Cross Laminated Timber

Opportunities for NZ (Wood Manufacturing Operations)

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Specialist Services for the New Zealand and Australian Timber Industries






Email newsletter!

Coming up:

How to prefabricate the timber structures of tomorrow? What we can learn from Europe.

Presentation Sept 7th, 2011 at the BNZ Forest Industries Conference, Rotorua

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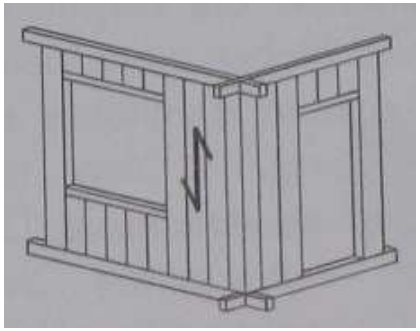
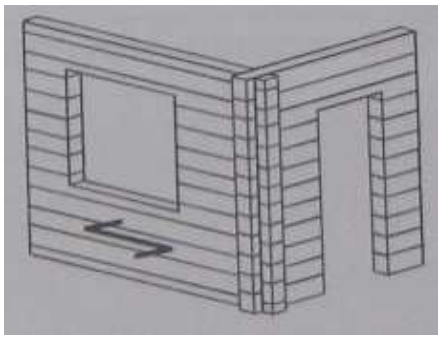
Cross-Laminated Timber (CLT)

- Typically 3,5,7, or odd number of layers
- Sawn lumber main input material
- CLT panel sizes: ~3x16m
- Typical end uses: wall/floor/roof panels

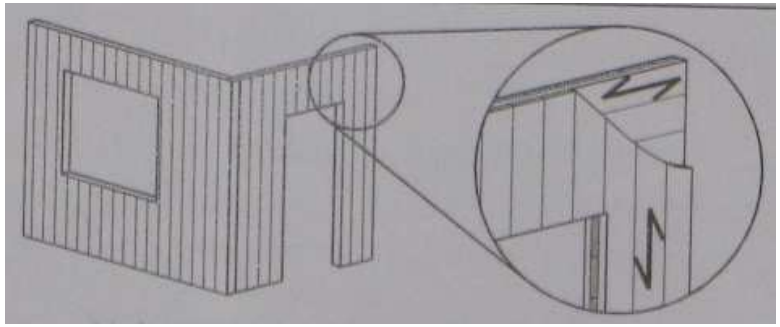
Cross-Laminated Timber (CLT)

