



# Lighten up

## Northside ISD shows pioneering spirit in its efforts to conserve energy

By Autumn Rhea Carpenter

Long before Texas lawmakers mandated that school districts cut their electricity use by 5 percent, Northside ISD in San Antonio was blazing its own energy conservation trail. Since 1991, the district has developed innovative energy-saving strategies that will remain in practice for years to come. On average, Northside ISD saves more than \$1 million each year.

Who better to lead the district's Energy Management Department than energy managers Frank Thomas and Bruce Dschuden? The experienced industrial technologists — who also share 19 years of teaching experience in welding, drafting, construction and woodworking — were the ideal candidates. Thomas and Dschuden have both an understanding of the engineering trade and the educational process.

Northside ISD manages one of the largest energy management control systems in the country. The sophisticated system enables the department to control all aspects of lighting, heating and air-conditioning via computer. The district's 94 facilities — which include 59 elementary schools, 15 middle schools, nine high schools (with three magnet programs) and 11 alternative schools — are managed 24 hours a day, seven days a week including holidays.

The control system provides a detailed account of each school's needs and pinpoints where energy usage can be reduced.

"If necessary, we could run a building from Timbuktu," says Thomas. "Prior to establishing this system, we got blisters on our fingers from removing the pins from mechanical time clocks at each school on weekends and holidays. With this control system, we can monitor each school's needs much closer, from one location."

Northside ISD's Technology Services Department also got in on the action. It developed a

customized, online application for scheduling the district's more than 6,000 events.

Teachers fill out an online schedule request form, which allows the energy management team to determine which areas of a building will require energy at specific dates and times.

When Northside ISD first established its Energy Management Department in the early 1990s, conservation issues weren't as mainstream as they are now, says Thomas.

"We Texans enjoyed a life filled with inexpensive, plentiful resources," says Thomas. "Unlike in Europe, an energy crisis had not hit the United States yet. So, when we began implementing this program, awareness was our main priority. We quickly realized what poor energy stewards we truly were with our public facilities; people constantly left doors open and kept the air-conditioning and heating running without considering the associated costs. When people started learning that it could easily cost \$30,000 to run a high school for one month, they slowly began to understand the reason for stricter conservation measures."

The awareness program included simple processes, such as sending out notifications to faculty and staff to turn off lights when they're not in use and creating a better system for heating and cooling facilities.



Superintendent John Folks

[continued on page 43](#)

## Northside ISD continued from page 41

Northside ISD Assistant Superintendent for Facilities and Operations Jim Martin says it was important that everyone understood their roles in the program.

“In the early years, there were a few casualties,” he muses. “For example, a classroom fish froze from lack of heat over the Christmas holidays. But since then we have strengthened our communication process and each school understands how to make the system work.”

Another critical component in Northside ISD's energy management campaign was forging mutually beneficial relationships with utility providers. For example, the district agreed to participate as a pilot school district with the San Antonio Water System's (SAWS) Community Conservation Committee, replacing wasteful commodes with more efficient versions. The city organization installed 1,190 retrofitted toilets on Northside ISD campuses, saving the district an estimated \$115,000. SAWS also replaced 257 food-service spray heads in campus cafeterias, saving Northside ISD \$80,000 in water and sewer costs. With the improvements, the district's water usage dropped from 250 gallons to 140 gallons per person, per day.

“There was no cost to the district at all [for these improvements],” says Thomas. “The SAWS philosophy is, the cheapest water it can buy is water that is conserved by its customers.”

Thomas says the retrofit pilot project eventually went citywide to include all San Antonio schools.

## Keeping a watchful eye

The Northside ISD Energy Management Department staff checks electricity and water bills monthly to detect billing errors and potential savings. This simple quality-control measure has saved the school district \$36,607 since the program's inception.

Dschuden says the department also looks for remarkable increases in usage, which can indicate a water leak has occurred somewhere in the system.

“SAWS provides rebates to customers who request that water leaks be repaired, which can result in recouping up to 50 percent of the losses once the leaks are repaired,” says Dschuden.



Northside ISD energy managers Frank Thomas (left) and Bruce Dschuden monitor the district's computerized energy management system to make sure all mechanical systems are running efficiently.

“Many school districts do not realize that they are paying extra for leaks that can easily be fixed. Taking the time to check the bill to notice when a bill increases dramatically [because of a leak] can result in money spent in more important places.”

The Northside ISD team considers several issues when determining costs for the upcoming school year, including energy consumption per square foot, fuel adjustments, energy costs and the previous year's operating costs.

But it's not just about saving money. Northside ISD's efforts have made a direct environmental impact, to boot. In 2005-2006, Northside ISD avoided consuming 2.4 million kilowatts of electricity (or enough energy to power 2,398 houses for a month). Also that year, 4.2 million pounds of carbon dioxide (greenhouse gas) were removed from the air and 10,090 pounds of sulfur dioxide (which produces acid rain) and 8,519 pounds of polluting nitrogen oxides were eliminated.

Northside ISD has no intention of slowing down its efforts. The district has agreed to participate in an upcoming pilot program project with CPS Energy. San Antonio's Marshall High School will be retrofitted with \$250,000 worth of energy-efficient lighting, which aims to conserve 30 percent to 50 percent in energy.

As the program is still in the auditing stages, the district has yet to make any financial investments nor to find out what its investment will be. CPS Energy conducted the research at no charge, determining how many lights will need to be replaced, as well as how many work hours will be required to do the retrofitting. Once the retrofit occurs, Northside ISD will be required to invest money to cover it.

continued on page 45

Northside ISD continued from page 43

“By retrofitting the lighting in Marshall High School, power consumption will be drastically reduced, which means CPS Energy’s power plant will not have to generate as much energy, thus reducing the demand,” says Bruce Evans, director of strategic energy management and client solutions at CPS Energy. “The classrooms will receive better-quality lighting, the taxpayers and school districts will be charged less, and the environment reaps the benefits.”

The study’s purpose is for CPS Energy to give other school districts an incentive to follow suit.

“We chose Northside ISD because Bruce and Frank are such leaders in energy management,” says Evans. “They have graciously directed us in designing this program, which will ultimately be offered to every school district in San Antonio.”

The Northside ISD Energy Management Department attributes its 16-year success to a strong support system.

“To be responsible with taxpayer money and be a friend to the environment at the same time is a no-brainer,” says Northside ISD Superintendent John Folks. “I’m thrilled with the success of our energy management program, especially because our staff keeps finding new ways to save money and resources.”

“This department is expendable, and our success hinges on backing from the superintendent, school board, staff and the students,” adds Thomas. “Our program is one of the most comprehensive in Texas, and we are proud that we are teaching students to implement energy conservation in their daily lives.

“Energy conservation is an issue that is quickly moving to the forefront, as the Texas Legislature is now requiring schools to drop energy consumption each year. We hope our success will influence other school districts to analyze their usage and consider new ways to make a difference.” ★

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