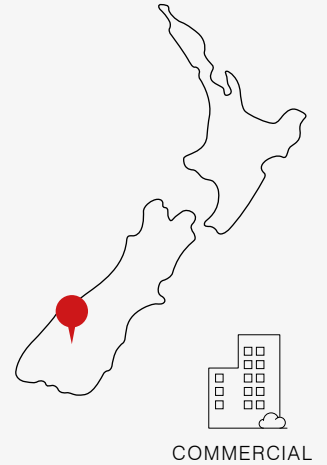


Project Showcase:

Sherwood Hotel



QUEENSTOWN



Located in Queenstown, the adventure capital of New Zealand, Sherwood Hotel adopts low carbon heat pump technology as part of its refurbishment to provide reliable domestic hot water to 20 guest rooms.

The Goal

The Sherwood Hotel is perfectly situated on the main road into Queenstown, with stunning views of Lake Wakatipu and only a short drive from popular ski fields.

However, built in 1985, the dated mock-Tudor hotel facility was due for a refresh. The owners wanted to transform the hotel into an environmentally-driven paradise that catered to the local ski scene, fostered community events and offered endless character. This would include meaningful upgrades that reduce the operational carbon footprint of the hotel and restaurant premises.

After installing 248 solar panels to provide the majority of the power to the site – it was now time to implement a new, more efficient domestic hot water heating system in rooms using direct electric hot water cylinders.



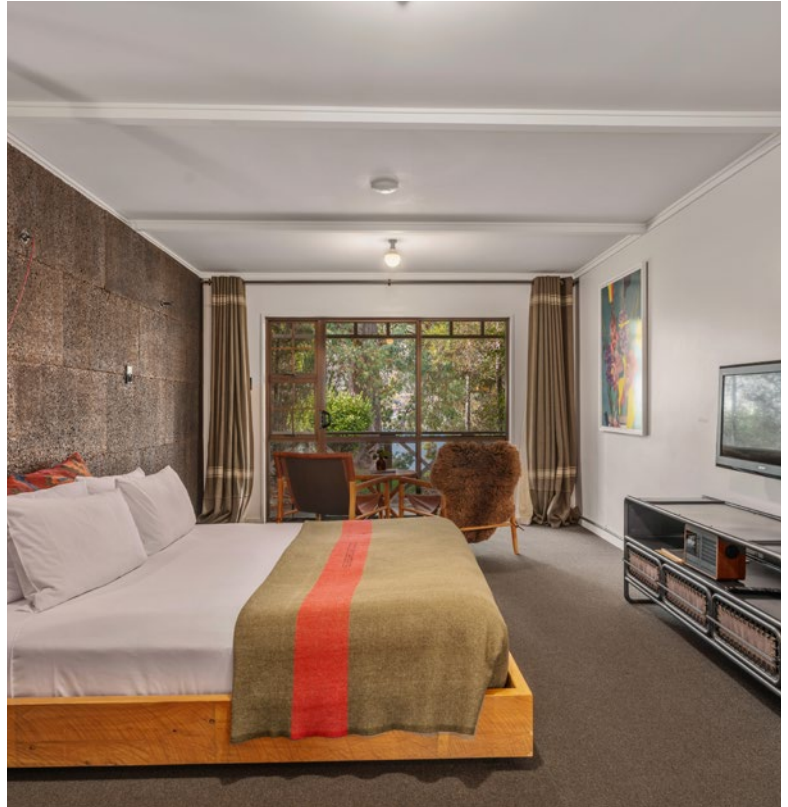
EQUIPMENT BREAKDOWN

- QAHV-N560YA-HPB 40kW Heating Capacity CO₂ Hot Water Heat Pump
- TW-TH16-E Temperature Sensors
- PAR-W31MAA-J Hot Water Controller

Project Showcase: Sherwood Hotel

The Challenge

The brief was clear, the domestic water heating system needed to be environmentally sustainable with a minimal carbon footprint. However, the system also needed to provide high temperature domestic hot water to 20 different guest rooms, across two building blocks. While Queenstown is known for its winter appeal, this presented a challenge for hot water as the chosen system needed to perform in the depths of the snow season.



The Mitsubishi Electric Solution – QAHV CO₂ Hot Water Heat Pump

The existing small electrical cylinders in 20 of the rooms were removed and replaced with a QAHV CO₂ Hot Water Heat Pump retrofitted to the existing storage tank system, providing a centralised solution. As the QAHV is specifically designed to produce high temperature potable hot water up to 90°C, the large 40kW capacity was sure to meet the high demands of this accommodation facility.

Low Global Warming Potential CO₂ (R744) Refrigerant

Utilising CO₂ as an environmentally friendly, safe and natural refrigerant with zero Ozone Depletion Potential (ODP) and a Global Warming Potential (GWP) of just 1, the QAHV Hot Water Heat Pump was able to provide a green, highly reliable and future-proofed solution to the hotel's potable hot water needs.



Project Showcase: Sherwood Hotel

Guaranteed Hot Water – Even in Low Temperature Conditions

As a single pass high temperature lift machine, QAHV works best with a high water temperature difference and delivers 10l/min or more of full temperature usable hot water in real time.

This directly reduces the amount of storage required to meet peak demands, and gives quicker recovery so guests will not be surprised with a cold shower. Furthermore, with its unique ability to provide hot water all the way down to -25°C, even Queenstown's harsh climate is no match for the QAHV.

Highly Efficient Water Heating

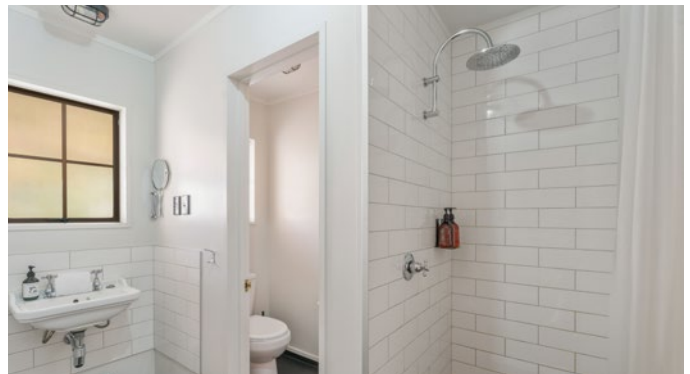
Not only does the QAHV CO₂ Hot Water Heat Pump perform at low ambient temperatures but it is capable of producing an average COP as high as 3.88*.

*Under normal heating conditions at outdoor temp: 16°CDB / 12°CWB, inlet water temp 17°C, outlet water temp 65°C.

The Result

The large capacity and quick water production of the QAHV CO₂ Hot Water Heat Pump ensures hot water will always be available for guests and facilities.

Now in its 3rd winter in operation, the owners are impressed with their new installation ensuring hot water is available even on the coldest days. Not only can the owners be confident in their hot water supply but also know that this fits in perfectly with the hotels sustainable vision.



Project Showcase: Sherwood Hotel

Full Equipment Breakdown

Hot Water Heat Pump System

1x QAHV-N560YA-HPB 40kW Heating Capacity CO₂ Hot Water Heat Pump

1x PAR-W31MAA-J Hot Water Controller

3x TW-TH16-E Temperature Sensors

Contractor:

CAMPBELL
ELECTRIC | REFRIGERATION