Chapter 11
Secondary processed wood products markets[1], including engineered wood products[2]

Highlights

- *World trade of secondary processed wood products is expanding at a faster rate than trade in primary wood products.*
- *United States, Germany, France, United Kingdom and Japan account for 60% of world imports of secondary processed wood products.*
- *Changing import supply patterns to these markets differ by product and by country.*
- *Imports of secondary processed wood products from tropical producers are replacing primary product imports from these producers.*
- *Comparative advantage in the manufacture of secondary processed wood products is likely to shift increasingly to regions with low production costs.*
- *Engineered wood product markets are gaining market share in North America; for example, 33% of wood floor area is now built with wooden I-beams.*
- *North American glulam production increased by 14% in 2000.*
- *Laminated veneer lumber (LVL) production in North America declined by 6% in 2000.*
- *The value of world trade in wooden furniture ($29 billion) exceeds that of sawnwood ($25 billion) and wood-based panels ($16 billion).*

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Secretariat introduction

This chapter is included in the Review in a continuing effort to analyse the markets for secondary processed wood products. It is divided into two sections: secondary processed wood products and engineered wood products.

The secretariat would like to thank Dr. Roger Cooper, Head of Department, Forest Products Marketing, University of Wales, Bangor and Ms. Stella Xenopoulou, Consultant, Wood and Furniture Industry Consultants, Dublin, Ireland for analysing the market developments for secondary processed wood products. The following analysis is a good indication of the demand for primary forest products, specifically sawn hardwood and softwood, as well as wood-based panels. Their work follows the initial work done by Mr. Pierre-Marie Desclos in the Review 1999-2000 and a subsequent Geneva Timber and Forest Study Paper. While the Joint Forest Sector Questionnaire, upon which most of the statistical analysis in other chapters is based, now includes a questionnaire on secondary processed products, the responses in the first two years of its existence do not provide a sufficient basis for analysis. Therefore COMTRADE[3] was used again, like last year, as the database, hence the difference in periodicity (most current statistics being 1999).

Mr. Craig Adair, Director, Market Research, APA-the Engineered Wood Association and Dr. Al Schuler, Research Economist, United States Department of Agriculture, Forest Service, have updated their more lengthy analysis published in the Review 1999-2000 in order to show the important market developments for engineered wood products. The secretariat sincerely appreciates that Mr. Adair and Dr. Schuler have analysed the markets and shown that engineered wood products elevate wood use to higher performance and make efficient use of the wood resource. Although UNECE/FAO does not collect statistics on engineered wood products, these value-added products are increasingly traded internationally and used in residential and non-residential construction. As noted in chapter 4 on demand drivers for Japanese wood markets, and again in sawn softwood, the engineered wood products and their component products are key components of the sawnwood and wood-based panels demand equation.

11.1 Introduction

Over the last 10 to 15 years many countries have pursued economic development policies of exporting secondary processed wood products (SPWPs) (e.g. furniture, joinery and shaped wood) in place of the raw material (logs) and primary products (rough sawnwood). These policies have been implemented by banning or placing quantitative limits on log and sawn timber exports, imposing export taxes on commodity exports encouraging inward investment in the manufacturing industries and by modifying concession agreements to include requirements for downstream processing.

Partly as a result of these policy initiatives, world trade in SPWPs expanded more rapidly than trade in primary wood products during the 1990s. Over the five years 1994 to 1999, world imports of primary wood products (logs, sawnwood, wood-based panels and pulp and paper) grew by 14% while imports of SPWPs rose by 54%.

This chapter first reviews the growth in trade in SPWPs over the 1994 to 1999 period, concentrating on three product groupings: wooden furniture, builders' carpentry and joinery and shaped wood. Specifically it: identifies the major world importers of these products and their changing significance; and analyses the patterns of import supplies to the five largest UNECE markets for each of the three product groups.

Secondly, it presents a brief analysis of the changing balance of primary and secondary products exports from tropical countries. Lastly, it analyses the developments in the markets for engineered wood products.

11.2 Imports of furniture, builders' carpentry and joinery, and shaped wood

These three product groups were selected as they comprised the highest value of SPWPs imports by UNECE countries in 1998 (excluding miscellaneous products)(Desclos, 2000). COMTRADE statistics for furniture, builders' carpentry and joinery and shaped wood were used in the analysis (table 11.2.1).

