The Athfield Architects, Wellington team
previous AAL projects incorporating timber LVL and glulam construction solutions....
...and some competitions....
Competition for Royal Society Project Gateway, Wellington
Competition for Nelson Marlborough Institute of Technology, Arts and Media Building
...including Massey University College of Creative Arts....
Competition entry for College of Creative Arts, Massey University, Wellington  September 2009
building context

Block 2 - Currently fine arts building, previously mechanical and technical drawing classrooms and workshops
building type

Technical School history
Workshop building type, large span flexible space
Timber and steel construction aesthetic
building context
building concept
**Building Mass**

Concept influenced by:
- existing circulation patterns across the campus
- topography of the site
- existing building context
- requirement for flexible teaching space

**Fluid**  
- loose circulation space  
- Gallery / breakout

**Topography**  
-density, programme  
-located at ground level built into existing bank

**Vessel**  
- structured container  
-providing open plan flexible teaching space
a flexible framework.... for the teaching of the creative arts

LVL Timber Frame provides for:
- Large span, open plan flexible spaces
- Warm tactile aesthetic of timber
- Renewable resource with low embodied energy
- Prefabrication for faster on site installation
- Innovative earthquake strengthening solution
Typical studio floor plan
- 7200x9000mm primary grid
LVL Timber Frame Structural Design:

- Innovative earthquake strengthening solution; First post tensioned timber frame with draped tendons in the world

- Combines Damage Avoidance Design (DAD) with a LVL timber super structure

- DAD allows for rocking or sliding motion of the structure during an earthquake

- The post tensioning of the frame means the connections are able to “rock” opening and closing as the frame sways in an earthquake before springing back to original position

- The central lecture theatre shear walls act as a damping element

- Prefabrication of LVL beam and column components for faster on site installation
Dunning Thornton structural model
Post tension LVL frame with precast shear walls of lecture theatre below
east facade
post tension cables running between beams tightened on outside face of column
typical beam/column connection
draped post tension cables running between primary beam, left exposed within final interior
600x300 LVL column

tension cables running through column
tensioned at base of ground beam
Prefabricated hybrid timber/concrete floor unit

Provides the following benefits:
- Innovative prefabricated structural solution; First timber/concrete, precambered, prefabricated floor unit in the world
- Prefabrication resulting in faster on site installation
- Use of NZ grown wood product - renewable resource
- Using effective strength-to weight ratio of timber in tension
- Warm Tactile aesthetic of timber floor joists at ceiling level
- Combined with strength of concrete in compression, and thermal mass and acoustic advantages of concrete
- No topping slab, therefore limiting wet concrete trade on site + propping requirements traditionally required for cast insitu slabs
Features:
- 2400mm wide x 7000mm long prefabricated floor unit
- 360mm deep x 45mm wide LVL Tee @ 1200 centres
- 100mm thick concrete slab
- precambered LVL Tee and slab mitigates against sag in timber - world first
- angled screws to top of LVL tie the timber into the concrete slab
concrete stitch joint between floor units poured on site
concrete finish to underside of floor unit left exposed within studio space, offering heat sink capabilities.

timber acting in tension, timber left exposed within studio space. tactile material able to be easily fixed into
prefabricated plywood roof structure, built at ground level and craned in one bay at a time

Precast concrete smooth trowel finish to be used as the final floor finish within studio space

Lifting eyes to be grout filled on site
next level of creativity to be added to the timber structure.....

Collaboration with Te Atiawa Artist to provide Art installation within the building:
- provide an inspiring experience for students, visitors and the wider community
- integrate with and complement the fabric of the architecture
- engage with/ reflect aspects of the surrounding cultural and physical landscape.
- reflect awareness of both the cultural and physical landscape, the mana whenua and the design community which will inhabit the building
initial concept images looking at interacting the artwork with timber frame
Current progress on site....
Campus Context
View of eastern entry