

The Next Generation of Building Systems

By Jim Parsons

Much has been written about the tastes and traits that differentiate baby boomers from their generation-X successors, as well as the current group of youth (gen-Y or millennials) who will be the next wave of home buyers. But these generations have more in common than most realize.

For example, compared to generations before, the general home-buying population (those with the greatest buying power) are highly educated, relatively affluent, insistent on receiving maximum value from investments and — in the words of the fast-food chain jingle — eager to have things their “own way.” And they are joined by those with lower buying resources in the push towards demanding energy efficiency, sustainable construction techniques, healthy homes and natural resource preservation.

Fortunately, the home building industry offers a wider range of design and construction options than ever before, and those options meet a broad range of consumer demands. With the uncertainties surrounding the housing market’s immediate future in some areas of the country, the innovative building systems of today are not merely curiosities of popular culture — they may determine both short- and long-term successes.

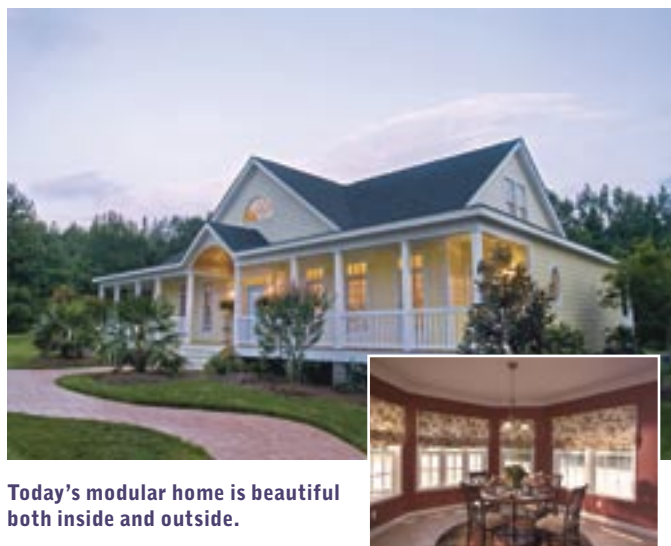
TOUCHES OF STYLE

One type of building system that many feel closely matches the requirements of newer generations — modular building — is actually a legacy of the venerated World War II generation and goes back as far as the early 20th century when catalogs offered home kits. A boom in the 1940s/early1950s in premade homes was caused by an overabundance of need and a shortage of housing for the many veterans who wanted to start families and savor their share of the hard-won postwar prosperity. Today’s popularity has more to do with the improvements in technologies and wider selections in style.

This attractive modular home was the 2007 *Southern Living* Idea House.



PHOTO COURTESY OF HAVEN CUSTOM HOMES



Today’s modular home is beautiful both inside and outside.

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In fact, today’s factory-furnished models have little in common with the square boxes of 50 years past. Along with taking advantage of advancements in materials and fabrication processes, builders have increasingly offered a wider range of designs and customizable features that now span every taste and pocketbook level.

“As recently as six years ago, the prevailing approach was, ‘Here’s what we build; take it or leave it,’” says Bill Murray, General Manager of HandCrafted Homes, LLC, Henderson, NC. Today, it’s more like, “If we can’t do it, we’ll tell you, but there’s very little left that can’t be done,” he says.

One event bringing this reality to the forefront is that well-known architects are creating plans specific to the modular world, he adds. Murray refers to two of HandCrafted Homes’ lines created in partnership with famed Wilmington, NC-designer William E. Poole. For modular builders, such partnerships, “will add credibility to us and our industry,” he says.

But while modular designs are reaching ever-higher levels, fancy renderings and glowing descriptions will not be enough to sell the idea of building a home in a factory.

Instead, “It’s best when prospective buyers can touch and feel the superior craftsmanship,” explains John Ragland, Executive Vice President of Acquisitions and Marketing for Haven Custom Homes, Linthicum, MD. For Haven, that was evident when the company teamed with Memphis-based architect Looney Ricks Kiss to create a 3,544-square-foot shingle-sided, tin-roofed Southern cottage in Watersound, FL, that was featured as the 2007 *Southern Living* Idea House.

“Many of the 16,000 visitors who toured the home remarked they were surprised such detail could be brought to a modular house,” Ragland says.



Concrete is gaining in popularity not just for its strength in weather-challenged areas but for its insulated properties, durability and unique style.

Some builders understand that modular means quality, while others don't have a grasp of that idea yet, modular proponents say.

