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POTENTIAL FOR INCREASED TREATED WOOD PRODUCTS USAGE IN U.S. SOUTH RESIDENTIAL CONSTRUCTION

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Extended Abstract[1]

The potential for the use of treated wood products in construction is considerable, primarily in the U.S. South for termite protection and to mitigate moisture related decay. It has been estimated that damage to wood structures by termite damage in the U.S. is $2 billion annually (USDA Forest Service, 2002). While treated southern yellow pine products (SYP) constitute the bulk of treated wood species inputs (44% of all SYP is currently treated), the potential size of this end-use market suggests that the South may not have the capacity to be self-sufficient. Further, in certain construction end-uses, particularly wall framing, builders prefer spruce-pine-fir (S-P-F), Douglas-fir and hem-fir.

Unlike Hawaii, where the use of pressure treated wood framing lumber and panels is the norm, market penetration of such products is not high in the U.S. South. It is estimated that the use of treated SYP in residential framing totalled 615 million board feet in 2002 (Southern Forest Products Association). By comparison, the potential treated construction lumber market for the U.S. South new residential construction alone is roughly 7 billion board feet annually. This assumes that this region transitions to complete termite protection of all wood members.

Research Objectives

1. To discern attitudes and buying/selling patterns for treated wood for home framing;
2. to document reasons for the lack of specification of treated wood for home framing in the U.S. South.

[1] Reprinted from Vlosky, R. and C.W. Gaston. March 31, 2004. *Potential for Increased Treated Wood Products Usage in U.S. South Residential Construction*. Forintek Canada Corp. report produced as part of the Value to Wood Program, funded by Natural Resources Canada. 43 pages plus appendices.

Highlights of the study include:

- The three most important homeowner purchase criteria of buying a home are, in order, cost of the house, energy efficiency and structural resistance to wood destroying insects. For home builders/remodelers, this varied considerably, with the ordered importance of criteria being structural resistance to wood destroying insects, structural resistance to decay and cost of the house.
- Resistance to wood destroying insects was listed as the most important criteria in building material purchase decisions. This was over effective years of service, low maintenance, health risks from material exposure, or cost.
- Treated lumber was believed by homeowners and builders/remodelers to be less harmful to the environment than plastic or steel.
- 9% of homeowners and 7% of builders/remodelers believed that untreated lumber in outdoor use would last more than 10 years; yet 79% of homeowners and 92% of builders/remodelers believed that treated lumber in outdoor use would last more than 10 years.
- 43% and 41% of homeowner and builder/remodeler respondents, respectively, stated they had an extremely positive perception of treated wood products.
- 31% of homeowner respondents stated that they currently have treated wall/roof/floor framing in their homes (possibly/likely sill plates). 70% of builders/remodelers stated that they have used treated lumber in wall/roof/floor framing in the homes they built or remodeled.
- 54% of homeowner respondents believe that treated wood is appropriate for new home wood framing, and 49% for remodelling. The respective numbers for builders/remodelers surveyed are 49% and 47%.
- 12% of homeowners and 38% of builders/remodelers, respectively, were familiar with borates as a lumber preservative.
- 81% of builders/remodelers did not have any concerns about building or remodelling a house that is fabricated in part with treated wood. Of those that did have a concern, cost was most cited.
- When asked if some types of treated wood are safer than others, 22% of homeowners said yes, 9% no, and 69% unsure. The numbers for builders/remodelers are 26%, 20% and 54% respectively.
- 41% of homeowners either somewhat or strongly agree that with proper use, handling and disposal, treated wood is entirely safe to residents for indoor applications. Only 27% of builders/remodelers somewhat or strongly agree. 32% of both homeowners and builders/remodelers neither agree nor disagree.
- 64% of homeowners stated that they somewhat or strongly believe that treated wood is an acceptable material for use in home construction framing, and 69% somewhat or strongly agree that they would frame their house with treated wood if it was certified as safe. This small difference suggests that certification is not likely to be needed.
- 34% of homeowners strongly agreed and 19% somewhat agreed that they would like more information on proper use, handling and disposal of treated lumber.
- 62% of homeowners somewhat or strongly agreed to their willingness to pay a price premium for treated over untreated lumber. Only 24% of builders/remodelers stated that they would not specify treated lumber if they had

to pay a price premium.

- When asked about the effectiveness of various practices on protecting a house against termites, 60% of homeowners stated that treated wood strongly or greatly protects against termites, compared to 17% for preservative surface sprayed wood. The comparable percentages for builders/remodelers are 76% and 12%, respectively.
- 34% of the homeowner respondents said that they have experienced termite damage to their homes, and 88% have taken action to prevent attack by some means.

Homeowners and builders/remodelers were surprisingly positive to the use of treated framing lumber and panels for home framing. Homeowners are also prepared to do something to prevent damage without having to suffer termite damage to their homes first. Given what we know about the low level of treated product usage for this purpose this result would strongly suggest that we will witness an increase in treated wood in indoor/framing applications. In effect, the homeowner and builder/remodeler 'attitude is possibly ahead of behaviour'.

There are a number of factors that are likely to contribute to the lack of more significant use of treated framing materials in new home construction and renovations. These include:

- Builder/remodelers have an unrealistically low perception of the importance of insect resistance as homeowner purchase criteria for buying a home.
- Cost of treated versus non-treated building materials. While it was discovered that homeowners and builders/remodelers are willing to pay a premium for treat wood, further investigation needs to be done on the extent of this willingness to pay. This is possible to do with surveys but requires more sophisticated market research and econometric techniques.
- Further, cost needs to be tied to the end-use in terms of long-term cost of treated wood (i.e. factoring in a decline in termite damage). In terms of initial costs, it has been estimated that a treated wood framing package costs on average US$19,500 for a 2000 square floor house, as compared to US$16,000 for non-treated framing package (Shupe *et al*., 2000). Has the $3,500 difference dissuaded its use in spite of expected savings in reduced damage?
- Related is the cost of treated wood products compared to alternative protective treatments, such as spray treating homes, baiting, etc. The good news here is that study results indicate a strong belief in the effectiveness of pressure treated wood. However, as was the case with treated wood, fumigation and soil pesticides also scored favourably by respondents.

There is no question from the results of this study that education of homeowners would be beneficial. Only 53% of respondents believe they understand the concept of wood treating and a high percentage would like more information on proper use, handling and disposal of treated lumber. However, education of builders/remodelers in the importance of insect resistance to homebuyers is also warranted.

From the treated wood manufacturer point of view, results suggest that treated wood brand recognition is very low for homeowners, and that the level of trust regarding the responsibility of providing builders, remodelers and consumers with treated wood product safety and handling information is not high. Improvements here could go a long way in increasing market penetration of treated wood compared to alternatives such as regular fumigation or alternative building materials.