

EXECUTIVE SOURCING GUIDE FOR THE
COMPANIES THAT BUILD NORTH AMERICA

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DYNAMIC SPACES

Hornig Capital Partners excels at projects
that enhance neighborhoods. → **p. 34**

AT THEIR SERVICE

Continental Building Company nears completion
on Westerville, Ohio's first full-service hotel.

SOARING HIGH

The new TWA Hotel embraces a style that
evokes the golden days of aviation.



» Whether permanent or temporary, modular structures can save time and resources.

TOP TECH

You can use technology for increased flexibility and profit. **BY PAUL JAKSE**

In the May 16, 2012, article for *Construction Today*, the Modular Building Institute's Executive Director Tom Hardiman voiced the institute's desire to enhance awareness and reputation of modular buildings both in the United States and beyond. It worked. Demand for high quality, modular buildings has started to increase according to a May 2015 Global Industry Analysts Inc. report. Many sectors including government, corporate, education, construction, retail and residential account for the upswing. Google uses modular buildings, as does Yale

University. *Hotel News Now* reports more hotel chains are using modular vs. stick-built construction, with modular increasing by 31 percent according to a 2015 Permanent Modular Building report. The up-trending retail pop-up store phenomenon, reported by TREND HUNTER Inc., is another example of growing opportunities.

Whether permanent or temporary, modular structures can often save money, time, and resources. They prevent disruption of onsite workflow, all while using 35 percent less energy after installation, according to

the EPA's Energy Star Program. Meanwhile, offsite building manufacturers face several challenges as they compete to meet the demand profitably. When looking for ways to increase efficiency, some companies have looked to air caster technology to increase flexibility, decrease costs and improve safety.

Good News

Demand for offsite building construction is feeding healthy growth because the benefits for developers and builders are significant. They include:



- The on-site project timeline is reduced – The delivery of the pre-builts provides speed to construction.
- Less waste for lower costs and better sustainability – Quality modular structures with LEED certificated builders introduce energy and cost savings.
- Labor and site preparation expenses are lower – Especially in months-long cold climates, modular deliveries match local climate and labor requirements.
- Speed to market – End-user design changes can be addressed without unnecessary delays.

Offsite Construction Challenges

While there are benefits to offsite modular building construction, the Global Industry Analysts report says the 183 or so U.S. builders (299 worldwide) face the following issues:

1. Safety – Eliminating worker soft-tissue and larger injuries requires training and planning.
2. Movement flexibility – Reducing production slowdowns with quicker change outs cannot always be achieved with pre-existing systems.
3. Costs – Retrofitting existing buildings to produce modular structures can be expensive. Hiring ticketed employees and installing cranes and rails adds to costs.
4. Size – Moving larger prebuilds inside of a factory presents logistics, efficiency and delivery problems.

Sub-optimal Modular Building Construction Plant

Time is money. When a construction plant uses old-fashioned load-moving equipment – cranes, floor conveyors, and rails and forklifts – an assembly error may require that an entire line is shut down. Maybe the whole plant. Because the next station cannot proceed, the process flow is halted. Each tick of the clock without production nibbles away at profits. Quality is a key differentiator of offsite modular constructed units over onsite stick-builts. Additionally, if a unit doesn't

match plan, a foreman may have to stop the production line, which may affect the on-site building schedule.

But there are alternatives. To reduce expenses and enhance safety, a modular construction management team can choose to retrofit an existing building with new moving technology, or it can start from the bottom up and design a safer, more efficient, more productive plant using an air caster system.

Optimized Modular Building Construction Plant

An optimized modular building plant embraces air caster technology. By using fewer pieces of moving equipment, like cranes, dollies and forklifts, air caster systems reduce the chances of injury. Movement flexibility is superior from the omni-directional capability afforded by air bearings, which is not obtainable with rails. Because the modular units of any size (24-feet to 72-feet or more) float on air, fewer employees are required to move a unit. Air casters can easily be added to heavier sections of the prefabricated building (kitchens or fireplaces) to even out the load.

A construction blunder can be pulled from a production line within minutes, and the line barely misses a beat. The highest of quality standards can be achieved with a minimum of workflow interruption. Troy Yaschyshyn, NCSO manager, safety, says there's another safety feature when using air caster technology: "Based on our loads of units, the size of standard casters/dolly wheels kept the module at the height of approximately 24 inches once bolted to a rim joist. Using AeroGo air casters dropped that height down to approximately 16 inches. This was significant for us because it made access and egress safer for our employees."

Eyes on the Modular Buildings Industry

Competition in the construction industry is stiff. Modular buildings are more cost-effective than stick-built structures and deliver a shorter time to project completion. There is less waste because the factory-controlled construction lowers the amount of unused material at the project site.

Today's marketplace is demanding agility. Making the move 24- to 72-foot and larger buildings around a production facility with multiple build stations presents both logistical and safety problems. Additionally, the expense of installing conveyors or rails is high; the process of installation also is time-consuming and delays or stunts growth opportunities.

To achieve cost savings at the modular building construction facility with the highest safety and greatest movement flexibility (and with the least building damage) air casters are the optimal choice. Heavy-duty air casters will last longer and can support the weighty building boxes across many build stations even if loads are uneven. Choosing an air caster supplier with a long history, solid technology, and good customer support is vital. ♦

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