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John Christensen, Albuquerque Academy; Jack McGowan, Energy Controls, Inc.

■ TECHNOLOGY

Albuquerque Academy wraps up overhaul of energy, security systems

BY ANDREW WEBB | NMBF STAFF

A few weeks ago, technicians from Rio Rancho-based **Energy Control Inc.** (ECI) installed about half a mile of fiber optic cable at **Albuquerque Academy**.

With that 'golden spike,' John Christensen, director of the private school's physical plant, says he is putting the finishing touches on a \$2 million re-do of a heating, air conditioning and security system for the 312-acre, 50-year-old campus.

"As we do the final phases, we'll have true Internet control of the entire campus," he says, leaning back in his chair in the school's newly computerized physical plant office on a recent summer afternoon.

"The goal from the beginning was a real-time, Internet-based system. If I get a call about an

unplanned weekend event, I can just go to a laptop, log in and change the temperature in five minutes."

The system at Christensen's fingertips is unfamiliar to most small and mid-sized campuses and institutions.

Gone are pneumatic — or air-pressure — controls, huge clunking boilers and outdated lighting systems. In are computer servers that tie together elaborate heating and air conditioning systems to on-screen "dashboard" control systems.

Users can see detailed information about the campus' 19 buildings and the amount of energy they are using, state-of-the-art heating and cooling machinery, and the completely digital systems to run them.

Albuquerque Academy expects to see about \$150,000 in annual energy savings, and another \$66,000 reduction in general operating and maintenance costs each year as a result of the retrofit, which is now expanding to include the school's security system.

Automating building access controls, security, heating and air conditioning is the goal of integrated systems companies like ECI, says Jack McGowan, president of the company, which last month was named one of the top 100 such firms in North America by trade publication **Security Distributing and Marketing Magazine**.

Christensen says he approached the company because he wanted the Northeast Heights schools, which received a Green Zia award from the New Mexico Environment Department last year for its efforts to conserve natural resources, to be a leader in energy efficiency.

"Kids want to be able to be proud of where they go to school," he says. "We needed to continue to be a leader."



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Using technology to improve the use of energy and create a better environment

ECI engineered the first phases of the project early last year, and after board approval, proceeded with the installation later that spring.

The project included a new heat exchanger system to chill water for cooling systems, destruction and removal of two vintage, 50-year-old boilers and replacement with five new high-efficiency boilers and modern lighting retrofits in all campus buildings.

ACADEMY: *School paid for new security technology by cutting staff overtime*

And all of those systems are tied into a computerized control system that allows constant temperature monitoring and changes to individual rooms.

“It’s a self-funding project” McGowan says. “We mined the budget to find where we could save money.”

For instance, during the summer some rooms have to be kept cool for the various activities — from symphony performances to science fairs — that occur in the school’s facilities.

In the past, that would have meant running the cooling system at full speed all summer, essentially cooling the entire campus, even unused rooms.

“There’s always something going on here,” Christensen says.

The new system allows for cooling of only the individual rooms needed for activities, at a greatly reduced energy cost.

To pay for the retrofit, Academy and ECI put together a “performance contract” for the various technologies it planned to install.

Essentially, the company installs the equipment and guarantees certain savings; the school uses that contract as the basis for a bank loan, then repays the loan with the savings.

Besides the on-screen control system for physical plant employees, Christensen envisions an eventual Internet site for environmentally conscious students interested in learning more about the day-to-day goings on in the physical plant.

“That way, they can see how we’re doing in energy consumption,” he says.

Meanwhile, changes to the school’s security plans were beginning to show cost-saving results that could be channeled into upgrading that system as well, Christensen says.

“We were spending a lot in overtime,” he says of the security patrols necessary to keep watch over Albuquerque Academy’s vast plot of land, much of which is open space.



He came up with a few new ideas that helped eliminate the overtime.

“So we had some extra money to invest in technology,” he says.

As attrition lowered the staff count, he didn’t rehire, and now the campus is monitored by a combination of foot patrols, cameras, carded building access, motion sensors and ‘digital tripwires’ monitored 24-hours by ECI at its office near Cottonwood Mall.

“Between energy, access controls, surveillance and lights, we’re the only campus in New Mexico integrated this way,” Christensen says. “We’re ahead of the curve now.”

Founded in 1976, ECI works with businesses ranging from school campuses to car dealerships to install and integrate a wide range of technologies supplied by manufacturers from around the world, from elaborate security systems and global positioning system fleet tracking equipment to modern heating, air conditioning and irrigation control systems, to wireless Internet servers.

The company employs 38 at its Rio Rancho office and at an office in Las Cruces, and serves customers in New Mexico, Arizona, Texas and Colorado.

Back at Albuquerque Academy, to which students will return later this month, Christensen is working to shepherd his staff through the changes.

One big difference, a daily building-by-building check of temperature systems can now be done on one computer.

“One bonus has been that my employees were kind of at a stalemate, they weren’t being challenged,” he says.

“Now everything’s digital, computer based. And they’re being challenged to learn new things.”

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