



Save money.
Help save the planet.

Two compelling reasons to use laminated veneer lumber
in your next portal frame building.



The structural reliability of steel with all the natural advantages of wood

Engineered to precise tolerances, laminated veneer lumber is manufactured using rotary peeled Radiata pine veneers which are laminated together under heat and pressure.

The effects of natural defects such as knots are minimised and the grain direction of the veneers is specially orientated to enhance strength and rigidity.

The result is a solid, uniformly consistent material that delivers proven structural reliability and can

have significant cost advantages when used in portal frame structures.

LVL is especially suitable for buildings where structural elements may be exposed to the corrosive effects of chemical vapours (eg swimming pools, fertiliser sheds). And because it's made of wood, it can't rust.

Portal frames constructed with LVL also have superior fire resistance compared with unprotected steel.



Smart

Case studies and independent evaluation show that large portal frame structures built with laminated veneer lumber can cost significantly less than equivalent buildings constructed with steel.

One study confirmed savings (including material costs and labour) of nine percent. This was based on costing identical 1800m² warehouses: one with a LVL portal frame, the other with a steel portal frame. For detailed information, go to www.portalsuite.co.nz

Once steel price volatility is taken into account, the savings achieved by using LVL in the future could potentially be significantly greater.

Green

Wood is one of the world's most environmentally responsible building products. It is natural, renewable, sustainable and carbon neutral.

Choosing engineered wood products over other energy-intensive building materials has a substantial impact on carbon emissions.

For example, using LVL in place of steel saves nearly half the amount of greenhouse gases emitted in the manufacture of equivalent new steel.

With LVL, building owners, architects, specifiers and builders can easily reduce a building's carbon footprint and achieve maximum New Zealand Green Building Council rating points for timber.

CHH Woodproducts LVL is also available with independent certification by the Forestry Stewardship Council (FSC).



The future of portal frame construction

Strong

Because of its unique laminated construction, LVL is uniformly strong, stiff and dimensionally stable providing consistent structural performance with low variability.

It has a superior strength to weight ratio compared with steel and can be used in a wide range of structural applications, including large span portal frames, commercial and multi-storey buildings.

Laminated veneer lumber's structural performance is reliable and has been certified to comply with AS/NZS 4357 by the Engineered Wood Products Association of Australia (EWPA).

Fast

Prefabricated laminated veneer lumber structures arrive on site ready for immediate erection.

The kitset-like construction process ensures accuracy of assembly, can reduce build time and minimises the risk of construction errors.

LVL's high strength to weight ratio allows for innovative assembly methods that provide both speed of erection and OH&S advantages. LVL structural systems can be readily assembled in full bays on the ground in preparation for lifting into place, dramatically reducing the amount of work to be done at height whilst increasing site productivity.



Whangarei Fortress Dry Mill

Easy

FREE PRELIMINARY DESIGN SERVICE AND COMPREHENSIVE TECHNICAL SUPPORT

With CHH Woodproducts PORTALSUITE™ design tools, designing portal frame structures with LVL is as simple and straightforward as designing with steel.

To make the process even easier, CHH Woodproducts can provide a free, no-obligation preliminary design and costing service for your large portal frame project.

Alternatively, we are happy to convert your pre-building consent steel portal designs to use LVL and provide costings for comparison.

Our technical team will also provide full support and guidance relating to engineering design, detailing, fabrication and erection.



Ragtime Dairy Goat Farm

Home to 350 goats and 200 kids, the Ragtime shed was built using LVL because of a unique combination of advantages.

According to designer Peter Hill, LVL is perfectly suited to farm environments, being warm and woody, aesthetically pleasing and easy to build in remote areas due to the simplicity of assembly.

With purlins running flush into the side of the main hySPAN® rafters, a clean, clutter-free roof line was achieved. In practical terms, this means there's no space for birds to perch (a potential health hazard for goats).

LOCATION: Hawkes Bay, New Zealand

BUILDING SIZE: 1169 m²

ENGINEER: Hill Design Engineering Ltd

BUILDER: Mitchell & Greatbatch Construction

PRODUCTS: hySPAN®

Cloudy Bay Winery

World renowned wine maker Cloudy Bay decided on LVL for their new bottling store because it was warmer, more people-friendly and matched the rustic timber charm of the original building.

The architects wanted to avoid the industrial look of steel and found that LVL was economically more viable due to the simplicity of construction.

The building uses hySPAN® with the timbers sanded and finished with polyurethane.

With traditional steel beams, dust collecting on the ledges could potentially contaminate the wine, whereas LVL beams have sharp, clean lines and no ledges.

LOCATION: Marlborough, New Zealand

BUILDING SIZE: 860 m²

ARCHITECT/DESIGNER: Les Morris

ENGINEER: Kerrigan Engineers

PRODUCTS: hySPAN®, hy90®





Kiwifruit packhouse

Kiwifruit pack houses have traditionally been built with steel framework, but recent experience has shown that LVL can do a better job at a lower cost.

"The budget was comparable to steel in terms of materials, but the true savings were made in the construction," says Michael Newey of Punchbowl Coolstores.

LVL worked out cheaper than steel because the contractors were able to use their own labour unit without bringing in outside specialists.

