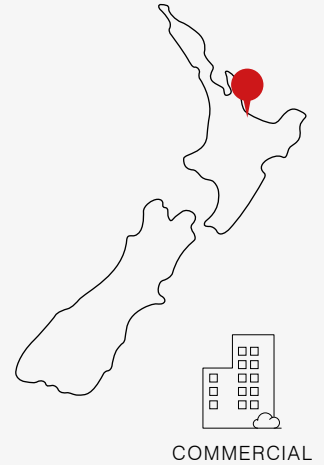


Project Showcase: Ōtūmoetai Primary School



TAURANGA



School Enhances Classroom Comfort and Efficiency with Mitsubishi Electric Heat Pumps and Wi-Fi Control

Located in the sunny coastal city of Tauranga, Ōtūmoetai Primary School embarked on a facility improvement project to provide a comfortable learning environment for its growing student roll. The latest project strived to update the school's HVAC system, providing energy-efficient classroom heating and cooling solutions to replace old radiant heaters.

The Goal

The primary goal was to install an energy-efficient heating and cooling solution in the remaining classrooms and new break rooms. These spaces needed reliable temperature control to replace outdated radiant heater systems and ensure a comfortable environment throughout the year. With Tauranga often reaching temperatures above 25°C in the summer, switching to systems that offer cooling in summer alongside winter heating was essential.



EQUIPMENT BREAKDOWN

High Wall Heat Pumps

- 2x EcoCore AP25 Plus
- 12x EcoCore AP80 Plus

Fresh Air Energy Recovery Ventilation

- 2x VL100 Single Room Lossnay

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Centralised HVAC Management and Energy Savings

The school sought a smart heating and cooling solution offering easy, centralised control of multiple units across various buildings. Central control would enable the school to prevent energy wastage and manage heating and cooling efficiently with timers and remote access, achieving significant energy savings.



Photo Credit: Ōtūmoetai Primary School

The Challenge

Split air conditioning systems are the most viable and cost-effective solution, but managing energy use across multiple classrooms and buildings presented a significant challenge. The school needed a system allowing centralised control to ensure that units were not left running unnecessarily, which would lead to increased energy costs.

In addition, the initial plan included positioning the outdoor units on the roof to avoid tampering. However, the Ministry of Education required ground-level installation with protective cages. This constraint added complexity in maintaining aesthetics and security while adhering to regulations.

Furthermore, two new break rooms required mechanical fresh air ventilation due to limited opening windows; however, the solution needed to be ductless and installed below the ceiling.

The Solution

In January 2024, Bay of Plenty Heat Pumps significantly upgraded the climate control at the premises by installing four 9kW and two 3.2kW Mitsubishi Electric EcoCore AP Plus Series Heat Pumps. These new units were in addition to eight 9kW EcoCore AP Plus models, ensuring all classrooms are now equipped with Wi-Fi Heat Pump Control and handheld remotes for enhanced convenience and comfort.

Quiet Classroom Heat Pumps

The EcoCore AP Plus Series Heat Pumps were ideal for the school's needs. Starting at an incredibly quiet 18dBA*, the AP25 model is New Zealand's quietest high wall heat pump, ensuring minimal classroom disruption where focus is paramount.

Dual Barrier Coating for Efficiency

The unique Mitsubishi Electric Dual Barrier Coating prevents dust and dirt accumulation inside the units, enhancing efficiency and reducing maintenance while preventing odours.

*Indoor sound level on lowest fan setting in Heating Mode.



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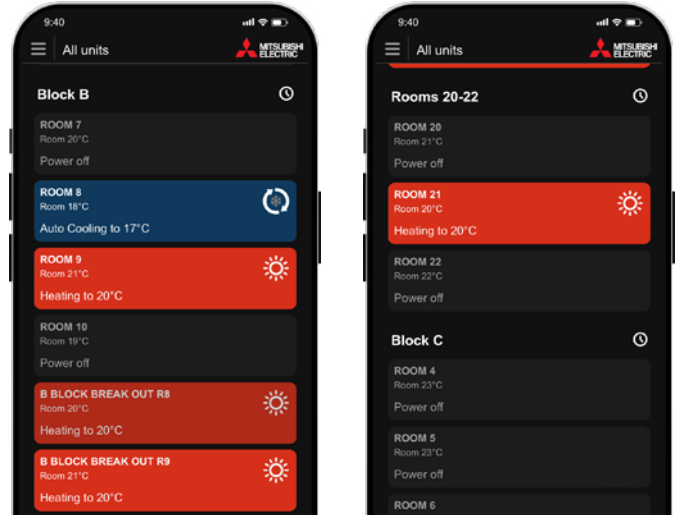
Built-in Wi-Fi Control Offers Centralised Control of Multiple Units

Smart Heating and Cooling Management

With Built-in Wi-Fi Control, facility managers can remotely monitor and adjust all 14 systems via smartphone or desktop, ensuring classrooms stay comfortable during school hours.