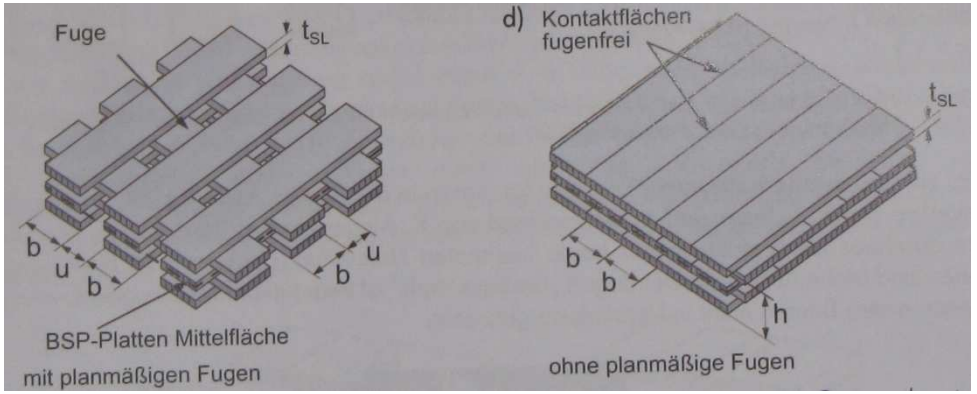
Solid wood construction – The Tradition



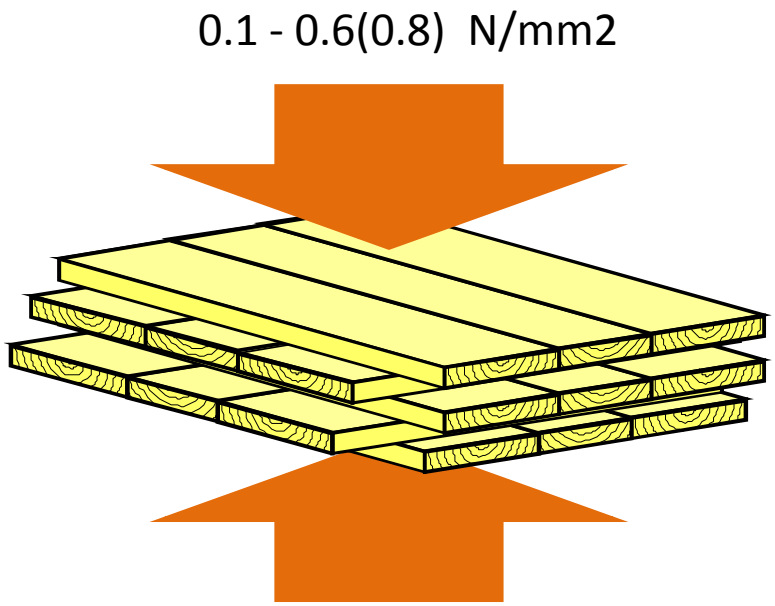


Solid wood construction – The Innovation





CLT – adhesive & pressure



Features & performance

Environmental

Thermal

Fire

Cost

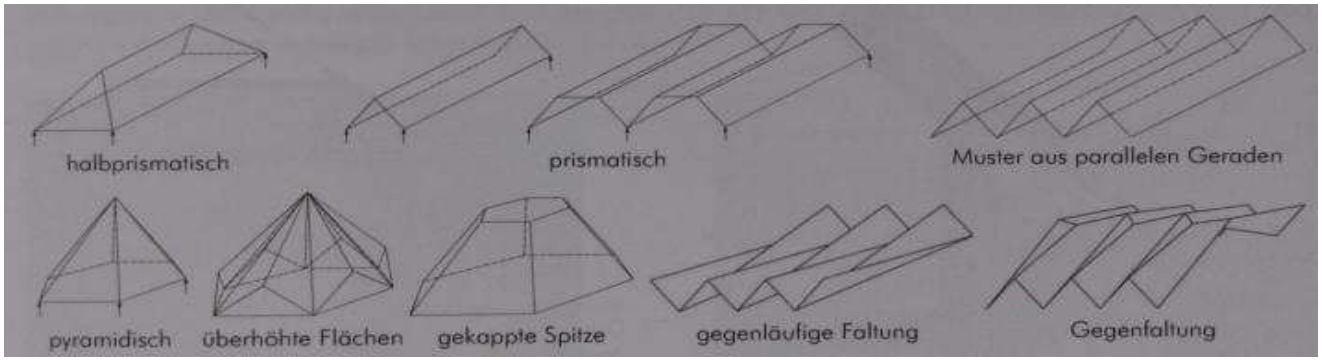
Structural

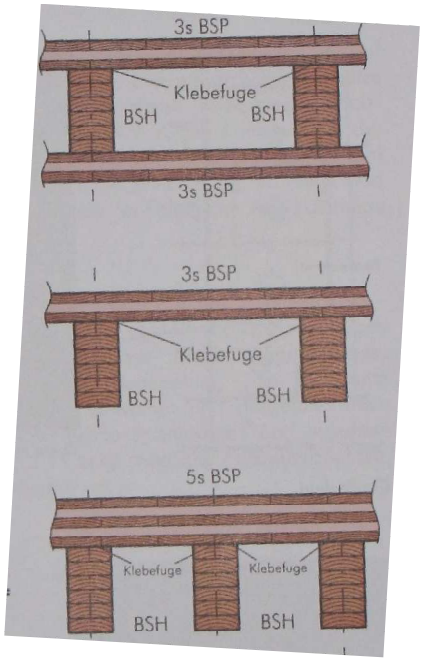
Seismic

Acoustic

Structural characteristics

- Structural properties can be engineered!
  - Spans up to 7.5m (230mm, 7ply floor) *overseas product
- Longer spans for hollow box or folded structural CLT systems
- CLT is effective in spreading point loads

