

Energy Solutions

for Commercial Buildings

The Green Scene

How businesses are saving big bucks with natural gas

- Strategies for energy efficiency
- The latest natural gas technology
- Tools for building automation

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Automatic Efficiency

Building Automation Systems provide an array of benefits to building owners.

Computer-controlled automated building systems can help meet today's ever-increasing economic and environmental need for energy management. Building Automation Systems (BAS) are a highly functional tool to achieve better control over the total building envelope while meeting operational and occupant needs.

The evolution of control systems is nothing short of remarkable. Older systems are robust in service but often limit what the end user can easily reference without learning the programming language. The amount of data input and use history that older systems can handle is also limited. Newer systems have improved processors and better data storage, and tools such as detailed graphic front ends allow users to quickly look for building problems at macro and micro levels and address them — often before the occupants know there's an issue.

Drexel University in Philadelphia has been using campus-wide BAS for years to control basic functions such as lighting and HVAC scheduling, equipment operation such as on/off or start/stop functions, temperature set points, adjustable electric motor speeds and more. Drexel recently began using computer systems to control more complex functions such as managing a cooling system in its cutting-edge science and research building, the Bossone Research Center.

One of the BAS systems serving many of the newer buildings is also linked via the Internet to provide regional weather data — namely outdoor air temperatures, so these linked building systems perform in a more uniform fashion

in terms of energy consumption. Local equipment sensors are often affected by direct sun or other factors that trick the equipment into running less efficiently. The local temperature sensing equipment that is already in place acts as a backup if problems arise or the Web connection fails.

Since the system is Web-based, any authorized user can access it to monitor and adjust any of the building systems settings from virtually any computer in the world. The BAS can automatically contact individuals by phone or e-mail if equipment or alarms are detected. It can also notify security departments in case of fire or smoke detection.

Drexel worked closely with its Automated Logic Controls vendor, DVL, to develop the weather link function. In addition, faculty have been given read-only access to the BAS information for their academic curricula, thus offering students valuable exposure to cutting-edge technology. Individual building sub-metering and campus-wide power monitoring are being developed to provide additional environmental and financial benefit.

"The systems in use today allow worldwide access to building equipment by mechanics, occupants, manufacturers and contractors," says Bill Taylor, director of plant maintenance at Drexel University. "Set points, equipment selection, scheduling, control programs, data collection, troubleshooting and economic performance are monitored and managed through building automation."

Hans Greene, director of business development for Philadelphia Gas Works, says that while natural gas is the affordable clean-energy solution in comparison



Philadelphia's Drexel University recently started using a computer system to manage a cooling system in the Bossone Research Center.

with other energy sources, conservation is something everyone can practice right now to cope with energy costs. "Today, we face unprecedented energy costs and associated environmental issues across the entire planet. Conservation is one immediate means available to begin to mitigate some of the impacts," he says. "Building automation is an excellent tool to achieve conservation since it is in operation 24/7 and can be applied at such basic levels as the programmable thermostat or much more comprehensive for complete commercial building systems control." ▀

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