

STRUCTURES

Bringing Homebuilding Into Modern Era

By Paul Townsend

If I suggested that the next time you buy a new car, your best approach would be to have the manufacturer deliver the components to your driveway and have a crew assemble them there, you'd question my sanity. Yet most home construction occurs just that way, without taking advantage of modern production methods that have benefited nearly every other industry sector. Isn't it time for home construction to move into the 21st century?

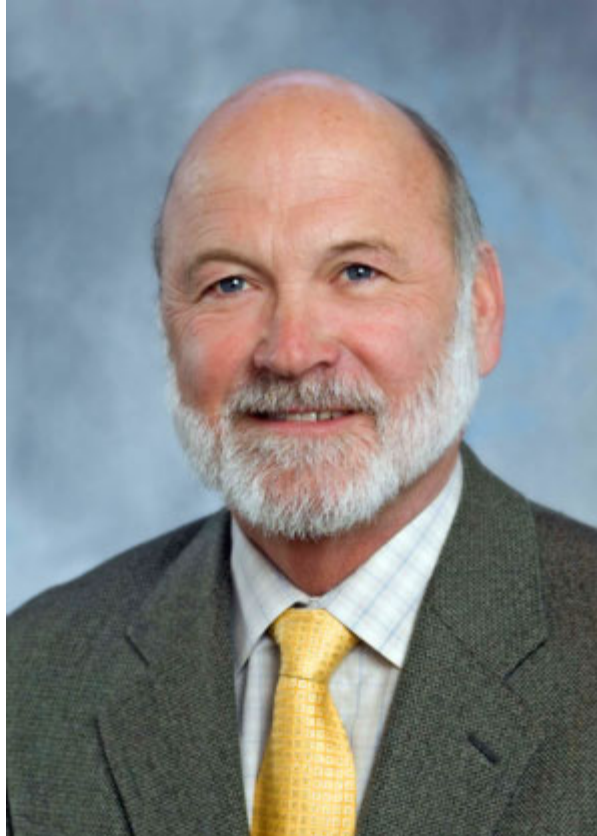
Fortunately, an increasing number of developers, architects, project financiers and other professionals involved in the housing industry are realizing the benefits of system-built construction, in which buildings are largely built in factories and then quickly assembled onsite.

Not your grandfather's old-style prefab housing – which was limited to simple, Ranch-style homes – today's system-built homes can be customized to meet the needs of homebuyers at every price level. The varieties of today's system-built construction include concrete and metal frame, which can be used for building high-rise structures of up to 11 stories, and wood-frame modular construction, which entails shipping modules that are 90 percent complete on the exterior and interior, and assembling them onsite.

A 2,500-square-foot modular Colonial with a two-car garage can be manufactured in three to five days at the factory. It's set on its foundation and made weather-tight within one day, and ready for move-in a few weeks later.

One big caution regarding system-built projects is that the designer and builder must work in concert and be experienced with this type of construction. You wouldn't want your local mechanic to build your car.

Advantages Galore



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System-built construction is inherently less expensive than conventional construction. Thanks to the benefits associated with mass production, including the manufacturer's ability to buy in bulk, the per-square-foot costs are anywhere from 10 percent to 20 percent lower than stick-built. But that's only the start of the savings. Many so-called "soft costs" are reduced or eliminated with system-built.

Here's a look at how system-built home-construction cuts costs:

- Greatly shortened construction timeline. Time is money in the construction industry. With conventional construction, a 40,000-square-foot building takes between 10 months and a year to be substantially complete. In contrast, a project of the same size takes one month with modular construction. Site-preparation work and production of the product occur simultaneously. Winter conditions don't stop work because 90 percent of the work is done indoors at the factory. With conventional construction, the loan interest expense alone associated with the extended building schedule is up to 10 times that of system-built.
- Better financial structure. How you pay for your project is different than with conventional construction. It begins with a deposit of roughly 10 percent of the cost of the product the factory is going to deliver, anywhere from four weeks to six weeks in advance of when the factory begins construction. Once the product is shipped and you have had a chance to inspect it, you pay the other 90 percent. In short, you are not doling out progress payments over many months because construction occurs too fast for progress payments to be required.
- Faster time to market. If you substantially complete your project in 10 percent of the time required conventional construction, you can be selling or renting 90 percent sooner. That accelerated revenue can be applied to the outstanding loan, invested or both. This can equate to hundreds of thousands of dollars.
- Lower architectural and engineering costs. System-built factories must produce their own production drawings and engineered stamped plans. Those soft costs can be deducted from your budget. For projects larger than single-family homes, the owner's local design and engineering team stays in place throughout the project.
- Reduced pilferage and waste. Precision specifications across all trades minimize waste in the factory. Also, with conventional construction, onsite theft and waste can easily reach \$2 to \$5 per square foot. Reducing the potential for such losses through the use of modular construction can be especially beneficial in inner city locations.
- Change orders virtually eliminated. When construction is done the old way, numerous change orders inevitably occur due to design, engineering or contractor errors. Those costly problems are greatly reduced with system-built projects.

Another major advantage of system-built construction that generally is not well-understood is the fact it produces better quality and neatly matches the trend toward green building. Because building components have to travel and must arrive in structurally sound condition, system-built products are built stronger than conventional construction. A modular structure contains 30 percent more materials by weight than a conventionally built home of the same design.

One aspect that adds to the quality is that materials and workers are protected from the elements, leading to a better end-product. Also, the buildings are energy-efficient and, with a small amount of additional work done at the construction site, can easily earn an Energy Star and LEED ratings.

System-built construction flips the old formula of 20 percent planning and 80 percent execution in the field on its ear, requiring 80 percent planning and 20 percent execution. If you've worked in conventional construction all your life, how do you become part of the 80/20 world? The learning curve for becoming a successful modular builder and designer is steep. But once you master the field and learn how to get the highest value out of this 21st-century way of home building, you and those who live in the homes you build will be

richer for it.

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Issue of March 24, 2008