Engineered Wood Products
Marketing Status

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Presentation outline

1. Brief definition
2. Demand drivers
3. The marketplace
4. Market share
5. Supply of EWPs
6. The future

Engineered Wood Products
(broadly defined)

Can encompass many types of products:

- Glued lumber components
- Reconstituted wood products (i.e.OSB, PB & MDF panels)
- Machine evaluated products
- Wood composites
- Assembled products...

Engineered Wood Products
(narrowly defined)

Substitutes for structural softwood lumber products:

- 1- Structural Composite Lumber (SCL)
  - > Laminated Veneer Lumber (LVL)
  - > Parallel Strand Lumber (PSL)
  - > Oriented Strand Lumber (OSL)
- 2- Wood I-Beams (I- Joists)
- 3- Glue Laminated Timber (Glulam)

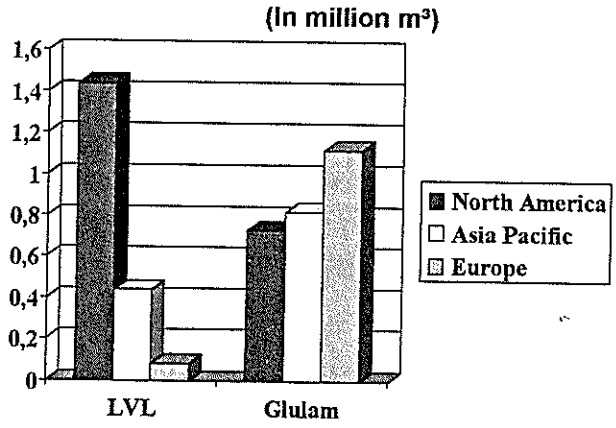
Factors of Demand

- Environmental constraints
- Changing fiber supply
- User preference & labour savings
- Consumer demand
- Stricter building codes
- Trade issues
- Technological advances
- Wood-frame construction

Global Demand

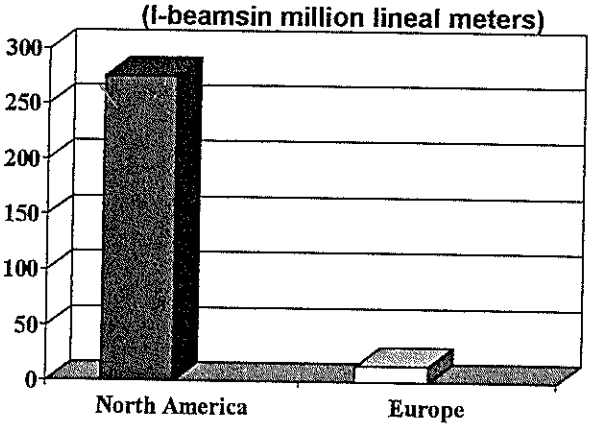
- **On a world scale, the market for EWPs is small**
- **On a volume basis, mainly a North American phenomena**
- **But, Japan and Europe have growing consumption**

World Markets in 1999



Source: APA, 2000; Japan Customs Bureau, 2000 & Jaakko Pöyry, 2000

World Markets in 1999



Source: APA, 2000 & Jaakko Pöyry, 2000

Erosion of Wood Products' Market Share

Alternative wood and non-wood products continue to gain market share:

- Doors & windows
- Exterior facade materials
- Furniture
- Framing
- Structural applications

Erosion of Wood Products' Market Share

Forest products are widely manufactured and distributed around the globe but...

- Wood products industry is highly fragmented
- Competing materials industries (aluminium, steel, plastic, concrete, gypsum,etc.) are generally highly concentrated and truly multinational

Erosion of Wood Products' Market Share

- Competing materials are rarely in the limelight of the environmental debate
- Respective industries devote considerable resources to p.r. and promotion, often depicting wood in a negative light
- Yet, there is overwhelming evidence that wood is the most environmentally friendly material

Substitute Products

(substitution of structural products only)

