

Energy Audit – Institutional Berkshire Farm Center and Services for Youth Canaan, New York

Program

NYSERDA FlexTech Study

Scope of Services

- Analyze Utility Data
- Review Facility Documentation
- Facility Surveys
- Develop Model
- Identify Energy Conservation Projects
- Prepare Comprehensive Audit Report

Level of Involvement

FlexTech Contractor

Facility Size

160,000 sq. ft.

Facility Type

School, Cafeteria, Offices, Dormitory

Project Results

- Indoor pool cover
- Lighting fixture upgrades
- Window air conditioner replacement
- Installation of flow checks in boiler
- Premium efficiency motor upgrades
- Insulate hot water piping
- Install communicating thermostats in Old School
- Heating hot water outdoor temperature reset
- Greenhouse heating improvement
- Day-lighting controls
- Demand based ventilation
- Weather-stripping and air sealing
- Ceiling insulation

Project Costs

Installation Cost: \$304,832

Simple Economic Payback: 6.7 years

Berkshire Farms is a multi-service, private, not for profit social services organization located in Canaan, New York comprised of 40 buildings on a 580 acre campus. The facility provides residential child care for adjudicated boys and persons in need of supervision, ages thirteen to nineteen. The two largest buildings on campus are the new and old schools totaling 160,000 square feet.



Berkshire Farms

The remaining buildings are residential, office and utility type occupancies such as greenhouses and auto repair garages.

Each building has its own boiler plant that provides heating and domestic hot water. Many of the cottage boilers had been recently been replaced with Burnham sectional cast iron, single stage, atmospheric gas fired boilers. Steady state combustion tests were performed using a Dwyer combustion test kit and a digital thermometer for the flue gas temperature.

Berkshire Farms has twenty-seven split direct expansion (DX) cooling coils and condensing units with an Energy Efficiency Ratio (EER) ranging between 8.2 and 11.1. The EER is a ratio of the BTUs of cooling divided by the watts of electricity consumed to produce the cooling at an outdoor temperature of 95°F. Most of the split DX systems are manufactured by Goodman and are located in the old school. The dining hall and Intensive Treatment Program (ITP) buildings both have packaged DX roof top units. ITP also has three other split DX systems manufactured by York.

Many of the opportunities identified were closely associated with the operation and maintenance of the building systems. For example a newly installed boiler that provides heating and service hot water (SHW) did not have flow checks installed. During the cooling season the hot water from the boiler, intended to produce SHW, was gravity feeding to air handling units causing the cooling system to unnecessarily run continuously.