

new ways with timber

An innovative construction system using engineered timber is meeting a growing demand for low-cost, medium-density housing.

Achieving true affordability in housing requires innovation – looking at how design and construction methodologies can be streamlined and improved, without compromising structural integrity, liveability, or environmental impacts.

It's this ethos that led Frasers Property Australia (formerly Australand) to recently implement a timber-based solution which slashes the cost of multistorey construction, dramatically speeds onsite progress, and results in a more affordable housing product.

NCC update

In May this year, changes were introduced to the National Construction Code (NCC), allowing builders to use timber for apartments, hotels and offices up to 25 metres in effective height (eight storeys) using the NCC Deemed-to-Satisfy provisions.

'These changes are still very new,' says Boris Iskra of Forest and Wood Products Australia (FWPA). 'However, industry is seeing it as a real opportunity...FWPA has established a technical field force in Victoria and Queensland, under the WoodSolutions brand, that can assist builders, developers and designers with the design of these types of buildings, and will shortly be releasing technical guides.'

HIA is partnering with industry to deliver training courses for members: contact your local branch for details.

'In seeking to improve cost outcomes and onsite efficiencies, we...worked in collaboration with engineers and suppliers to create the hybrid construction system, which utilises prefabricated timber elements that can be built off-site and installed in modules,' explains Craig Muse, development director at Frasers Property Australia.

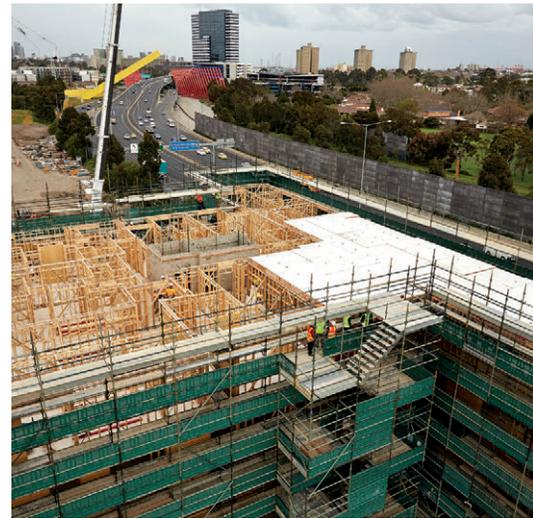
While the use of prefabricated structural elements is common practice in residential building, the innovation comes with engineering and fabricating products that can meet the particular requirements of multistorey construction: accommodate wider spans, support greater weight, and conform to the additional fire and sound provisions specified by the building code for apartments.

Frasers first implemented the methodology in its five-storey Melbourne development, The Green (pictured right), which was completed in 2014. The 57-unit structure was built from prefabricated engineered timber wall panels, roof trusses and large-span flooring cassettes, which were dropped into place using a lightweight crane.

At 2.7 x 8 metres, the flooring cassettes were large enough to span between load-bearing walls without additional propping. The building went up in overlapping steps: once a flooring cassette was in place, services were installed on the level below while the prefabricated wall frames were erected on the level above.

Craig says The Green was completed a month ahead of schedule, and a subsequent cost analysis showed a saving of 25 per cent, compared to conventional concrete-based building methods. Frasers has most recently used the hybrid system to construct a public housing development at Westmeadows, near Melbourne.

Boris Iskra, national manager of codes and standards at Forest & Wood Products Australia, says the method offers a multitude of benefits.



'Because the timber elements weigh so much less than concrete, builders can get away with lighter crane systems onsite,' Boris explains. 'The panels are easier to manoeuvre and are a lot safer onsite for workers.'

The lightweight construction requires lighter foundation work, and Boris says it's also a great solution for infill developments when adding storeys to existing buildings.

[The] timber-based solution slashes the cost of multistorey construction [and] speeds onsite progress

For Craig Muse, the advantages of the hybrid system extend well beyond increased company profits.

'The great thing about it is that construction can be carried out by domestic trades, so it's good for the industry as whole,' he says.

And – perhaps most importantly – it brings a truly affordable housing product to the market. 'This construction method brings the cost base down, and means we can provide more of what Australia needs: affordable, accessible housing,' Craig says. **H**