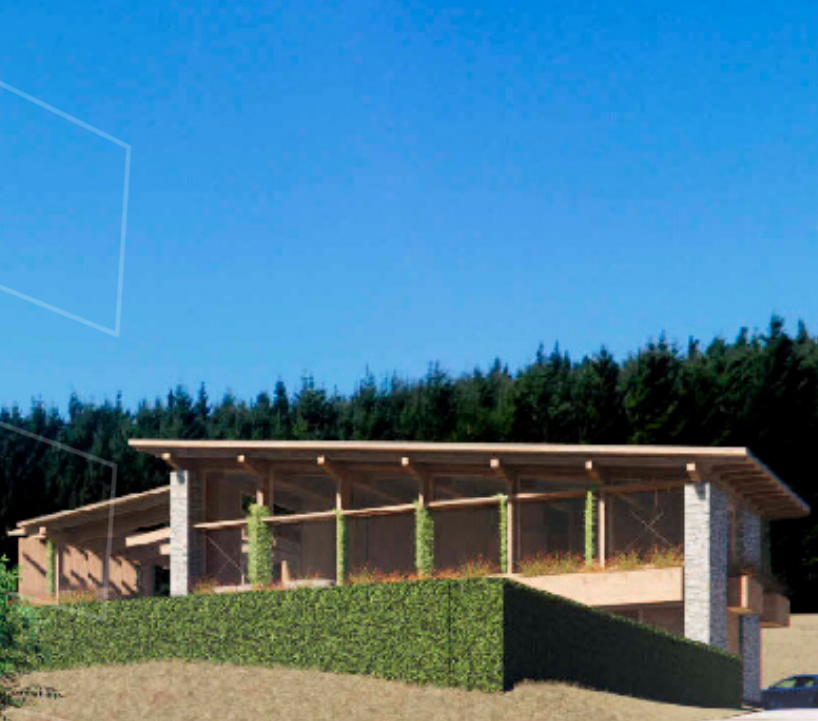




ALPINE RESORT, WANAKA

Snapshot Case Study

DESIGN

Assembly Architects

CONSTRUCTION

Dunlop Builders

STRUCTURAL ENGINEER

ENGCO

BACKGROUND

The project is an 'alpine' inspired holiday home in Wanaka, backing on to the 'Sticky Forest' reserve.

Huge raking glulam beams provide the structure, whilst framing the expansive views to Lake Wanaka, the Southern Alps, Mount Aspiring and Treble Cone ski field. CLT floors and stairs, visible from below and the side, provide a stunning use of mass timber. The glulam's dark stain captures the natural growth ring patterns of the timber, enhancing the dark and moody feel of the interior design.

To ensure durability for centuries, the glulam is treated to H3.1 and the CLT and framing to H1.2, using natural treatments to New Zealand Standards.

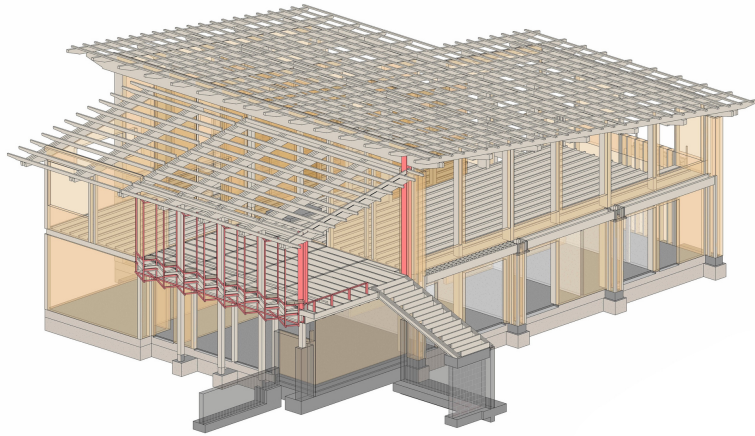
The project also showcases the value-engineered use of Douglas Fir framing, which performs well in Central Otago and is 30% cheaper than LVL. With extensive use of local mass timber, wool carpets, mid-floor exterior planter boxes for tussock grasses and hanging foliage, the project oozes natural sustainability from proud local supply.

Red Stag TimberLab provided an easy one-stop-shop for the mass timber and Douglas Fir framing, and ensured the project leverages to lowest Environmental Product Declarations (EPD) for mass timber in Australasia.



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EASY GAINS

- The glulam and CLT structure was **assembled** and **erected within a week**.
- Supply from a single source (Red Stag TimberLab) meant BIM modelling was **millimetre accurate** for the on-site assembly.
- **Early supplier engagement** with Red Stag by the engineers, architect and builder was a key success factor.

RESULTS SUMMARY

- The mass timber and Douglas Fir structure has been a **rapid easy assembly** to provide a stunning **sustainable** addition to this beautiful alpine location.

HISTORY/PROJECT BRIEF

The developer engaged **Assembly Architects** and engineers **ENGCO** in 2023, with a brief to collaborate on the project, with early supplier engagement from **Red Stag TimberLab**.

ENGCO is experienced with mass timber, whilst Red Stag's expert engineer was able to guide the **design's value engineering, optimisation and assembly**.

A building firm with **experience in mass timber**, that wanted to embrace it was seen as critical, so **Dunlop** was selected.

A **6-month design** process through 2024 is followed by a **10-month build** process through 2025.

PROJECT LEARNINGS

- With mass timber, a building's **structure can double** as a design feature if left exposed.
- Mass timber allows very **fast assembly, reducing P&G costs** and project time.
- **Allow time** from shop drawing sign off for the manufacturing process. In this case the building **consents were split**; one for foundations and one for structure 3-months later. This allowed the project to start early, whilst the mass timber structure was being signed off and manufactured.
- The **pre-assembly** of glulam portal frames with epoxy rods made for a **fast** and **cost-effective** construction. The Red Stag model showed precise placements for the builder to follow.
- When prompted by the client and builder, the engineer realised that LVL was not needed throughout the frames, and **Red Stag Douglas Fir** could be used instead. Douglas Fir is approximately **30% cheaper than LVL**.

BARRIERS TO OVERCOME

- Auckland **trucking company** lost a driver, **delaying** the start date **3 days**.

"Early engagement with RedStag's team on construction methodology and work staging allowed us to quickly iterate on the design solution in a way that met both the client and architectural brief but also maintain buildability and efficiency with available products."

Justin Wright, Assembly Architects

"Detailed 3D shop drawings from RedStag integrating glulam and CLT elements made for a straightforward process for us to review and approve the works to keep the project moving."

Tim Niven, ENGCO

"Mass timber construction delivered both efficiency and speed for the Alpine Lodge project in Wanaka. With prefabricated glulam beams and CLT floors, on-site assembly was significantly accelerated. The precision and upfront modelling from the design teams were instrumental in ensuring a smooth execution for our construction team."

Bryce Dunlop, Dunlop Builders