Use Less Energy to Keep Your Building Comfortable

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Here's a little experiment for you. At noon, when your building is fully occupied, take a close look at the outside air damper (i.e. the component that lets in fresh outdoor air to ventilate the building) on your single-zone HVAC system. Then come back at midnight when the building is empty and look again. Notice any difference?

Unless you've already installed a Demand-Controlled Ventilation system, the answer will be no. Why? Because without these types of controls, California building code requires the outside air damper to be in a fixed position based on the building's ventilation needs during peak occupancy. So even when no one is there, enough outside air will be let in to meet the ventilation needs of a fully occupied building – and your HVAC system will be automatically heating or cooling this air to thermostat temperature.

The result is an HVAC system that is constantly working, wasting energy as it conditions air that did not need to be introduced into the building at all. The solution is to install a Demand-Controlled Ventilation system with Variable Frequency Drive ("DCV with VFD").

What is DCV with VFD?
DCV with VFD refers to several different components that work together to help a commercial HVAC system ventilate indoor space much more efficiently.

- **Demand-Controlled Ventilation (DCV) creates optimal ventilation –** DCV uses a CO_2 sensor to determine building occupancy, and then opens and closes the outside air damper to let in the optimal amount of fresh air for this occupancy level.

- **Variable Frequency Drive (VFD) controls the fan speed based on demand** – When the HVAC unit is not conditioning indoor air, the VFD components reduce the fan's speed so it draws 60 to 80% less energy. This also reduces the amount of heat that the fan creates during operation, reducing the amount of energy needed to cool hot air produced by the mechanical operation of the HVAC's motor.

What are the benefits of installing DCV with VFD?
There are many benefits, including:

- **Reduced energy usage** – Eliminate unneeded ventilation and make fan motor operation more efficient.

- **Fast ROI –** Between the reduced energy use and financial incentives currently offered by electricity providers, many building owners see a simple payback of just 3 to 5-1/2 years.

- **Quieter operation and less "draftiness"** – Which in turn can make your building occupants happier and reduce service calls to address these complaints.

Want to learn more? Give us a call! Evolution Mechanical has extensive experience with this technology.