	1992	1999	2003
Substitutes	3%	7%	9%
Lumber	97%	93%	91%
Total	100%	100%	100%

Source: WMQ, Vol.4, No.1

Substitute Products

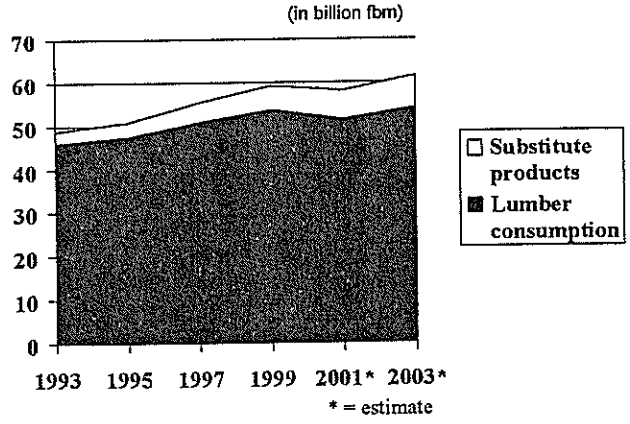
(substitution of all wood products)

	1992	1999	2003
Substitutes	4%	9,5%	12%
Lumber	96%	90,5%	88%
Total	100%	100%	100%

Source: WMQ, Vol.4, No.1

Substitute Products

Demand for softwood lumber and substitute products in the USA, 1993-2003



Source WMQ, Vol.4, No.1 & APA, 1999

The Good News: Substitution of wood products by EWPs

N. America	Billion BF	Share
Lumber *	57.0	95%
I-joists	1.9	3%
LVL/Other **	.7	1%
Glulam	.3	.5%
Total	59.9	100%

*Timbers, Dimension, Studs estimated
**Not in I-joists
Source: APA, 2000

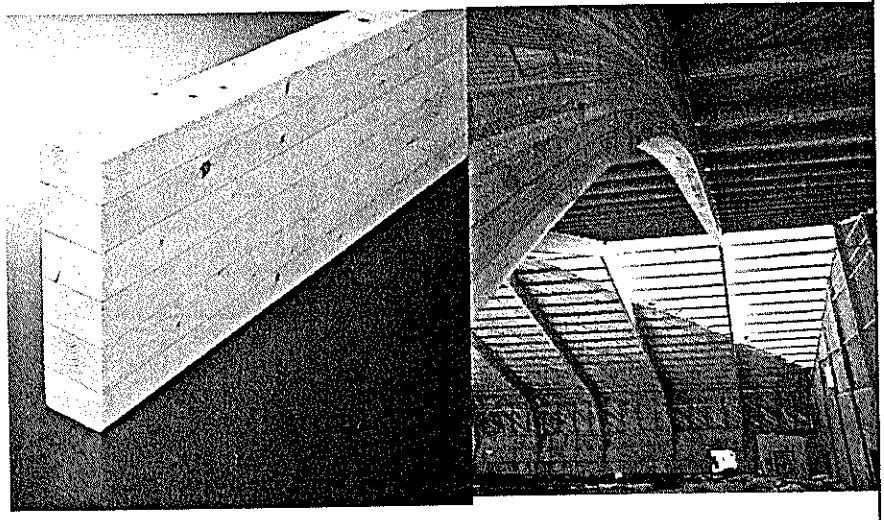
More Good News:

EWP Plants in North America

	1989	1999
Glulam	30	38
LVL	8	21
I-joist	16	43
	54	102

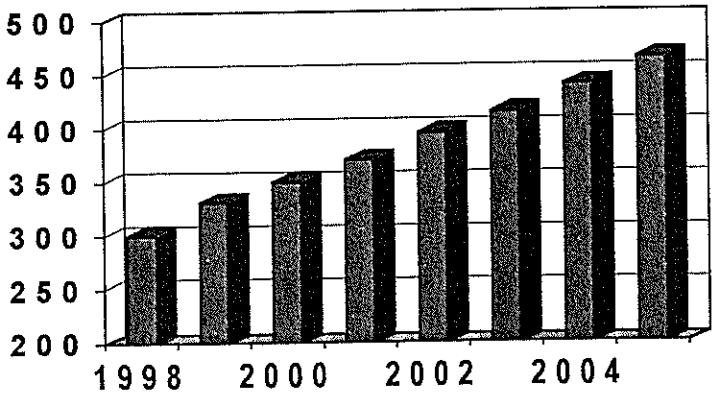
Source: APA, 2000

Glulam



Glulam

(In million fbm)



