



The Modular Home Market: Past and Present

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Abstract: Modular homes do not currently account for a large share of new housing starts in the United States, but advances in building technology and public perception are causing market trends to shift in favor of modular housing. There are a wide range of modular homes available, some of which offer more sustainable building practices and design. Though green construction practices vary between companies, modular homes have the potential to conserve resources both in the construction process and throughout the life of the home when compared to conventionally built homes.

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Modular home. For the average American, the term conjures an image of something between a trailer home and a small ranch house. While the ideas of modular homes and modular construction have suffered from a somewhat negative image here in the United States, their image continues to shift with the help of new construction technology and better design. Indeed, prefabricated homes have come a long way since their 1908 debut with Sears & Roebuck, and are now generally considered to have several advantages over stick-built homes (homes built on-site), perhaps most importantly their energy efficiency.

Though in the 19th century several English companies made modular home to be shipped to their overseas colonies, the pre-cursor to the contemporary modular-home in America was the Sears & Roebuck Modern Home, which was first sold in 1908¹. These homes were sold out of a catalogue with hundreds of different designs available. When someone ordered a home, its parts, including pre-cut lumber and thousands of nails, were delivered to the customer for assembly². These homes had the distinct advantage over many of their competitors and traditional stick-built houses of being designed with modern amenities like indoor plumbing and electricity in mind². These homes were successful for several decades, and only declined after the depression began in 1929. The last catalogue of Modern Homes was issued in 1940². America entered the second World War soon after this, and the housing industry, like many other industries, slowed to almost a standstill compared to what it was during the roaring 1920's.

After the war, the return of the soldiers from overseas and the increasing orientation of urban planning toward the automobile led to rapid suburbanization, where modular home construction rose to popularity again. It is likely during this post-War period that modular houses gained the reputation that they have in this country of being less than ideal. Ryan Smith of the Center for Integrated Design and Construction notes that technology, including building technology, is an expression of social needs and desires, and the lagging modular home construction industry might be described as a representation of Americans' preference for custom designed stick-built homes over prefabricated modular homes. If this

is true, then it is also true that American values and preferences are shifting in favor of modular homes. Not only is this supported by the innovation and advancement in the modular home industry, it is supported by the choices being made in the marketplace. As of 2007, modular homes made up 5-10% of new housing starts in North America, but by 2017 it is forecasted that this figure will reach 35%³. As can be seen in the below table, the modular home industry is by no means small, so growth of the forecasted magnitude will be quite significant.

Before we continue, it is important to note what exactly a modular home is. The term “modular home” is often used interchangeably with the term “prefabricated (or prefab) home,” but modular homes are actually a subset of prefabricated buildings. A modular building is one that is constructed in sections or modules (usually six-sided boxes, though not necessarily cubes) off of the building site, and then assembled on-site. A pre-fabricated building is any building that is assembled either partially or completely off-site, and then completed on-site. This includes modular homes, as well as things like trailer homes and buildings whose walls or other components are delivered to the building site already assembled.

So what is driving the change in Americans' housing choices? A strong argument could be made in favor of technological advancement and design innovation in the industry, as well as an increasing concern with sustainability and environmental issues. Modern modular construction involves a careful process of construction that is completed within an almost completely controlled factory environment, which allows for an integration of the building process that simply does not exist for stick-built homes. This integration translates into less waste in the building process, as well as more energy efficient and in some cases stronger construction. While transporting completed modules is a fairly resource-intensive process that could potentially leave room for stick-built homes to gain an advantage in sustainability, even here the resources conserved and efficiency in the construction process of modular homes allow for less resource use, on average, than what is required for a stick-built home⁴. However, it is important to note here that there is wide variation amongst different sub-contractors and modular

home firms when it comes to green building practices. While modular homes are on average built using a greener process, some modular homes are less sustainable than others, just as some stick-built homes are built with very little waste. The same is true of the energy efficiency of modular and stick-built homes; while modular homes have the potential to be much more energy efficient than stick-built homes, this does not necessarily mean that all of them are.

Additionally, design innovation in the modular housing market has increased their appeal for many buyers. Several decades ago, modular homes in America were generally viewed as being merely utilitarian and devoid of style. A look at modular homes available today quickly puts that notion to rest-- the diversity of style and scale of modular housing hardly differs from what is available for stick-built homes. For



New World Home "Calvert"



Blu Homes "Lofthouse"

example, New World Home⁵ (newworldhome.com) builds modular homes that mimic traditionally styled American homes, but also meet very strict energy efficiency goals. In fact, the company is credited with building the first LEED Platinum-rated home that does not make use of renewable energy, which is a testament to just how efficient and sustainable modular homes can be. Modular homes are also

being built with much more forward-thinking architecture that also incorporates green technology, as exemplified by Blu Homes⁶ (bluhomes.com) design gallery. As one might expect, both New Old World Homes and Blu Homes serve the higher end of the market, and modular homes can be found with a wide range of features at varying prices, not all of which possess such impressive environmental credentials.

A more affordable example of a company doing green modular home construction is SmartHomze⁷ (smarthomze.com), who is currently building a small community based around green home design just to the west of Boston in Hudson, MA. The homes to be built in the community will all be zero energy, and will be built for 25-



SmartHomze "560"

40% of the price of other comparable green homes. This price, of course, excludes the cost of land and foundation, as the cost of these aspects of a home widely vary. With projects like this, green modular homes are becoming more accessible for people of more varied backgrounds.

While there is a lot of excitement right now about modular homes, there is still a long way to go before they achieve the popularity in the United States that they have in some places overseas. In 2011, modular homes made up only 1.8% of new housing starts⁸. Obviously, they have a long way to go before they rival the popularity of stick-built homes, but as building techniques and design improve, they will likely become even more efficient and sustainable housing choices for new construction. If popular opinion of modular homes continues to shift as a result of these improvements, their market share should continue to rise as it has in recent years.

References

1. Smith, Ryan E. 2009. "History of Prefabrication: A Cultural Survey." Center for Integrated Design and Construction, University of Utah, May 2009.
2. Stevenson, Katherine Cole. 1986. *Houses by Mail: A Guide to Houses from Sears, Roebuck and Company*. New York: John Wiley & Sons, Inc.
3. Britto, Jamie, Nicole DeJonghe, Max DeBuisson, and Kelly Schmandt. "A Business Plan for Sustainable Modular Homes." Business Plan, The Donald Bren School of Environmental Science and Management University of California, Santa Barbara.
4. Quale, John, Matthew J. Eckelman, Kyle W. Williams, Greg Sloditskie, and Julie B. Zimmerman. 2012. "Construction Matters." *Journal of Industrial Ecology* 16 (2).
5. New World Home. Accessed 5/24/2013. (<http://newworldhome.com>).
6. Blu Homes. Accessed 5/24/2013. (<http://www.bluhomes.com/>).
7. SmartHomze. Accessed 6/18/2013. (<http://www.smarthomze.com>).
8. Caufield, John. 2012. "Growth Ahead." *Builder Magazine*.
9. Wendt, A 2010, 'Bringing Green, Modular, and Historical Together', Environmental Building News, 19, 1, pp. 7-8, Environment Complete, EBSCOhost, viewed 29 May 2013.