[3] *UN trade database showing trade by direction for over 100 countries since 1960s for all SITC and HS codes. Based on national customs statistics.*

TABLE 11.2.1

Products covered and their COMTRADE codes

	Code
Seats with wooden frames, upholstered	940161
Seats with wooden frames, other	940169
Wooden furniture of a kind used in offices	940330
Wooden furniture of a kind used in kitchens	940340
Wooden furniture of a kind used in bedrooms	940350
Other wooden furniture	940360
Parts of furniture	940390
Builders' joinery and carpentry of wood, including cellular wood panels, assembled parquet panels, shingles and shakes	4418
Wood (including strips and friezes for parquet flooring, not assembled) continuously shaped (tongued, grooved, rebated, chamfered, V-joined, beaded, moulded, rounded or the like) along any of its edges or faces, whether or not planed, sanded or finger-jointed	4409

Source: COMTRADE, 2001.

11.3 Major importers

In 1999 the United States imported the greatest value of each secondary processed wood product analysed in this chapter. However, in 1994, other countries imported more of certain products, as shown by world import values of the five largest importers of SPWPs in 1999, their shares of world imports in 1994 and 1999 and world import values (tables 11.3.1, 11.3.2, 11.3.3 and 11.3.4).

Sixty per cent of world imports of these products are concentrated in the five leading importing countries: United States, Japan, Germany, France and the United Kingdom. This is a higher concentration than for primary products, where the five leading importers account for 44% of world imports.

The United States dominates world imports of SPWPs, with shares ranging from 27% to 32%. The strength of the United States economy in the late 1990s compared with Europe and Japan led to substantial increases in the United States import shares across all product categories and the value of imports of all SPWPs more than doubled from $5 billion to $11 billion over the period. Japan, Germany and France lost ground in terms of their import shares while the United Kingdom maintained its position.

Of the three product groups, furniture clearly dominates world trade in SPWPs, accounting for 75% of the total. It is notable that the value of world trade of wooden furniture at $29 billion exceeds that of sawnwood ($25 billion) and wood-based panels ($16 billion). World

TABLE 11.3.1

Importers of selected SPWPs, 1994 and 1999.

Country	% of world imports	
	1994	1999
United States	20	29
Germany	20	13
United Kingdom	6	6
France	8	6
Japan	7	6
Total five countries	61	60
WORLD IMPORTS (billion $)	24.5	37.7

Note: Total of three product groups

Source: COMTRADE, 2001.

TABLE 11.3.2

Imports of furniture, 1994 and 1999

Country	% of world imports	
	1994	1999
United States	21	29
Germany	19	13
France	9	7
United Kingdom	6	6
Japan	7	5
Total five countries	62	60
WORLD IMPORTS (billion $)	18.6	28.8

Source: COMTRADE, 2001.

TABLE 11.3.3

Imports of builders' carpentry and joinery, 1994 and 1999

County	% of world imports	
	1994	1999
United States	14	27
Germany	30	17
Japan	6	7
United Kingdom	7	7
Austria	6	4
Total five countries	63	62
WORLD IMPORTS (billion $)	3.9	6.0

Source: COMTRADE, 2001.

TABLE 11.3.4

Imports of shaped wood, 1994 and 1 999

Country	% of world imports	
	1994	1999
United States	23	32
Japan	13	9
Canada	5	6
Italy	7	6
United Kingdom	5	6
Total five countries	53	59
WORLD IMPORTS (billion $)	2.0	2.8

Source: COMTRADE, 2001.

trade in these products is also increasing at a much faster rate than primary wood products. Over the five year period world imports of furniture and joinery grew by 55% and shaped wood by 37% compared with increases for sawnwood of 1% and wood-based panels of 13%.

11.4 Import trade flows

11.4.1 Furniture

This brief analysis aggregates the various sub-components of wooden furniture mentioned above in table 11.2.1 and it should be pointed out that there may be substantial differences in the product mix of individual importing and exporting countries. In 1999, the 5 major importers of furniture are, in descending order: United States, Germany, France, United Kingdom and Japan (table 11.4.1).

