

# Research & Development Summary



Value  
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Wood

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## Consumer Perceptions of Prefabricated Building Systems

The use of prefabricated construction (which includes panelized and modular buildings) has gone from 10% to 15% of all North American residential housing starts between 1997 and 2005 (*Figure 1*). Various trends are supporting the greater adoption of prefabricated buildings. Homebuilder consolidation, lack of labour, waste disposal issues, dissatisfaction with the quality of individual pieces of lumber, and greater use of roof and floor trusses are some of the issues that should encourage the greater utilization of prefabricated building systems.

The purpose of this project was to study consumer perceptions regarding manufactured building systems (i.e., prefabricated). Follow-up projects (discussed in the *Using this Information* section) have looked at the same issue from the perspectives of homebuilders and manufacturers.

The objectives of this project were to:

- Identify the advantages and disadvantages of various prefabricated systems and components as perceived by homebuyers
- Summarize homebuyer knowledge vis-à-vis materials and techniques used in residential construction
- Identify strategies which can improve market access of prefabricated building systems.

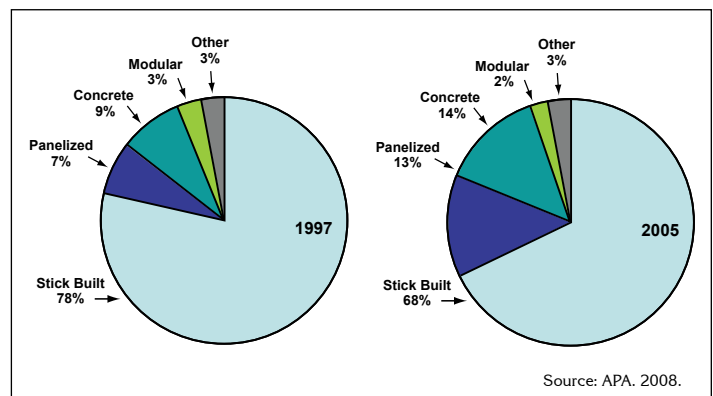


Figure 1: Construction methods used in North American housing (1997 and 2005).

## Results

Over 150 home show attendees were surveyed in New Jersey and Illinois (i.e., natural markets for Eastern pre-fabricated building manufacturers).

### Preferences

Most respondents (47%) preferred the site-built wood house versus alternative building techniques such as panelized (i.e., prefabricated) and modular construction. Modular construction was identified as the least preferred construction technique by more than 60% of all respondents (Figure 2). It is highly likely that familiarity played a key role in determining consumer preferences.

Survey participants were divided in their attitudes about prefabricated wood components. Indeed, when asked about their 'favourite' method, respondents indicated that prefabricated wood components were their second choice. However, when specifically asked to give their 'least favourite' method, respondents indicated that prefabricated wood components were their last choice, thus indicating a certain level of acceptance for the use of prefabricated wood components. Quality of construction (good or bad) was used to justify preferences for all techniques. Differences with regard to other advantages and disadvantages may be seen in Table 1. Other attributes that were commonly mentioned to justify preferences included flexibility (ability to customize), speed of delivery and cost.

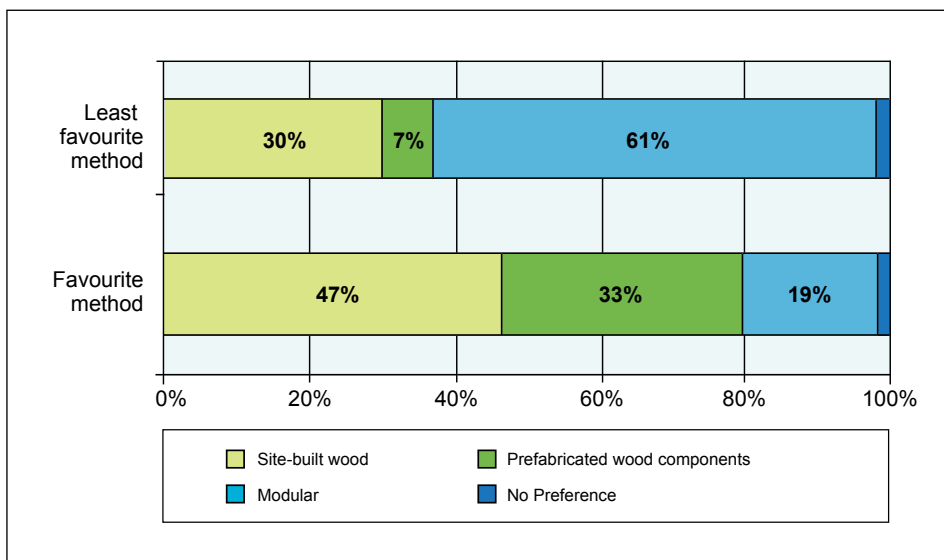


Figure 2: Home Show attendees' favourite and least favourite building methods.