Source: APA, 2000

Trends in Glulam

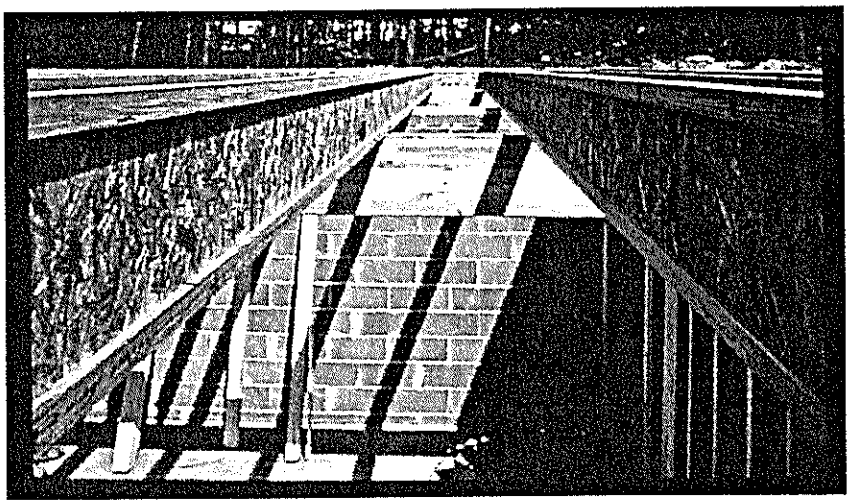
- Revival of glulam as a building material
- New technology improves the product and broadens its usage
- Very strong growth of glulam production in Europe
- Exports to Japan also in a growth mode
- Usage in combo with other EWPs is spreading

More Recent Glulam Trends

- I-joist compatible beams
- Higher MOE ratings
- Higher shear strengths
- Fiber reinforced technology

Source: APA, 2000

Glulam

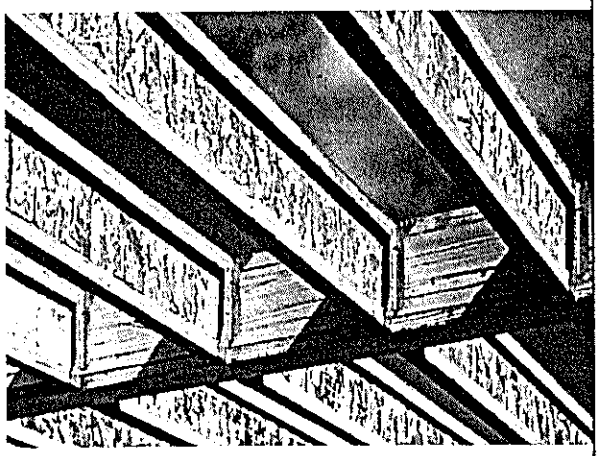


Construction with glulam center beam.

