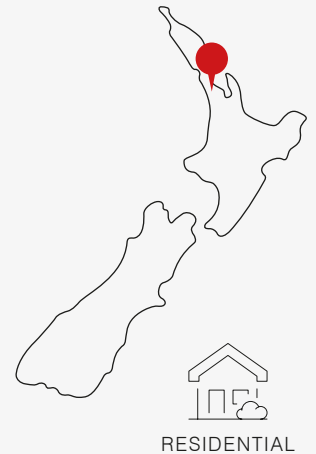


# Project Showcase:

## Low Carbon, Hot Water Heat Pump Comfort in Oratia



### AUCKLAND



Take a short 25-minute drive out of the hustle and bustle that is Auckland's CBD and you'll arrive at this tranquil Oratia home, nestled within 32 acres of park-like grounds and native bush. The owners of this property have recently completed a home renovation project, with an extension that presented the perfect opportunity for an environmentally friendly solution for their underfloor space heating and domestic hot water needs.

### EQUIPMENT BREAKDOWN

- Ecodan CO<sub>2</sub> Hot Water Heat Pump
- Packaged Thermal Store
- Domestic Hot Water
- Underfloor Heating

### The Goal

When it came to renovating this Oratia home, these homeowners knew they wanted to make a good investment in their property by making energy efficient choices that had a low impact on the environment.

### The Challenge

Plans for a spacious open kitchen and dining area provided the chance to include hydronic underfloor heating and complement their domestic wood fire heating. Selecting a hot water system that could provide energy efficient underfloor heating without compromising the reliability of their potable hot water was essential.



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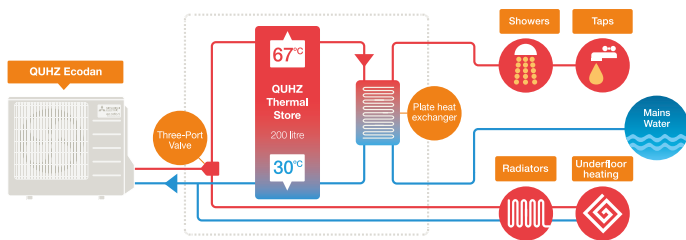
## The Mitsubishi Electric Hot Water Heat Pump Solution

The QUHZ Ecodan is an advanced hot water heat pump that can provide both domestic hot water as well as supply hydronic space heating such as underfloor heating.

Utilising CO<sub>2</sub> as a natural refrigerant, it is the number one environmental choice for domestic hot water heating and an alternative to gas and direct electric systems.

### Quick Potable Hot Water Whenever You Need It

The Ecodan QUHZ provides hot water to the home using a dedicated pre-plumbed 200 litre thermal store. The thermal store is quickly topped up to the target temperature when required and ensures hot water is always on tap.



Mains cold water is then heated instantaneously as it passes through a plate heat exchanger and the hot water produced is sent directly to the outlets ready to use.

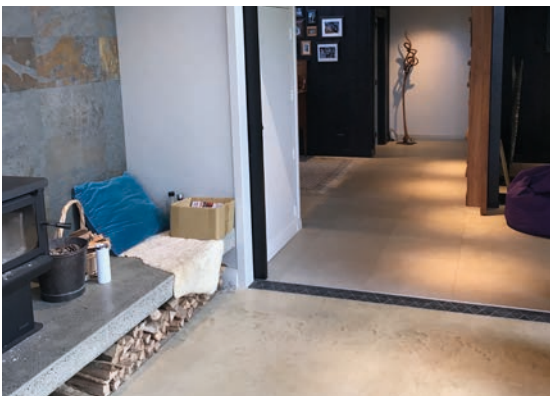
An added benefit includes no risk of legionella associated with traditional hot water tanks as the potable hot water is not stored in the system.

### Environmentally Friendly Refrigerant with Low Global Warming Potential

The QUHZ Ecodan Hot Water Heat Pump utilises CO<sub>2</sub> as it is an environmentally friendly, safe and natural refrigerant with zero Ozone Depletion Potential (ODP) and a Global Warming Potential (GWP) of 1.

### Built-in Energy Monitoring

Energy monitoring is built-in as standard and the homeowner can check to see how much energy they have consumed and how much heat is delivered to the home.



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## Intuitive Temperature Management

The intelligent Flow Temperature Controller actively manages the heat required via the combined user interface and thermostat.

At the same time as managing the heat load with minimal energy use, this system will manage the hot water by checking the tank for a 15°C drop in the temperature.

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## The Result? Super Energy Efficient Hot Water Year-Round

The completed open living space renovation in this Oratia home enjoys high angled ceilings with large north facing windows to capture all year-round sun, especially during winter.

Thanks to the clever north facing building design together with a QUHZ Ecodan Water Heat Pump, the homeowners are able to enjoy a comfortable living area to relax and unwind in.

With super energy efficient potable hot water up to 70°C and hydronic underfloor heating with a variable flow temperature based on a target room set point, the homeowners agree their greener CO<sub>2</sub> hot water heat pump has been well worth the investment - to meet all of their domestic water heating and space heating needs.



For this couple, there really is nothing sweeter than waking up and being greeted with warm ambient air rising from the underfloor heating.

## Low Carbon Performance That Offers Savings

The Ecodan Hot Water Heat Pump has provided this home with an impressive COP of 3.9.\*<sup>1</sup> In comparison, typical gas and direct electric heating systems can have higher running costs with COPs as low as 0.82.\*<sup>2</sup>

By choosing the Ecodan QUHZ CO<sub>2</sub> Hot Water Heat Pump, the owners have saved an approximate 1.67 tonnes carbon compared to using a natural gas system and 0.68 tonnes compared to electric resistive systems.\*<sup>3</sup> Furthermore the Ecodan unit is estimated to save approximately \$630 compared to gas\*<sup>4</sup> and \$1,440 compared to using electric\*<sup>5</sup> on their hot water and heating bills.

\*<sup>1</sup> Based on the unit's Jan 2021- July 2021 electrical consumption (1770 kWh) and heat delivery through heating and hot water (7043 kWh).

\*<sup>2</sup> Based on manufacturer information for gas instant hot water heater (non-condensing).

\*<sup>3</sup> Assuming natural gas CO<sub>2</sub> equivalent emissions = 0.2167kg per kWh and Electrical CO<sub>2</sub> Equivalent emissions = 0.1287kg/kWh (source: "Summary of emissions factors for the Guidance for Voluntary Greenhouse Gas Reporting - 2016" Ministry for the Environment).

\*<sup>4</sup> Based on data supplied by MBIE for 2021 of electrical charges of 29.36 c/unit and at Ecodan COP of 3.9 (source: homeowner supplied data).

\*<sup>5</sup> Based on data supplied by MBIE for 2021 of Gas charges of 14.18 c/unit and at Ecodan COP of 3.9 (source: homeowner supplied data).

## Full Equipment Breakdown

### Hot Water Heat Pump System

- 1x 4kW Ecodan QUHZ CO<sub>2</sub> Hot Water Heat Pump
- 1x EHPT20Q-VM2EA 200L Ecodan Packaged Thermal Store

### Controller

- 1x Flow Temperature Controller

Installer:

