



317 HARDY STREET, NELSON

Snapshot Case Study

DESIGN

Ken Robinson Architecture (KRA),

CONSTRUCTION

J Lewis Building Ltd

STRUCTURAL ENGINEER

AMK Engineers

BACKGROUND

The Hardy Street development comprises eight three-storey residential apartments. The primary structure consists of concrete foundations, ground floor slabs, low-level precast concrete walls, and extensive CLT walls and floors above, stabilised in one direction by substantial steel frames.

The site's soft ground conditions required a lightweight superstructure to mitigate long-term settlement issues that could arise from a heavier reinforced concrete solution.



EASY GAINS

- The lighter weight CLT superstructure allowed increased speed of construction, lighter on-site craning, shorter hook time, and greater floor coverage per square meter per crane lift, compared to traditional reinforced concrete/metal deck construction.
- Zero temporary propping was required within the building footprint, allowing early access for the lower floors for storage of materials and fit-out.
- Repetition of the superstructure and floor plate design achieved economies of scale.

RESULTS SUMMARY

- Total EWP floor area: 1,283 m², with 482 m³ of CLT used.
- Estimated sequestered carbon: 470 tons of carbon dioxide.
- Speed in getting up and out of the ground improved site safety, limiting scaffolding use to the external fabric.
- Lightweight CLT superstructure enabled faster build and safer working platforms during construction.

HISTORY/PROJECT BRIEF

317 Hardy Street is a residential townhouse complex in Nelson featuring eight three-storey units.

The project was designed to explore the benefits of mass timber construction, particularly in relation to lightweight structures suited for challenging ground conditions.

Construction commenced in February 2022, and the structure was completed by November 2022.

PROJECT LEARNINGS

- New material learning meant all parties had to **continuously coordinate** throughout the construction process.
- Building Consent Authority's (BCA) site understanding still needs work, as timber **detailing questions**
- **slowed construction.**
- **Acoustic design** compliance needed to be **considered earlier**, highlighting the need for more 'standard' lightweight methods.

BARRIERS TO OVERCOME

- Building Consent Authority **defaulted back to lightweight timber construction** when unsure, adding time & cost.
- **Acoustic design** considerations should have been addressed earlier to explore **better compliance solutions**.
- Some detailing wasn't suited to the products used, but **more effective solutions are now available**.
- Use of engineered timber materials has increased, with **more effective systems now available** than at the time of this build.
- **Prefabrication** required additional planning upfront, including computer modelling, which **aided coordination** between trades, though service penetrations proved more complex than anticipated.