Garage DCV System Case Study: Pacific Terrace, San Francisco

NES FG-20 Digital System Achieves 95% kWh and Peak kW Demand Savings

The Property

Managed by Meridian Management Group, Pacific Terrace is a newly constructed apartment complex on Lower Russian Hill in San Francisco. The property possesses a small, enclosed garage for tenants, which according to applicable codes and standards, requires continuous – 24/7 – mechanical ventilation.

Pacific Terrace at 1595 Pacific Avenue, S.F.

"The NES system reduced our combined, annual utility expenses by more than 40% while ensuring the health and safety of building staff, tenants and visitors."
Joseph Luchini, Meridian Management Group

The Savings Opportunity

From the moment the property was occupied, management noted the monthly electric utility bill for building's common areas, including the garage, was exorbitantly high.

It's not unusual for a commercial-property garage ventilation system to account for as much as two thirds (2/3) of a garage's monthly / annual utility bill when its exhaust and/or supply fan(s) operate continuously during building-occupied hours.

In this instance, power measurements by NES showed the 10-horsepower (HP) motor exhausting the garage (on a 24/7 basis) consumed 64,590 kWh annually, with a correlating peak-period demand of 7.37 kW. With an electric utility rate of $0.25/kWh, Meridian Management Group's cost to ventilate the Pacific Terrace garage amounted to $16,150 annually.

The NES System Solution & Results

In early 2015, NES installed our FG-20 digital, demand-control ventilation (DCV) system for commercial garages. The NES FG-20 can be readily scaled to comport with building management systems with BACnet® and Modbus® communication protocols, delivering a high degree of functionality and value-added features, including Internet accessibility.

The Pacific Terrace garage ventilation system is not controlled by a building management system (BMS), so property management agreed to install the NES FG-20 system as a "stand-alone" system. The FG-20 comes standard with a 9" Android display providing HTML graphic capabilities (its mounted in the controller cover), enabling the property manager to set and manage the system's operational parameters at the controller, with real-time views of system performance, e.g., VFD and motor speeds, individual CO sensor readings, milliamp continuity, etc

Energy Use	Pre Installation	Post Installation	$ Savings	% Savings
Total kWh	**64,590**	**3,229**	**61,360**	**95.0%**
Total Cost @ $0.25/kWh	**$ 16,147**	**$ 807**	**$ 15,340**	**95.0%**
Total kW Demand	**7.37**	**0.70**	**7.00**	**95.0%**

Post-installation data logging of kW consumption showed the NES FG-20 garage DCV system reduced the garage fan motors' combined kWh consumption by more than 61,300 kWh a year – a 95% savings. Peak kW demand was reduced by 7 kW, which also equates to a 95% savings.

In addition to immediately reducing its operating costs, the Meridian Group received an incentive / rebate from Pacific Gas & Electric (PG&E) of approximately $5,900 for the energy savings obtained by the NES system. After rebate, the system pays for itself in just 14 months.

The NES System Investment Attributes

The net present value (NPV) on an installation cost of $18,446 is roughly $176,600 (net of investment). The minimum cash inflow the NES DCV system will generate based on the energy savings it will capture throughout its 15-year lifespan amounts to approximately $211,650.

About Nagle Energy Solutions (NES)

Nagle Energy Solutions, LLC (www.nagle-energy.com) manufacturers, distributes and commissions an innovative and patented demand-control ventilation (DCV) system for commercial garages that reduces energy consumption by an average of 93% – with quantifiable savings as high as 97% achieved – all while leaving your garage fan motors running. Our sales capabilities extend nationally.

Pacific Terrace Retrofit Financial Summary	
Discount Rate	5.00%
Inflation Rate (2.8% over last 10 years)	2.80%
Annual Savings	$ 15,340
Cost of Project	$ 18,446
Payback Period In Yrs (factors in rebate)	1.20
NPV (before investment)	$ 195,058
NPV net of investment	$ 176,612
Minimum cash inflow	$ 211,654

NES digital controllers and peripherals are scalable and conform to several building management system (BMS) and energy management system (EMS) communication platforms, as well as monitor / report on energy consumption/savings.

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