

Case note

Luxury hotel saves over \$15,000 on energy costs with ABB standard drives for HVAC



ABB standard drives for HVAC help Claridges, London, save 30 percent in energy costs.

Claridges in the UK is one of the most famous hotels in the world, offering five-star dining facilities in the heart of London's West End.

A recent kitchen refurbishment gave the hotel the chance to look at energy use and seek improvements in efficiency. One of the main issues was the stove's hood system. Fans in the hood were on-off controlled. Running at 100 percent speed all the time they were on, fans were consuming over 450 kilowatt-hours (kWh) per day.

As part of the refurbishment, ventilation control system specialist Food Industry Technical (FIT) installed its Cheetah™ stove hood extraction system into the kitchen. At the heart of the system are two 11 kilowatt (kW), IP54 ABB standard drives for HVAC controlling the extraction and supply fans.

Kitchen conditions kept constant

The drives, which control the speed of the ventilation fans based on the actual demand, receive control signals from a range of sensors measuring temperature, smoke, steam and airflow in the extract and supply ducts. The drives use this data to determine the fans' optimum flow rates. These are ramped up during busy times and reduced in quieter times, enabling conditions in the kitchen to remain constant at all times.

To enhance safety the system also incorporates a gas isolation module to cut off the gas supply in the event of emergencies.

The system features a fail-safe mechanism to further enhance safety. In the event of a control cable being severed, or a sensor failing, the drives will automatically ramp up to 100 percent and stay there until the fault is repaired. This ensures that the air supply to the kitchen remains at safe levels.

Thirty percent cut in energy costs

The hotel is now benefiting from a 30 percent reduction in energy costs from the system, with energy savings of \$15,740 (10,000 pounds) per year. The installation saves the hotel just under 50 metric tons of CO₂ per year, with a return on investment in 1.8 years.

With only six hours to fit the system before the kitchen opened up to customers, quick installation was essential. The built-in control panel on the drives helped cut installation time. The installers were able to easily view and set drive parameters.



ABB standard drive for HVAC with IP54 protection class.

Challenges

- Cut energy costs of the stove hood system
- Maintain safe, comfortable working conditions in kitchen area
- Install improved system within a six hour time limit

Solution

- New stove hood extraction system using two 11 kW, IP54 ABB standard drives for HVAC
- Sensors measure kitchen environment to determine the fans' optimum flow rates
- Safety systems prevent gas build up

Benefits

- 30 percent reduction in energy costs, equating to \$15,740 (10,000 pounds) per year
- Easy commissioning helped installation time to be met
- Return on investment in 1.8 years
- Ventilation can be controlled accurately based on demand
- Enhanced safety

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