NORTHGATE: SOPHISTICATED MODULAR SOLUTIONS!

INDISTINGUISHABLE FROM SITE-BUILT COUNTERPARTS

MODULAR CONSTRUCTION

1. **Cracking The Code:** History of Modular Construction
2. **Permanent Modular Construction:** The Dynamic Is In The Details!
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1 CRACKING THE CODE OF MODULAR CONSTRUCTION

A Brief History!

BRINGING THE MODULAR TO LIFE: BACK TO THE BEGINNING

Modular construction has been around since 1837, when Henry Manning, an English carpenter, prefabricated the first Manning Portable Cottage in London, England. Modularization continues to generate interest and has remained relevant since its conception two hundred years ago. Architect Hugh Pearman opined that “every new generation will rediscover the virtues of prefabrication.” Its abiding fascination can be stated through the argument put forth in the form of a question by industry experts and scholars. Suppose industrial manufacturing processes can produce other products and goods for society. Why can't we utilize similar effectiveness that enables us to create more, faster and more affordable buildings in less time?

WHAT IS MODULAR CONSTRUCTION?

Modular construction is defined as the creation of three-dimensional or volumetric units that are fitted out in a factory and are delivered to the site as the main structural elements of the building. It is primarily used for the creation of cellular-type buildings consisting of similar room-sized units that are of a size which can be transported and connected on-site to create functional buildings. Modular construction can also include partially or fully open-sided modules, in which two or more modules create larger spaces.

MODULAR MAKES IT POSSIBLE

- Fast Construction
- Cost-Effective
- Eco-Friendly Material
- Less Impact On Business
- Attractive Designs

DECONSTRUCTING THE MODULAR CONSTRUCTION

TRIED & TESTED METHOD

Fascination with modular construction is not a novel trend. Prefabricated buildings have been around for longer. According to a report in 1670, a prefabricated building was shipped by boat from England to the United States. And by the 1800s, when the country experienced westward expansion, it increased the demand for modular housing. Moreover, the Gold Rush period of 1849 witnessed various shipments of more than 500 preassembled homes from factories in New York to multiple destinations in California. The Kullman Diners were a phenomenon during the 1920s when Sam Kullman began manufacturing along the northeast coast.

Furthermore, the first of Franklin Roosevelt's New Deal communities, Arthurdale, West Virginia, was established in 1933. All kinds of modular structures were shipped, including post offices, stores, homes and schools. Post World War II, modular construction was viewed as a reliable method for providing low-cost homes to returning service members. By the 1940s, the expansion of the modular construction industry occurred into commercial projects. In a nutshell, the history of modular construction techniques is long and illustrious. The testament of modular construction lies in its ability to adapt and its resiliency, where it continues to offer robust and quick solutions to industry-related problems.

PERMANENT MODULAR CONSTRUCTION:

THE DYNAMIC IS IN THE DETAILS!

2

What is Permanent Modular Construction (PMC)?

Permanent modular construction (PMC) refers to the erection of permanent buildings similar to traditional real estate in virtually every way once finished. PMC buildings are subject to the same building codes and requirements as site-built structures, depreciate in much the same manner, and are classified as real property. With PMC, modules are retrofitted to existing buildings, or projects are designed around the modular building techniques as a turn-key solution from the start. This industry segment provides construction-related services for the successful design, manufacturing, delivery, installation and finish-out of commercial and multi-family buildings. PMC's innovative, sustainable construction delivery method utilizes off-site, lean manufacturing techniques to prefabricate single or multi-story whole building solutions in deliverable volumetric module sections. The buildings within PMC are manufactured in a safe, controlled setting and can be constructed of wood, steel, or concrete. They can be delivered with Mechanical, Electrical and Plumbing (MEP), fixtures, and interior finishes in less time, with less waste and higher quality control compared to projects utilizing only traditional site construction.

4 REASONS

MODULAR CONSTRUCTION IS SIMPLY BETTER?

1

Uses Efficient Manufacturing Techniques

The building style is faster because factories can manufacture several modules simultaneously. Modular building installation allows for progress to be done on different parts of the structure at the same time.

2

Fits In Tight Timetables

Modular construction techniques are also useful for quickly erecting buildings in an emergency. This is useful for scenarios requiring relocating people from low-lying areas, particularly for flood, fires and other calamities.