But according to Michelle A. Roberts, Principal of Ecohealth Homes, Boston, MA, builders reluctant to embrace modular might well be missing out on many financial advantages that are particularly critical in a slow market.

As she explains it, "A site-built custom home may take from one to

Circular Thinking

Custom homes come in all shapes and sizes, but there's something about a round house that draws more than a few double takes.

That comes as no surprise to Joseph Schlenk of Asheville, NC-based Deltec Homes, which has specialized in circular structures since its founding in 1968. However, the buyers of such homes have changed. "For a long time, much of our work was for second homes and vacation areas," he says. Over the past 20 years, Deltec's project mix has shifted dramatically, with most buyers choosing circular homes as a primary residence.

While many buyers are willing to think outside the box (literally) for this distinctive design, they're attracted more by the inherent durability and energy efficiency afforded by prefabricated round homes.

And the strongest selling point may be the inherent aerodynamics, particularly in areas susceptible to major windstorms.

"The trusses radiate to the center-like spokes on a wheel," Schlenk explains. "When one side is under stress, the energy is dissipated through the whole structure. In a rectangular house, a flat side will act like a sail. The energy builds up and something has to give."

In addition, he adds, "our self-supporting roofs have a 6 to 12 pitch, which also deflects wind better than the higher-pitched roofs found on many rectangular homes."

Radial roof and floor systems also eliminate the need for load-bearing walls, providing near unlimited floor plan flexibility, he explains. And multiple round structures can be connected in a variety of configurations, or augmented with rectangular and crescent wings, he adds.

Round homes are partly catching on for the same reasons as other types of prefabrication. "The expansion of modular construction has helped increase [consumer and builder] familiarity with circular homes," Schlenk says.

two years to build, which is a long time to carry a loan, plus the burden of staff and insurance," she explains. Modular homes can be built in as little as a few weeks or months. Also, "You can also argue that modular is a safer way to build, as workers spend less time on tall ladders." Finally, many modular manufacturers are touting these homes as healthier for their residents because of the quality control that building in a factory provides, Roberts points out.

Modular and other types of component builders who choose steel framing can also bolster their bottom lines through lower insurance costs, often the largest expense after labor and materials, steel-framing proponents say.

As Larry Williams, President of the Washington, DC-based Steel Framing Alliance, explains, "Builders can save as much as 30-40 cents per square foot of a residential structure" by building with steel.

Williams adds that a number of technical innovations have also enhanced the efficiency of steel framing. For example, pneumatic-driven pins are now being used instead of screws to attach sheathing and trim to steel components. "They're also being used for metal-to-metal fastening, just like a nail gun," Williams adds. "That helps speed both the panelization process and work at the building site."

'SIP'-SHAPING

Among the most intriguing byproducts of the modular movement may be increased popularity of a smaller cousin of the wholly factory-built home: structural insulated panels (SIPs). SIPs have been around many years, but as people learn more about quality building methods, they will also look to these panels, proponents say.

Possessing the same production control and efficiency attributes as larger, prefabricated components, SIPs contain "a core of foam plastic insulation sandwiched by structural skins of oriented strand board or other materials," as described by the Structural Insulated Panel Association.

Perhaps the best way to think of SIPs are as "adult-size Lego blocks," according to Mike Speciale, owner of Speciale Homes Ltd., Cedar Park, TX.

"Working with SIPs is more of an on-site process than full modular construction, but you still save time in the full construction process," Speciale explains. Still, the promise of lower household utility bills for customers "was their main attraction for us," he says.

Founder and principal architect of CleverHomes Toby Long notes that SIPs provided an ideal systematic home design and building platform for his five-year-old firm in San Francisco, CA.

"SIPs are very accommodating of design, which drives every project, and the site conditions, particularly the sloped sites here in the San Francisco area," he says. At the same time, "they require the same tools and skills for framing that builders have always used," he adds.

As with any building system, SIPs have trade-offs, including a greater influence on other components, which requires an early commitment to details such as windows. "The efficiency and productivity needed for what you're building is also a consideration," Long says. Traditional framing may well be more cost effective for some projects, such as unusually shaped walls, he explains. "As you work with SIPs, you understand what you can and can't do. The learning curve is steep, but short."

