

CASE STUDY

Luxury Lakeside Home, Rangiora North Canterbury



A beautiful glass exterior with a warm, comfortable interior.

Challenge

This large luxury lakeside architecturally designed home was always going to be a challenge to heat; it features a large proportion of glazing on the west side and little on the north, whilst the size of some of the glazing meant it had to be single glazed. A 500L hot water cylinder, twice the size of many usual cylinders, and a swimming pool also needed heating.

This luxury sub division also dictated minimal visual and sound interference with neighbouring properties.

Solution

A combination of the above factors meant that the most economical way to heat the home would be using a geothermal heat pump. A DeLonghi 18.7 kW heat pump extracting heat from well water was used as the heat source for all the loads.

Heating is provided by 210m² of underfloor heating in the ground floor only; however this heat dissipates throughout the whole house to ensure

that even the first floor rooms are comfortably warm all year round.

The well water heat pump is the most efficient of all ground source heat pumps. A big advantage in this case, well water heat pumps also do not require extensive earth-works associated with other ground sourced heating; generally only two bores, one to take water out, and the other to reinject it into the ground.

Contractors and Client

Private residence at Palmview, Rangiora, North Canterbury

Products Used

- 1 x DeLonghi 18.7kW well water heat pump
- 1 x 110L buffer tank for heat pump
- 2 x bore holes
- 210m² underfloor heating
- 500L hot water cylinder with circulating hot water main
- Swimming pool heat exchanger and control



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Economy and design in perfect harmony, made possible by a low-profile heating solution.



Benefits

This high end heating system perfectly complements the home and fits the stipulations of the subdivision; ground source heat pumps have no outdoor unit so have no visual impact or fan noise.

What's more, all the heat loads come from one cheap-to-run heat source meaning that there are no requirements of multiple fuels for each application.

Annual heating, hot water and pool running costs are around \$4000 - a saving of \$8000 a year to provide the same amount of heating and hot water by diesel boiler.

The System works at a rate of up to 5:1, so for one unit of electricity you get five units of heat energy, regardless of the outside conditions. In cooling mode the efficiencies are even higher. This is ideal

for the climate in North Canterbury, where cold winters are often accompanied by long hot summers.

System Description

DeLonghi well water heat pump system providing heating for home, domestic hot water and swimming pool.



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