

The Midas Touch:

How the best just keep getting better

Three years ago, we devoted a column to two hospitals—Shriners Hospital for Children in Houston, Texas and St. Francis Hospital and Health Services in Marysville, Missouri – that used low-cost O&M improvements and technology upgrades to increase efficiency and cut energy use by an impressive 40 percent in just 12 months time. (See Profiles in Performance: How Two Hospitals Rose from Mediocrity to Excellence in the Nov/Dec 2003 Inside ASHE).

Profitably cutting energy use by 5 percent in one year is a stretch goal for most, but fairly common in the ENERGY STAR® program, especially for facilities that score at or below the industry average in EPA's 1-to-100 Portfolio Manager rating system. But a 40 percent savings? That surprised even us. After learning their story, we realized there are facility managers everywhere with the Midas Touch, the ability to tenaciously pursue energy waste and turn it into the gold of energy savings.

With record-high energy prices affecting nearly every hospital in the country, we believe their story is worth updating and telling again.

What technologies and other best practices do Shriners-Houston and St. Francis use to dramatically increase efficiency? Have they continued to maintain top energy performance since being awarded the ENERGY STAR by the U.S. EPA in 2003? How did their energy management programs benefit after receiving federal recognition?

This article will share how these two hospitals have built upon their successes to not only maintain, but also improve, their energy performance and environmental leadership.

SHRINERS HOSPITAL FOR CHILDREN — HOUSTON

In 2003, after augmenting the HVAC system, upgrading chilled water pumps, and installing lighting controls, Shriners Hospital earned its first ENERGY STAR by



increasing its energy performance rating by 33 points to a 75.

Since then, Shriners Hospital has focused on maintaining, fine-tuning, and building upon its past upgrades and improvements. "At this point, it's not the big energy issues that will make or break you, but the little things," explains Delbert Reed, Director of Engineering/Maintenance and Energy Manager at the hospital.

"Everyone does the same *big* things to save energy. But you'd be amazed at how many *smaller* energy savings opportunities you walk by each day that really add up." Specific upgrades that have taken place since 2003 include:

Lighting Upgrades:

- Continued replacing T-12 lamps with T-8 lamps.
- Installed CFLs wherever possible.
- Installed occupancy sensors wherever possible.
- Installed "down lights" in the main lobby.
- Replaced florescent lamps with "down lights." The replacement of light fixtures on one level of the hospital cost \$2,500, with a return on investment of just seven months.

Fan Systems/Air Handlers:

- Installed a 1.5-ton A/C unit in the security office to allow the larger HVAC unit that cooled the security office and many other areas to turn off when only the security office is occupied. This amounted to a 60 percent reduction in load. The return on investment was six months.
- Installed a new air handler that operates on a set schedule to maximize efficiency. The security staff operates their own air conditioner to cool or heat their office when needed.
- Continually evaluated existing equipment to make sure it functions correctly and as efficiently as possible.

QUICK FACTS:

Shriners Hospital for Children

Year built: 1996

Location: Houston, TX

Floor space: 248,775 ft.²

Energy Star Portfolio

Manager ratings: 1996: 42

2003: 75

2004: 88

2005: 88

2006: 94

While the funding for some projects was in existing budgets, upper management approved additional projects because of the hospital's quick payback periods and energy savings from prior energy improvements.

and charts. Reed told inspectors that the ENERGY STAR is a 3rd-party verification of the facility's improved performance over time, thus earning points for operations as part of the JCAHO inspection.

Reed experienced several challenges through his efforts over the past few years. He stresses the importance of having a commitment from the start. A comprehensive approach to energy management involves setting and tracking goals and committing to a plan to achieve those goals. O&M, building upgrades, commissioning, staff training, communication at all levels, and data tracking are all key factors to the plan. The activities themselves are not difficult; the challenge is to keep an eye out for every opportunity and follow through with action.

Reed benchmarked each of Shriners' 22 hospitals in the system to establish a systemwide baseline and prioritize the organizational portfolio. After one day at the system's headquarters, Reed was able to improve the facility's rating by 15 points (nearly 15%!) simply through recalibration of equipment. Efforts are underway for broader adoption throughout the Shriners' system.

Although Shriners Hospital has continued to take steps to dramatically cut its energy use over the past three years, Reed's work is not done. He plans to continue efforts to:

- Gain commitment at the top to apply lessons learned throughout the system's portfolio.
- Apply for and earn recognition, train employees, and seek broader awareness of energy management at all levels throughout the hospital and system.
- Continue to find the small energy saving opportunities across the hospital, including fine-tuning and maintaining equipment to ensure continuous high performance.