Source: APA, 2000

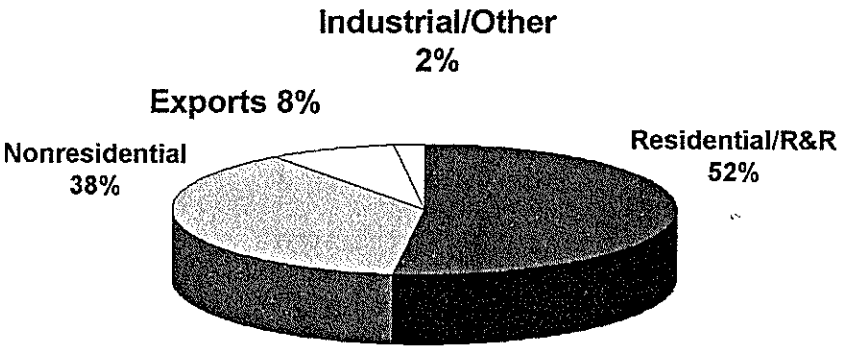
Glulam

I-Joist
Compatible
Glulam



Source:APA, 2000

Glulam Utilisation



Source:APA, 2000

Imports of Glulam-Japan

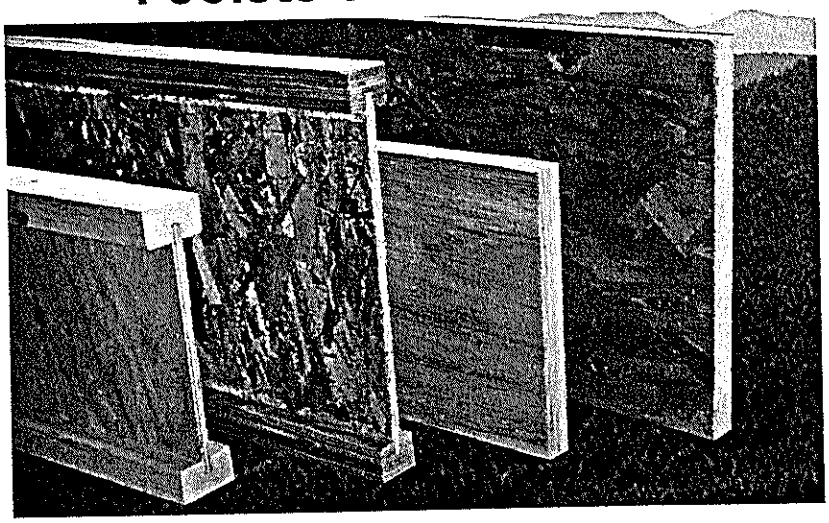
United States	*22 Million BF
Canada	*15 Million BF

11% of North American production.

Source: APA, 2000

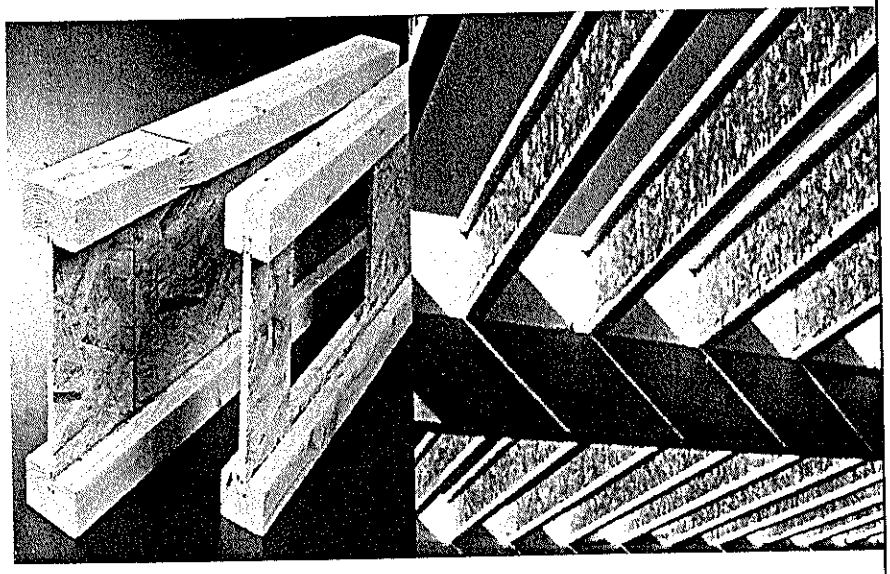
*(conversion of import in nominal fbm)

