



Modular Construction

A Real Estate Disruption in the making

EBOOK



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Introduction

What is Modular Construction?

According to Business Insider, by the year 2024 modular construction will have a global worth of around \$142 billion! So what is modular construction that is capturing the imagination of construction professionals across the world?

Modular construction represents the future of construction development. It is a process where the construction of a building is carried out off-site. By controlling the plant conditions and using the same materials with the standard codes for the building, then it is constructed in about half the time.

Buildings are put together on-site and are built-in modules. The specifications of the most sophisticated site-built facility and identical design intent are adhered to without any compromise.

For decades, construction has lagged behind other sectors in terms of productivity performance. Now there is an opportunity for change, as building activity is shifted to offsite manufacturing and not carried out as a traditional onsite project.

Prefabricated or modular construction may not be necessarily a new notion but it is definitely getting more and more attention now. Today it is attracting a fresh ripple of excitement, investment, and interest on the back of changes in the economy and technological ecosystem.

Research also suggests that those in the real-estate business are significantly leaning towards modular construction. Hence, they are looking for supplier partnerships and crafting product strategies accordingly. The adoption of construction technology along with the shift towards modular construction will result in significant cost savings.

The need for modular construction is growing. Although it is mainly reserved for residential projects, the possibilities are huge and it will only rise when the industry matures. Many still consider prefabricated construction as an outlier but as digital transformation sweeps up, the need for productivity and precision will continue to rise.

Other than that modular construction promises greater predictability of cost and time, quality enhancement, lower costs, accelerated schedule, and improvement in design. Still, the modular supply chain is at a nascent stage, and the advantages of the offsite approach are bigger where there is a degree of repetition that is beyond the individual, large projects.

In this eBook, we will carry out secondary research, explore the advantages and inspect the challenges associated with modular construction. The readers will also get to examine what sustainable impact and how widespread is the use of prefabricated construction. Also, we'll examine why it is considered a faster, smarter, and greener alternative.



Brief History of Modular Construction

Modular construction has existed for a long time now. Its first recorded evidence comes from the 1600s when an English fisherman brought a house along with him to the United States of America in Cape Ann. It was stated that it was reassembled and disassembled many times as well.

During World War II, 'Dymaxion House' was planned for America, and a certain modular housing scheme can also be traced to the 1920s but it never came to fruition. Although the benefits of modular housing have been known for centuries it is a trend that is being revisited today.

Now the term prefabrication has come in vogue when referred to modular construction. Buildings that are assembled on-site that are aimed to push the boundaries of engineering, design, and sustainability are leading to transition in the construction landscape.

In countries like Japan and Scandinavia, preconstruction housing has established a foothold. Since the post-war era, it has been in and out of favor in the United Kingdom and the United States. But today there are strong signs that a broad-scale disruption is in the making.

The entire construction landscape and real estate players are likely to embrace modular ways of construction in the times to come. The two biggest determinants are the shortage of skilled labor and real estate demand.

In places, such south of the United Kingdom, as the US West Coast Australia, and major cities in Germany, large-scale unmet demand and shortage of labor for housing, are making the prefabricated building model particularly attractive.

This model also depends on whether the market is able to achieve repeatability and whether the project is scalable or not.

According to McKinsey, in the real-estate business market valuation for modular construction in the United States and Europe could reach \$130 billion by the year 2030.



While real-estate developers face many challenges when it comes to scaling modular construction. But for those who have an appetite for risk and wish to disrupt the construction industry, the prospects are bright and promising future.

Let us get ready to understand what this generation of modular buildings can deliver that prefabrication failed to do earlier. Construction technology will also position modular construction in becoming a serious entrant in all property construction.

Benefits of Offsite Construction

There are many benefits of modular construction are many in the industry where margins are razor-thin and new complexities arise with every project. Although construction issues related to project overrun, court issues arising due to quality disputes are common.

Offsite construction offers a way to revamp the way construction is done as going the 'modular' way can attract younger talent and gain a good public image.



Quicker Turnaround

In construction adhering to project timelines and finishing the project on time is important. Anything that can help contractors reduce project timelines going forward and also enabling them to stick to their original timeline. Hence modular construction is attractive for the builders.

It results in minimizing time on site and this has a direct impact on reducing the length of the project. This is great for subcontractors as they do not have to wait around for other subcontractors to finish the task and get started immediately.

Modular buildings are planned meticulously and are more efficient. Once the construction does begin on the final site it ensures that there aren't any delays and relies on technology utilization to drive efficiency.



Greener Way to Build

Offsite construction is a greener way as it creates fewer site disturbances, makes allowance for tighter construction, and generates less waste being a factory-controlled process.



Flexibility and Reusability

You can relocate, refurbish and disassemble a modular building so there is a greater level of flexibility. It also reduces the demand for raw materials and also minimizes the energy expenditure that is involved in constructing a new building.



Less Wastage of Material

By building in 'modules' it is easier to manage inventory, recycle materials by ensuring there is no wastage when building structures in a factory.



Sustainability

In comparison to traditionally built buildings, less energy is required to produce a modular building. Not only are the modular projects completed quickly but also require less energy at the site of the project. It also reduces building materials by 90%. The best part of designing modular buildings is that they can be moved anywhere in the future and can be disassembled if required. Moreover, they are reusable, sustainable, and durable and suits climate requirements as they minimize waste.