"The inside environment has a warm, timber look," says Michael. "It is aesthetically more in harmony with the natural products being packed there."

LOCATION: *Auckland, New Zealand*

BUILDING SIZE: *2000 m²*

DESIGNER: *Hill Design Engineering*

PROJECT MANAGER: *Michael Newey*

PRODUCTS: *hyJOIST[®], hy90[®]*

CHH Woodproducts Wiri Distribution Centre

Using LVL was a departure for builder Mick Neale whose 30 years of building experience was based on steel frame construction. He found that LVL was more user friendly, easier to work with and was structurally more rigid with less movement than in a steel frame building.

According to designer Bruce Hutchings, there were also major advantages in speed of assembly and build quality.

"Factory prefabricated LVL systems are not only faster and more efficient to build," he said, "but most importantly, factory prefabrication helps ensure a better quality finished product, a building framework that accurately reflects the designer's intent".

LOCATION: *Wiri, New Zealand*

BUILDING SIZE: *3000 m²*

ENGINEER: *Timberbuilt*

FABRICATOR: *Timberbuilt (Australian based)*

BUILDER: *Mick Neale*

PRODUCTS: *hySPAN[®]*



Diocesan School for Girls Aquatic Centre

The designers chose an LVL roof structure to create a warm, natural timber ambience in contrast to the industrial look so prevalent in public pools and sports halls.

Timber was also considered to be the most environmentally sustainable option being a local, renewable resource with low-embodied energy.

Judges at the NZ Timber Design Awards agreed. They gave the project the commercial engineering excellence award for 2009, saying: "The use of timber adds real warmth and richness to the interior, fulfilling structural, acoustic and durability criteria, while creating an impression of a truly well crafted building."

LOCATION: Auckland, New Zealand

ARCHITECT/DESIGNER: McIldowie Partners/Upton Architects

ENGINEER: Structure Design Ltd

FABRICATOR: McIntosh Timber Laminates

BUILDER: Aspec Construction

PRODUCTS: hySPAN® and EcoPLY®

Blockhouse Bay Tennis Club

The building has a clear span of 36.8 m and uses a segmented box beam portal frame. The roof is curved to a 35.4 m radius, with the box beam rafters and columns constructed using hySPAN® flanges and cross-banded hySPAN® webs.

The beams were assembled using a composite glue/nailed connection, with beam splices achieved on site with rigid moment connections. Wide bay spacings were used to accommodate sufficient run-off for competition grade tennis. These large bay spacings were achieved through the use of specially designed hyJOIST® purlins.



LOCATION: Blockhouse Bay, New Zealand

BUILDING SIZE: approx 3474 m²

ENGINEER: Timberbuilt

FABRICATOR: Timberbuilt (Australian based)

BUILDER: Mainzeal

PRODUCTS: hySPAN® and hyJOIST®



McCormick Centre for the Environment

Combining education and tourism facilities for visitors to the Murray River region, the centre was designed to be a model of environmental integrity.

Being a natural resource with the advantages of specialist engineering, LVL was chosen primarily for its environmental benefits, but was also found to be practical and economic.

The monopitch portal frames consist of doubled sections of LVL with rafters and columns jointed with concealed steel fin plates and steel dowels inserted into interference fit holes predrilled in a circular pattern.

LOCATION: *Renmark, South Australia*

BUILDING SIZE: *1065 m²*

ARCHITECT/DISIGNER: *Phillips/Pilkington*

ENGINEER: *Timberbuilt*

FABRICATOR: *Timberbuilt (Australian based)*

BUILDER: *Cox Constructions*

PRODUCTS: *hySPAN®*

Whakarongo School Hall

Looking for the most cost-effective building solution to ensure maximum value from limited funds, the Whakarongo school building committee settled very quickly on LVL.

The chairman of the committee had seen hySPAN® LVL being used at the Linton Military Camp and was impressed at the ease at which army trainees there had erected a new trade workshop and generator shed.

The geometry of the Whakarongo hall, 20 metre clear span with a 4 metre wall height, was ideal for LVL portal frame design.

The hall was constructed by volunteers from the Linton Military Camp.

LOCATION: *Palmerston North, New Zealand*

BUILDING SIZE: *576 m²*

ENGINEER: *Futurebuild*

BUILDER: *NZ Army 2nd Engineers*

PRODUCTS: *hySPAN®*

Australasia's largest timber products company



CHH has been part of the timber industry for over 100 years and currently employs over 5000 people throughout New Zealand and Australia.

We manufacture and produce a wide range of wood based products including LVL, particleboard, profiles, plywood, outdoor, structural framing and decorative wood products.

CHH has 24 production sites in New Zealand and Australia and uses timber sourced from renewable pine plantations.

As well as serving markets in New Zealand and Australia, CHH Woodproducts exports to the USA, Japan, Middle East, South Africa and South East Asian markets.

A growing network of LVL fabricators

Prefabricated LVL structural systems can be supplied to sites anywhere in New Zealand or Australia through a network of authorised LVL prefabricators.

Our service to specifiers and builders includes comprehensive technical advice and support and direct access to an experienced team of engineers to assist with all aspects of design, detailing and fabrication.