Design and Construction Company Offers Medium Density Residential Buildings 'Off the Rack'

The Grounds at Hobsonville Point is a medium-density apartment block comprised of four, three storey buildings with a total of 42 one and two-bedroom apartments.

New Zealand's housing landscape is largely characterised by standalone homes and high density apartment typologies, particularly in Auckland – the epicentre of the housing 'crisis'. While intensification is a recognised solution to the housing supply shortage, there is a gap in the market for medium density dwellings to be delivered at scale.

Tallwood, an innovative design and technology-led offsite manufacture company has just amalgamated with Stanley Modular – a division of Stanley Construction. The new entity, Tallwood, caters for the 'missing middle'; the amalgamation having significantly enhanced the company's ability to deliver medium density housing at scale.

The Tallwood promise is to design and build cost-effective, healthy, high quality homes, and the company credits its innovative building and design methodologies to deliver on that promise. Tallwood uses a combination of offsite manufacture, digital fabrication processes and engineered timber.

"Applying our methodology to medium-density housing projects presents an exciting opportunity for community housing providers," says Rob Marshall, CEO of Tallwood. "We offer our clients a way to intensify cost effectively without compromising on quality and liveability."

Reducing risk with a digital 'twin'

Part of Tallwood's methodology is to create a digital 'twin' of a building using Building Information Modelling (BIM). A digital twin is a virtual model of a physical building across the building's lifespan. During design and construction, the digital twin enables progress monitoring, safety monitoring, resource planning and logistics, and in the future, 'real time' tracking between as-built and as-designed models.

"What this offers the developer is certainty," says Marshall. "Having a digital twin enables us to comprehensively test the design, buildability and performance of a build before the construction phase. We can uncover opportunities, preempt design and building constraints, maximise efficiencies and maintain quality control – all within a virtual environment."

Saving time and money by using repeatable products

Standardisation of the elements that make up the core of all building's DNA is integral to Tallwood's prefabrication processes. Using repeatable elements generates time efficiencies during the design and manufacture stage of a build, although Marshall is quick to point out that this does not limit the ability to achieve a customised or bespoke design.

Manufacture processes take place in Tallwood's Matamata factory, where the structural members, walls, floors and other key components are made by man and machine. This can happen in parallel to ground works, further reducing overall build time. Once completed, the components of the building 'envelope' (often complete with exterior cladding on and windows in) are delivered to site and installed.

Time savings equate to cost savings too: an accelerated construction programme reduces the term and therefore the cost of borrowing for most clients. All in all, a Tallwood build achieves a reduced build time of approximately 30%, and cost savings of up to 15%.

High Quality Homes are Healthy Homes

Daiman Otto, Director of Design and Digital Construction, says a Tallwood build does not compromise on quality. Rather, it enhances it. Material, labour and manufacturing activities are unaffected by weather. Technology and digital prefabrication processes bring precision and accuracy to the design and build process.

"Not only is the end product a higher quality building, there's plenty of evidence to suggest that a timber building has a wide range of health benefits, too."

Tallwood uses engineered timber to make structural members, walls, floors and roofs. Cross laminated timber (CLT) has the rigidity and strength of a precast concrete panel and laminated veneer lumber (LVL) replaces traditional concrete and steel structural members.

Studies show that living or working in a timber building has physiological and psychological benefits that mimic the effect of spending time outside in nature. It generates feelings of warmth and comfort, and has the effect of lowering blood pressure and heart rates, reducing stress and anxiety and increasing positive social interactions.

The Grounds at Hobsonville Point

Tallwood's latest project, The Grounds at Hobsonville Point, is a 42-dwelling apartment development made up of three buildings, each three stories high. Tallwood has initiated the project in a response to HLC's call for innovation to meet affordability and density objectives along Hobsonville Point's main road. The company will deliver the development in partnership with Twenty Twenty Property Partners.

The structural members (posts and beams), walls, floors, roofs and balconies are being built using engineered timber, and manufactured offsite. The timber has been expressed on the interior and exterior of the buildings. Currently, Tallwood is mid-way through the manufacturing stages. Total manufacture time is expected to take five weeks and installation time an expected 50 or so days. Completion is expected by the end of this year.

How to intensify on a 1000-1200m² site

It is off the back of this, and other recent projects, that Tallwood has developed a niche product offering – pre-designed medium density apartments for 1000-1200m² urban and suburban sites.

A pre-feasibility guide is designed to assist clients in evaluating site conditions suitable for a medium density Tallwood apartment building. The guide showcases designs for apartments in the 'mixed housing urban' and 'mixed housing suburban' zones. The designs are provided as a response to different site shapes, layouts and conditions.

All designs comply with the Auckland Unitary Plan zoning regulations. Developers can buy a typology 'off the rack' and customise it to suit their needs (with each site being subject to a site specific review). Clients can choose an eight-dwelling build for an apartment block in the mixed housing suburban zone, or a 12-dwelling apartment block for a mixed housing urban zone.

"To be able to tell Community Housing Providers we can help them turn a suburban site that currently has a single house, or maybe a couple of townhouses on it, into eight dwellings – that's exciting," says Otto. "And not just dwellings, but high quality, healthy homes that positively contribute to their occupants' wellbeing."

As developers look to innovative building solutions and opportunity for intensification, Tallwood is gearing up for a big year ahead. Tallwood now has the capacity to deliver on its promise at scale, and across a wide range of projects. Marshall and Otto estimate that the new company will complete 500 units comfortably within their first year, with the capacity to scale up to over a thousand a year immediately as the market requires.

Tallwood designs and constructs buildings out of engineered timber - the aesthetic appeal of the exposed wood has been a key driver of sales.

Living in a timber building has proven physical and psychological health benefits.