

[ Maintenance and Engineering ]

# THE IMPACT OF LEED

LEED certification for **Aultman Hospital's Compassionate Care Center** helps a maintenance department focus on green issues

By Steve Schuster, Associate Editor

The process of earning Leadership in Energy and Environmental Design (LEED) certification for new buildings often presents maintenance and engineering managers with significant challenges. Certification guidelines require them to invest time and energy in meeting staff training needs, as well as considering the environment and the organization's fiscal bottom line. But for one Ohio health care facility, these tasks were not insurmountable.

In September 2011, Aultman Hospital in Canton, Ohio, opened the Compassionate Care Center, which is the area's first inpatient hospice center and grief service center. The facility provides specialized care for end-of-life patients. Aultman Hospital owns or operates 30 facilities encompassing 2.2 million square feet and 808 beds.

The 23,000-square-foot, 12-bed facility, which earned LEED Silver certification, "was carefully designed and constructed to meet the needs of the community and with great consideration for the environment," says Brian Hanna, senior project manager with the construction services department. Hanna developed the design and scope of the program and coordinated his efforts with the maintenance and operations staff.

"I managed the design, serving as the onsite construction manager throughout the project, and facilitated the procurement of furniture and equipment," says Hanna, whose department plans and implements capital-improvement construction projects for Aultman Health Foundation. The engineering services staff consists of five engineers and two construction managers.

## The maintenance connection

The role of the hospital's maintenance department in the certification process start-

ed with the design of the new facility.

"Aultman's maintenance staff was included in the design of this facility to ensure facility standards were incorporated wherever possible," Hanna says. "However, Aultman Hospital's standard materials and practices were updated as a result."

The hospital's mechanical mezzanine is a perfect example of the way staff input affected design. The mezzanine was specially constructed so that "a 6-foot tall person can walk through the space free of obstructions," he says, adding that the largest equipment can pass through the existing construction to the outside doors.

"Access space, piping, and ductwork were carefully planned to ensure accessibility," he says. "The utility room opens to the parking lot for convenient access."

In addition, hose bibs and power outlets are located for optimum access to cleaning and maintenance staff, and restroom fixtures and dividers were hung from walls and ceilings, instead of being mounted on floors, to streamline the cleaning process.

## Maximizing sustainability

The LEED Silver certified facility was designed and constructed to operate with a minimal environmental impact, which was already in line with the hospital's existing operations.

"We found that we did not have to stray far from our standards to obtain LEED certification," Hanna says. "The major differences between this project and a typical construction project were the utilization of a new HVAC system, the amount of documentation required for LEED certification, and the costs associated with LEED design and construction."

In order to earn points toward certification, the hospital kept water conservation



Top to bottom: Aultman Hospital's new Compassionate Care Center earned LEED Silver certification in September 2011. The facility's 12 guest rooms were designed with high-end architectural finishes and low lighting levels to create a comfortable environment. The nurse station is central to the facility's guest rooms and includes direct access to the medications room, as well as the central storage and reception areas. The first-floor mechanical room, which was planned to provide necessary maintenance access, houses service entries and head-end equipment for domestic water, fire water, natural gas, and medical vacuum systems.

## AULTMAN HOSPITAL



The great room in Aultman Hospital's new Compassionate Care Center is centrally located and is adjacent to the family kitchen, the nurse station, and an outdoor terrace. The 23,000-square-foot facility earned LEED Silver certification in September 2011.

and energy reduction at the top of the project's priorities.

"Low-flow plumbing fixtures save tens of thousands of gallons of water annually," Hanna says. "Landscape irrigation is fed by an existing well to minimize the use of public water."

The project also involved the installation of the hospital system's first variable refrigerant flow (VRF) heat-recovery system. The energy-efficient system uses 28 percent less energy than a similar building without such a system, Hanna says. The VRF systems minimize energy use with digital-scroll compressors, increasing efficiency by sharing thermal energy between building zones, similar to a heat pump, Hanna says.

Separate air-handling units bring in fresh air into the facility, providing higher qual-

ity air for occupants. The heat-exchanging system also reduces energy use by capturing heat from exhaust air before it leaves the building, Hanna says, adding that energy use for heating and cooling is further reduced by insulating the exterior building walls with 50 percent more insulation than a typical building.

