

Harvard University Hilles Library



COMPREHENSIVE ENERGY EFFICIENCY TREATMENT

ENGIE Services U.S. (ENGIE) performed a comprehensive energy analysis of the Hilles Library at Harvard University in Cambridge, Massachusetts, a 95,000 sq. ft., 4-story building built in the 1960s. The building had a 25-year-old, 400-ton chiller that was replaced with a 300-ton variable frequency drive (VFD) chiller. ENGIE also installed a direct digital control energy management system for the facility. The lower block hot deck/cold deck was upgraded with new chilled water coils, steam coils, dampers and damper actuators, and variable air volume devices (VAVs). Additionally, a major retrofit was performed on the upper block hot deck/cold deck which involved replacing the air handling units (AHUs) with a new VAV AHU with VFDs, chilled water coils, and steam coils. For both the upper and lower block hot deck/cold decks, VFDs on supply and return fans were installed. State-of-the-art analysis & treatment significantly reduced energy consumption and qualified for substantial utility incentives.

3 DIMENSIONS OF IMPACT

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



Supporting People

- Improvements increased occupant comfort by eliminating hot/cold spots, making the HVAC system more effective.



Saving Money

- The project qualified for nearly \$400,000 in NSTAR incentives and provided energy savings of \$362,800 annually.

Program Summary

- Installation Cost: \$1,600,000
- Nstar Incentives: \$375,000
- Final Harvard Cost: \$1,225,000
- Annual Energy Savings:
 - Electric: 2,100,000 kWh - \$311,850
 - Steam: 5,000 Mlbs - \$45,000
 - Water: 2,381,000 Gallons - \$5,950
 - **Total: \$362,800**
- Simple Payback: 3.3 Years

Energy Efficiency Measures

- Controls
- HVAC



Protecting the Environment

- The energy efficiency measures implemented for Hilles Library will achieve a total annual savings of 2,100,000 kWh, (169 homes energy use for an entire year) with steam reduction of 5000 Mlbs, while saving 2,381,000 gallons of water, equivalent to the amount of water it takes to fill three and a half olympic sized pools.