FORMS AND FUNCTIONS

Martine Vogel, owner of Open Range Construction Co., Colorado Springs, CO, has compared the costs of another type of sandwiched-style material — insulated concrete form (ICFs), and has found the technology comes out ahead. With ICFs, which have long been praised for their structural durability and high R-values: "We found that a 2,000-square-foot, tract-style house and a radiant heat system actually costs less



Log cabins are a lifestyle choice. Their buyers are seeking a more relaxed feel to their homes.

[to build] than a comparable structure with wood framing and a forced air system,” Vogel says. Such a revelation — that ICFs can compete with 2 by 4 construction methods but get the extra benefits — is vastly important in the marketplace, proponents say.

And that’s exactly what’s leading more consumers to consider ICF construction, according to Kelly Hemp, owner and President of Cornerstone Custom Construction, St. Paul, MN.

“The need for better energy efficiency is forcing buyers to think differently,” he says. “Smart customers like the idea of investing in a house and immediately getting a return, even if it means sacrificing some square feet to lower the cost.”

Vogel says she has found few limitations in building homes with ICFs as large as 5,300 square feet. Such homes are “also attractive to aging baby boomers because they accommodate universal design [through open floor plans, wider corridors, etc.] and require less maintenance.”

Still, it’s the energy-efficiency aspect that Hemp believes will drive the continued interest in ICFs, and the building community needs to be ready, he said.

“These days, if a builder can’t do an ICF home, the customer will simply go to someone who can,” he says. Builders “have to be ready to serve [the need for ICFs] or else lose the sale — something no builder can afford in this market,” he adds.

BLOCK BENEFITS

As with modular components, ICFs have their own “Lego-scale” version — concrete blocks. And thanks to builders such as Greg Messer, President of Palladium Homes, Inc., Raleigh, NC, the concept of using concrete masonry is no longer limited to hurricane-prone, high-humidity regions.

“The key is insulation,” Messer explains. To accommodate the temperature extremes of the Mid-Atlantic, for example, 60% of the walls built with concrete blocks use hollow ‘bricks’ injected with water-based foam insulation. The remainder of the block is poured solid with grout and reinforcing steel. “As a result, every cavity has something in it,” Messer says. “In colder climates, materials such as rigid insulated board and synthetic stucco can increase the insulating properties,” he says.

Messer has used concrete masonry for styles ranging from a Habitat for Humanity project to custom designs of 5,000 square feet and more, noting that the biggest construction consideration is wall height, which usually tops out in practicality at one-and-a-half stories.

“We can go higher, but the cost goes up because of the reinforcing required,” he says.

Still, the possibilities are immense. “The walls can accommodate any exterior material — stucco, stone, brick, hardy plank. The only thing we don’t

recommend is vinyl siding, as it makes no sense to put a high-maintenance material on an otherwise low-maintenance structure,” Messer says.

TREE HOUSES

Another popular convergence of today’s home building tastes is a system of component building that literally and figuratively started the house construction industry many years ago in much of the U.S. — log homes.

Such homes are “a lifestyle choice,” explains Elizabeth Reece of Estermerwalt Log Homes, Honesdale, PA — a desire for a more relaxed, rustic feel. “Many people don’t want to wait until retirement to live in a home that gives the laid-back feel of country living,” she says.

Unlike their forebears, who spent months crafting simple structures, buyers of log homes today can take advantage of ready-made packages that include exterior walls, roof systems, interior stick-frame walls, windows, doors and decking for houses ranging from 500-10,000 square feet.

Modern log homes are also far more sustainable and energy efficient than their “homemade” predecessors, which makes them more comfortable for inhabitants. Since, “Logs have inherent insulating properties,” they warm and cool more slowly than traditional walls, Reece explains. “When the interior temperature does change, the house [its thermostat system] can detect and respond to it well before occupants notice,” she says.

Reece adds that a log home is no different to work with than any other packaged home, though she cautions that builders need to choose the right quality product and method to build it. “Even with its inherent energy-efficient properties, a log home would not perform well if it’s not put together correctly,” she points out.

Despite the long history, log homes share the same misperception challenges their modern modular relatives experience. “We often get questions about a higher risk of termites,” Reece says with a laugh. “The risk is the same as with a stick-built or modular home. In fact, termites will have an easier time eating through a 2x4 than a 12-inch diameter log.”

As Michelle Roberts of Ecohealth, who spent more than a year researching modular before deciding to take the plunge, explains: “I realized that getting the word out about this new way of building will be one of my biggest challenges. But once that word is out, people will begin to see that to get quality, they may want to forgo the granite countertops for an overall better-built home.”

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