MODERN METHODS OF CONSTRUCTION

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The growing use of Modern Methods of Construction

How and why modular and other techniques are changing the way in which properties are built – including in France

The emergence of new forms of construction

The way in which homes and commercial properties are built has changed significantly in recent decades. Traditionally, houses and other buildings were constructed largely on-site, the build materials assembled and constructed on location. This is sometimes referred to as 'brick and block.' In recent years however, new modern methods of construction have come to the fore, techniques which can be cost-effective, quicker, safe, durable, flexible and highly energy efficient.

What are examples of Modern Methods of Construction?

The term 'Modern Methods of Construction' (MMC) is a term which groups together various forms of building using non-traditional approaches. Generally, modern methods involve off-site assembly in a factory; this can include roofs, floors, walls or indeed entire rooms. The materials are then transported to the site for installation.

Examples of MMC include timber frames, modular buildings/3D volumetric construction, Structural Insulated Panels (SIPs), flat slab construction, precast foundations and Twin wall technology – amongst others.
In terms of materials, timber frame, engineered wood panels and metal are important elements of many MMC projects.

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Benefits of MMC

There are many benefits of using MMC for different types of build projects. MMC is commonly used in commercial and industrial developments, such as hotels, schools and research buildings. During the COVID-19 pandemic, many health and medical buildings were constructed rapidly using MMC, demonstrating one of its key advantages: speed of delivery.

Sustainability and energy efficiency are other key benefits, particularly important as the cost of fuel and heating has risen so significantly. The offsite construction process using materials such as timber frame and SIPs enable buildings to be assembled with precision, reducing snagging and other defects. This method can ensure that a building is airtight, reducing the loss of heat and making it more efficient. For energy control and management, this makes the use of MMC especially attractive, as whilst the initial build project cost may be higher – the long-term energy savings are substantial.

Labour shortages throughout many western economies are a factor, too. Traditional build methods are highly labour intensive, whereas MMC if managed appropriately is more efficient. Employees can be trained quickly to construct MMC properties, there is less travel to-and-from the building site – and the construction is faster.

Buildings made from MMC are structurally sound and built to last, too. In 1993 an earthquake in Kobe, Japan destroyed a large part of the city; properties constructed using SIPs survived relatively unscathed .

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Modular Construction in France

In France, offsite construction only started to make its presence felt in 2017 but is now growing in popularity as architects, planners and building companies seek more energy and cost efficient ways of construction . In 2021, the turnover of French companies using MMC increased by 10% to 912 million euros.

In 2021, the new French government building regulations RE2020 similarly established a more rigorous benchmark for testing and evaluation of the built environment, to improve sustainability and reduce CO2 emissions. One major example is the building of a lycée in Uruguay-France d'Avon, part of the Seine-et-Marne department. Originally built in the 1980s, the school was completely restructured and rebuilt using MMC.

MMC is not only used for educational purposes or other types of commercial buildings. For residential property in France and other countries, prefabricated/modular construction is increasingly viewed as the preferred option.

Modern methods such as SIPs and timber frame have often been utilised for luxury and more prestigious housing developments, however, using for more affordable developments is growing in popularity – sometimes using an even wider range of recyclable materials.

For individual property owners, owning a home which is energy efficient is equally important. The term 'passive house' is applied to properties which use very little energy. There are building companies which manufacture and installs passive wood modular homes for individuals. These three or four-bedroomed houses are made of wood and use only sustainable materials, such as bio-based plants. The company estimates the annual energy cost for a 63m2 house at €500, including hot water, heating and household electricity.

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Conclusions

Traditional forms of construction continue to dominate the building industry in France, especially for new buildings and renovation projects. However, thanks to changes in technology and environmental concerns (such as the use of concrete, a major contributor to CO2 emissions), MMC is a potential solution for various residential, public sector, retail, commercial or industrial projects.

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Contact information

If you are looking to realise your own project in France, whether it is a renovation, a new build, an extension or another project, residential or commercial – please get in touch.

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