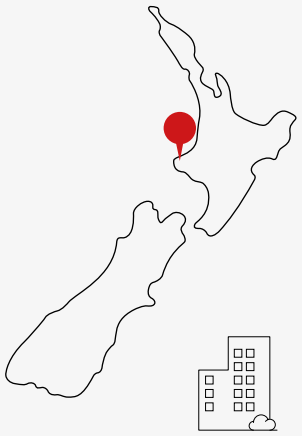
Project Showcase:

Ventilation for a Taranaki Health and Social Services Provider

NEW PLYMOUTH



COMMERCIAL

When an old tavern and restaurant facility in the North Island town of New Plymouth was converted to kaupapa Māori health and social service provider Tui Ora, the wellbeing of staff and the community they serve was at the heart of all refurbishment decisions. As a result, 13 Vertical Lossnay Fresh Air Heat Recovery Ventilation systems with intelligent CO_2 monitoring were chosen to improve the indoor air quality of the centre's 30+ rooms, without losing valuable heat energy or introducing outdoor noise through open windows.

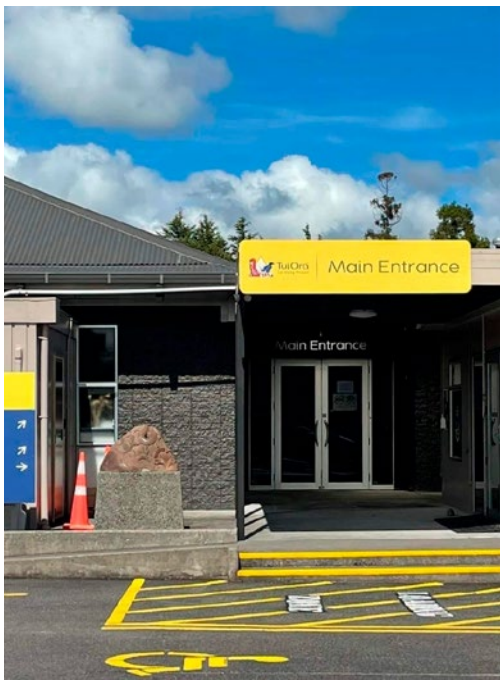
EQUIPMENT BREAKDOWN

- VL500 Vertical Lossnay Fresh Air Heat Recovery Systems
- CO_2 Sensors

The Goal

"Together we enhance whanau wellness and quality of living" is a core pillar to how Tui Ora operate and as the largest community-based health and social services provider in Taranaki, they recognised some of the areas on the site required better ventilation to improve indoor air quality and wellbeing of employees, especially during the COVID-19 epidemic.

As the building was built to standards at a time where opening windows and using small untempered fresh air fans to internal spaces were sufficient to meet ventilation requirements, Tui Ora wanted to bring their headquarters to modern standards by introducing mechanical ventilation. Opening windows would waste energy spent on heating and cooling spaces,



so they adopted the help of Climate and Plumbing New Plymouth to find an energy efficient fresh air mechanical ventilation solution for their unique building.

The Challenge

The multiple pyramid-shaped roofs with flat joins between each peak meant the building was constructed like individual houses. This style of construction meant individual units, as opposed to a centralised plant system, were required.

As individual ventilation units were being considered, a new challenge was presented – how would the centre change the settings when spaces become highly occupied and CO_2 levels increase? Automatic operation based on detected CO_2 levels were a key requirement of Tui Ora.

Rooms range from single offices to large open plan environments, large and small meeting rooms and bathroom and toilet facilities. Use of these spaces also varied from medical facilities like appointment rooms and a pharmacy to meeting rooms, family rooms, restrooms and receptions. So the chosen mechanical ventilation system needed to cater for these spaces while operating with very low noise levels, for occupant comfort.

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The Vertical Lossnay Solution – Vertical Lossnay Fresh Air Heat Recovery

Designed for flexibility and convenience, the Vertical Lossnay VL500 (up to 139l/s of air) was the ideal solution for the community service facility. With large, obsolete plant equipment and timber battens occupying space in the roof cavity, 13 of the compact Vertical Units were able to easily fit through existing manholes and be installed on new timber frames. Operating from an ultra quiet 15dB*, the systems are almost inaudible from the office spaces, ensuring no disruption to staff.

The installer was pleased that fan speeds could be tailored to installation and duct attachments. However, the ability to configure 2 room CO_2 room sensors to a single unit to control operation and run units as 'set and forget' was what appealed most to the client and installer.