The import supply pattern for European countries contrasts strongly with the United States and Japan. Europe's imports are drawn overwhelmingly from within Europe (eastern and western) while 60% of United States imports come from outside the North American continent, mainly from Asia and Europe. Japan is predominantly supplied from Asia followed by Europe, and the United States and Canada are minor suppliers in contrast to their high export shares for sawnwood.

Italy is the largest exporter of furniture worldwide, and the western European supplier to the three leading European importers—Germany, France and the United Kingdom—and other major suppliers are Denmark, Spain and Germany. Eastern European sources, principally Poland, account for one third of German imports.

The fastest growth in import supplies over the 1994 to 1999 period has come from countries where there has been substantial European, North American and Japanese investment in furniture production e.g. Poland, the Baltic States, Malaysia, Indonesia, China, Brazil and Mexico. The importance of these new furniture exporting countries is likely to grow in the future.

11.4.2 Builders' carpentry and joinery

The main products within this classification are windows, doors, parquet flooring and formwork. As with furniture there are important differences in the product mix for individual importing and exporting countries (table 11.4.2).

TABLE 11.4.1

Regions of origin of furniture imports for the five largest importing countries, 1999
(Percentage + billion $)

Supply region	Importers				
	United States	Germany	France	United Kingdom	Japan
North America	27	1	1	5	6
Western Europe	19	62	77	59	17
Eastern Europe and Russia	1	31	8	6	-
Asia	43	5	9	23	76
South America	9	1	4	7	-
TOTAL IMPORTS (billion $)	8.4	3.8	2.1	1.8	1.4

Note: COMTRADE's "Western Europe" includes Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Monaco, Netherlands and Switzerland. COMTRADE's "Eastern Europe" includes Belarus, Bulgaria, Czech Republic, Hungary, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia and Ukraine. COMTRADE's "South America" includes Argentina, Bolivia, Brazil, Chile, Columbia, Ecuador, Falkland Islands (Malvinas), French Guyana, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela.

TABLE 11.4.2

Regions of origin of imports of builders' carpentry and joinery for the five largest importing countries, 1999
(Percentage + billion $)

Supply region	Importers				
	United States	Germany	Austria	United Kingdom	Japan
North America	75	1	-	6	33
Western Europe	5	66	75	52	30
Eastern Europe and Russia	-	22	22	5	3
Asia	9	11	2	17	31
South America	11	-	-	13	3
Africa	-	-	-	7	-
TOTAL IMPORTS (billion $)	1.64	1.01	0.22	0.39	0.42

Source: COMTRADE, 2001.

Some contrasts can be drawn with the supply pattern for furniture. The United States draws 75% of its supplies from Canada (27% for furniture) and this largely results from the strong commercial links between Canadian sawnwood exporters and the United States housing market. In Japan, the higher North American and European shares, compared with furniture, also reflect the growing penetration of the wooden housing market by the United States, Canadian, Finnish, Swedish and German timber exporters. The German and Austrian import supplies show close similarities with nearly 90% of imports being drawn from European sources, mainly from Scandinavia and central Europe. The pattern for the United Kingdom differs from Germany and Austria and results from long-term trade relations and high import dependence for sawnwood on various regions of the world. About half the United Kingdom's imports are drawn from Western Europe (principally Nordic countries), 17% from Asia (mainly Indonesia and Malaysia) and 13% from South America (mainly Brazil). The United Kingdom is the only country among the five with substantial imports from Africa, principally Ghana and Cote d'Ivoire.

A further contrast can be drawn between furniture and joinery in terms of regions of supply growth. The strongest growth in joinery supplies has been from the major sawnwood exporting regions and countries including North America, Nordic countries, central and eastern Europe, Malaysia, Singapore, Brazil, Chile and Ghana. This reflects the sawmilling industry's strategy of adding value to its raw material in its longstanding market in construction. In general the major sawnwood exporters' links with furniture manufacture have been weaker than with the construction sector.

11.4.3 Shaped wood

Shaped wood products represent the lowest unit value (and hence added value) of the three product groups, and levels of world trade are only 10% of the value of furniture. Most of the trade occurs within a region and has developed from established sawnwood trading links (table 11.4.3). United States import supplies come principally from Latin America (mainly Chile, Brazil and Mexico) and stem from the considerable investment in remanufacturing facilities in the sawmilling industry in these countries using plantation timbers e.g. Pinus radiata. These countries' exports of shaped wood are currently roughly three times the value of their joinery products. Canada supplies 25% of United States imports and 20% of Asian imports.