As a result of these upgrades, Shriners Hospital became the first hospital in the country to earn the ENERGY STAR three years in a row – 2003, 2004, and 2005, saving approximately \$600,000 nearly \$1 million (in 2006 dollars) since 1998. The engineering department showcased their achievement for the Joint Commission inspectors by creating a display with posters, graphs,

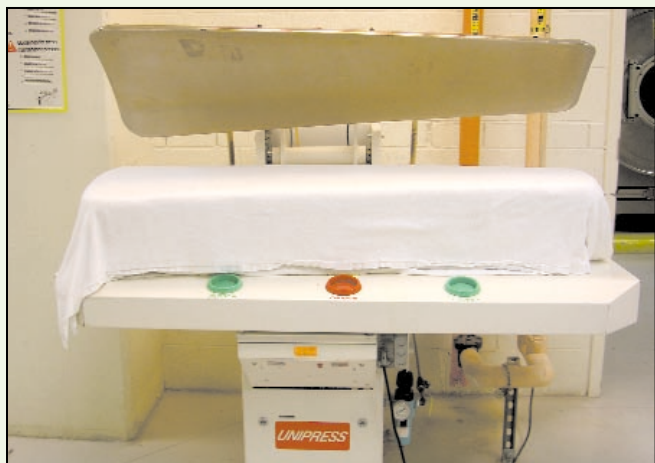


Delbert Reed and his staff display their ENERGY STAR plaques.

ST. FRANCIS HOSPITAL AND HEALTH SERVICES

St. Francis Hospital and Health Services first benchmarked their facility in 2002, earning a rating of 51. After briefing senior management on its average rating, the hospital focused on upgrading boilers, phasing out T-12 lamps, and installing a high efficiency cooling tower. In one year, their energy performance rating increased 40 points to a 91 in 2003.

Since then, St. Francis Hospital has strived for continuous improvement by maintaining and improving the efficiency of existing systems where possible, while also focusing on a new effort – incorporating energy efficiency into the hospital's new construction projects. "It takes dedication to really save money," says Gary Thompson, Building Operations Director. "You need to look critically at data to find the money saving opportunities."



By adding an electrical steam valve operated by a mechanical timer, Shriners was able to energize the steam table only when needed, saving \$9,000 per year.

Thompson continually trains staff on best maintenance and equipment use practices. Recent upgrades and maintenance projects include the following:

- Installed a new air handling system for medical surgery with a payback period of six years.
- Continued maintenance of the previous boiler burner and high efficiency cooling tower upgrades, safety valves, and water treatment system.
- Continued replacement of T-12 lamps with T-8s.
- Continued upgrading of “energy costly” to “energy-efficient” equipment.

After seeing the savings achieved in the existing building, St. Francis Hospital management called for the incorporation of energy-efficient equipment into their new construction project, which is expanding the hospital from 172,000 square feet to over 200,000 square feet. While energy-efficient equipment and systems were embedded into the construction effort, it was difficult

to keep the hospital’s rating at 92 during construction, due to constantly open doors and the transition to new equipment. As the building settles and becomes functional and occupied, the hospital expects to see an increase in its energy efficiency.

QUICK FACTS:

St. Francis Hospital

Year built: 1968

Location: Maryville, MO

Floor space: 200,000 ft.²

Energy Star Portfolio


Manager ratings: 2002: 51
2003: 91
2004: 92
2005: 88
Now: 92

To showcase its successes to date, St. Francis held a press event at the hospital with EPA and hospital officials. The event garnered coverage in local news as well as hospital newsletters. In response, the hospital saw the patient census increase, with many patients citing the hospital’s positive press for having a well-run and highly energy-efficient performance. While no specific figures are attributed to the relationship between the ENERGY STAR and the rise in patient census, hospital administrators credited Thompson’s efforts for at least assisting with the increased publicity and patient census.

Thompson has learned several valuable lessons over the past few years. In addition to learning the importance of upper management support, he learned that a comprehensive approach includes a relentless pursuit of all energy efficiency opportunities at the facility level. It’s important to showcase successes to obtain buy-in for larger measures.

LEARN MORE

To learn more about the successes at Shriners Hospital for Children in Houston and St. Francis Hospital and Health Services, Delbert Reed and Gary Thompson will be presenting “Save Energy Now with Low-Cost Strategies” at ASHE’s 43rd Annual Conference and Technical Exhibition in Boston, MA, on July 11th at 1:45 PM.

To compare your hospital to its peers nationwide, visit ENERGY STAR at www.energystar.gov/benchmark. For more information about the energy management strategies of the hospitals profiled in this article as well as other hospitals that have earned the ENERGY STAR, visit www.energystar.gov and select “Find Labeled Buildings”. The facility managers’ contact information is usually listed to enable peer-to-peer networking. 

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Jim Gulliford (EPA Regional Administrator of Region 7), Gary Thompson, and Mike Baumgartner (hospital president) discuss ongoing plans for energy performance.