



AURECON STAIRS (TE TIHI)

Snapshot Case Study

DESIGN

Warren & Mahoney

CONSTRUCTION / INSTALLER

Savory Interiors
Kobe Construction

STRUCTURAL ENGINEER

Aurecon Group

BACKGROUND

The Aurecon Stairs (Te Tihi) project is part of the interior refurbishment of Aurecon's Auckland office.

The project required a visually striking yet structurally efficient stairwell design that integrates sustainability, digital fabrication, and cultural storytelling.



EASY GAINS

- Glulam trusses span floor to ceiling over two levels, supporting the mid-level stair landing and creating a 'floating' illusion.
- CLT stair units were fabricated from a single billet, reducing the need for additional support and enhancing efficiency.
- All elements were coordinated in a 3D model and CNC profiled to precise dimensions, allowing for an efficient, kitset-style installation.
- Intricate cultural designs in the Glulam trusses and CLT stairs were CNC cut, incorporating the mana map and Niho Taniwha pattern.

RESULTS SUMMARY

- Volume of CLT used: 7m³; Volume of Glulam used: 2.6m³.
- Embodied carbon savings: 6.4 tonnes CO₂-eq.
- High-precision digital fabrication minimized waste and ensured exact alignment of structural elements.
- LED lighting was integrated into the stair design, enhancing aesthetic appeal and way finding.

HISTORY/PROJECT BRIEF

The Te Tihi staircase was designed as a focal point for Aurecon's Auckland office, incorporating sustainability and cultural integration.

Working closely with Ngāti Whātua Ōrākei, the design aimed to preserve and express important mātauranga Māori.

PROJECT LEARNINGS

- Digital fabrication and 3D modelling were essential in achieving precision and reducing errors during installation.
- Prefabrication streamlined site assembly, reducing on-site labour and construction waste.
- Structural timber elements required careful moisture management during installation to ensure longevity / durability.

BARRIERS TO OVERCOME

- Ensuring seamless integration of digital fabrication with on-site installation required extensive coordination.
- Cultural storytelling elements needed to be accurately reflected in CNC patterning, requiring multiple iterations.
- Managing the weight and load distribution of the floating stair required detailed structural engineering.