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From Maintenance Solutions July 2005 Issue

COVER STORY: *Mission Support / Government*

It Pays to be Green

Maintenance management at California's EPA headquarters proves that green operations help the environment and the bottom line

By Renee Gryzkewicz

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The numbers were wrong, Craig Sheehy thought. They just had to be. As director of property management at the Joe Serna Jr. California Environmental Protection Agency (EPA) headquarters building in Sacramento, Sheehy oversees the facility's daily operations and led California EPA's mission to reduce its environmental footprint in and around its headquarters.

When he began instituting green practices and energy-efficient technologies shortly after the 90,000-square-foot building was completed in 2001, he didn't realize how much of an impact they would have on operating expenses.

"A few months later, the financials started coming in," Sheehy says. "At first, I thought something was wrong because our operating expenses were a lot less than what I originally budgeted and a lot less than what downtown Sacramento averages. So I checked and double checked and, to my amazement, it was true that our operating expenses were dropping like a lead weight."

That was when Sheehy concluded that implementing earth-friendly practices and materials is not only good for the environment, but also good for business.

The California EPA's headquarters is arguably the nation's most environmentally friendly and energy efficient building. It is the first high-rise to receive platinum certification from the U.S. Green Building Council under its Leadership in Energy and Environmental Design-

Existing Building program, and it ranks as one of the most energy-efficient high-rises in the EPA's ENERGY STAR® program.

Thomas Properties Group (TPG), Sheehy's employer, oversees maintenance operations of the 25-story high rise. TPG has been instrumental in incorporating practices and materials that improve air quality, reduce energy use and strengthen recycling efforts. Significant savings have come from "out-of-the-box" ideas, Sheehy says.

Managers in institutional and commercial organizations might be able to take a lesson from Sheehy's efforts: It is possible to reap rewards by carefully reviewing current operations and incorporating untraditional practices.

Focus on filters

A green building provides occupants with, among other things, proper indoor air quality (IAQ). Concerned about IAQ, Sheehy directs technicians to replace the facility's 436 air filters more often than most facilities.

"Other facilities normally change their filters once every year," Sheehy says. "Because indoor air quality is so important to us, we change ours twice a year." The practice, however, has created a challenge — it generates 8 tons of used filters annually.

"Because I'm so concerned about waste, sending this many filters to the landfill was a big problem for me," he says. Sheehy asked staff engineers to find a way to reduce the amount of waste while possibly lowering costs, but they couldn't find recyclable filters that would serve their needs, and cleaning the filters required too many labor hours for it to be cost effective.

Eventually, engineers found a lighter, less expensive filter with the same efficiency rating as the existing type. The new filters have fewer pleats and are designed to last two years, which is less time than the older filters. But since the maintenance staff is changing them every six months, the shorter life cycle wasn't an issue.

TPG signed a contract with a company that collects the filters and delivers them to an incineration plant in Utah, where they incinerate the filters and capture the heat to produce energy. The federal government buys the energy at a reduced cost.

"This practice saves us about \$26,000 a year in filters and hauling costs," Sheehy says.

Bright ideas

Lighting can represent 30 percent of a facility's total energy costs, Sheehy says. With that figure in mind, Sheehy looked for lighting

technology and practices that would lower those costs. TPG implemented voltage reducers in October 2004.

The devices “reduce the voltage going to fixtures and kind of purify the power going to them,” Sheehy says. “You don’t need as much electricity to run the fixtures.” And they require very little maintenance.

“The engineers only need to check them once a month to make sure they’re operating properly. It’s saving us 20.4 percent off our lighting costs,” he says. Buildings just starting to implement energy-efficient lighting technologies might experience much higher savings.

“We were already one of the most energy efficient buildings in the nation when we installed them, so we won’t achieve the savings that other buildings could,” he says. “Other buildings might see a 25-30 percent savings.”

The 12 voltage reducers cost about \$252,000, and Sheehy expects the devices to pay for themselves in about two years. The reducers also should double the life span of the lamps, Sheehy says. However, because technicians relamped the lighting fixtures shortly before installing the reducers, he won’t know if the lamps’ life spans doubled for another three years.

Water conservation

Some organizations might hesitate to incorporate technologies such as waterless urinals because they are unsure of their performance. Last year, Sheehy and his staff began a waterless urinal pilot study by installing eight waterless urinals in the building. The urinals lowered maintenance costs and water use, while also meeting customer expectations related to hygiene and odors. Now, TPG is converting all restrooms to waterless urinals.

“Once those are completely instituted, they will save us about 1 million gallons of water a year,” he says. And the impact on maintenance calls was dramatic.

With the older models, he says, “we received many calls regarding stuck valves and continuously running water,” adding that users who threw paper and other items into the fixtures caused many of the problems.

TPG also is implementing technology that would capture and re-use ground water.

“Most buildings have issues with ground water,” Sheehy says. As in many facilities, the California EPA building pumps that water and flushes it into the storm drain. All of that water, which could be used for grounds care operations, is wasted.

"We are in the process of adding a storage tank in our basement that holds 200,000 gallons of water," Sheehy says. "We are going to capture that water and then use it for all of our landscape."

Think tanks

Brainstorming offers managers an excellent opportunity to come up with energy-saving ideas. Sheehy and his staff meet once a month to discuss ideas that might reduce energy use and lower costs.

"I want my staff to think out of the box and realize that no idea is a bad idea," he says. "Sometimes, we'll grab a mechanical or electrical engineer and we'll ask them what they think of a particular idea."

Sheehy also has developed an employee achievement reward system (EARS) that rewards engineers, security personnel and custodians for presenting tactics that lower operating expenses. They receive 10 percent of the annual quantifiable savings.

"In the two and half years that we had this program, I've written out about \$15,000 in checks and (generated) about \$250,000 a year in savings," Sheehy says. "Sometimes, they just need a little motivation, and money can be a good motivator."

Leadership

Achieving long-term savings and environmental benefits is not all about spending capital funds on equipment upgrades.

"We look for low-cost, no-cost ways to reduce our energy," he says. "I suggest implementing the low-cost, no-cost things first before buying upgraded equipment. Because after you have implemented all of these new operational excellence programs, your load is going to completely change. So you don't have to design something as large as you probably would have done before." While some efforts might achieve minimal savings, implementing several efforts at once can produce significant savings.

"When you do this across the board it adds up. Before you realize it, you might be achieving a total savings of a million dollars a year."

Cleaning Considerations: Smart Scheduling Offers Solutions

In 2001, Craig Sheehy, director of property management at the Joe Serna Jr.-California Environmental Protection Agency headquarters, discovered several benefits to changing the custodial staff's work schedule from nighttime to daytime hours.

First, it significantly reduced energy use because workers no longer needed additional lighting to clean.

“As a result of this change, we have not only reduced energy consumption by 8 percent but also incurred utility savings of \$100,000 annually,” he says.

Second, the change reduced the complaints about cleaning. Building occupants now can talk directly to the custodial staff regarding their concerns.

“Now that the employees see our custodial staff working, our complaints have dropped more than 70 percent,” he says. This equals a savings of \$110,000 in labor hours.

“Furthermore, since the working hours are ending earlier, for the first time in their careers, (the custodial workers) are able to put their children to bed at night,” he says. “This has reduced our staff turnover significantly and eliminated continuous training.”

— *Renee L. Gryzkewicz*

FacilitiesNet was created in 1995 by Trade Press Publishing Corporation.
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