Bigger Profits and Cost-friendly Construction

As fewer resources are needed and less time is required to finish a project, modular structures cost less than traditional building projects. Due to the reduction in time, costs associated with a rework are also reduced.

There are many other benefits to using modular buildings as they are structurally stronger than traditional buildings. The way they are engineered and designed is mostly related to the fact that they can withstand craning onto foundations and withstand rigors of transportation.

Building offsite ensures that there is more emphasis on quality management and safety protocols to promote superior construction. When placed together and sealed, module structures become one integrated floor, wall, and roof assembly.

There is more to modular construction than improved completion time and quality management. It is a significantly better way to construct because it reduces site disruption and lays a strong emphasis on security and safety. By eliminating ongoing construction hazards, modular construction offers a tremendous advantage when it comes to undertaking new construction projects.

The Case for Construction Technology

Now we have realized that modular construction is more efficient than traditional construction but it can easily become difficult to track this approach between myriads of sites and teams. Although on-site construction can be reduced it does not ensure that there will be no delays and setbacks when following the modular way to build projects.

For this to be a success, there still needs to be improved communication and collaboration between teams working on modular projects. To make this offsite construction activity more efficient as it is already regarded as a faster, greener, cost-friendly, and much easier way of building- there is a need to shift to technology.

In order for a project to be successful, it relies on insights and critical information for decision making. Hence the need for purpose-built construction software like ProjectPro arises that can take care of document tracking needs, accounting processes, materials planning to move the project along.



Software Adoption

To make the modular model a success, real estate developers have to be ready to deploy tech and embrace software solutions. This will lead to a focus on technology-driven digital transformation. For a project to reach its full potential, construction software technology must be adopted by all players involved.

This will lead players to stay on top of the competition. But, for this to happen widespread embracing of technological tools must become commonplace.

Choosing ProjectPro with Business Central: Experience and Know-how

With 20 years of construction proficiency, ProjectPro powered by Microsoft Dynamics 365 Business Central complete with ERP, CRM, project management, and construction accounting-- is uniquely designed for contractors.

Real-estate developers that are proving to be catalysts for transition to modular can benefit from the robust accounting capabilities of ProjectPro with BC.

Our solutions are best suited to those who are also entering the modular space as key players. The software system will benefit modular and offsite building developers. Relying on ProjectPro can help you improve project profitability and increase transparency. It will help you manage risks and take care of your construction accounting processes.



Conclusion

In the coming time, it is important for those entering the modular space to build relationships with modular suppliers. In fact, developers now need to focus on transitioning from operating on a project-by-project approach to entering more strategic partnerships. This will result in building a pipeline of repeatable projects in the years to come.

The next switch that needs to happen is to buy materials suitable for the factory from suppliers rather than for the construction site. This will be followed by testing modular construction on individual projects. It will result in gaining experience and fostering trust with the chosen supplier. The final step would be to roll out the product in large numbers so that modular structures become more commonplace.



The advantages of committing at scale to a modular approach are many. Many developers are now identifying a part of their future pipeline that is particularly suitable for a modular approach. Hence many are developing strategies to reduce construction costs. In modular construction companies, owners, developers, and architects can work with the same levels of design. There is also a potential to reach construction sophistication that will exceed expectations and could rival the site-built buildings.

For modular construction to reach the zenith, it is beneficial that when ideating on the various project delivery methods, it is chosen early in the design development process. To avoid redesigning the modular structure has to be built around this methodology. Most of the time, creating a modular version after taking in a site-built design is also possible, and developing one when required can also be explored.

As designers and construction owners look for more sustainable designs for better environmental impact, modular construction is itself a natural fit. Building in a controlled environment reduces waste. When the focus lies on improved quality management throughout the construction process and significantly less on-site activity and disturbance, this approach proves to be more sustainable.

Finally, module manufacturers can focus on highly complex projects that demand more onsite work. Firms that choose to maintain a traditional focus have to take cognizance of the fact that keeping operations lean will be critical to compete in a highly complex construction landscape. Besides contractors working in the traditional arena should prepare themselves to venture into modular construction space.

When it comes to the modular value chain that can be seen as feasible, in terms of engineering fabrication, architectural design, and construction. There is an at-scale shift to modularization along with digitalization. The offsite construction players look ready to disrupt the construction industry and broader ecosystem. Thus construction incumbents should evaluate the trends and impacts before entering the modular world of construction. They need to assess their strategic choices, to ensure they can benefit instead of risking being left behind in the future.

By embracing construction technology especially construction software systems like ProjectPro they can choose to be more cost-effective, efficient, innovative, sustainable, reduced construction time, and deliver high-quality modular structures with precision.



About ProjectPro

ProjectPro is a division of Netsmartz LLC global group of companies. ProjectPro is specifically designed for construction firms and powered by Microsoft Dynamics 365 Business Central to make sure you get the most out of your business software.

Stand out of the league by streamlining your business processes, controlling costs, and offering timely and accurate information. ProjectPro holds the potential to integrate your crucial job quoting, project accounting, resource management for labor and equipment, and much more all in a single database.

With integrated data, intelligent transaction processing, and robust analytical and reporting capabilities, you can reduce the time and effort it takes to access meaningful information necessary to make good business decisions.

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