*On fan speed 1. Sound pressure level at 3m.

Advanced CO_2 Management with Third Party Sensors

The ability to interlock the VL500 Vertical Lossnay Units with third party CO_2 sensors, ensures that any rise of CO_2 levels in rooms with a sensor will engage the connected Lossnay unit and increase fresh air ventilation until a healthy level is reached.

Larger meeting rooms had multiple VL500 Vertical Lossnay units installed from one CO_2 sensor for rapid level adjustments. Offices with a mix of meeting rooms and office areas had two sensors installed per Lossnay unit so each space were adequately monitored and maintained.

Not only could Tui Ora rest assured oxygen levels are maintained in occupied spaces, but a centralised control system that would require staff monitoring was avoided as the desired CO_2 level to maintain was selected at install.

Fresh Air Without Open Windows

With the Vertical Lossnay systems, Tui Ora no longer needs to open windows to introduce fresh air in occupied spaces – keeping out allergens and traffic noise while retaining valuable heat energy to be recovered.

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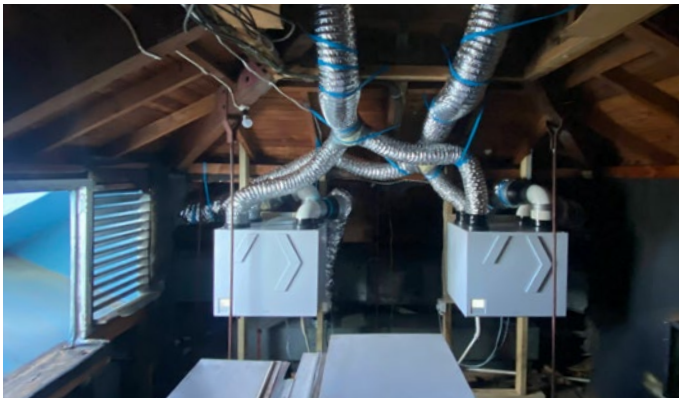
Lossnay Heat Recovery Ensures Energy Efficient Operation

Ventilating our indoor spaces is more important than ever, but we also need to be as energy efficient as possible. The Mitsubishi Electric Lossnay System is a patented heat recovery ventilation solution that uses outside fresh air (not attic air) to ventilate the building. The system works by extracting stale air from inside and replacing it with allergen-reduced fresh air from outside. Furthermore, Lossnay also recovers heat energy from the outgoing stale air to pre-warm (or pre-cool) the fresh air being drawn into the building so heating or cooling systems do not have to work as hard to reach desired temperatures.



Automatic Summer Bypass for Days When Heat Recovery Isn't Needed

Using the onboard temperature sensors, the Vertical Lossnay unit automatically enters Bypass Mode when it detects a space is hotter than desired and the outside air is cooler. To reduce the risk of overheating spaces, fresh air is introduced, bypassing the Lossnay Core.

The Result

Now all Vertical Lossnay units are installed, Tui Ora are pleased with the results and can now confidently boast their great indoor air quality at their head office complex and know they have created an environment that contributes to looking after their whānau's and community health.

Comfort and wellbeing is improved with next generation Lossnay Ventilation and the organisation is more than prepared for the cold and flu season, spring's allergies or the coastal town's stuffy summers to come.

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VL500 Vertical Lossnay Key Benefits

- ✓ Balanced heat recovery ventilation with airflow rates up to 139l/s
- ✓ Introduces fresh outdoor air and extracts stale air to help manage moisture and improve indoor air quality
- ✓ Heat recovery technology recovers up to 92% of heat energy in outgoing air for energy efficient operation and heat loss is minimised
- ✓ Synthetic resin heat exchanger allows air to be extracted and heat energy to be recovered from wet areas*
- ✓ Advanced filtration for better health and wellbeing with easy filter access for maintenance
- ✓ Automatic Summer Bypass can introduce cooler air to overheated spaces when outdoor temperatures are lower
- ✓ Slimline design offers flexible installation – in roof cavities or below ceiling in storage spaces
- ✓ Ability control via interlocked CO_2 sensors with preferred levels tailored to the space

*When extracting from a bathroom or other wet area using a Mitsubishi Electric Vertical Lossnay Heat Recovery ventilation system, other room(s) will also be connected to the return air ducting network.

Equipment Breakdown

Lossnay Vertical Heat Recovery Ventilation

13x VL500 Vertical Lossnay Fresh Air Heat Recovery Systems

15x CO_2 Sensors (Third Party)

Installer:

Climate Plumbing