I-Joists & Rim Boards

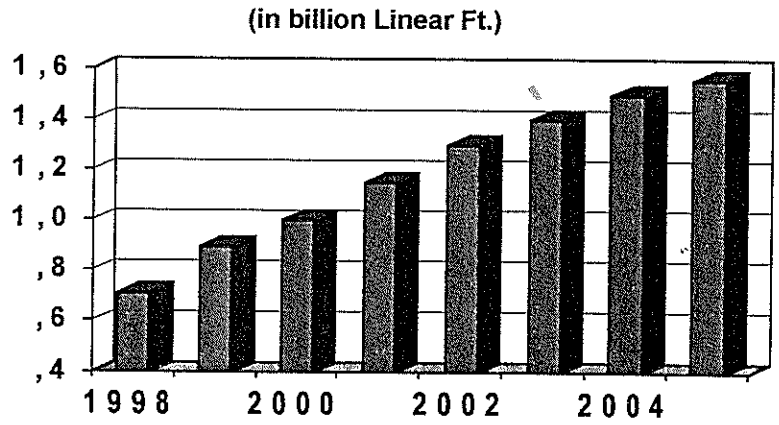


Source:APA, 2000

I-Joists

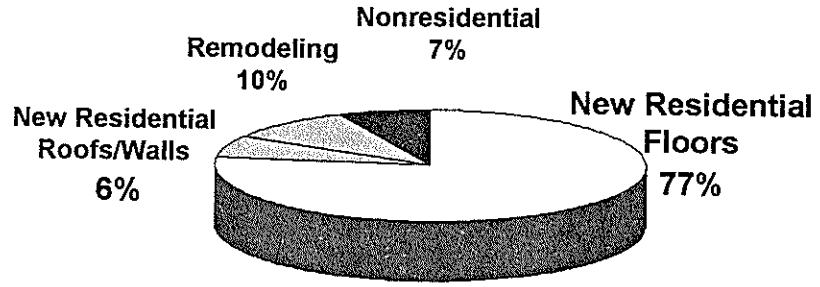


I-Joists



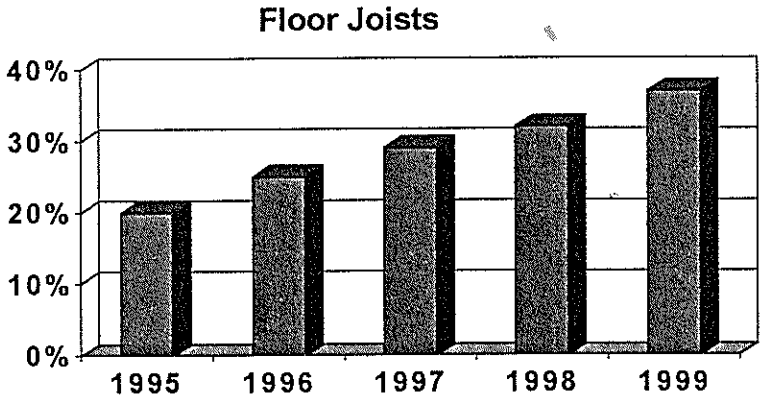
Source: APA, 2000

I-Joist Usage



Source:APA, 2000

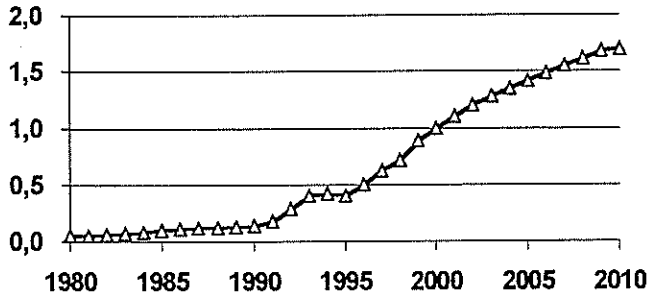
37% of Single Family House Market Share



Source: APA, 2000

I-Joist Fastest Growth of all EWPs

(in billion linear Ft.)