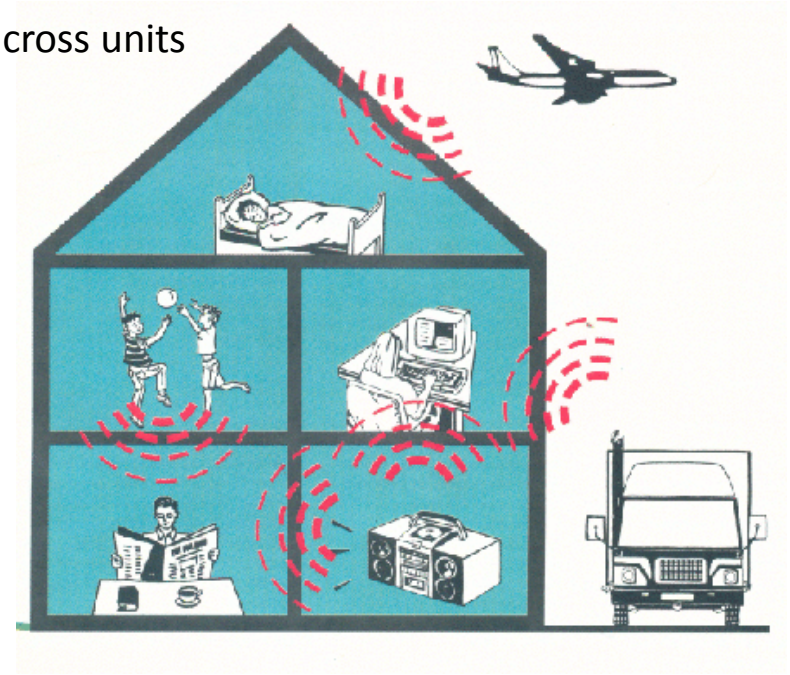




Acoustic performance

- CLT is successfully used for buildings with very high acoustic requirements: apartments/hotels/etc.

- ‘Flanking’ can be an issue. Ways to address this:
  - Suspended ceilings, floating floors
  - Discontinuous walls across stories/ floors across units
  - Acoustic separation



Seismic performance

- 3- and 7-storey full scale CLT buildings were tested by IVALSA (magnitude 7.2, accelerations of 0.8 to 1.2g)

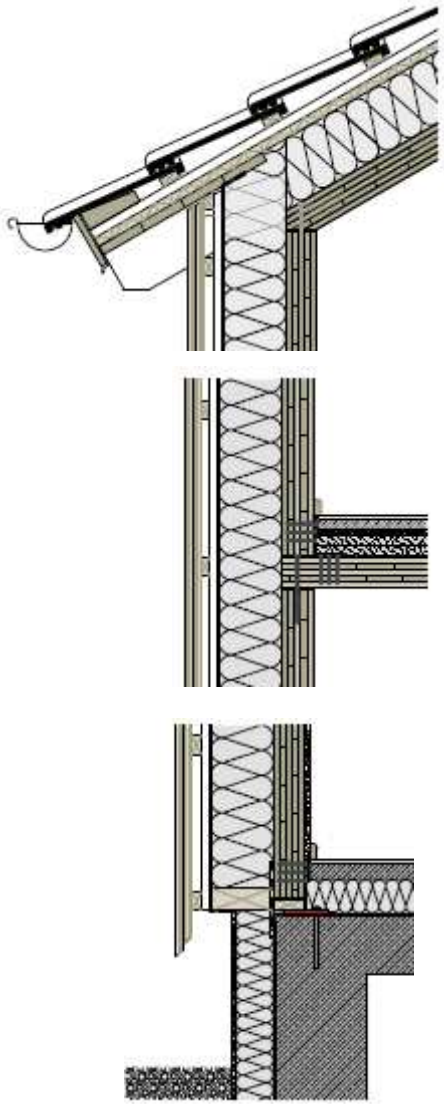
Cost

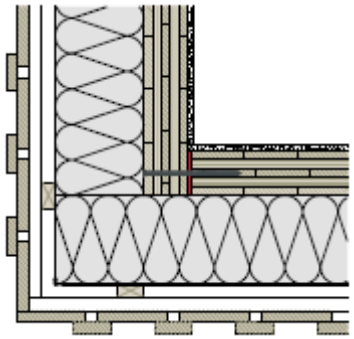
- Standard panel: 750 - 1200 - 1700 $NZ/m3
  (*overseas product; current exchange rate; various thicknesses/ grades/ qualities…)

- Compared to stick-frame construction, more cost for fibre, but savings in construction time due to prefabrication.

