

TOWNSHIP OF PISCATAWAY UPDATES SCHOOL ENERGY SYSTEMS

UPGRADING HVAC & ENERGY MANAGEMENT SYSTEMS FOR ENERGY CONSERVATION

Piscataway Township is located in the northwestern part of Middlesex County, with a population of about 47,000 residents. Last year, Piscataway Township Board of Education entered into a performance contract with Siemens Building Technologies, Landis Division, to update lighting, HVAC and control systems.

Heating & Cooling

The majority of the buildings utilized a variety of mechanical equipment to provide heating and cooling rooftop units with electric heating and cooling capabilities; rooftop units with electric heating; unit ventilators with electric heating and cooling capabilities; electric chiller for cooling and electric heating system. The existing electrical cooling and heating systems were more than 30 years old and required significant maintenance. The existing electrical heating and cooling equipment have been replaced with new gas fired heating and cooling equipment. The new gas fired systems avoided electrical demand cost and provided utility subsidy. In most cases, these units have been equipped with air conditioning in addition to heating. Some buildings had electrical domestic hot water systems. These were replaced with high efficiency gas fired hot water systems.

Kitchen Equipment

At Patton High School, all existing electrical kitchen equipment were replaced with new gas fired equipment,



Boiler Before

which provides a more efficient means of cooking and warming meals in the cafeteria. Additionally, the new equipment is more temperature accurate.

New Energy Management Systems

New temperature control and energy management system provides a centralized, computerized means for control and monitoring of the indoor environments and mechanical systems.

Direct digital control and state of the art graphical software ensure a simple, easy and effective “window” into the operation of each building. The new systems provided:

Monitoring and control of newly installed mechanical equipment; monitoring and control of existing mechanical equipment and monitoring and control of future mechanical equipment.



Boiler After

The Bottom Line

A new updated heating, cooling and energy management system at Piscataway Schools provide many benefits in addition to energy savings like improved comfort and reduced operation and maintenance cost. Dan Saragnese, Business Administrator & Board Secretary, explains “Siemens Building Technologies worked very closely with our management team and consultant to help present our case to our school board. We are very pleased with the results they have delivered to date”.

**PISCATAWAY TOWNSHIP
SCHOOL SYSTEM**
Piscataway, New Jersey

NEW ENERGY MANAGEMENT SYSTEMS

Arbor Elementary School
Conackamack Middle School
Fellowship Farm / Administration
Knollwood Elementary School
Quibblatown Middle School
Randolphville Elementary School
Eisenhower Elementary School
Grandview Elementary School
Martin Luther King Elementary School
George S. Patton High School
T Schor Elementary School
Susan B. Anthony High School

NEW HEATING, VENTILATION & AIR CONDITIONING SYSTEMS

Arbor Elementary School
Eisenhower Elementary School
Martin Luther King Elementary School
George S. Patton High School
T Schor Elementary School
Susan B. Anthony High School

NEW KITCHEN EQUIPMENT

George S. Patton High School

NEW DOMESTIC HOT WATER SYSTEMS

Eisenhower Elementary School
Martin Luther King Elementary School
George S. Patton High School
Susan B. Anthony High School

ENERGY REDUCTION 4900 kW

ANNUAL KWH SAVINGS 10,500,000 kWH

ANNUAL ENERGY SAVINGS \$400,000.00

ANNUAL UTILITY SUBSIDY \$255,000.00

CONTACT SIEMENS BUILDING TECHNOLOGIES

44 Route 46
Pine Brook, New Jersey 07058
Tel: (973) 575-6300

TOWNSHIP OF PISCATAWAY UPDATES SCHOOL ENERGY SYSTEMS

PISCATAWAY TOWNSHIP SCHOOL SYSTEM

Piscataway, New Jersey

NEW LIGHTING SYSTEMS

Arbor Elementary School
Conackamack Middle School
Fellowship Farm / Administration
Knollwood Elementary School
Quibbletown Middle School
Randolphville Elementary School

RE-LAMPED

Eisenhower Elementary School
Grandview Elementary School
Martin Luther King Elementary School
George S. Patton High School
T Schor Middle School
Susan B. Anthony High School

LIGHTING ENERGY REDUCTION

607 kW

ANNUAL KWH SAVINGS

607,915 kWh/year

ANNUAL LIGHTING ENERGY SAVINGS

\$45,594.00

THE ENVIRONMENT

607,915 Kilowatt Hours of electricity on this project a year reduces: 2,210,622 pounds of CO2 the major cause of Global Climate change and 55,259 gallons of oil which is enough to power the average vehicle 1,105,189 miles.

CONTACT

ENERGY SOLUTIONS
222 Washington Street
Perth Amboy, New Jersey 08862
Tel: (732) 826-6867

UPGRADING LIGHTING SYSTEMS FOR ENERGY CONSERVATION

Piscataway Township is located in the northwestern part of Middlesex County, with a population of about 47,000 residents. Piscataway Township Board of Education entered into a performance contract with Siemens Building Technologies, Landis Division, to update lighting, HVAC systems and controls, and water heating. Siemens turned to Energy Solutions to provide design, material, project management and development, and submission documentation for the Public Service Electric & Gas Standard Offer Program.

Fluorescent Lighting

Many existing fixtures utilized (4) F40T12 lamps in a pendant mounted fixture with white louver design. These were replaced with 2-lamp F32T8 reflectorized fixtures with low output electronic ballasts, providing a 64% energy reduction and 20% increase in light levels. 2x2 fixtures with (2) F40 U-Tubes were updated to (2) or (3) F17T8 lamps and custom reflectors. In addition to significant energy savings, future maintenance costs were reduced due to the elimination of costly U-Tubes. A Peerless indirect T12 lighting system in one school was updated to F32T8 lamps and electronic ballasts, as were other newer fixtures that were in good condition. 2x4 (4) lamp F40T12 fixtures were converted to (2) F32T8 lamps with silver reflectors and electronic ballasts.



**Typical Classroom Before
(15) 2LF40 – 2,160-Watts**

Gymnasiums

Most gymnasiums were converted from both fluorescent and mercury vapor systems to new metal halide fixtures with drop dish lenses and quartz emergency re-strike's, to be utilized in the event of a momentary power loss.

Exit Signs

Exit signs received LED retrofits, cutting wattage from 30-watts to only 2-watts per sign, while also reducing future maintenance costs.

Future Reliability – Guaranteed

The combination of Osram/Sylvania lamps and ballasts provide a special systems warranty of 5-years on ballasts and 2-years on lamps. New light fixtures and exit sign retrofits also carried a 5 year warranty. Silver reflectors utilized carry a 25-year warranty.



**Typical Classroom After
(15) 1LF32 – 825-Watts**

The Bottom Line

A new, updated lighting system at Piscataway Schools provided many benefits in addition to energy savings. The quality of lighting was improved, keeping with Piscataway's goal of providing a positive environment for the children. New lamps provide higher color rendering, and increased light levels improve task visibility. Reduced maintenance costs from less lamps and longer life products will also continue to provide savings into the future.