Canada's and the United Kingdom's imports are principally of softwoods drawn mainly from the United States and Scandinavia respectively. By contrast, the bulk of Japan's and Italy's imports are of tropical timbers, mainly dipterocarps from Indonesia and Malaysia (Japan), and a range of western African, south American and Asian species (Italy). In both countries they are widely used for interior joinery purposes. As with joinery products most of the export growth has come from traditional sawnwood suppliers extending their production into added-value products.

11.5 Trends in tropical SPWPs

The previous section showed the important role that tropical regions, particularly Asia, play in the import supplies of the major importing countries. This section examines the development of this trade in more detail. See also section 12.6 in the tropical timber chapter, which looks at trends from the exporters' point of view, whereas this section focuses on imports.

Secondary processed wood products are now a very significant part of exports of many tropical timber producing countries. During the 1990s the main commercial thrust of the leading tropical timber exporting countries was to develop secondary processing industries. This transformation was strongest in south-east Asia and South America but also occurred in a smaller way in some African countries. The main drivers of this change have been:

TABLE 11.4.3

Regions of origin of shaped wood imports for the five largest importing countries, 1999
(Percentage + billion $)

Supply region	Importers				
	United States	Canada	Japan	Italy	United Kingdom
North America	26	76	20	1	15
Western Europe	5	5	11	36	60
Eastern Europe and Russia	-	-	-	5	-
Asia	19	8	66	26	22
Latin America	50	11	3	8	-
Africa	-	-	-	24	1
TOTAL IMPORTS (billion $)	0.9	0.17	0.25	0.16	0.16

COMTRADE, 2001

1. *The policy of governments to add value to their increasingly scarce raw materials. Policies have included log export restrictions, high export taxes on primary products and investment incentives.*
2. *Technological developments in the processing of plantation species (e.g. rubberwood) and lesser-used species.*
3. *Technology transfer from developed countries.*
4. *Inward investment by North American, Japanese and European companies.*
5. *Wage and cost advantages in exporting countries.*
6. *Falling tariffs under GATT/WTO agreements.*
7. *Rapidly growing domestic/regional economies providing expanding local markets.*
8. *Improved shipping services.*
9. *Export promotion.*

The impact of these developments on the exports of primary versus secondary products of tropical timber producing countries has been dramatic in Asia, South America and Africa (table 11.5.1). Exports of secondary processed products from all three regions have grown by 140%, compared with a fall of 10% for primary products. The largest growth over the eight years was from Asian countries, but the most rapid growth occurred with exports from South America. The collapse of the Asian economies in 1997-1998 is clearly seen in the fall in exports of primary and secondary products between 1995 and 1998.

This rapid rise in export growth has been mirrored by substantial growth in imports of secondary processed wood products by European countries. The value of primary product imports fell by 12% from 1995 to 1998, while secondary products rose by 29% over the same period (table 11.5.2).

TABLE 11.5.2

EU imports o f tropical primary and secondary wood products from tropical producing countries, 1995-1998
(Million $)

	1995	1998	% change
Primary products [1]	2,953	2,605	-12
Secondary products [2]	1,272	1,641	+29

[1] *Logs, sawnwood, plywood, veneers.*

[2] *Wooden furniture and parts, builders' woodwork, other processed secondary wood products, cane and bamboo furniture and parts.*

Of the total EU imports of tropical SPWPs, approximately 70% comprise wooden furniture and furniture parts and builders woodwork (table 11.5.3). The total import value of SPWPs was 63% of the primary products value in 1998.