- Requires more ‘holistic’ cost comparison => cost of raw panel does not provide final answer regarding cost competitiveness.

CLT – construction details

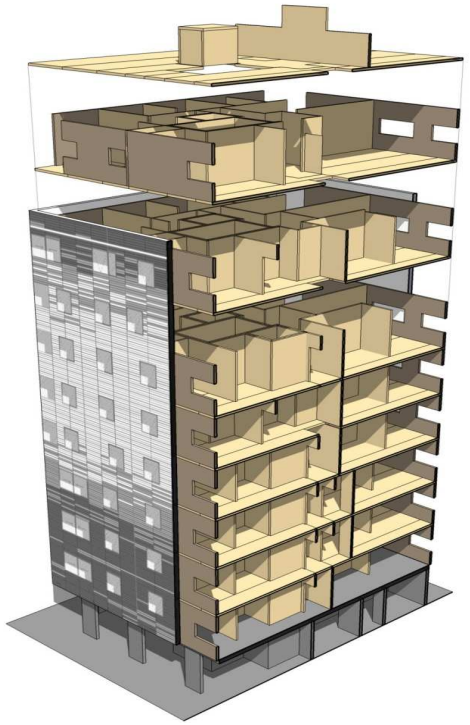




The CLT building system/construction

Rapid construction

Versatile



Lightweight

Precise

Less waste

Safe

Less demanding of skilled labour on site

CLT – production and markets

BRETTSPERRHOLZ-PRODUKTIONEN 2009/2010

Produktionen in Österreich, Deutschland, Schweiz, Italien und Tschechien; Stand November 2010, alle Einheiten in Kubikmeter pro Jahr

Unternehmen	Standort	2009	2010	Kapazität (1-schichtig)	Besonderheiten
Benkenwood	Gardelegen/DE	–	–	–	2011 soll Produktion in Betrieb gehen. Kapazität: 40.000 m³/J
Binderholz Bausysteme	Unternberg	45.000*	**60.000***	25.000	BBS 125 (1,25 mal 24 m), BBS XL (3,5 mal 20 m)[1] (s. Bericht S. 16)
Eugen Decker	Morbach-Hunsrück/DE	10.000	**10.000**	10.000	Neue Linie geht Anfang 2011 in Betrieb.
Finnforest Merk	Aichach/DE	20.000	**24.000**	26.000	bis 4,8 mal 20 m; keine Standardbreiten, Fineline-Oberfläche
Haas Group	Chanovice/CZ	–	**12.000**	6.000	Produktionsanlauf erfolgte 2010.
HMS Bausysteme	Schondra/DE	15.000	**15.000**	15.000	Produktion künftig bei HMS Bausysteme Belgien, Schondra Zuschnitt
KLH Massivholz	Katsch/Mur	57.000	**63.000**	25.000	technische Beratung, ETZ, ISO- und CE-Zertifizierung (s. S. 20)
Lignotrend	Weilheim-Bannholz/DE	25.000	**25.000**	25.000	Ausbaupläne in Kärnten (s. Interview S. 15), astreine Oberfläche[2]
Mayr-Melnhof Kaufmann	Gaishorn	30.000	**36.000**	22.000	3 bis 7 Lagen; 16,5 mal 3 m mal 278 mm, Kapazitätsgrenze wird 2011 erreicht[3]
Moser Holzbau	Taisten-Welsberg/IT	3.500	**7.000**	3.000	Eigenversorgung, Handel, keine Standardbreiten
Schilliger Holz	Küssnacht/CH	13.000	**13.000**	9.000	k. A.
Pius Schuler	Rothenturm/CH	5.000	**5.000**	5.000	Pionier bei Brettsperrholz
Stephan Holz	Gaildorf/DE	6.000	**6.000**	6.000	Flex-cross; kolportierte Ausbaupläne laut Unternehmen „nicht spruchreif"
Stora Enso Timber	Bad St. Leonhard	25.000	**40.000**	22.000	Fugen verleimt; bis 16 m Länge; 2,95 m Breite und 40 cm Stärke
W. u. J. Derix	Niederkrüchten/DE	–	**7.500**	16.000	bis 0,4 mal 3,5 mal 18 m, 5-Achs-CNC-Bearbeitung, Melaminharz-Verleimung[4]
Wigo/Ing. E. Roth	Feldkirchen	15.000	**15.000**	10.000	Massivholzwand mit Zellulosedämmung, rodo.system und wigo.innovo.system
	Summe:	269.500	**338.500**	**225.000**	

