

North American-Style 2x4 Technology Transfer in Japan

Japan, a major market for North American forest products exporters, is the primary export destination for U.S. wood products and the second largest export market for Canada (following the U.S.). The Japanese residential construction industry is the main driver of forest products exports to Japan. In 1997 there were 1.4 million residential housing units built in Japan compared to 1.5 million units in the U.S. Within the residential construction industry, the North American-style 2x4 house has been rapidly growing at double-digit rates over the past 10 years and 2x4 housing starts now represent 13% of wood housing starts, and 5.7 % of total housing starts. In the future, the 2x4 segment of the residential housing market is expected to experience positive growth. A University of Washington Center for International Trade in Forest Products (CINTRAFOR) research project identified and assessed technology transfer strategies used by North American companies.

Background

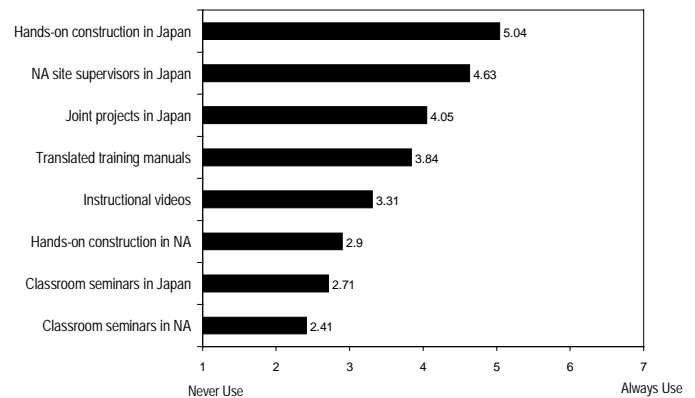
Despite the strong performance of North American-style 2x4 homes in Japan, there is a growing consensus that Japanese construction professionals often do not understand North American-style 2x4 construction technology. For example, previous CINTRAFOR research found that differences in construction technology in foundations, structural framing, drywall finishing, finish carpentry, labor specialization, and project management resulted in increased construction costs and time and detracted from the overall quality and long-term performance of the house.

Recognizing the important links among housing quality, long-term performance, and home owner satisfaction, a growing number of North American manufacturers and exporters have begun to assist Japanese construction professionals (contractors and architects) in 2x4 construction technology. This technical assistance includes appropriate construction techniques that will increase the quality of North American-style 2x4 homes in Japan.

Research Project

A CINTRAFOR research project identified the types of technology transfer strategies used by North American companies, assessed which strategies are perceived to be most effective, and determined how 2x4 technology transfer programs can most effectively be targeted and delivered to Japanese construction professionals. Identifying the most effective 2x4 technology transfer strategies should assist North American building materials manufacturers and exporters to develop and implement technology

Strategies Used by North American Firms to Promote 2x4 Technology Transfer in Japan



transfer programs that improve the quality and long-term performance of North American-style 2x4 homes built in Japan.

The project included a census of U.S. and Canadian companies involved in North American-style 2x4 construction projects in Japan. A total of 191 U.S.-based and 79 Canadian-based companies were mailed a four page survey regarding technology transfer to Japan. The adjusted response rate for US and Canadian companies was 47.5% and 58.2%, respectively, providing an overall response rate of 51.5%.

A majority of respondents (64%) were primary managers of their companies. Most of the respondents were building products consolidators and the majority of respondents had less than \$5 million in sales in 1997. Finally, the majority of respondents derived over half of their sales from Japan, and the most common source of contracts was subcontracting from another company.

Respondents indicated that the overall quality of 2x4 homes built by Japanese construction professionals was average when compared to 2x4 homes built in North America. Respondents also indicated that the structural quality of 2x4 homes built in Japan was slightly higher than average but that the quality of the design was significantly lower than in North America.

When asked to assess the level of understanding that Japanese construction professionals possess with respect to 14 individual components of the North American-style 2x4 construction technology, respondents indicated that Japanese construction professionals have the weakest understanding of drywall, ventilation, and architectural design. One-fifth of respondents noted that Japanese construction professionals had the weakest understanding in the area of structural design. In contrast, survey respondents felt that Japanese construction professionals have a good understanding of interior carpentry, roofing, flooring, doors, windows, exterior finishing, and weather-proofing.

Respondents were asked to identify the topics they emphasize when providing technical assistance to Japanese construction professionals. The results indicate that with the exception of foundation and roof construction, North American companies emphasize all construction components in their technical assistance programs.

The overwhelming majority of respondents indicated that continued efforts to promote 2x4 construction technology are important, with approximately two-thirds stating that it was very important. When asked to identify what types of strategies they employ to train Japanese construction professionals, respondents indicated that North American companies most commonly conduct hands-on training in Japan and employ North American site supervisors in Japan. In contrast, the least used strategies were instructional videos, hands-on training in North America, and classroom seminars. Approximately one-fifth of respondents indicated that they favored hands-on training on the construction site over all other approaches.

Finally, respondents indicated that North American construction companies, North American building products exporters, and Japanese construction companies were perceived to be most effective in providing technology training to Japanese construction professionals, with just over 25% of respondents favoring North American construction companies. In contrast, the least effective organizations in conducting technology transfer programs were Japanese building products suppliers and both North American and Japanese colleges.

The survey shows that North American manufacturers and exporters of wood building materials consider technology transfer programs to be very important to the continued success of 2x4 housing in Japan. To ensure that the structural integrity of North American-style 2x4 homes in Japan is not compromised by incorrect use of North American-style 2x4 construction technology, it is imperative that Japanese builders and carpenters are properly trained in 2x4 construction technology.

Conclusion

Given Japanese expectations of high quality, the long-term growth potential of the 2x4 market is dependent on maintaining the quality of North American-style 2x4 houses in Japan. From a marketing perspective, quality is more important than low price in Japan, and every effort should be made to ensure that North American-style 2x4 construction technology is implemented correctly by Japanese contractors. Failure to ensure correct transfer of North American-style 2x4 construction technology will contribute to a perception by Japanese home buyers that 2x4 housing is poor quality and will undermine efforts by North American companies and industry associations to further develop this growing segment of the Japanese housing market.

Contact:

CINTRAFOR
University of Washington, College of Forest Resources
Seattle, Washington 98195-2100
Phone: (206) 543-8685; Fax (206) 685-0790
<http://www.cintrafor.org>