The following features of the two tables above are noteworthy:

1. *In the EU as a whole, secondary products comprise 35% of the value of all tropical timber imports (primary and secondary) and in the six selected countries they account for 43% of imports.*
2. *In the United Kingdom, the value of secondary product imports exceeds primary products and the margin of difference is also very small in Germany.*
3. *Furniture and furniture parts are the largest component of imports in all countries, but builders woodwork accounts for between 25% and 32% of imports in the United Kingdom, Germany and the Netherlands.*

TABLE 11.5.1

Comparative growth of primary and secondary processed wood products from major tropical exporting countries, 1990-1998
(Million $)

		1990	1995	1998	% change 1990 to 1998
Asia	Primary	7,393	5,991	5,079	-32
	Secondary	1,319	3,402	2,872	+178
South America	Primary	569	1,825	1,962	+245
	Secondary	96	490	552	+475
Africa	Primary	1,554	1,786	1,490	-4
	Secondary	21	33	43	+104
TOTAL	Primary	9,516	9,602	8,531	-10
	Secondary	1,436	3,925	3,467	+141

Note: The following countries are included in the regions noted in the table:

Asia: Indonesia, Malaysia, Philippines, Thailand, India, Myanmar, Fiji.

South America: Brazil, Ecuador, Colombia, Venezuela, Bolivia, Trinidad, Peru, Surinam.

Africa: Côte d'Ivoire, Ghana, Cameroon, Democratic Republic of Congo, Togo, Gabon, Central African Republic, Liberia.

Source: ITTO, 2000.

4. *Penetration levels of secondary processed products into southern European countries are lower then in the northern European countries.*

Within the aggregated product groups shown in table 11.5.3, the main types of furniture and furniture components imported from tropical timber exporting countries are living and dining room and garden furniture. The principal items of builders' woodwork are doors, windows, mouldings and flooring.

The significance of European markets for these exports differ by country and region and by product (table 11.5.4). The largest exporters are Malaysia, Indonesia and Thailand and most of these and other Asian exporters' sales are directed to Japan, the United States and other countries in the pacific region.

South American exports, predominantly from Brazil, are shipped primarily to the United States and Europe (United Kingdom, Germany, Netherlands and France).

TABLE 11.5.3

Imports of tropical secondary processed wood products by category in selected EU countries, 1998
(Million $)

	Wooden furniture	Builders' wood-work	Other secondary wood products	Cane and bamboo furniture	Total secondary products	Total primary products
Austria	7	3	3	1	14	19
Belgium/Luxembourg	71	19	25	16	131	228
Germany	119	103	60	43	325	328
France	145	26	32	26	229	397
Netherlands	136	60	17	8	221	355
United Kingdom	193	93	51	29	366	354
Subtotal of above	671	304	188	123	1,286	1,681
TOTAL EU	813	347	242	239	1,641	2,605
% of secondary products	(50%)	(21%)	(15%)	(14%)	(100%)	

Source : ITTO, 2000.

TABLE 11.5.4

Markets for secondary tropical wood products by principal exporters, 1998

Exporter	Main products	% of exports	Main importers
Malaysia	Furniture & parts	73	United States, Japan, Singapore, United Kingdom
$1,250 million	Builders joinery	14	Japan, United Kingdom, Singapore, Republic of Korea
	Mouldings	13	Japan, United States, Australia, Taiwan Province of China
Indonesia	Furniture & parts	32	Japan, United States, Malaysia, Taiwan Province of China
$737 million			
	Builders joinery	55	Japan, United Kingdom, Singapore, Republic of Korea
	Mouldings	12	Taiwan Province of China., Italy, United States, Singapore
Thailand	Furniture & parts	85	Japan, United States, United Kingdom, Taiwan Province of China
$553 million			
	Builders joinery	6	Japan
	Mouldings	9	Japan, United States, Netherlands, Germany
Brazil	Furniture & parts	61	United States, United Kingdom, France, Netherlands, Germany
$459 million			
	Builders joinery	29	United States, United Kingdom, Germany
	Mouldings	10	United States, Canada, United Kingdom
Côte d'Ivoire	Furniture & parts	3	France
$21 million	Builders joinery	18	Italy, France
	Mouldings	79	Italy, United Kingdom, Spain, France
Ghana	Furniture & parts	61	United Kingdom, Germany
$14 million	Builders joinery	4	United Kingdom, Italy
	Mouldings	35	United Kingdom

Source : ITTO, 2000.

Only in the case of Africa, where Ghana and Côte d'Ivoire account for the bulk of exports, is Europe the largest market. Italy, United Kingdom, France and Germany are the main destinations.

