

SHOWCASE PROJECT: CLEVELAND CLINIC: HILLCREST HOSPITAL

SOLUTION OVERVIEW

Since 1968, Hillcrest Hospital has offered its communities advanced patient care, combining clinical skills and the latest technologies. Hillcrest Hospital ranked within the top three of Cleveland-area hospitals by U.S. News & World Report's "Best Hospitals in Cleveland" and has been nationally recognized 11 times as one of America's 100 Top Hospitals®, a designation based on extensive research of U.S. hospitals, as conducted by Thomson Reuters. Located in Mayfield Heights, Ohio, this 496-bed hospital serves the needs of Mayfield Heights and the surrounding communities, including Lake, Geauga, and Summit counties.

A centrally created action plan organizes and drives energy conservation implementation across all departments at Hillcrest Hospital. The plan includes:

- Directives on how energy is managed in new and existing projects;
- Approved energy conservation goals;
- Hospital energy modeling and analysis;
- Guidance on stakeholder education;
- Measurement and verification requirements for energy projects; and
- Commissioning and retro-commissioning HVAC equipment, hot water systems, exhaust fans, lab ventilation, data center air conditioning, kitchen ventilation and lighting.

As part of the action plan, Hillcrest Hospital kicked off a new series of projects to benefit patient care, improve patient comfort, and reduce environmental impact through energy consumption reductions.

SECTOR TYPE

Commercial

LOCATION

Mayfield Heights, Ohio

PROJECT SIZE

1,000,000 sq ft

SOLUTIONS

Hillcrest Hospital implemented a variety of energy reduction strategies that contributed to the hospital's energy use intensity reductions. The most impactful strategies included:

- Retrofitting linear fluorescent and can lights with LED's, saving 1.5 million kWh in 2015 alone. An additional benefit of upgrading to LED's is the avoided maintenance cost and interruption of patient care by reducing how often the light bulbs need to be replaced.
- Optimizing air exchange rates in Operating Rooms by standardizing rates to be no more than 20 air exchanges per hour while Operating Rooms are in use, and no more than six air exchanges per hour when Operating Rooms are unoccupied. One "air exchange" is when the entire volume of a room's air is replaced with fresh air, which is important for maintaining patient health, but also a significant energy driver due to the necessity of conditioning such a large volume of air. By identifying the right balance between patient care requirements and air exchange rates, Hillcrest Hospital saves 11,529,000 kBtu annually.
- Setting temperatures in the range of 68-74°F for non-patient care areas, which requires no additional cost, improves staff comfort, and saves more than 2,111,000 kBtu annually by reducing unnecessary heating and cooling. When spaces in the hospital are unoccupied by staff or patients, additional temperature setbacks (i.e. setting a space temperature to be warmer than 74°F to minimize air conditioning or cooler than 68°F to minimize heating, depending on the season) have saved an additional 3 million kBtu annually.
- Maintaining and optimizing air filters to maximize the trapping of particles and contaminants with the minimal amount of additional energy consumption.
- Upgrading lighted exit signs (i.e. the signs over doors to stairwells, exterior doors, etc.) to LED technology.
- Maintaining and replacing steam traps to avoid leaks and maintain energy efficiency.

The total cost for the lighting upgrades, Operating Room setbacks, temperature setbacks, and filter optimization was just over \$950,000. The calculated annual savings for all implemented projects total \$348,000.

OTHER BENEFITS

With prioritization of energy conservation initiatives and projects through a centralized action plan with engagement across all departments, leaders at Hillcrest Hospital have mobilized caregivers into hundreds of teams to think and act anew about making patient care more affordable.

At Hillcrest Hospital, energy conservation is sustained across all departments. At the top, Dr. Brian Harte, President of Hillcrest Hospital, and Kris Bennett, COO, set the tone and prioritize energy conservation initiatives and projects. At the operational level, the facilities leadership, Jim Senick and Eric Armburst, detail implementation plans. Hillcrest Hospital's Green Team supports their energy efficiency initiatives and hosts several events during the year to encourage caregivers to conserve resources, including on Earth Day in April and in October during Energy Awareness Month.

The organization's commitment towards energy conservation has resulted in reduced operational costs from operating rooms to the store room, which would not be possible in a more fragmented environment. CEO and President, Dr. Toby Cosgrove, refers to the facilities energy conservation strategy as a key driver to affordability, designed to enhance patient outcomes and the patient experience while reducing operating expenses. The energy and cost savings Hillcrest Hospital is able to achieve through energy efficiency results in dollars being reinvested into patient care.

For more information, read the Energy Conservation section of Cleveland Clinic's 2015 Sustainability Report:

<http://portals.clevelandclinic.org/ungc/Environment/ConservingEnergy/tabid/9307/Default.aspx>

Annual Energy Use

Baseline(2010)
587 kBtu/sq ft/yr

Actual(2015)
460 kBtu/sq ft/yr

Energy Savings
23%

Annual Energy Cost

Baseline(2010)
\$3,400,000

Actual(2015)
\$2,870,500

Cost Savings
\$529,500



Hillcrest Hospital Entrance



Caregivers from all departments at Hillcrest Hospital positively contribute to the facility reaching its energy conservation goals.