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Economic Environment

"Engineered Wood Products: A North American Phenomenon" by Al Schuler

The future of Engineered Wood Products (EWP) seems to be extremely promising for many compelling reasons, some of which will be discussed in this issue. In this article, we will focus on structural EWPs such as MSR, FJ lumber, OSB, I-Joists, LVL, PSL/Parallam—parallel strand lumber, LSL/TimberStrand—laminated strand lumber, glulams and metal plate connected wood trusses. There are two key forces driving demand for EWPs in North America: our preference for wood frame construction which accounts for about 90 percent of new homes built annually; and the changing nature of our softwood fiber supply. In essence, America's construction industry faces the increasingly challenging task of building 1.5 to 2.0 million quality homes annually while the quality of some conventional building materials is becoming suspect. (See Figure 1.)

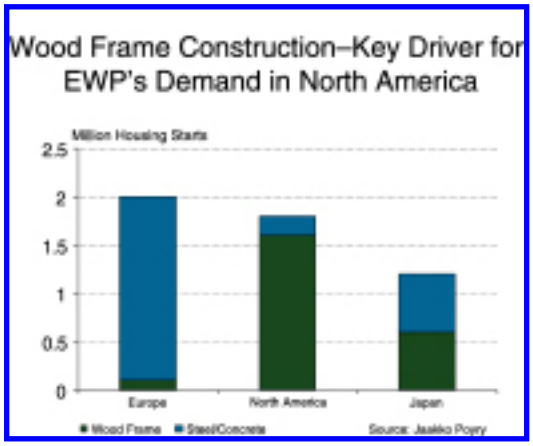

FIGURE 1
CLICK ON IMAGE FOR LARGER VIEW

Lumber prices and volatility increased substantially in the '90s as the wood products industry struggled with a dramatic reduction in availability of old growth softwood fiber from public timber supplies in the Western U.S. and Canada. As noted by Stephen Smulski (Editor-in-Chief, Engineered Wood Products, PFS Research Foundation), we are now harvesting second and third growth forests at shorter rotations thus yielding smaller diameter trees with more juvenile wood and more knots. Smulski contends that the lumber and many other wood products produced from the "younger forest" generally have diminished strength properties and poorer service performance. How-ever, two related but separate events—adoption of performance based building codes in the '80s, and rapid changes in

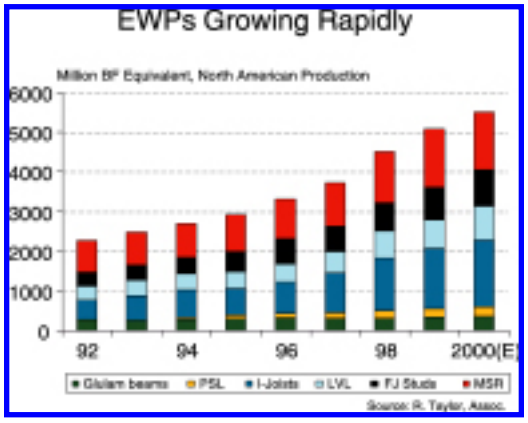

FIGURE 2
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resin technology in the ‘80s and ‘90s—helped EWPs to tap into opportunities offered by the availability of vast volumes of under-utilized, fast growing, low value trees (both hardwoods and softwoods). Furthermore, new conversion technology has allowed the industry to transform, what were formerly “weed species,” such as aspen, red maple and various gums to name a few, into engineered wood products with superior performance properties.(See Figure 2.)

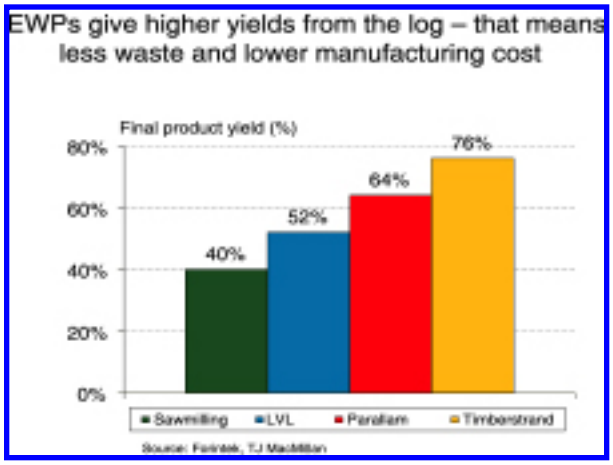

FIGURE 3
CLICK ON IMAGE FOR LARGER VIEW

EWPs have two major efficiency related advantages that would seem to enhance their continued growth in residential and nonresidential applications:

- Uniform strength properties enhance design values thus favoring new applications (open space/wider spans) and more efficient design in existing end uses. For example, the metal plate connected wood truss utilizing MSR chords, uses almost 25 percent less lumber to frame a roof compared with conventional roof framing technology. In addition, wood I-Joist floor systems save an even greater volume of wood fiber compared with 2x10 systems. In addition, both of these EWPs exhibit labor saving efficiencies and enhanced service performance.
- More efficient conversion technology allows higher product yield from the resource. Furthermore, reduced price volatility appeals to many buyers, particularly large production builders who pre-sell many of their homes. (See Figure 3.

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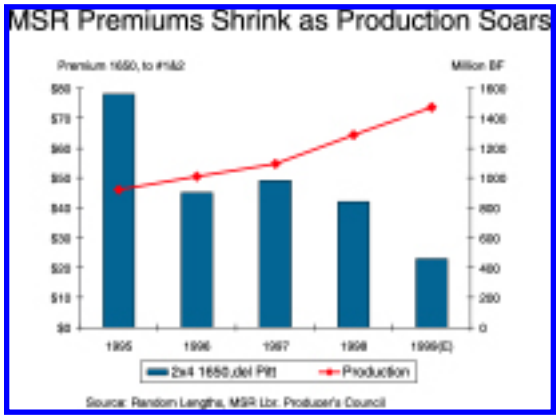

FIGURE 4
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EWPs are not without their problems. Because they are relatively new and industry capacities are small, there has been the potential to add capacity too quickly. For example, MSR premiums increased substantially during the mid-90s in response to strong housing sector demand. However, production increased faster than the market could absorb, and premiums pulled back quickly. (See Figure 4.) Likewise, OSB capacity increased about 67 percent between 1994 and 1997 resulting in a price slide of 45 percent. After prices fell from $264/M in 1994 to $143/M in 1997, it took two years to return to 1994 levels.

CONCLUSIONS

EWPs provide the wood products industry with a formidable advantage that will only solidify wood's prominence in residential construction. Perhaps, just as important, their superior performance properties (including better predictability), combined with limits states design software and added awareness of wood's inherent advantages (e.g. renewability), could provide the impetus to more fully penetrate nonresidential building construction markets. The Wood Products Council sponsored a study in 1995 that suggested the potential additional use of 6.0 BBF of lumber and 6.0 BSF structural panels in U.S. nonresidential construction. We will tackle that subject in another issue. Finally, although structural EWPs are primarily a North American phenomenon, there are opportunities in Japan and, to a lesser extent, Europe.

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