11.6 Conclusions on SPWPs

Four key factors are driving the rapid growth in international trade in SPWPs. First, exporters of primary products are increasingly adopting a business strategy of adding value to their basic products to improve profitability and to avoid the strong cyclical movements associated with commodity products.

Second, locational shifts are taking place in the manufacture of these SPWPs reflecting regional differences in cost competitiveness. Whereas the cost competitiveness of primary products (e.g. sawnwood and plywood) depends largely on raw material costs, with SPWPs, processing costs (labour, capital, energy) are the main factors differentiating high from low cost producers. In these respects comparative advantage in manufacture is tending to shift from western Europe to eastern Europe (e.g. Poland, Baltic States), Asia (Indonesia, Malaysia, Thailand, Viet Nam, China), Latin America (Brazil, Chile, Mexico) and Africa (Ghana, Côte d'Ivoire).

Third, technology transfer facilitates these regional shifts in production. Fourth, international agreements reducing tariffs and other trade barriers are creating new international trading opportunities.

As a result of these developments it is likely that international trade in SPWPs will continue to grow more rapidly than primary products. In addition, the share of production of SPWPs from lower cost producing countries in the developed world will rise.

11.7 Engineered wood products markets in 2000 and 2001

Last year, the authors reported on world production and trade of glulam timber beams, I-beams and laminated veneer lumber (LVL). This report focuses on world production of glulam and North American production of I-beams and LVL. Nearly all I-beams are produced in North America and a high share of structural LVL production takes place in North America. Unfortunately, official government data sources are not yet conveniently available to report these products on a regular basis and thus industry statistics are cited here.

11.7.1 Glulam

World glulam timber production increased by 19% in 2000 to 3.1 million cubic metres, undoubtedly a record year (table 11.7.1). Most of this increase can be attributed to increased glulam demand in Japan. Although Japanese wooden housing starts actually declined by 2% in 2000, glulam consumption grew. Records show that imports increased by 55% in 2000 and much of this volume came from Europe. Japanese domestic production increased by 29%. These increases can be attributed to changes in housing quality laws and the realization that dry glulam timbers perform better than green solid sawn timbers owing to their structural strength and stability. Increased glulam timber consumption can be expected in future years as glulam becomes even more popular in Japan.

North American glulam production increased by 14% in 2000 and most of this increase can be attributed to increased domestic demand. In the past decade, increased production of North American glulam has been in the form of "stock beams". These standard sizes have grown in popularity in both residential and non-residential building construction. APA's outlook for North American domestic market growth is 1% to 3% annually based on new technology to improve glulam performance and increased acceptance of stock beams.

TABLE 11.7.1

Glulam production by region and countries, 1995 -2000
(1,000 m^3)

	1995	1996	1997	1998	1999	2000
World	1,761.3	1,974.6	2,128.6	2,159.9	2,562.2	3,060.7
Europe[1]	855.0	870.0	992.5	1,035.7	1,253.2	1,500.0
Russia[2]	-	-	-	38.0	41.0	45.0
Japan[3]	208.1	340.1	385.0	374.2	483.7	622.3
North America[4]	698.2	764.5	751.1	712.0	784.3	893.4

Sources: 1. European Glued Laminated Timber Industries; 2. Estimated from Japan imports by adding 25%; 3. APA Tokyo Office (from Japan import data); and 4. APA-The Engineered Wood Association, 2001.

New technologies include the use of beams made with LVL tension laminates and beams incorporating a tension layer of a synthetic fibre reinforced polymer. LVL is currently being used by some manufacturers; however, the use of synthetic fibre reinforcement may take a few years to develop. In addition, glulam timber is being manufactured in sizes to match the sizes of I-beams. When I-beams and glulam have the same depth, it is easier to finish residential ceilings without extra work. Glulam manufacturers in North America are trying to bring glulam forward from the "old generation" of wood products to be on par with the "new generation" of engineered wood products.

The world outlook for glulam in 2001 and 2002 is somewhat uncertain as the economies of many countries are projecting slower growth. It is possible that the increased use of glulam in Japan can provide positive growth for this industry sector for the next couple of years.

