

Garage DCV System Case Study: Levi Strauss & Co. Headquarters

NES FG-20 Digital System Delivers Impressive Results – 95.4% kWh and Peak kW Demand Savings

The Property

1155 Battery Street houses the corporate headquarters of Levi Strauss & Co. It is the hub of the Levi Plaza office complex, which the San Francisco Business Times calls “the only true corporate campus in San Francisco.”

The property includes a 55,000 square-foot, below-grade garage, with a mechanical ventilation system powered by two garage exhaust fans possessing a combined 25 horsepower (HP). Levi Strauss facility management operates both garage fans on a 12/5 basis (from 6 a.m. to 6 p.m., Monday thru Friday).

The Savings Opportunity

Power (kW) measurements taken by NES showed the combined HP and runtimes of the two (2) garage fan motors — equating to 3,129 hours per year, per fan motor — resulted in 34,389 kWh being consumed annually, with a correlating peak-period demand of 10.99 kW. Levi’s electric utility rate is \$0.1483/kWh, so its pre-retrofit cost to ventilate the below-grade garage amounted to \$5,100 annually.



Levi Strauss & Co. Headquarters, San Francisco

The NES digital garage DCV system reduced both kWh consumption and peak kW demand 95.4%

The NES System Solution & Results

In December 2015, NES installed its FG-20 digital, demand-control ventilation (DCV) system for commercial garages. The NES FG-20 is designed to serve as a “stand-alone” system, but it 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.

In this instance, Levi’s facility management selected the BACnet-communicating, web-enabled version of the FG-20 system. Accordingly, Levi’s engineering staff is able to set and manage the system’s operational parameters from their desktops, with real-time views of system component performance, e.g., VFD and motor speeds, individual CO sensor readings, milliamp continuity, etc.

Energy Use	Pre Installation	Post Installation	\$ Savings	% Savings
Total kWh	34,389	4,863	32,791	95.4%
Total Cost @ \$0.1483/kWh	\$ 5,100	\$ 237	\$ 4,863	95.4%
Total kW Demand	10.99	0.51	10.48	95.4%

Specific to the Levi Strauss garage retrofit, the NES FG-20 controller monitors carbon monoxide (CO) readings provided from 11 BACnet CO sensors and, based on CO concentrations, sends a control signal to variable frequency drives (VFDs) connected to the garage’s 15-HP and 10-HP exhaust fan motors. The VFDs, in turn, modulate fan-motor speeds / ventilation rates to prevent CO levels from rising above a predetermined set point.

Post-installation, NES set its FG-20 system to run the Levi garage fans on the same 12/5 schedule, achieving exceptional results. Data logging of kW consumption showed the NES FG-20 garage DCV system reduced the garage fan motors’ combined kWh consumption by roughly 32,800 kWh a year – a **95.4% savings**. Peak kW demand was reduced by 10.48 kW, which also equates to a **95.4% savings**.

As a result, Levi’s energy bill for ventilating its garage has been reduced from \$5,100 to just \$237 year.

About Nagle Energy Solutions (NES)

Nagle Energy Solutions, LLC (www.nagle-energy.com) is a manufacturer, distributor and installer of an innovative 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 and service capabilities extend nationally.

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.

Nagle Energy Solutions Contact: Frank Nagle (650) 854-1992 or frank@nagle-energy.com.