

OFF-SITE CONSTRUCTION: Could You Extend in Just One Week?

The latest fully off-site construction methods could mean that your new extension is built and fitted out entirely in a factory and plugged into your existing house in a matter of days

Extended in five days

This extension from Moduroom (RIGHT) was fully constructed off site before being transported to site (BELOW) and craned into position (TOP RIGHT). The custom made timber frame structure, which includes two layers of ACTIS insulation to mitigate against thermal bridging, was lifted in one day, followed by four days of snagging. A third-party inspector carried out checks during build and on-site installation.

It's an intriguing prospect: rather than weeks and months of on-site work – living with dust and builders turning up at 8am – your extension could be fully fabricated and fitted out in a controlled factory environment before being transported and craned onto prepared foundations – the on-site stage taking a mere day or two.

Constructing a timber frame or SIPs (structural insulated panels) shell in a factory, ready for on-site fit out and finish has, of course, been around for years. And, so too has the idea of the 'package' home. In Scotland, companies like Cottage Kit Homes, Scotframe and Stewart Milne are familiar names; in England, Potton led the way with factory construction in the 1970s. However, attentions are now being turned to extensions.

Precision Standards

Full off-site construction – both for new builds and extensions – remains a new approach, though, accounting for just 10% of con-



struction in the UK, according to the Construction Industry Training Board (CITB). Even within the self-build sector, only 100 individual homes are entirely fabricated in the UK in any year. But expect to see more of this approach – indeed, some commentators see it as the biggest shake up in construction for generations.

Legal & General Homes, for example, has poured millions of

pounds into a massive modular house building factory near Leeds, that will manufacture homes using engineered cross-laminated timber (CLT) and install them on site within one day. These are exciting times and, encouragingly, the CITB says that homebuilding looks set to be the first construction sector to benefit from the changes.

Speed is clearly one of the main attractions for homeowners looking to extend. Manufacturing time will still need to be factored in, typically six to eight weeks. Meanwhile preparatory work, such as fitting new steel work, opening up an exterior wall for the extension and preparing foundations, can be carried out while the extension is being constructed.

The other big win is quality, as all elements of the build and fit-out are managed to precision standards

in a controlled environment. The approach also lends itself to achieving high levels of energy efficiency.

“Managing high levels of airtightness is likely to be easier in a factory setting,” points out architect Paul Testa, although he adds that the extension would need to be tied into the existing building correctly to maintain any airtightness gains.

Using this construction route means less hands-on responsibility for the extender, which, depending on your budget and appetite for risk, could either be an advantage or a disadvantage. Certainly, stepping down from the project management role means there’s no need to coordinate trades or oversee health and safety in often cold, wet and unpredictable conditions.

If you do want to tackle the project management, or take on some of the unskilled labour on site, as a way of saving costs, this approach may not be for you — in many ways, going down this route has more in common with custom build than the traditional self-build journey.

Construction Methods

Cost certainty is another advantage: as the extension project is fully specified before going into production, the homeowner has full control over costs. At the moment, we may not see cost savings over on-site construction, believes Paul Testa, but this may change as the market matures.

Building entirely off-site lends itself to several construction methods, from CLT and steel frame to SIPs and timber frame. Obviously, brick and block construction is an on-site construction method, although brick slips can be used as

‘NO FOUNDATIONS’ SOLUTION

It’s even possible to specify an extension using off-site construction methods that do not need foundations. Instead, these high-end ‘plug and play’ mobile modular extensions, garden rooms, annexes and homes from Bauhu rest on adjustable legs. The skeleton is a steel frame, with 250mm-thick composite walls that have U values of 0.1 (compared with the Building Regulations’ U value standard of 0.24). The company has a partnership with a luxury yacht builder in Southampton, which does all the assembly in house including the bespoke kitchens and bathrooms.



a finish. Similarly, any roofing and cladding material can be specified.

Nevertheless, there are a few challenges with this approach. Craning in a large structure can be tricky in built-up urban areas (expect to pay around £1,500 for this). Foundations need to be accurate, with tolerances of, say, 5mm, and any discrepancies will need to be dealt with before the extension can be positioned in. What’s more, at present, this route does not lend itself to extensions complex in shape.

On the plus side, it may be possible to use a lighter foundation system than needed for traditional build, perhaps with mini piles and lightweight pads, says Paul Testa. One manufacturer, Bauhu, has launched a prefabrication construction system that does away with the need for foundations entirely (ABOVE).

And once you’ve specified your extension, you have less chance to change your mind mid-project than

you might with on-site construction. “You have to ask yourself: how decisive I am?” says Paul Testa. “We might spend a long time with clients on details like sockets and when they are in the building they realise they wanted them somewhere else.”

However, companies like Moduroom have found solutions to this potential issue. “We offer a factory tour of a customer’s new space to see the layout and height so that they can rework the space before we put internal walls in place, and finalise fixtures and fittings,” says Moduroom’s Tim Benson.

So is this new world of factory construction worth exploring? “Definitely, if the process works for you and the costs are OK. The biggest advantages are the speed and lack of disruption for the homeowner,” says Paul Testa. “It’s a low risk way of working although at the moment you’ll be something of a pioneer with this route.” **H**