11.7.2 Wooden I-beams

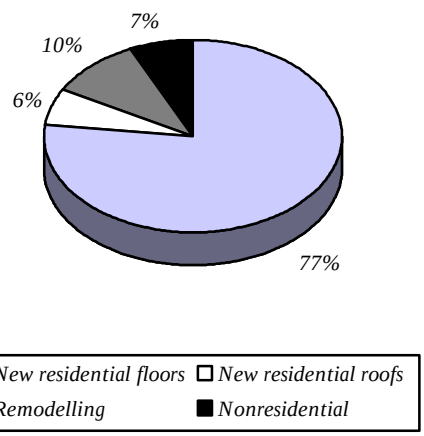
Wooden I-beams have gained a significant foothold in North American residential construction. About 33% of the wood floor area in United States and Canadian homes is built with I-beams that have substituted for solid sawn joists or beams. I-beam production has declined only twice in the past decade, in 1995 and 2000. The decline in 1995 can be attributed to a reduction in housing starts and surveys showed that market share actually increased in 1995. North American I-beam production declined 3% in 2000 (table 11.7.2). One third of the decline can be attributed to fewer housing starts and two thirds were likely due to a loss in market share to conventional sawnwood. Weaker demand for sawnwood caused prices to plunge in 2000 and some smaller home-builders switched from I-beams back to solid sawnwood for floor joists. Larger builders have documented the benefits of using I-beams and continue to use them. Large construction companies like the steady prices of I-beams and other engineered wood products and they also like the long-term performance. When I-beams are used, there are fewer "call backs" from angry homeowners with squeaky floors.

The outlook for I-beams is dependent on continued market share gains in residential floor construction. I-beams could grow from a 33% market share to 40% and as much as 50% of the wood floor market in the next five years (APA-The Engineered Wood Association). However, it is recognized that market penetration has been rapid and will slow at some point in the future. Production increases will likely average about 5% annually over the next five years.

I-beams have a variety of uses in North America (graph 11.7.1). An estimated 77% are used as joists or beams in single family and multifamily residential floors. Ten per cent are used as roof rafters and floor joists in remodelling or room additions to homes. Seven per cent are used in floor and roof construction in non-residential buildings such as factories, warehouses and office buildings. Six per cent are used as roof rafters in new home construction.

GRAPH 11.7.1

I-beam end uses in North America, 2000



Source: APA-The Engineered Wood Association, 2001.

TABLE 11.7.2

Wooden I-beam production, 1995 -2000
(1,000 m³)

	1995	1996	1997	1998	1999	2000
North America	833.7	1,045.8	1,316.7	1,493.1	1,879.5	1,818.6
Canada	81.9	113.4	168.0	193.2	340.2	363.3
United States	751.8	932.4	1,148.7	1,299.9	1,539.3	1,455.3

Source: APA-The Engineered Wood Association, 2001.

11.7.3 Laminated veneer lumber (LVL)

LVL production in North America declined 6% in 2000 to 1.4 million cubic meters (table 11.7.3). Most of this production was softwood LVL and the decline was due to the decline in I-beam production as well as inventory reductions in the distribution channels. Approximately 60% of LVL is used for flanges of I-beams, 30% for small beams and 10% for scaffold planks, concrete form bracing and miscellaneous uses.

In addition to the reported North American LVL volumes, there may be an additional 5% to 6% of hardwood LVL. There are only a few manufacturers of hardwood LVL in North America and their production is used for kitchen cabinet and furniture components in addition to structural applications.

The outlook for LVL growth is uncertain at this time. At least one new I-joist plant is planned to use finger-jointed sawnwood flanges instead of LVL and some of the larger I-joist manufacturers are lowering costs by converting at least some of their production to solid sawnwood flanges and structural composite lumber (for example, long strand OSB). At the same time, LVL manufacturers are experimenting with the use of lower cost species. Approximately 3% to 4% annual growth can be expected in the future.

TABLE 11.7.3

LVL production, 1995 -2000
(1,000 m^3)

	1995	1996	1997	1998	1999	2000
North America	792.9	906.2	1,076.1	1,217.6	1,472.5	1,381.9
Canada	c	c	c	56.6	113.3	124.6
United States	c	c	c	1,161.0	1,359.2	1,257.3

Note: c = Combined to avoid disclosure.
Source: APA-The Engineered Wood Association, 2001.