



1 3d joint details 2 Sketch detail 3 Pupils under verandah (Patrick Reynolds) 4 Frames under construction (Johannes Van Kan) 5 Pupils on Slide (Patrick Reynolds)

Cathedral Grammar Junior School

Project Location: Christchurch

Ruamoko Solutions for The Cathedral Grammar School

Disciplines: Structural Engineering



The Cathedral Grammar Junior School redefines how timber can be used in construction in New Zealand, and pushes the limits of new CNC manufacturing technology in order to use exacting traditional timber jointing techniques on an unprecedented scale. The Junior School was built using complex layers of fully pre-cut interlocking LVL timber elements which remain exposed as the major architectural feature.

The timber frames were meticulously designed and manufactured to ensure structural performance and perfect fit, and arrived on site complete down to the smallest hole and rebate. The final design features innovative adaptation of traditional timber jointing techniques that allow ductility but minimise the quantity of steel required. The joints combine long-established woodworking techniques with 21st century engineered timber and fabrication technology allowing fast, economical, and precise reproduction of elegant connections. Timber construction on this scale with this level of pre-fabrication is a first for New Zealand, and the building is a showcase for timber engineering, sustainability, carpentry, and craftsmanship.

Ruamoko Solutions were engaged by Cathedral Grammar School as Structural Engineers for the project, responsible for taking an architectural concept by Tezuka Architects and Andrew Barrie Lab, realising it within New Zealand conditions and capabilities, and ensuring the structural performance and seismic detailing.

Extensive collaboration was required with the Architects, contractor Contract Construction, and LVL fabricator TimberLab Solutions to ensure that the strong architectural vision was achieved while working to extremely tight tolerances.

This unique project was delivered on time and on budget to a delighted client.

Judging & Copyright Statement

This project is a Finalist entry in the 2016 INNOVATE NZ Awards of Excellence competition. The winners will be announced on Friday 2 September, 2016.

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