CINTRAFOR

FACT SHEET

MATERIAL SUBSTITUTION TRENDS IN RESIDENTIAL CONSTRUCTION, 2001 VS. 1998.

This represents the third survey in an ongoing assessment of material substitution in the residential housing market. Since 1995 the Center for International Trade in Forest Products (CINTRAFOR) has been measuring builders' perceptions and usage of various softwood lumber substitutes. This year's survey followed the format of previous surveys except for the addition of a structural panel usage section.

The sample frame for this survey consisted of 2,400 builders distributed evenly across the United States. In addition, a census of the top 100 builders as reported in builder magazine was sampled. Out of the 2,500 builders included in the sample frame, a total response rate of 9% was obtained. Top 100 builders yielded a 15.3% response rate and the general 2,400 firms yielded an 8.7% response rate. Respondent builders were somewhat evenly distributed across region and firm size, though the northwest did seem to be over represented.

A general trend of increasing firm size was observed in the general sample and in the top 100 census. Many literature sources cite mergers and acquisitions as the source of most of this growth coupled with the robust housing market. In addition, large and top 100 firms have increased their share of the single family housing market while small firms' share has decreased. Small firms reported a higher percent of revenue coming from repair and remodeling than any other sector and are the dominant players in that growing market. This shift may have been the result of the increasing competition in the single family home market were the low cost leaders are the larger firms.

An increasing percentage of builders report using each substitute product included in this study. Furthermore, builders are reporting an increase in the amount of each substitute product used. Specifically, wood I-joists continue to replace softwood lumber in floor framing. However, lumber has held its ground somewhat in this study compared with previous results. The percentage of softwood lumber used to frame roofs and walls was nearly identical to that of the 1998 survey. Most of this stabilization can be attributed to builders increased satisfaction with the price of lumber.

The importance rankings of 13 attributes considered when purchasing softwood lumber were the same as the 1998 and 1995 studies and show consistent purchase decision criteria. The satisfaction ratings in this years survey were generally higher than those same ratings in 1998. Just as in previous surveys a gap analysis was performed to highlight the largest differences between importance and satisfaction scores. This analysis showed that builders were most dissatisfied with the most important attributes. Though builders were substantially more satisfied with the price attributes, the quality attributes of softwood lumber still represented the largest gaps. Therefore, the value of lumber is still perceived as low in the minds of builders and will be subject to increasing substitution if the currently low timber prices increase over time.

The environmental performance of softwood lumber was perceived to decline since the 1998 study. In this survey, all wood and non-wood substitutes were perceived as more favorable than softwood lumber with respect to environmental performance. Even though there is current research to show otherwise, builders seem to identify softwood lumber as the least environmentally friendly building product. In 2001, environmental performance was identified as the least important attribute included in the study. However, if green building programs and other incentives take hold and builders begin to employ more green marketing, solid lumber would be at a disadvantage.

Builders were asked to rate each of 19 structural panel attributes for floor, wall, and roof sheathing. The ratings were similar for each application with some intuitive differences. Overall the delamination, quality, swelling (edge and thickness), and deflection were identified as the most important attributes. The larger builders rated price higher in every application than the smaller firms but generally that was the only firm size difference.

In addition to the importance ratings, builders were asked to compare OSB and plywood on each of the attributes included in the importance rating section. OSB was identified as better in price and delamination attributes and plywood was identified as better in deflection and swelling (edge and thickness) characteristics. The interesting note here is that plywood was better in four of the five attributes rated as most important by participants of this study.

When measuring the usage of structural panels, OSB was the clear winner. In every category OSB usage was increasing while plywood usage was decreasing. This substitution is thought to be driven mainly by price even though builders do not rate price as the most important attribute. OSB already accounts for 70% of wall sheathing, 60% of roof sheathing, and 45% of floor sheathing. Plywood is still superior to OSB in the performance attributes but OSB has a decided cost advantage. Small firms reported using the most plywood while larger firms were using the most OSB.

In order to consolidate the importance and satisfaction rating sections of the softwood lumber and structural panel sections, factor analyses were performed. The results of the softwood lumber importance ratings were very similar to those of previous studies. For satisfaction, quality attributes were identified as the factor that received the lowest satisfaction score. A factor analysis of structural panels resulted in two factors: value and convenience, with value receiving the highest importance scores.

To summarize, virtually all builders have some contact with substitute materials. Although this study found a slight stabilization in softwood lumber substitution this was mostly due to the low price of lumber and could easily reverse if lumber prices increase. The clear cost advantages of OSB will help it to continue gaining market share in the residential (especially single family) housing market. Plywood is still perceived as superior in performance and is used most by the smaller builders who are currently receiving most of their revenue from the repair and remodeling sector. In addition to all of this, the environmental performance of solid lumber is perceived to be low and is getting lower. There is research currently available that shows lumber to be the clear environmental winner compared with non-wood substitutes but as of yet this information has not changed builders' minds.