3

Conforms To Highest Standards

Modular building manufacturers hold themselves to the highest standards available. They still need to pass the same building codes that traditional construction methods are bound to follow.

4

Continues to Evolve

Modular construction continues to evolve its techniques and is steadily advancing as manufacturing processes are refined, and material quality is improved enabling it to be better than traditional construction.

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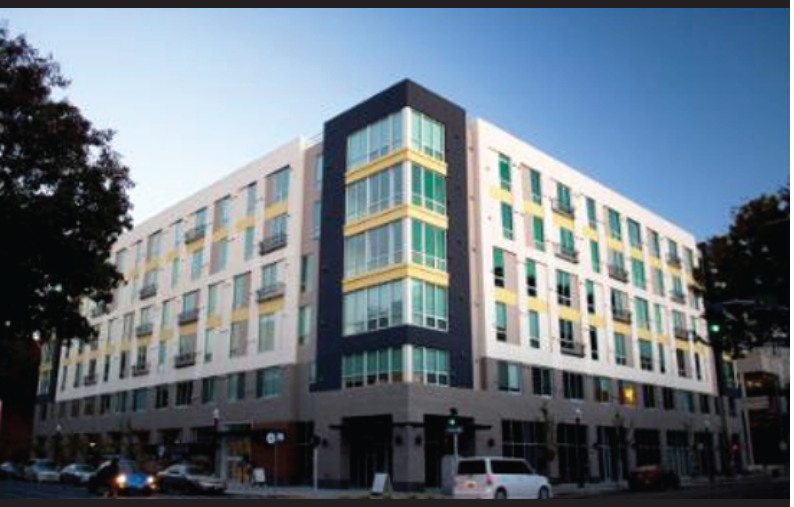
3 PMC: FAST&FEASIBLE

Markets Served!

Permanent modular construction is used by industries, including hospitals, medical clinics, schools, banks, hotels, restaurants and housing developers. Northgate's services are utilized by a variety of clients, and categories, including Commercial and Institutional Building, Housing Construction, New Multi-Family and Construction.

MODULAR STRUCTURES:
WHAT'S THE DIFFERENCE?

PERMANENT



1. A permanent structure is fabricated for long-term use.
2. A permanent structure is made of concrete, steel and wooden frames.
3. A permanent structure is installed for structures that don't require relocation.
4. A permanent structure take months if not years to construct.

TEMPORARY

1. A temporary structure is installed
2. A temporary structure is mostly wood-based.
3. A temporary structure is installed for structures that would require relocation.
4. A temporary structure can be ready within weeks depending on size

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REALIZING THE BENEFITS OF PERMANENT MODULAR CONSTRUCTION

Quicker Occupancy : The streamlined construction process is 30-50 percent faster than conventional construction. There are also less change orders.

Labor Shortages : More efficient use of skilled labour with a safer work environment.

Predictability : Due to the shortened construction schedule, up-front materials purchases, and reliable labour, modular projects provide a hedge against construction market uncertainty. The term “modular” describes a construction method or process where individual modules stand alone or are assembled to make up larger structures. Unlike relocatable buildings, these structures are intended to remain in one location for the duration of their useful life; thus, they are permanent.

Permanent Modular Buildings : These buildings are wood-frame, and are typically set on concrete foundation. They can have as many stories as building codes allow. The rule is usually 6 High with wood modular construction.

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PMC: STAGES OF MODULAR CONSTRUCTION

DESIGN APPROVAL BY THE END-USER AND ANY REGULATING AUTHORITIES.

ASSEMBLY OF MODULE COMPONENTS IN A CONTROLLED ENVIRONMENT.

TRANSPORTATION OF MODULES TO A FINAL DESTINATION.

ERECTION OF MODULAR UNITS TO FORM A FINISHED BUILDING.

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4 FORECAST & FUTURE

EXPANDING YOUR POSSIBILITIES STEP BY STEP

Where is the industry headed?

According to industry experts' latest research report, the global modular construction market is projected to grow from USD 82.3 billion in 2020 to USD 108.8 billion by 2025, at a CAGR of 5.75% from 2020 to 2025. The growth of this market is attributed to an increasing concern toward work-zone safety, the need for lower environmental impacts, and supportive government initiatives. An increase in population and rapid urbanization (translating to a large number of new construction projects) offer opportunities for the growth of the modular construction market.

Northgate can build it!

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