floor, an entire first floor, that come together on site. Because we build in a factory, we can build with the kind of tolerances that you would normally see in vehicle manufacturing, for example, rather than traditional house building,” he explains. “We’re delivering houses that really are designed to have great energy performance and that actually achieve it when we when we deliver them.”



TopHat's production process uses automated assembly lines that precisely assemble timber, panels, windows and all other components, including plumbing and electrical, in designs created on CAD/CAM files. The whole value chain is stored and accessed digitally, from timber and window supplies to potential obstructions on the route from the factory to the destination, such as low bridges and tight bends. Erection on site will typically involve two lorries: one for each floor module. They are lifted into place by crane.

"The big advantage of modular construction is the precision and the quality. We have control over the environment inside the factory, all the way from cutting and preparing the timber to finishing the house itself," Matt continues. Work can continue in all weather conditions, ensuring quality at every step of the way. Any issues will be identified in the factory and improvements applied quickly.

In the traditional building process, every site is a little bit different. TopHat's technology-driven process enables it to focus and apply valuable skills, to bring in outside experience and to blend those resources to improve productivity.

"We've built up a great deal of expertise in engineering and production. We are near to zero embodied carbon inside of our homes. This sort of thinking is going to be absolutely essential if we're going to address the housing crisis in the UK, while also achieving net zero goals by 2050."

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