Source: APA, 2000

- Displaces 3.5 Bd. Ft. Lumber
- 80% share by 2010

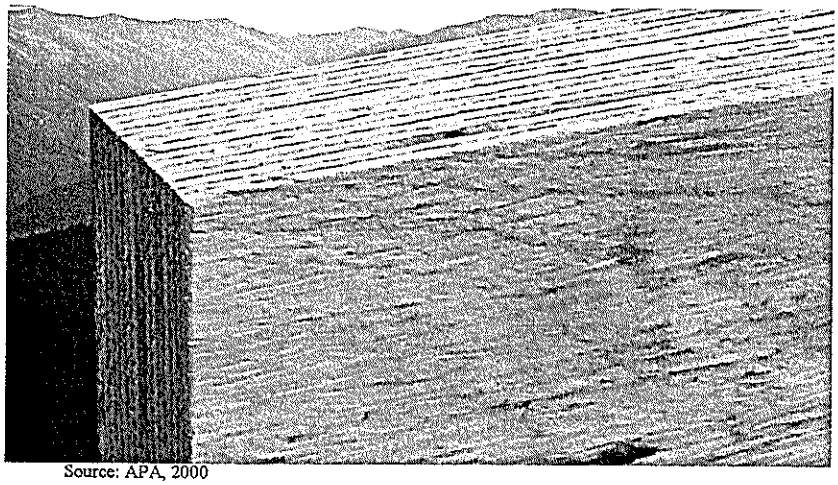
I-Joist Trends

- British approval for APA performance standards
- Promotional campaign planned for the UK market
- New generation of joists with wider LVL flange
- Broader acceptance of I-joists in non-residential construction

Source: APA, 2000

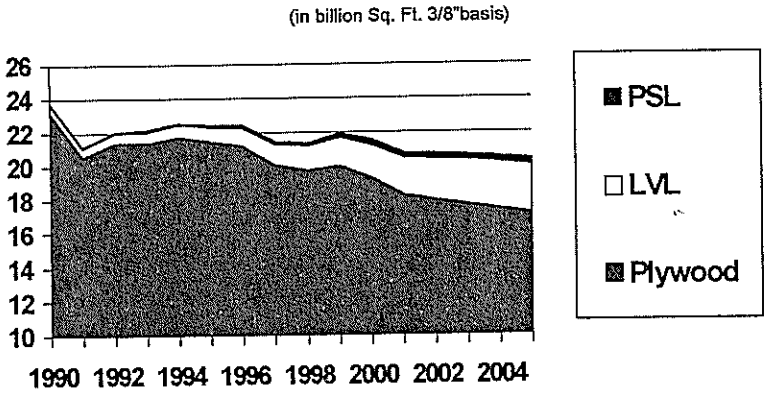
Laminated Veneer Lumber

(LVL)



