

## Modular construction: ticking the boxes when time is money



Image source: Portakabin



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A common project objective is completing construction work as quickly as possible, but it is key to choose an appropriate form of construction that optimises time on site without compromising the quality of the design or the end product. Modular construction is the quickest means of delivering a new building and, with the latest technical innovations, is also capable of delivering high quality.

Modular construction, which involves buildings being constructed off site with pre-fabricated components, became popular after the Second World War when there was huge demand for new buildings – particularly dwellings – to replace bomb damaged structures.

While modular and pre-fabricated construction successfully satisfied the requirement for buildings to be completed quickly, a common perception was that the quality of finish, aesthetic appearance and durability were not so readily achieved. This point of view continued during the following decades with people typically associating modular construction with poor quality buildings such as cold, damp and draughty temporary classrooms.

However, over recent years technical innovation and advancements in design and production techniques have meant that modular buildings can now be bigger, more flexible and achieve higher aesthetic and quality standards. This has resulted in a resurgence in both popularity and acceptance.

A high profile recent example of the speed with which modular buildings can be completed is the temporary school, known as KAA2, which was required to accommodate 960 pupils following the Grenfell Tower fire. The new school, constructed

of 210 modular units, was completed by modular experts, Portakabin, just 13 weeks after project inception.

While speed of construction on site remains the main advantage of modular buildings over more traditional forms of construction, the other benefits typically include:

- More programme certainty with construction being less susceptible to adverse weather conditions
- Improved quality control achieved through standardisation, repetition and fabrication processes being undertaken in a factory controlled environment
- Reduced cost through supply chain management, economies of scale and reduction of waste
- Brand consistency – particularly appealing for occupiers with a corporate identity eg. restaurant and retail chains
- Improved sustainability and environmental credentials resulting from reduced resource inputs and less waste material – the charity WRAP (Waste & Resources Action Programme) has reported that off-site fabrication can reduce waste on site by up to 90% when compared to traditional construction

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- Provide suitable temporary accommodation on sites where major refurbishment or redevelopment is to take place on owner occupied buildings

While modular construction does provide clear benefits, there are also downsides that need to be fully considered and mitigated:

- Rigorous pre-planning is required to ensure that a coordinated and integrated fabrication and construction sequence is agreed at the earliest opportunity.
- Before fabrication commences, the design should be checked to ensure compliance with the brief. Design changes during fabrication, or worse still on-site, will be increasingly costly.
- A lack of coordination during the design and installation stages will lead to delays and cost increases that will negate the benefits of implementing a modular approach.

There are also other ways this construction method can be utilised if full modularity is not appropriate or viable. Elements of prefabrication, such as bathroom and kitchen pods, can be incorporated into more traditional building designs to derive some of the pros without the cons.

**We regularly help clients find the best form of construction for their projects and project manage the instruction through to completion. If you would like any help or advice on your next construction project, please contact Alastair Bliss.**