The new equipment has had an impact on the maintenance staff, Hanna says. Specifically, technicians required additional training to properly monitor and maintain the new HVAC system and its components. Though most maintenance activities remain in-house, he says, the department did outsource some of the specialized troubleshooting for the system.

To minimize the impact of the new facility on the local storm-water system, the hospital's site includes two bio-infiltration

basins, which collect 100 percent of the surface-water runoff from the roof and parking lots and return it to the soil.

"Bio-infiltration basins protect the groundwater supply by recharging the groundwater through infiltration," he says. "This system alleviates soil erosion and reduces stress on overburdened local storm water systems."

The perimeters of the bio-infiltration basins incorporate a 1-mile, accessible nature path, for occupants and their families, and the facility is adjacent to a 6-acre forest.

The site also includes a permanent recycling center, parking spots for energy-efficient automobiles, and a bicycle rack.

The new facility also features lighting-control systems designed to increase energy efficiency.

"The light fixtures use energy efficient lamps," Hanna says. "The family kitchen includes energy-efficient appliances, and the countertops are made with recycled glass."

Hanna also emphasized the importance of specifying environmentally friendly paints, coatings and flooring materials.

"The flooring, paint, sealants, and other finish materials used in this building were manufactured with minimal volatile organic compounds (VOCs) to improve the air quality for the building occupants," he says. "The carpet in the grief center contains 52 percent recycled materials and is 100 percent recyclable when removed."

#### Features for comfort

Beyond additional responsibilities for new plumbing, HVAC, and lighting systems, the maintenance and housekeeping staff also is responsible for a number of additional key areas in the new facility.

Interior spaces include a nondenomi-

national chapel, a family great room, a family kitchen, a shower and laundry facility for visitors, several open gathering spaces, a library, and a 1,500-square-foot grief service center. Exterior family spaces include three patio terraces, two trellis patios, a children's playground, and a reflective labyrinth.

"Each patient room has its own private outside patio," Hanna says, adding, "The building's exterior is accented with extensive landscaping, a butterfly garden, and extensive art work." Exterior construction is primarily brick veneer with manufactured stone and limestone accents, along with vinyl shakes and cement board siding above the roofline.

Perhaps just as important as the fact that the new facility earned LEED Silver certification, Hanna says, is the fact that the project "was completed on time and under budget and met all of Aultman Hospital's goals." ■

## Spotlight: Hospitals and LEED

**A**s sustainability takes root more deeply in institutional and commercial facilities, the number of hospitals earning certification through the Leadership in Energy and Environmental Design (LEED) rating system is growing steadily. Two hospitals recently achieved certification.

In May 2012, Le Bonheur Children's Hospital in Memphis, Tenn., earned LEED Silver certification, becoming the nation's fifth LEED certified children's hospital.

The hospital achieved the certification, in part, by installing motion sensors and energy-efficient bulbs leading to reduced heating and cooling costs, according to hospital officials.

The hospital also implemented water-saving technology by installing an outdoor-drop irrigation system and using low-water-volume sinks and toilets. Additional environmentally friendly measures include the installation of bicycle racks and special parking for energy-efficient vehicles.

Le Bonheur's modular energy plant is the largest of its kind in the country. The \$13.5 million plant includes a fire pump, chillers, boilers and an emergency-power system.

The plant is up to 14 percent more efficient than traditional plants, reducing greenhouse emissions and operating costs over time. Nearly 50 percent of demolition waste was recycled, and much of the steel and the concrete in the building were recycled materials.

In January 2012, Rush University Medical Center in Chicago earned LEED Gold certification.

Rush achieved the certification for efficient energy, lighting, water, and material use, as well as by incorporating a variety of additional sustainable strategies, according to hospital officials. For example, installation of energy-efficient heating, cooling and lighting systems were among the green technology the hospital now features.

Rush's \$654 million, 14-story, 830,000-square-foot facility has 304 private adult and critical-care beds on the top five floors. Rush has a total 664 beds in its new and existing facilities.

— Steve Schuster

## The 10 Things Every FM Needs

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