

THE BENEFITS OF MODULAR STRUCTURES

There is still an overriding perception in the construction industry that modular buildings look boxy and may not suit larger scale projects. Here, Ian Kemp, Business Development Director at Caledonian Building Systems, refutes this view, looking at the flexibility and capability that the modular approach can now deliver, and outlining some of the opportunities that this opens up...

For many construction clients and their project teams, the pressures of the economic downturn have brought the benefits of modular construction to the fore. Shorter and more reliable project timeframes, more efficient use of resources and impressive sustainability credentials are just some of the advantages that are attracting clients to the approach.

Particularly popular in the hotel, defence and higher education sectors, modular construction is attractive both in times of boom and bust. In today's tough economic climate, the advantages of a particular construction approach must be supported by competitive costs. Feasibility studies and cost models show the added value that modular building companies can bring to a project, particularly through consultation and involvement from the design stage. But the capabilities of modular construction are still widely underestimated, particularly in its ability to deliver exciting and attractive designs on larger scale projects.

Off-site construction

The capabilities of off-site construction have grown dramatically over recent years. Architecturally innovative off-site projects, such as the award-winning 17-storey Paragon in Brentford and the V-shaped Hilton at Luton, demonstrate that modular construction can create far more than the boxy structures that are too often associated with the term 'modular'. Delivery of designs such as these are testament to the sector's rapid progress, as are the market statistics – reports state that the value of the UK off-site market grew between 2003 and 2006 from £2 billion to £6 billion.

Off-site construction is a relatively 'young' approach in the context of traditional construction techniques, and today's modular construction companies are constantly pushing the accepted boundaries of the method. One way to achieve innovation is by working with design and engineering teams to find ways to deliver according to complex designs, and to develop new techniques to do so. It is by understanding the full flexibility and capabilities of modular systems that clients and project teams are able to benefit the most from the advantages that are on offer.

For projects where modular construction is chosen, buildings can be manufactured from completely bespoke shapes to suit architectural requirements or restrictions on site. Curved, triangular and 'V' shapes can be created, as well as E, C, L and T shaped buildings. As well as providing greater choice in the shape of buildings, the modular frame can accommodate a range of cladding systems, roofing options and bolt-on features such as balconies and walkways. Increasingly, a collaborative working approach is being favoured because when modular construction is combined with traditional building, design and engineering options can be enhanced even further.

Building tall: The Paragon

Tall buildings have become a more common feature of our towns and cities, and they bring project teams a range of engineering challenges all of their own. Modular construction can enable building far taller than is often recognised – Caledonian, for example, is capable of building to 25 storeys and built to 17 storeys for the award-winning Paragon. Completed in June 2008, the Paragon was the tallest modular building ever constructed in the UK and is believed to be a world first.

The constrained site in Brentford meant that Berkeley First had to build tall to deliver a residential mix of 1,050 key-worker, student and affordable one- and two-bedroom flats. The challenges that the developer faced when building the Paragon were typical of a tall building project. They included the need to complete the project in a short time frame, build in a complex environment, and minimise impact on a neighbouring school. Building off-site enabled the developer to meet all these challenges.

