

TECHLINE

Timber & Fiber Demand and Technology Assessment

Demand for Engineered Wood Products

The timber resource in the United States is changing. Available timber is smaller in diameter and lower in quality than in the past; and previously undesirable species are now being used. During 1998, approximately 505 million cubic meters of roundwood was required to produce the wood and fiber products consumed in the United States. This level of consumption, the highest ever reached in the United States, resulted in a rapid and sustained increase in the cost of timber and a shift from solid-sawn to engineered wood products. Following is a discussion of some engineered wood products along with a table showing the types (size and species) of timber used to produce these products.

Softwood Plywood

Twenty-nine Coastal mills (defined as west of the Cascade Mountains) operating in 1998 had a combined annual capacity of 4.1 million cubic meters, about 50% of the 1965 capacity. The number of operating mills was about one-fourth that in 1965. The Inland industry (east of the Cascades) had a capacity estimated at 2.2 million cubic meters, down 10% from 1965. However, the 14 operating mills in 1998 represented only one-third the number of those operating in 1965. Most of the decline in the Coastal softwood plywood industry is directly attributable to reductions in timber availability, log size, and quality. Southern Pine plywood mills numbered 56 in 1998 and had a combined annual capacity of 12.3 million cubic meters. Unlike the Coastal situation, the industry in the South has always relied on small-diameter logs from private lands for its resource.

Oriented Strandboard

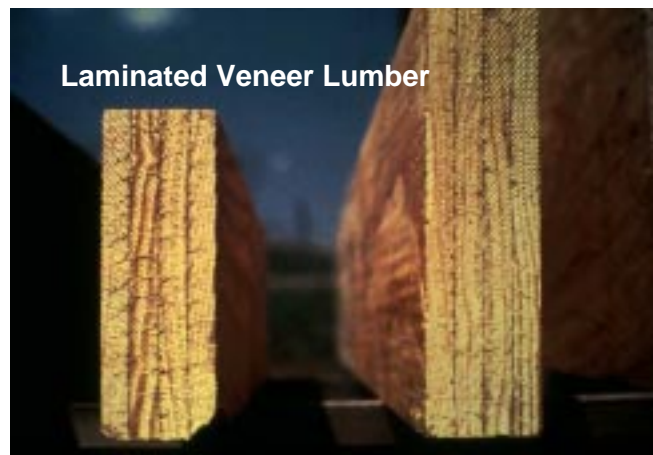
Oriented strandboard (OSB) is a structural panel made from small-diameter softwoods and previously underutilized hardwoods. OSB capacity has expanded rapidly as a result of harvest restrictions on West Coast timber. A total of 69 OSB mills were in operation during 1998, having a combined annual capacity of 18.1 million cubic meters.

Laminated Veneer Lumber

Laminated veneer lumber (LVL) is a structural composite lumber product made by adhesively bonding thin sheets of wood veneer oriented with the grain parallel in the long direction. Primary uses include headers, beams, rafters, and flanges for wood I-joists. The annual capacity of the 18 North American LVL plants in 1998 was 1,700 cubic meters, more than twice the 1990 capacity. The number of mills increased by nearly 65%. Sizes and species of timber used to produce LVL are the same as those for softwood plywood, with small amounts of soft hardwoods (for example, yellow poplar and soft maple) also being used.

Glued-Laminated Lumber

Glued-laminated lumber (glulam) is an engineered product made by gluing together 50-mm (2-in.) or thinner pieces of lumber. North American glulam production in 1998 was 550 thousand cubic meters, about 5% below 1990 production levels. Log sizes in all regions are declining.



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Prefabricated Wood I-Joists

Wood I-joists are structural members composed of an OSB or plywood web and two LVL, oriented strand lumber, or solid lumber flanges. Wood I-joists are the newest and fastest growing engineered wood product, partially due to the declining availability of high-quality, large-dimension lumber for which it substitutes. The 41 North American wood I-joist plants operating in 1998 had an annual capacity of 375 thousand linear meters, more than three times the 1990 capacity. The number of plants more than doubled. Because wood I-joists are typically made from two engineered wood products (OSB or softwood plywood and LVL or OSL), timber requirements for wood I-joists are reflected in the requirements for their component parts.

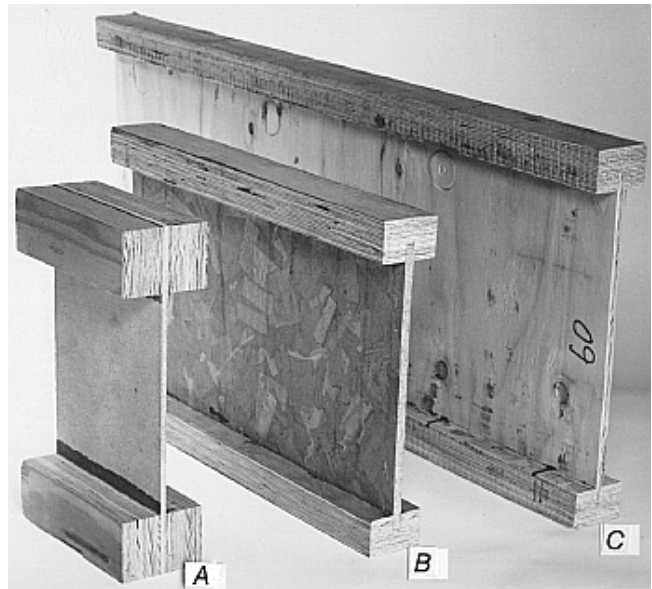
Summary

The changing timber resource has increased the demand for engineered wood products, which are better able to use the available timber resource. This includes the use of smaller diameter, lower quality logs and the use of previously underutilized species for an overall wood fiber savings.

Timber species and average diameters^a used for engineered wood products

Region/product	Commonly used species	Average diameter (mm (in.))
WEST		
<i>Coastal</i>		
Plywood	Hem-Fir	305 (12)
LVL	Same as plywood	305 (12)
Glulam	75% Douglas-fir; 25% Hem-Fir	455-610 (18-24)
<i>Inland</i>		
Plywood	Douglas-fir; western larch	405-510 (16-20)
OSB	Lodgepole pine	250-305 (10-12)
LVL	Same as plywood	
Glulam	Inland Douglas-fir	455-610 (18-24)
SOUTH		
Plywood	Southern Pine	305 (12)
OSB	Southern Pine; soft hardwoods	205 (8)
LVL	Same as plywood	305 (12)
Glulam	Southern Pine	150 (6)
NORTH		
OSB	Aspen	150-305 (6-12)
Glulam	Southern Pine	405 (16)

^aAverage diameters are based on general industry observations. Diameters used by individual mills or companies may vary.



Prefabricated I-joists with laminated veneer lumber flanges and structural panel webs. (A) One experimental product has a hardboard web. The other two commercial products have (B) oriented strandboard and (C) plywood webs.

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