

# The Importance of Off-Site Modular Construction

Lower Building Costs, Quicker Construction Periods Are Critical



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May 19, 2021 | 6:30 AM

In the last few years, especially after the COVID-19 pandemic, the construction of hotels, aparthotels or apartment hotels, condos, dormitory buildings, hospitals and other residential properties have been built by off-site modular construction, which is a method that is rapidly increasing in the world.

## What Is Off-Site Modular Construction?

Off-site construction is the designing, planning, manufacturing and assembling of construction elements or components in a factory environment, followed by the transportation and installation on-site at their intended final location. The margin of error is close to zero if using BIM technique in design and planning.

Volumetric modular systems are ideal for hotels. Whole or parts of the building are built off-site and transported to the site. Minor finishing works are completed on site, such as joining M&E, wall finishes and completing roofing joints between each module.

The following types of modules may be used in the design of buildings using either fully modular construction or mixed forms of steel construction:

- Four-sided modules.
- Partially open-sided modules.
- Open-sided or corner-supported modules.
- Modules supported by a primary structural frame.
- Non-load-bearing modules.



Structural insulated panels are a high-performance building system for residential and commercial construction. The panels consist of a core of thermal insulation sandwiched between two structural facings, typically oriented strand board. Structural insulated panels are manufactured in a factory within factory-controlled conditions and can be standardized panel sizes or bespoke units.

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Pre-engineered M&E services involve whole plant rooms that can be constructed off-site and installed as a completed unit in the building, allowing less construction time on-site.

The pre-assembled components method consists of taking materials that would be installed individually on-site and pre-assembling them in a factory environment to form a larger-scale unit that can make site installation quicker.

There are several benefits should you choose to go with off-site modular construction:

- Speed to market.
- Factory precision.
- Consistent quality.
- Budgetary certainty.
- Decreased site disturbance.
- Reduced need for on-site skilled workforce.
- Greater sustainability.
- Less dependency on good weather.
- Improved safety.
- Early return on capital.



## **Off-Site Modular Construction Advantages**

A primary benefit off-site modular construction is its fast delivery. The simultaneous process of creating modules in a factory while site work is occurring means modular buildings can be constructed in up to half the time as buildings built completely on-site. This allows the buildings to be occupied sooner, which means owners can see a faster return on investment.

To save the most time and money and maximize the efficiency of the off-site modular construction process, it is important to implement modular construction at the beginning of the design process.

Off-site modular construction often decreases construction time, because the foundation and the building can be built at the same time. Factory-based prefabrication also speeds up the process, giving modular construction an average 30% to 40% time savings over traditional construction. Depending on the site conditions and the transportation time, savings could be up to 50% to 60%. This is an ideal position for hotel investors. You could build a 120-room hotel within six to eight months.

Because it takes half the time to build with modular construction, a hotel's operations can start sooner than traditional construction and generate income quicker, lowering carrying costs.

Off-site modular construction can cut costs by 20% to 30%. A shorter build time saves money on overall construction. Labor costs are less, as prefabricated modules use more factory workers and fewer individual workers like plumbers, electricians and carpenters.

Since most materials are delivered to factory, off-site modular construction means fewer trucks at the project site, decreasing air and noise pollution.

Off-site modular manufacturing can reduce waste and make it simpler to use lean manufacturing methods and environment principles during construction.

When needs change, modular buildings can be disassembled and the modules relocated or refurbished for their next use, reducing the demand for raw materials and minimizing the amount of energy expended to create a building to meet new needs. In essence, the entire building can be recycled in some cases.

## **Don't Waste Time Building a Hotel**

Using off-site modular construction while building a hotel will likely lead to a quicker and cheaper development with fewer headaches. Besides finished bathrooms and painted walls, each “module” will contain a fully outfitted guest room with beds, sheets, pillows, flooring and even toiletries.

This is an ideal method of construction for hotel investors and developers. The future of hotel development is off-site modular construction.

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