



## Going "green" can save you green: Utilizing Variable Frequency Drives

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Variable Frequency Drives became part of the real estate vernacular over two decades ago. It was first promoted as the "Next Big Thing" for energy efficiency, after the light bulb. Twenty years later the Variable Frequency Drive (VFD), is still one of the proven factors in energy efficiency and savings.

The Variable Frequency Drives' ability to reduce energy consumption and generate great savings is also an important factor in a Green building's maintenance and operation plan. Once properly installed, along with other energy efficiency measures, it can help a building reach its goals to be LEED Certified. This certification concurs that a building uses resources more efficiently when compared to another that is simply built to code.

A Variable Frequency Drive is an adjustable-speed unit used in electro-mechanical driven systems to control the torque or power by varying motor input frequency. Variable Frequency Drives are electronic devices that control three-phase electric motor speeds. This is a key technology used to reduce energy usage and cost. VFDs offer an attractive energy conservation measure where there is a need to vary the flow in distribution systems such as water, air and movement. In the real estate industry, they are usually used for building automation, fans, pumps and HVAC systems.

Variable Frequency Drives technology has come a long way since their conception. In the past, initially the number of applications available for drives were limited due to the motors horsepower (hp); there were low power factors which reduced the capacity for electricity to be distributed properly - possibly resulting in costly penalties from utility companies; and operational noise that was caused from the output frequency of the drives decreased in response to the decreasing load, causing motor harmonic noises through the building. However, today, due to the Variable Frequency Drives improved technology, the drives can be installed in practically any motor application for commercial or institutional buildings. Variable Frequency Drives can now operate up to 500hp at constant power over the entire speed range of the motor. Today's systems operate at higher frequencies, which results in the noise level to be above the normal audible range.

When adding Variable Frequency Drive's to your existing equipment or design, and energy efficiency is your primary goal, it is important to inform your engineer or contractor of the building's peak and off-peak hours in order to obtain the full benefits of the drive. Variable Frequency Drives can control the speed of the electric motors through applying low frequency during the motor startup, then slowly ramping up to acceleration while reducing the current until it is needed. This same concept is repeated, as the motor shuts down the Variable Frequency Drive allows the motor to ramp down at a controlled rate.

There are also other benefits associated with Variable Frequency Drives than reduced energy cost. The VFDs reduce fan, pump and motor noise. They also reduce the amperage needed to start a

motor thus lowering demand for electricity; the VFD's soft-start feature reduces wear and tear on motors, sleeves, belts, couplings and other system components. Pump & Motor Corp. fabricates special control panels that incorporate Variable Frequency Drives if required. Our control panels can be fabricated to monitor run times; record peak usage and give the building an accurate overview of its systems.

Pump & Motor Corp. offers complete onsite engineering that will ensure a smooth transition. We can incorporate the improved technology into your building's day-to-day operations so you can "Go Green to Save Green."

Send us a site request from on our new mobile site or online at [www.pumpandmotor.com](http://www.pumpandmotor.com) or contact us by phone at 516-333-4282.

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