



TTT MULTIPOLES

Te Wharehou O Tuhoe used TTT MultiPoles for structural components in their iwi and civil defence headquarters located in Taneatua, New Zealand. This project utilised TTT MultiPole Uglie Poles for foundation piles, and TTT MultiPole UniLogs in columns, diaphragm floor panels, and post-tensioned shear wall panels.

Project background:

- Designed by Jasmax; built by Arrow International; structural design by mlb Consulting Engineers.
- This is the first New Zealand project built in accordance with the North American Living Building Challenge – the most stringent sustainability criterion that can be applied to buildings.

Why use TTT Poles:

- This project needed to provide minimal embodied energy and carbon emissions, which was achieved through timber structural systems.
- The design was to have minimal structural damage under a large seismic event.
- The building was to provide emergency shelter to the community.
- TTT Products developed innovative new products, equipment and machinery to enable manufacture of the specifically designed components used in the project.

How TTT Poles were used:

- The TTT MultiPole is an incredibly versatile pole due to its unique hollow core.
- TTT MultiPole Uglie Poles are naturally tapered, debarked poles with a hollow core that provide greater skin friction during installation.
- Foundation piles of TTT MultiPole Uglie Poles 216 pieces up to 12.0m long x 200-300mm SED were vibrated through the silty, sandy liquefiable top layer then 2m into the gravel layer. Reinforcing rods were grouted into the hollow core.
- TTT MultiPole UniLogs are machined, uniform diameter poles with a hollow core.
- TTT MultiPole UniLogs up to 8.0m long x 180-350mm diameter were used as structural columns.
- TTT MultiPole UniLog floor panels were made from 240mm diameter components in panels up to 4.4m long x 3.0m wide.
- TTT MultiPole UniLog shear wall panels were made from 180-225mm diameter components in panels up to 6.5m high x 6.0m wide.
- The floor and wall panels were constructed with components using our unique shear key scallop system.
- TTT MultiPole entrance struts were manufactured from specially fabricated tapered UniLogs.
- TTT MultiPoles were also used in a separate photovoltaic structure.



- Each column, floor, and wall panel was manufactured uniquely with all rebates, scarfs, cuts, shaved edges, and pre-drilled holes completed prior to site delivery.
- All components were dried, preservative-treated with either Boron or Micronised Copper Azole (MCA), coated with a temporary protective coating, and wrapped to maintain moisture content.