Building Methods	Why Favourite Method?	Why Least Favourite Method?
Site-built wood	<ul style="list-style-type: none"> <li>Perceived quality of construction</li> <li>Flexibility, customization and options available</li> <li>Personal experience/familiarity</li> </ul>	<ul style="list-style-type: none"> <li>Too long to deliver</li> <li>Too expensive</li> </ul>
Prefabricated wood components	<ul style="list-style-type: none"> <li>Perceived quality of construction</li> <li>Fast delivery</li> </ul>	<ul style="list-style-type: none"> <li>Lack of confidence in materials, method, contractors, etc.</li> <li>Low quality of construction</li> </ul>
Modular	<ul style="list-style-type: none"> <li>Fast delivery</li> <li>Perceived quality of construction</li> </ul>	<ul style="list-style-type: none"> <li>Lack of confidence in materials, method, contractors, etc.</li> <li>Lack of customization and options</li> <li>Low quality of construction</li> </ul>

Table 1: Perceived positive and negative attributes associated with selected building methods.

### Attributes provided by building techniques

Respondents were asked to identify which building techniques were best suited to their needs and to provide eight different building attributes that could be used in future marketing efforts. Results indicate that homebuyers think:

- Prefabricated wood homes' main assets are delivery time, affordability and energy efficiency
- Site-built homes made of lumber provide superior freedom in design and prestige
- Steel is durable and provides structural integrity
- Concrete is durable and energy efficient.

## Attitudes with respect to building methods

Sixty-five percent of all respondents would not mind (i.e. would be open to), or would prefer, to live in a prefabricated house (*Table 2*) indicating a generally positive attitude towards prefabricated housing. Only 35% of respondents would 'never consider' or 'prefer not' living in prefab houses.

The survey also indicated that men tend to be more open to manufactured building systems than women.

A follow-up project dealing with homebuilders' acceptance of prefabricated wall panels helped identify five obstacles to the increased adoption of prefab. They are issues related to lack of familiarity, industry conservatism, cost perceptions, labour and technical issues (more detail can be found in the final report). Builders who were met during this project knew very little about prefabricated wall panels and, in many cases, had never heard from suppliers/manufacturers about these types of products. More often than not, homebuilders exhibited resistance to the use of prefabricated panels and this was especially true of the single-family custom segment.

Living in a prefabricated home is something I would ...	%	Gender	
		Male*	Female
... never consider doing	10	6%	20%
... prefer not doing	25	21%	37%
... not mind doing	43	48%	30%
... like doing	12	14%	7%
... only consider doing	10	11%	7%

\*Approximately two-thirds of the respondents were male.

**Table 2:** Consumers' attitudes regarding prefabricated homes.

## Using this Information

Given what was learned from these two studies, it is recommended that appropriate communications be developed for homebuyers and homebuilders. On the one hand, homebuyers need to be reassured about some of the perceived disadvantages of prefabricated construction. Familiarity with panelized and modular construction remains relatively low, consequently there are very few homebuyers asking for houses to be built using industrialized methods.

On the other hand, homebuilders need to be made aware of the tangible business advantages related to the use of industrialized construction methods. In order to do so, it is suggested that manufacturers/distributors of prefabricated housing look at market segments that lend themselves the most easily to prefab due to their repetitive aspect (spec homes, multi-family units and non-residential projects such as hotels and light commercial properties), and focus their communication efforts accordingly. Moreover, development opportunities could be investigated in the "big box" retail segment that is occupying more and more space in the construction industry. It is likely that these firms will be more inclined to look at the efficiencies offered by manufactured building systems.

## Implications for Manufacturers

This study shows that the limited adoption of manufactured building systems results not only from homebuyers' negative attitudes towards prefab, but also from homebuilders' lack of knowledge. This study demonstrates that homeowners are relatively open to manufactured housing. They see some of the advantages offered by panels and modular construction, namely speed of delivery, affordability and energy efficiency. Commonly cited perceived disadvantages include lack of flexibility/freedom in design, prestige and durability. While it is clear that homebuyers could benefit from more education on prefab products as well as their performance with respect to each of these attributes, the study indicated that some of the key obstacles limiting prefab adoption do not reside with homebuyers. Communication efforts targeting homebuilders as well as homebuyers may help address these obstacles.





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- Canada Mortgage and Housing Corporation (CMHC)

Full reports are available from the *Value to Wood* website ([www.valuetowood.ca](http://www.valuetowood.ca)).

### For further information contact:

Patrick Lavoie  
FPIInnovations – Forintek Division  
Markets and Economics Group  
Tel: 418 659-2447 ext. 3106  
Email : [patrick.lavoie@fpinnovations.ca](mailto:patrick.lavoie@fpinnovations.ca)

*Ce Sommaire de recherche et développement est également disponible en français.*

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### To obtain the full report, contact:

Helen Ramsay  
FPIInnovations – Forintek Division  
Western Region  
[publications.forintek@fpinnovations.ca](mailto:publications.forintek@fpinnovations.ca)  
Tel: 604 224-3221  
Fax: 604 222-5690

Marielle Martel  
FPIInnovations – Forintek Division  
Eastern Region  
[publications.forintek@fpinnovations.ca](mailto:publications.forintek@fpinnovations.ca)  
Tel: 418 659-2647  
Fax: 418 659-2922