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project

'Deceptively complicated

By Jenny Baker

Stanley Construction's design and build project of a 400-seat cafe and a snow groomer shed high on the Whakapapa skifield is progressing well.

Expecting to wind up work within the next two months, the Matamata-based RMBF company is rebuilding the Knoll Ridge cafe and a snow groomer shed — which burned down in February 2009 in an arson attack — for long-standing client Ruapehu Alpine Lifts.

Part of the work was to erect a temporary cafe and repair the high-speed Waterfall Express chairlift, also damaged in the fire. This work was completed by the end of June 2009, allowing the skifield to open for the winter season.

Construction manager Craig Davison says the team had to wait for resource consent to come through, and consequently only started work on the new structures two weeks before Christmas, six weeks behind schedule.

TPP Contracting from Taumarunui carried out the first earth works on the site three weeks before Christmas.

With the building site situated 2000 metres above sea level beside the chairlift's top terminal, and 350m up from the termination of the only access road in a car park, the Stanley design and build team faced very specific constraints.

Mr Davison says the team consequently arranged the work ergonomics to suit. He explains: "Where possible, building units were manufactured off site.

"This is a very smart looking building that looks deceptively complicated. Actually, we designed it to be simple in structure and easy to build, and consisting of simple components.

"There was little margin for logistic or other errors. But we were involved in the project from two days after the buildings burnt down, and this allowed us to work with a high degree of coordination and resulting accuracy. The team has been doing really well."

The \$8 million structure is a one-level building with basement toilet facilities. A central steel column and structural steel framing totalling about 100 tonnes of steel, as well as 50 glue laminated timber structural post and roof beams, form its backbone.

The southern perimeter wall consists of timber framing and plywood cladding, with 6mm steel cladding over a cavity batten system. The three other walls consist of 120 glass panels, the largest being 3m high, 1.5m wide, and 36mm thick.

On top of the roof beams rest 91 prefabricated timber LVL framed structural roof panels, each 12m long, 1.2m wide, and 250mm thick, made by Stanley Modular in Matamata.

On top of that rests standard roof purlins and coloured steel roofing. The floor consists of 180 precast concrete panels, each weighing 2.5 tonnes, also made by Stanley Modular.

All resources reach the staging area in one of the skifield's car parks by road. From there, workers travel to the site on two chairlifts. At the project's peak, 50 workers are on the site each day. Earth moving equipment was driven up over snow in the 2009 winter, and the precast concrete panels were transported to the site on the back of trailers, pulled by snow groomers.

All other building materials are being flown to the site by helicopter, with flying hours totalling about 230.

building' actually quite easy to build



The \$12 million refit of the Whakapapa skifield amenities — 2000m above sea level — include a 400-seat cafe with floor-to-ceiling windows, providing views of the Pinnacles and Te Heu Heu Valley. A new snow groomer shed is also part of the project.



The steel, made by subcontractor Bedford Engineering in Hamilton, was designed to be bolted rather than welded together to simplify work procedures. Mr Davison says it was a particular challenge to keep the steel units' weight under 900kg, the maximum the helicopter can carry per flight.

The high performance double glazed glass, consisting of two 12mm-thick glass panels with a 12mm gap in between, can withstand extreme weather, including winds up to 300km per hour.

Unavailable in New Zealand, Stanley sourced the glass

in Germany. Singapore Safety Glass made the panels in Singapore, from where they were shipped to Auckland, Whakapapa's nearest port.

All the materials have been transported to the car park during the 2010 summer, and Mr Davison says it was "... a very interesting exercise to keep the logistics tidy and ensure the right material arrived on site at the right time".

The weather plays a huge part in a project of this nature due to everything being flown by helicopter to the site. Wind and cloud can stop this in a matter of

minutes if bad weather blows in. And when the helicopter costs \$2050 per hour, very careful planning and skill in calling the weather is imperative.

No stranger to challenging projects, Stanley Construction recently built the High Noon chairlift at the Turoa skifield.

The project earned the company a place as Gold Reserve National Finalist in the Pacific Steel Industrial/Utility Commercial Project category in the RMBF 2008 House of the Year and RMBF Commercial Project Awards, in association with PlaceMakers.