

Saint Francis Care scores big savings on energy efficient programs

Hartford, CT-based Saint Francis Care, the largest Catholic hospital in New England, isn't content being among the top 10 percent energy efficient businesses in the country.



Designated as an Energy Star business, the 617-bed medical center has a long track record of projects aimed at improving environmental health. Energy Star is a partnership of government, consumers, manufacturers, retailers and other industry organizations united by a common goal to help protect the environment for future generations by changing to more energy-efficient practices today.

In awarding the hospital another Energy Star label in 2006, the EPA and the Department of Energy cited Saint Francis for its prudent energy management strategies and proven technologies. Since receiving its first Energy Star label in 2003, Saint Francis has become the first hospital in Connecticut to install its own fuel cell. The 200-kilowatt unit supplements the hospital's electric power grid feed to provide base load power to Saint Francis and supplemental power in the event of a problem with the grid.

The hospital also recovers the heat produced by the fuel cell to improve the performance and increase the efficiency of its hot water systems. In 2005, the hospital's fuel cell had a 57 percent operating efficiency, reducing fuel consumption by 25 percent and CO₂ emissions by 690 tons per year.

"Energy is a significant cost in healthcare," said Robert Falaguerra, vice president for Facilities, Support Services and Construction. "We are constantly scrutinizing our facilities to ensure their energy efficiency so that we may continue to deliver the highest quality health services at the lowest possible cost."

Recently, Saint Francis has turned its attention to making its laundry, and its heating and cooling systems more environmentally friendly and efficient. Falaguerra said the medical center is currently working on a major energy conservation project that will include HVAC, lighting and upgraded boiler controls. The result will be a projected savings of more than \$2 million annually.

HVAC project

The hospital recently began to implement a facility-wide Results Based Maintenance (RBM) program to validate HVAC performance and identify further savings opportunities.

Building management suspected that the facility's temperature control system was not properly programmed in one wing of the building after learning that hospital personnel

were routinely adjusting thermostats in the morning because they were too warm, and changing them during the day to compensate for fluctuations in temperature, partly attributed to higher staffing levels.

Making use of OptiNet, a suite of technologies and sensing capabilities for facility-wide performance based monitoring and control, the hospital first conducted a HVAC survey to independently review temperature and humidity, filtration efficiency, control strategies, ventilation efficiency and potential pollutants.

Two test areas on each of the two floors were sampled. These four points were chosen to maximize the coverage of the monitoring system on each floor, sampling both a densely populated area and an open area. Each floor consists of an open reception area, a central nurses' station, and a separate area of small treatment rooms served by a common hallway. The system validated their suspicions and revealed that temperature controls during the heating season were incorrectly programmed. In three of the four test areas, the night setback function was not operating and space temperature was remaining constant. In the fourth area, it was discovered that the settings were inverted, bringing temperatures from 76 degrees during occupied hours to 84 degrees during all 13 unoccupied hours. Resetting the controls system for proper night setback helped building management add to its energy savings.

Using the Optima monitor with its reporting tool, survey results indicated ventilation rates ranging from 81 to 140 cubic feet per minute (CFM) per person. CFM measures the amount of air a blower or fan can move in a given period of time.

Saint Francis estimated that it could generate energy savings by lowering a current rate of 86 CFM to a new rate of 25 CFM per person. Including savings from night setback and economizer settings, the facility is positioned to save approximately \$9,100 per year in total energy costs in this 30,000 square foot area.

Laundry goes ozone

To say Saint Francis' laundry operation is busy is an understatement. The facility's laundry operates six days a week, processing 7 million pounds in 2005 alone.

The hospital looked into retrofitting its existing equipment to use ozone as a means to save energy, water and chemicals. The plan worked. Ozone allows the equipment to run at lower temperatures with equal or better efficacy than before.

After investing \$100,000 in an EnviroSaver II Ozone installation from WET-TECH, the hospital began realizing immediate savings.

Mark Arcelaschi, general manager, estimated that the \$100,000 investment paid for itself in just over one year.

The entire ozone system was recently moved to a new laundry facility, which will produce 12 million pounds of laundry for Saint Francis and three other hospitals. In

addition to the ozone system, the new laundry features an environmentally friendly 12-compartment tunnel washer that recycles rinse water back to the pre soak cycle, two hot oil ironers which conserve steam and fuel and computerized controls for all the driers.

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