

Energy Audit - Education The Brearley School New York, New York

Program

NYSERDA FlexTech Feasibility Study

Scope of Services

- FlexTech Feasibility Study

Level of Involvement

Prime Contractor

Facility Size

90,000 sq. ft

Facility Type

Education

Project Results

- Replace Windows
- Replace Inefficient Lighting
- Install Day Lighting
- Install Occupancy Sensors
- Reactivate Vacuum System and Expand EMS

Project Savings

Electric Consumption: 155,851 kWh

Thermal: 20,790 Therms

Energy Cost Savings: \$47,998

The Brearley School is a private K through 12 school located at 610 East 83rd Street in New York, New York. The building was constructed in 1929 to consolidate the school's scattered facilities under one roof. In 1982, the facility was upgraded when the auditorium, cafeteria, common room and libraries were centrally air conditioned. A 1994 project added an 11th and 12th floor to the existing structure that brings the total floor area of the school to approximately 90,000 sq.ft.

Steam, heating hot water, air conditioning and ventilation air are provided through a variety of systems. The original building is heated by steam through a two-pipe distribution system supplied by one 175 HP low-pressure steam boiler. A back-up boiler was installed this year. The 1994 Addition is heated through packaged fan coil units supplied with heating hot water from a gas-fired boiler located in the 12th floor mechanical equipment room. The 1994 Addition is fully air conditioned



View from the Roof of the East River

through the packaged fan coil units. Dedicated water cooled units provide air conditioning to the auditorium, cafeteria, multipurpose room, common room and the upper and lower school libraries. A single cooling tower located on the roof serves all these cooling units.

We developed a computer model of the building to quantify how energy is currently used. The model is balanced against the monthly energy records to confirm the accuracy of the model. The model indicates total electric use that is 0.7% below the 2001 metered consumption and gas consumption that is 0.9% below the 2001 metered consumption. Heating is by far the largest single source of energy consumption in the building, representing 56% of the total energy use. Lighting is the second largest source of energy use, representing 14% of the building's energy use.

We recommended several energy conservations that reduced electric and thermal consumption. An important recommendation was to reactivate the vari-vac heating system to its original functionality to reduce energy use and improve tenant comfort. This required replacing the existing steam control valve actuators, pinpoint and repairing leaks in the distribution system and installing a new control system to operate the system in accordance with outdoor temperature and indoor feedback.