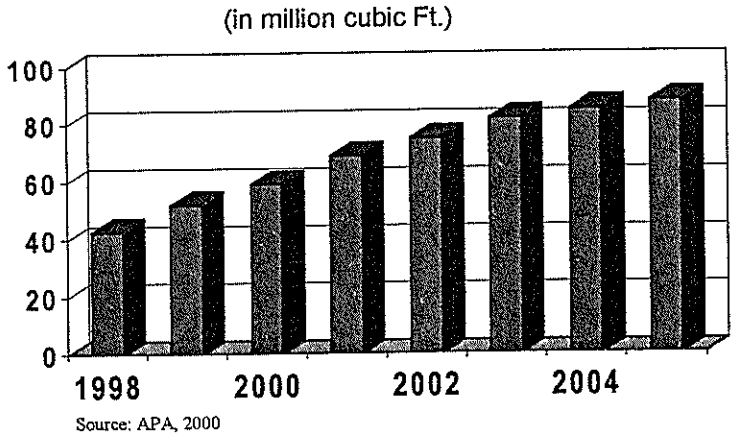
Source: APA, 2000

LVL is Part of the Family of Veneer products



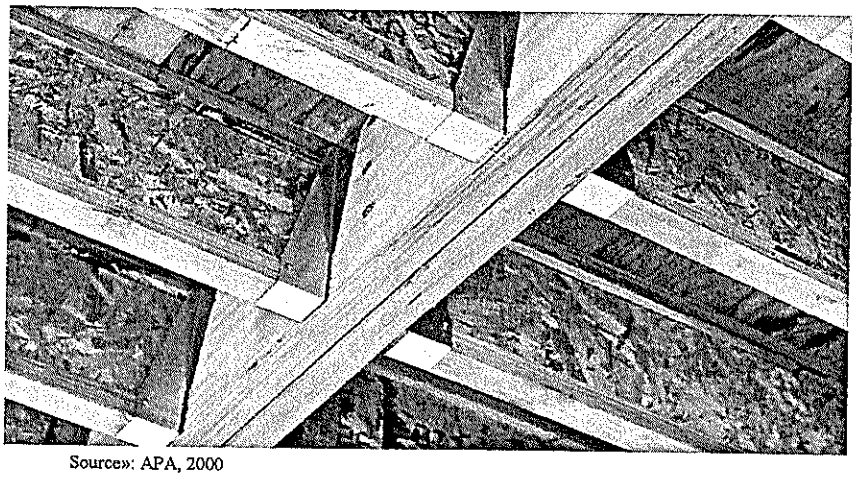
Source: APA, 2000

Growth of LVL



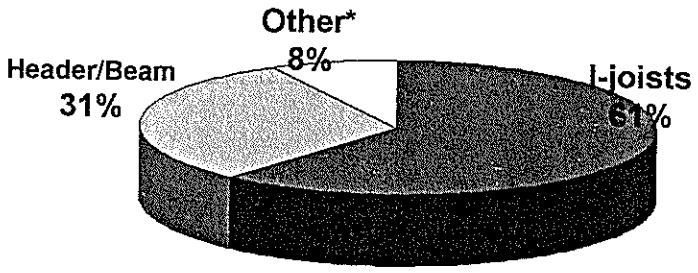
Source: APA, 2000

LVL



Source»: APA, 2000

Usage of LVL



*Other= scaffold planks, concrete form, furniture, door cores, exports and miscellaneous.

Source: APA, 2000

LVL Trends

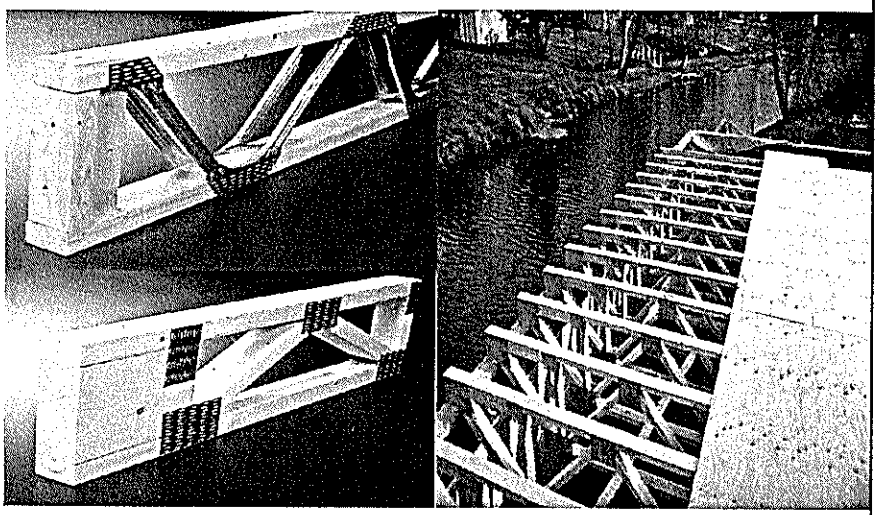
- New performance based changes to Japanese LVL standard opens up that market
- Performance standard to be introduced into UK this year
- More uses and applications for LVL

Japan Usage of LVL

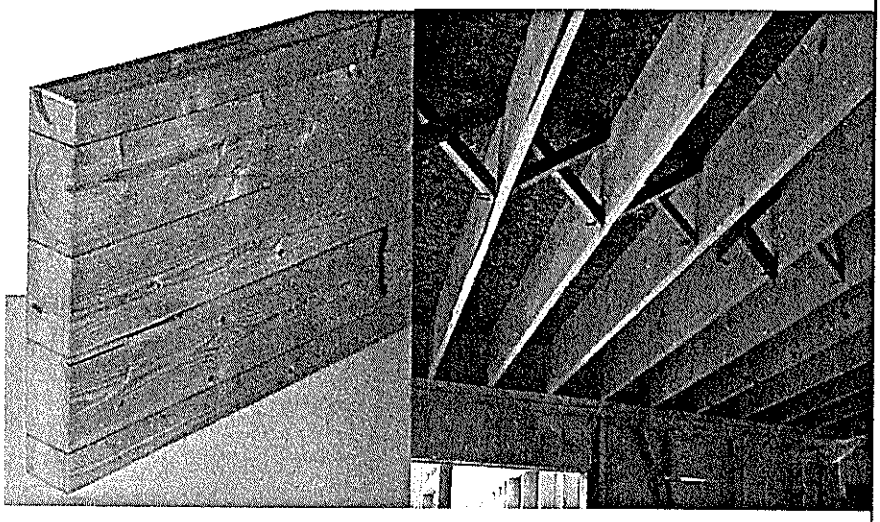
- Significant share used in non-structural applications, 80% of market (furniture, fixtures & components)
- More than 50% is hardwood based
- Consumption approx. 98000 m^3 in 1998 was close to 175000 m^3 in 1996
- Imports up to 1/3 of demand

