

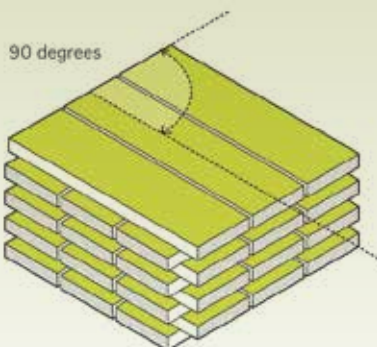
Cross laminated timber (CLT) - an engineered wood product of the future



Forte – Australia’s first CLT building constructed by Lend Lease



CLT wall panel installation at the Forte project in Melbourne



Cross laminated timber (CLT) is an engineered wood product for the future, making the construction of entire mid to high rise buildings from timber a reality - an elegant solution for the building industry as it pursues more sustainable building practices.

First developed in Switzerland in the 1970s, CLT has evolved as one of the most exciting and innovative engineered wood products available. Its potential as a sustainable building material is rapidly being realised around the globe.

CLT is an extension of the technology that began with plywood, and the recognition that cross-laminating layers of wood, improves the inherent structural properties of the element in both directions. CLT comprises planks of timber 12- 45 mm thick and 40- 300 mm wide face glued together, each layer at 90 degrees to its neighbouring lamella; effectively ‘jumbo plywood’.

CLT panels are typically

- 57 mm - 320 mm thick
- 3, 5, 7, or 8 layers depending on application
- 2.2 to 2.95m wide
- up to 11.9 m in length (dictated mainly by shipping and cartage requirements. Other sizes may be available.

Three grades of finish are typically available: Domestic Visual Quality (DVQ) highest possible quality, Industrial Visual Quality (IVQ), medium quality but still visual, or Non-Visual Quality (NVQ) for unexposed panels.

CLT can be used to form complete floors, walls, ceilings and roofs, amongst other building elements.

In combination with other engineered wood products, such as I-Beams, laminated veneer lumber (LVL) and structural plywood, CLT can be a crucial element in the construction of buildings made entirely from timber, with all the positive attributes of reduced carbon emissions and carbon storage that sustainably-sourced timber products represent.

Forte - Australia’s first CLT building

In 2012, Lend Lease completed Australia’s first CLT building the ten storey Forte apartments in Melbourne, the tallest modern timber residential building in the world at the time at 32.17 m high.

Lendlease cite the benefits of CLT construction as including:

- improved safety standards particularly the elimination of manual handling and high-risk trades,
- reduced embodied CO₂e emissions (with Forte: 700 tons CO₂e stored and 700 tons avoided by not using concrete and steel),
- reduced on-site worker needs, truck movements and OH&S issues,
- higher precision, design flexibility and customisation,
- reduced impact of construction on neighbouring communities, and
- significantly shortened construction times meaning a more cost-effective overall build.

A new way of thinking about building

One of the main differences with CLT structures is that they are a fully prefabricated system that requires a new way of thinking about the building process.

Using CLT requires thorough planning, structural design and detailing integrated with the overall building fit-out ‘up front’ - before the panels are physically fabricated. All openings, service penetrations, routed electrical grooves, etc. are made in the panels during fabrication - so once the panels get to site the elements are simply placed and quickly and efficiently screw fixed together.

Today the advantages of CLT are recognised in an increasing range of iconic commercial buildings, such as Sydney’s award-winning International House and many mid-rise residential and other projects.

For information on suppliers and design assistance visit woodsolutions.com.au