Group Control Across Buildings

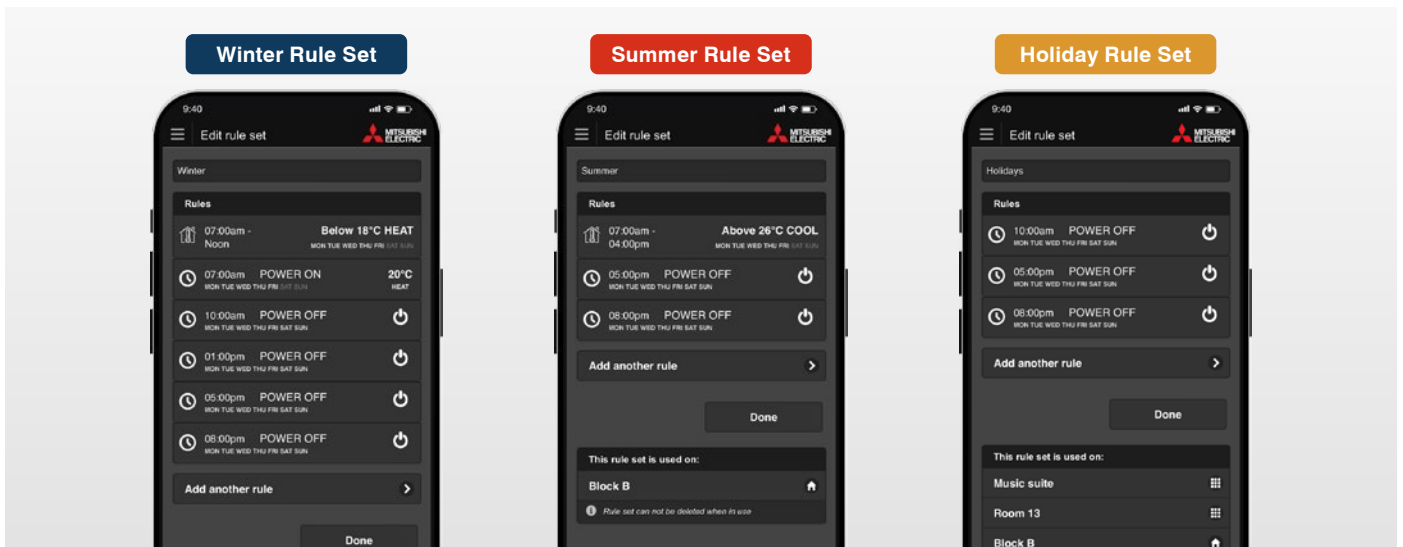
The Group Control feature streamlines the management of multiple heat pumps across various building blocks, providing an efficient and convenient solution for optimising the school's indoor climate based on each building's specific use and location. With this feature, school staff can see at a glance which units are in operation and their current mode. Instead of navigating through each unit, they can control entire building blocks simultaneously.



Setting Rules for Energy-Efficiencies and Optimal Learning

The Mitsubishi Electric Wi-Fi Control App enables the setting of customisable rules for operation, such as pre-heating or pre-cooling classrooms before students arrive, and shutting down systems after school hours to prevent energy wastage.

With a rule set, the system can automatically maintain a minimum indoor temperature of 18°C, as the World Health Organisation recommends, to prevent overheating by switching to Cooling Mode if temperatures rise too high. Temperature fluctuations are commonly experienced in classrooms as room occupancy is high.



The screenshots above demonstrate how specific rules are applied to the building's systems to ensure optimal comfort. These rules include:

