Carney Hospital

COMPREHENSIVE ENERGY EFFICIENCY TREATMENT

Carney Hospital, a renowned Boston teaching hospital with the typically high energy usage characteristic of most 24/7 healthcare operations, is now saving over $500,000 each year on their energy, gas, and water bills. The savings resulted from a comprehensive energy efficiency analysis and treatment performed by ENGIE Services U.S. (ENGIE).

THE PARTNERSHIP

ENGIE installed new high efficiency chillers under variable frequency drive (VFD) control, modified air-handling units (AHU) VFD, installed additional energy management system (EMS) controls, converted lighting fixtures to more efficient design, and modified variable air volume (VAV) systems in the office building.

The installation of wall and ceiling-mounted occupancy sensors, where appropriate, ensures that lighting is shut off when the space was unoccupied. The Medical Office Building, although designated as a VAV system, was operating as a constant volume system due to failure of VAV boxes and controls. Through installation of VAV diffusers as well as new rooftop units with VFD fans and controls, the system was successfully converted back to VAV.

ENGIE also made system and control modifications to the existing chilled water pump that allowed the pump to operate at a variable flow with reduced speed, saving additional energy.

Program Summary

- Annual Electricity Savings: 2,711,000 kWh
- Total Installed Cost: $2,150,000
- Utility Incentives: $600,000
- Final Carney Cost: $1,550,000
- Total Cost Reduction: $470,400
- Simple Payback: 3 Years

Energy Efficiency Measures

- Lighting
- Controls
- HVAC

(Continued on the back)

3 DIMENSIONS OF IMPACT

ENGIE is committed to building three dimensions of impact in every customer's future:

Supporting People

- Training and education of personnel increased understanding and control over the hospital physical plant systems.
- Additional controls and sensors for the single AHU serving the twelve operating suites allows the zones to be isolated and the AHU VFD to reduce speed. In addition to saving energy when areas are unoccupied, this increases comfort.

Saving Money

- With water and gas savings measures, the total annual savings exceeds $500,000.
- $600,000 in utility incentives helped offset project construction costs.

Protecting the Environment

- Over 5,000 lighting fixtures throughout the hospital, including the parking garage, were upgraded to super T-8 technology, saving over 1.5 million kWh of lighting energy annually as well as reducing the cooling load.
- Two high efficiency 550-ton chillers replaced the existing 600-ton chillers that were approaching the end of their useful life. The new chillers operate under variable frequency drive (VFD) control, saving energy and reducing emissions.
- The comprehensive improvements resulted in total annual electricity savings of more than 2.7 million kWh, the equivalent to powering 218 homes for a year.

Garage lighting before (left) and after (right) retrofit.