

EcoPower ventilation solves an alarming problem for Caddy Storage.

Caddy Storage, Blacktown Australia

When Caddy Storage discovered excess heat from its new powder coating line was triggering costly false alarms, the smart choice for ventilation came down to one product, EcoPower® from Edmonds®.

EcoPower® hybrid ventilation significantly reduced space temperatures, eliminating false alarms as well as improving the environment for workers.

Installing the EcoPower® EP900 delivered tangible benefits to the project by:

- Reducing space temperatures by up to 10°C
- Eliminating false alarms
- Improving comfort for staff

- Minimising energy consumption, typically ~180 – 200W
- Only true hybrid ventilation with integrated controls and fully automatic operation via the building automation system
- Minimal noise and vibration levels
- Cost saving of \$1500 per fire brigade call out plus 45 hours of lost productivity time from evacuation of 90 staff.

To find out more, visit edmonds.com.au or contact us on 1300 858 674.



ABOUT THE PROJECT

Caddy Storage has grown its range of innovative storage solutions to become one of Australia's largest manufacturers and suppliers of commercial vehicle storage systems and accessories. Caddy Storage invest heavily in bringing state-of-the-art equipment to their production processes and in January 2015 installed a new automated powder coating line. The new oven and process line was aimed at providing better efficiency and increased capacity to manufacture their growing range of products.

The Challenge

The powder coating line uses a programmed pre-treatment and baking process in a 15m long oven to deliver high quality and consistency. The new oven at the centre of the line had two open ends where the product moves through. A significant amount of heat is released into the

The cost of false alarms

According to Chris Brennan, Systems Manager and Chief Fire Warden at Caddy Storage's Sydney facility the false alarms are significant cost to the business.

"The first time a fire alarm goes off, if it's an accident you aren't charged, but then, if there's a subsequent false alarm within 60 days, you suffer the penalties. And it can cost around \$1,500 every time the fire brigade comes out."



surrounding work environment from the oven. Not only did this create an uncomfortable work environment, it also increased the overall temperature of the building resulting in false fire alarms during summer. This was a significant cost with charges from the fire brigade for false alarm call outs and lost productivity in the facility.

Thermal analysis highlighted that the existing louvres were not effective in removing the heat escaping from the ovens. False alarms were triggered spot temperatures of up to 51°C observed in the roof space and up to 42°C in the work areas.

"By the time the firemen turned up, and we'd done a walk around to establish that everything was okay, and got everybody back to work – we'd lost about half an hour's work per person" Chris added.

"And when you've got to evacuate 90 people out to the emergency area – that's about forty-five hours of productive time lost. So we were losing a week's wage every time the alarms went off," he explained.

Key Outcomes for this Project

The solution was to install 4 x EcoPower EP900 hybrid ventilators. EcoPower ventilators are now an integral part of the building ventilation control. When natural ventilation is not sufficient, temperature sensors activate the ventilation system to ensure sufficient heat removal. Since installing the turbines, the temperature in the workshop during summer has decreased by 10 °C and no further false alarms have occurred due to overheating in the roof space.

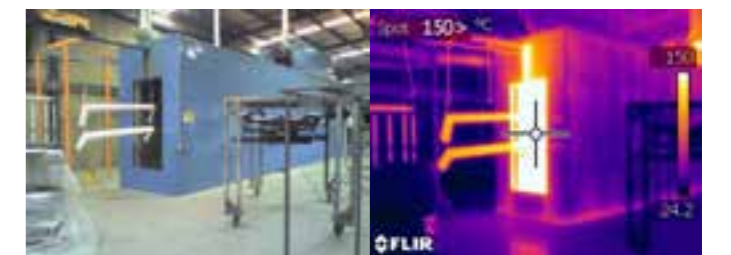
"It's definitely more comfortable for workers. The main benefits have been that the fire alarms have stopped going off and we have a more comfortable environment for the guys," said Chris.

True Hybrid Technology delivers the best of both worlds by optimising the ventilation process

True natural ventilation depends on two distinct process to provide airflow through a space;

1. Natural convection, where warm air from inside the space rises, exiting through openings at high level and drawing fresh cool air in through louvres at low level, or
2. By wind induced ventilation where wind pressure on the building forces air through openings by a combination of positive (pushing) pressure at low level and negative (suction) pressure at high level. Both of these processes rely on favourable climatic conditions, moderate ambient temperatures (cooler outside than inside) and natural breezes from the right direction.

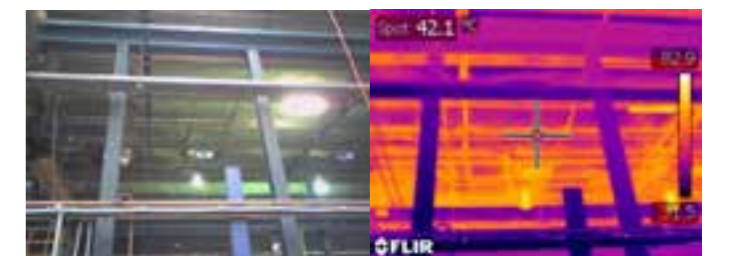
When nature can't provide the right conditions, designers turn to mechanical ventilation to solve the problem. EcoPower from Edmonds provides the best of both solutions in a hybrid ventilation solution.



Temperatures of >150°C were recorded for the oven openings.



Temperatures of up to 51°C was recorded for the roof space, triggering false fire alarms.



The excess oven heat was released to the surrounding area making the working environment unbearable with temperatures of up to 42.1°C.

Up to 80% lower operating costs versus traditional mechanical ventilators

Capable of operating unhindered in natural mode, or in both natural and energy efficient mechanical modes simultaneously, EcoPower can boost flow rates 3 – 5 times higher than what is achieved via natural ventilation only mode under normal ambient conditions. Operational costs are up to 80% lower than directly equivalent traditional fan assisted ventilators.

Ventilation can be achieved using either wind, a natural energy source, or mechanical means.

Smart Controls automatically adjusts operation mode for improved performance and energy efficiency

The key to the success of the EcoPower is in the controls. Using real time, measured data from the Building Automation System (BAS), EcoPower shifts seamlessly from natural ventilation mode to mechanical mode, ensuring that internal conditions are maintained continuously.

When outside temperatures and wind conditions permit, the EcoPower EP900 turbines operate like a normal roof mounted ventilator. If the difference between external and

internal temperature gets too low (reducing the effect of stack driven ventilation), or the wind speed falls (reducing wind induced ventilation) the high efficiency EC motor in EP900 mounted directly in the turbine engages to boost airflow.

In mechanical mode, the units typically consume between 180W and 200W per ventilator. The EC motor in EP900 allows variable speed performance, with low noise and vibration transmission.

What the Systems Manager says

“It’s low noise”, says Chris Brennan, Systems Manager at the facility, “that was one of the most important things for us. It’s also definitely low cost, we currently run about five axial fans in our facilities and they’re big, noisy, old and power consuming creatures. The new systems are low noise, and the running cost and maintenance of them is negligible.”

EcoPower is designed for intelligent operation in a wide range of conditions and installations. Variable speed control of the EP900 can be achieved via temperature, 0 – 10V input, Building Automation / Building Management Systems, gas / toxin concentration, and other sensors.

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