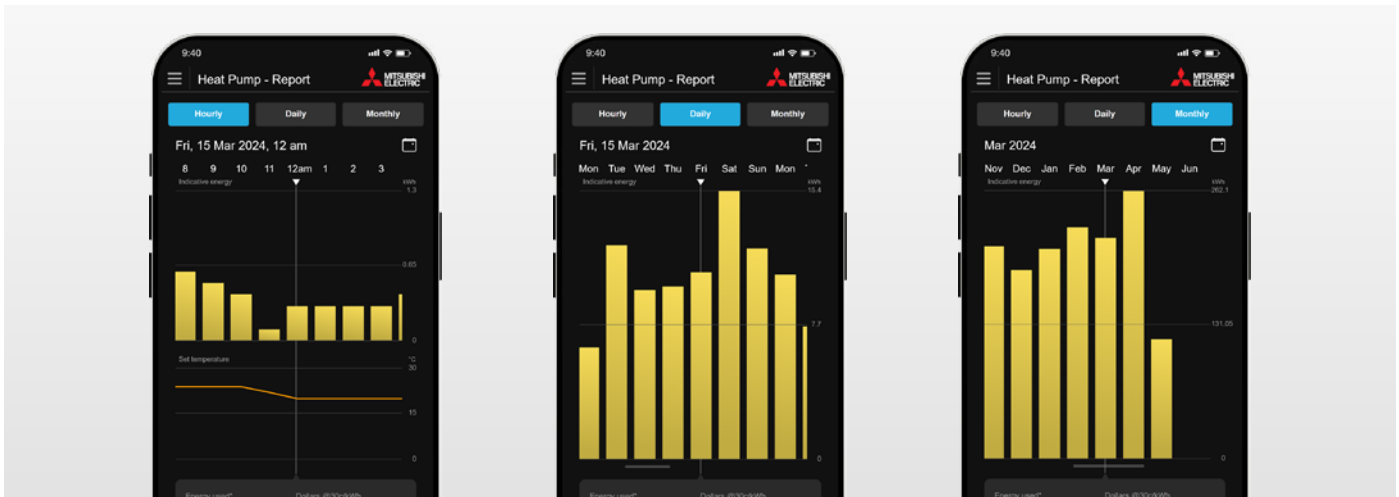
- Pre-heating or pre-cooling spaces before students arrive
- Heating when temperatures drop below 18 degrees
- Cooling when temperatures rise above 26 degrees

Additional rules are in place to prevent energy waste for powering off the units based on the day of the week and time of day. A new set of rules is also activated during school holidays to ensure units turn off when rooms are unoccupied.

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Wi-Fi Control Energy Monitoring

Mitsubishi Electric's Wi-Fi Heat Pump Control Energy Monitoring gives the school real-time insights into its heating and cooling energy use. School administrators can monitor indicative energy consumption (kWh) and estimated costs in dollars (\$) of each unit through the App on a monthly, daily, or hourly basis, giving the school greater control over its energy footprint.



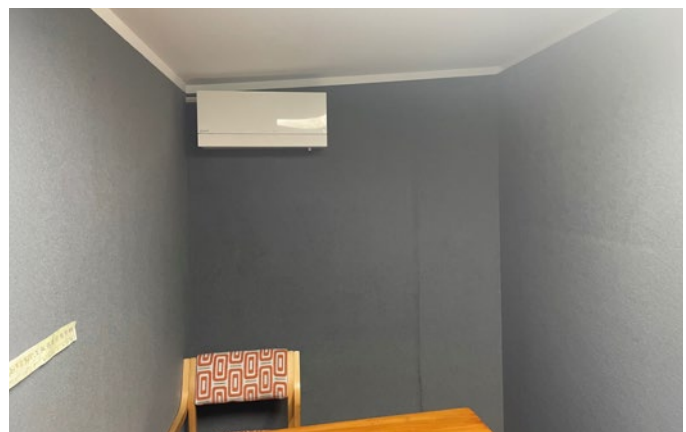
Custom-Built Fence Keeps Outdoor Units Secure

To meet the Ministry's requirements without compromising aesthetics, the project team devised a solution to house the outdoor units behind a custom-built fence. This approach complied with specifications and enhanced the installation's visual appeal. The cost remained on par with the initial plan to use cages, satisfying all parties involved.



Single Room Energy Recovery Ventilation

The project also included two wall-mounted VL100 Single Room Lossnay Fresh Air Energy Recovery Ventilation units in the break rooms. These units enhance air quality by ensuring a constant fresh air supply while recovering energy to pre-warm or pre-cool incoming air. Their ductless design makes them ideal for spaces without roof space for a heat exchanger. With up to 80% heat exchange efficiency, they reduce moisture build-up, improve air quality, and maintain a healthier indoor environment for staff.



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The Result

The principal and key staff now manage nearly half of the school's heat pumps using the Mitsubishi Electric Wi-Fi Control App. This system's user-friendly controls and energy-saving features ensure a comfortable learning environment and efficient energy use. It has become essential for simplifying climate control, benefiting students and teachers by creating a more conducive learning atmosphere.



Full Equipment Breakdown

High Wall Heat Pumps

Units:
2 x EcoCore AP25 Plus
12 x EcoCore AP80 Plus

Fresh Air Energy Recovery Ventilation

Units:
2 x VL100 Single Room Lossnay

Download the app:

The Wi-Fi Heat Pump Control application can only be downloaded from the New Zealand and Australian Apple App Store or Google Play store.

Just search for "Mitsubishi Electric Wi-Fi Control".



Contractor:

