A new high-rise all-timber development is set to grace Docklands’ shores, and a number of structures will follow in its innovative footsteps.

BY JOHN HALKETT

It’s not quite a Trojan-Horse moment, but a large wooden structure has appeared in Melbourne’s Victoria Harbour. Instead of being filled with Greek warriors, the development is filled with high-tech new-generation library equipment and community facilities. Part of the revolution in high-rise wooden construction, the Forté residential tower is the first timber construction in Victoria Harbour. This 10-storey building is currently the tallest wooden apartment tower in the world, but the revolution continues with the Docklands Library and Community Centre now also under construction in Victoria Harbour.

Both buildings, plus others on the drawing board, are being constructed from prefabricated cross-laminated timber (CLT) panels, with no precast concrete on site. CLT panels consist of bonded, cross-laminated single timber layers. They are formaldehyde-free, and environmentally friendly adhesives are used. The cross-structure of CLT panels guarantees precise engineering performance and stability characteristics.

Sustainability and reduced environmental footprint qualities are drivers behind the wide use of CLT prefabricated technology, as are its similar levels of structural performance credentials to concrete, and known thermal and acoustic attributes. Buildings that use this technology are about two-thirds the weight of comparable concrete buildings. The construction process is also cleaner, simpler, and faster. Architects are now looking closely at the potential to take advantage of the momentum being developed to expand the use of timber systems in previously off-limits commercial development applications.

The Docklands Library and Community Centre will be the centrepiece of Victoria Harbour’s new civic heart, housing a next-generation library and community centre complex. The project is a partnership between Lend Lease, Places Victoria, and the City of Melbourne.

The building façade will be clad with reclaimed hardwood timber, and a five-star Green Star rating under the Green Building Council of Australia is targeted. Because of the light weight of CLT construction, only a limited amount of additional piling and repairs of the 134-year-old wharf have been required, considerably reducing the cost of the project. The library and community centre are not just another building or piece of architecture, but an important piece of urban infrastructure that will deliver a number of lifestyle benefits. The complex will also expand the vision for environmental excellence and create one of Melbourne’s most remarkable civic landmarks.

The CLT panel structural component of the building has been produced by Stora Enso’s manufacturing facility in Vienna, Austria. The estimated CLT panel erection time is six to eight weeks. The centre is scheduled to be completed by the end of 2013, with its doors opening to the public in March 2014.

Because of its increasing acceptance by architects and builders, CLT construction technology is being incorporated into high-rise development design and residential housing throughout the United Kingdom, Europe, North America, and Australia. It is anticipated that this trend will accelerate as confidence in design, engineering standards, compliance and planning approvals regime improves.

Lend Lease’s head of Timber Solutions Andrew Nieland says that both Forté and the Docklands civic complex would “unlock a new era for sustainable development by offering a viable alternative to traditional carbon-intensive construction systems”.

“CLT prefabrication is the most significant form of innovation in construction technology that Australia has seen in many years,” he says. Stora Enso Timber Australia’s deputy managing director Eirikki Välikangas believes the Docklands Library and Community Centre will be a great example of CLT construction.

“It will be a natural extension to our business. Stora Enso has now been operating in Australia for more than 10 years through four distribution centres around the country,” he says. CLT has the potential to transform the Australian commercial and high-rise buildings landscape by introducing more efficient and environmentally friendly construction processes. Not only does the use of CLT provide similar levels of structural integrity to traditional precast concrete, but it delivers acceptable thermal performance and reduced projected building lifecycle carbon-dioxide emissions. In addition—being based on prefabrication—the CLT construction process involves much less material on site, and is cleaner, simpler, and faster.

With compelling economic benefits, construction efficiencies, green star credentials, and environmental advantages, expect to see more CLT-based high-rise and commercial building projects across Australia in the future.

ABOUT JOHN HALKETT

John Halkett is the Managing Director of Forestlands Consulting. He writes extensively for trade publications and is the author of four books. He is presently working on an all-native timber boys’ school nearby the challenges faced by South Aust. River Tavern.

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