Source: Japanese import data.& ECE/FAO Forest Products Annual Market Review, 1999-2000

Product Development



Product Development



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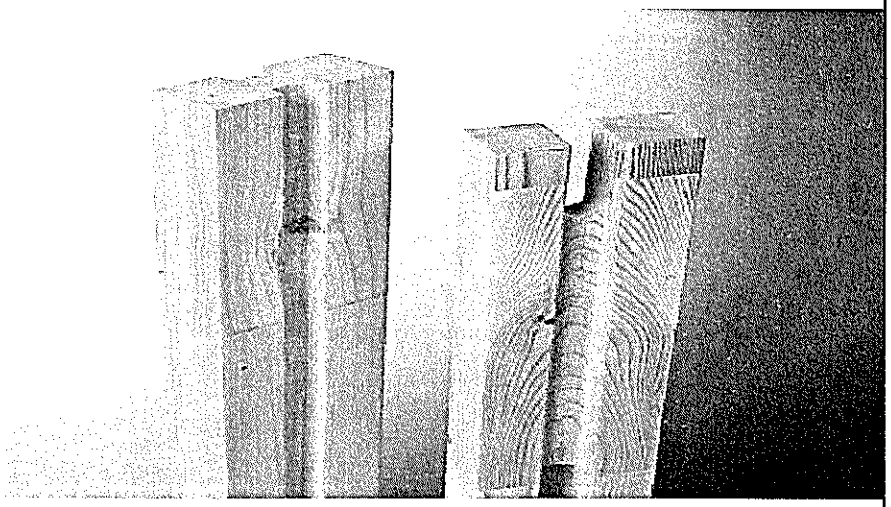
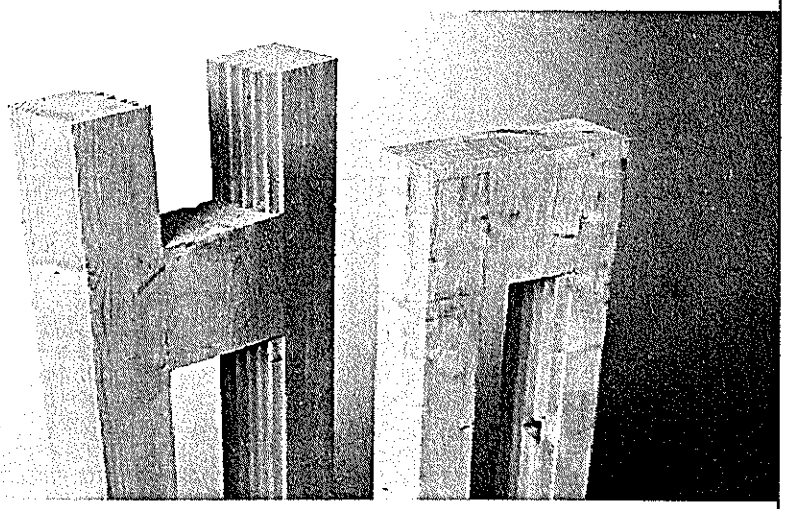


Product Development



Outlook for EWPs

(in billion board Ft equivalent)

	1989	1999	2010
I-joist**	.3	1.9	3.5
LVL/SCL*	.1	.7	1.2
Glulam	.3	.3	.5
Total	.7	2.9	5.2

*Not in I-joists **Linear ft. X 2.

Source: APA, 2000

Outlook for EWPs

- EWPs offer a brigth future for wood building materials because they embody latest technologies: new resins, new technologies in pressing, flaking, splicing, etc.
- EWPs offer superior technical properties
- EWPs enhance conversion efficiencies