NYC Federal Plaza Modernization Program

The modernization project includes energy efficiency retrofits

NYC's Federal Plaza complex has reduced its energy consumption by more than 10%.

What is the project?

The NYC Federal Plaza, operated by the General Services Administration (GSA), houses about 10,000 federal employees in nearly 2.8 million gross square feet (0.26 million square meters). The complex consists of the Jacob K. Javits Federal Building and the U.S. Court of International Trade Building. At 42 floors, the Federal Building is the tallest and second largest federal office building in the country. The modernization program addresses the complex as a total unit and includes energy efficiency enhancements in building operations, repairs, and capital improvements.

Started in 1991, the program is expected to last about 5 years. Several energy-saving retrofit projects have been completed so far, including lighting retrofits and motor and chiller replacements.

Most of the lighting retrofits involved installing more than 37,000 lamps in the Federal Building offices. The existing lighting fixtures contained two 34-watt fluorescent tubes with standard magnetic ballasts. The retrofit consisted of replacing the ballasts with energy-efficient ballasts, removing one tube, and adding a specular reflector. About 5000 new lighting fixtures will be installed in an annex to the Federal Plaza. Each 2- by 4-foot (0.6- by 1.2-meter) fixture holds three T-8 fluorescent tubes with electronic ballasts and specular reflectors. Other lighting activities include installing occupancy sensors in the bathrooms and replacing...
incandescent exit signs with 588 light-emitting diode exit signs, which are more energy efficient.

The energy-efficient lighting retrofits reduced the heating and cooling load imposed on the heating, ventilation, and air-conditioning system. To compensate, the two 3000-ton steam turbine chillers were replaced with three 2000-ton high-efficiency steam turbine chillers. With two large chillers, the system sometimes provided excess cooling, resulting in increased electricity usage. With three smaller units, just two units can operate when the cooling demand is low.

The maintenance staff is also replacing 30 electric motors with high-efficiency motors. Installing a high-efficiency motor can improve efficiency by as much as 2%–4%, often at little or no additional cost.

The Federal Plaza has agreed to maintain a 2250-kilowatt emergency generator to handle periods of high peak demand. Consolidated Edison will notify the Federal Plaza when a high peak demand occurs. Then the Federal Plaza will switch from utility power to its backup generator.

*How is the program funded?*

GSA funds energy retrofit activities through its Federal Buildings Fund. Each year, GSA allocates funds to building operations and maintenance. A portion of the funding is committed to construction projects that have energy efficiency features. All funds received in the form of rebates or incentives are deposited in the Federal Buildings Fund and are redistributed for additional energy conservation projects.

The NYC Federal Plaza Modernization Program qualifies for utility demand-side management rebates and other agency sources of funding. On October 23, 1992, Consolidated Edison presented the first rebate check of $1.2 million to the regional GSA administrator.

The rebate program includes additional rebates of more than $1.6 million for upgrading or replacing electric motors and chillers.

*What are the energy savings?*

The lighting retrofits have cut the electricity use for building lighting in half, specifically:

- Replacing lighting fixtures reduced electricity use by more than 2200 kilowatts, earning about $1.6 million in utility rebates.
- Installing occupancy sensors reduced electricity use by almost 6 kilowatts, earning about $5,000 in utility rebates.
- Replacing exit signs reduced electricity use by 10 kilowatts, earning $10,000 in utility rebates.

The chiller retrofit saves nearly 3600 million Btu (3800 kilojoules) each year. The utility rebate amounted to almost $1.1 million. The motor retrofits are projected to reduce demand by more than 71 kilowatts, earning more than $27,700 in utility rebates. By using a backup generator for peak loads, the Federal Plaza will earn an additional utility rebate of almost $34,000.
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