Quelle: alle Angaben wurden von den Unternehmen gemacht. Tabelle erhebt keinen Anspruch auf Vollständigkeit. Berücksichtigt wurden nur Produzenten verleimter Produkte.

- 20% annual growth of European CLT industry over past 10-15years
- Leading countries in use of CLT:
  Austria, Germany, Switzerland, Sweden, Norway, and the UK
- XLam NZ: ~8,000 m3/year capacity

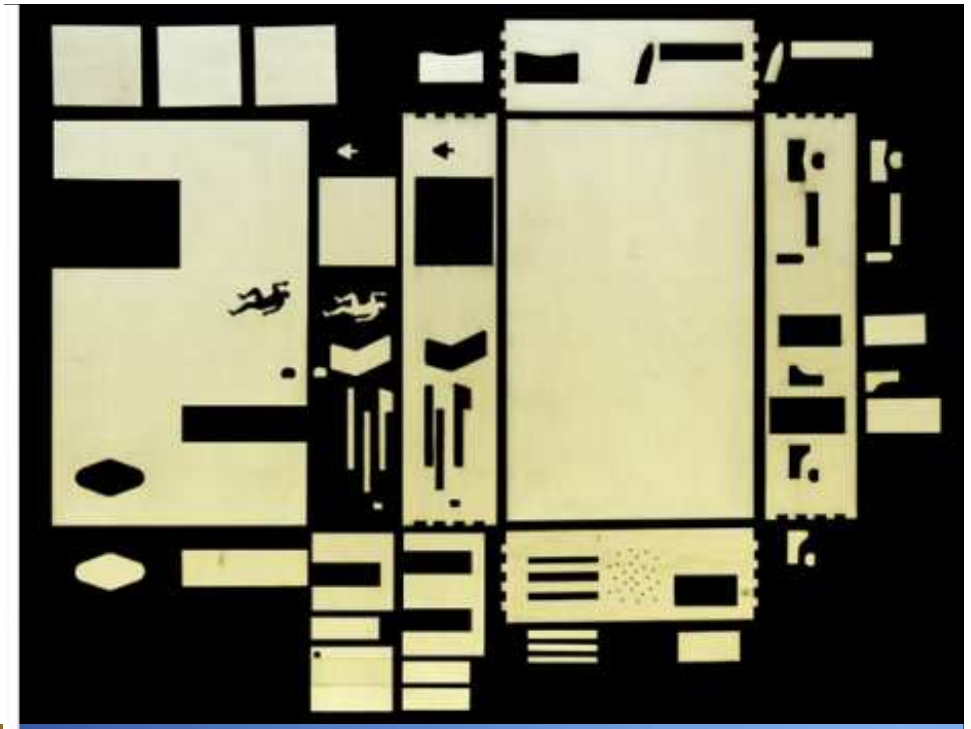
The CLT opportunity!

- Forest owners
- Sawmillers
- CLT manufacturers
- Developers
- Architects/Engineers
- Building owners/occupants

⇒Opportunity for NZ economy and community!

CLT structures – some examples

Source: KLH



Source: Binderholz

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Source: Mayr Melnhof


Source: Mayr Melnhof

Source: Mayr Melnhof

Source: KLH; Architect: Dirk Wilhelmi

Source: Mayr Melnhof

Source: Stora Enso

Source: Binderholz

Source: Finnforest Merck

Source: KLH; Architect Philippe Caire


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PRIX BAS GARANTI
TOUTE L'ANNÉE


BOFFERDING

Source: Timbertower


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