

Energy Audit – Commercial Office Consolidated Edison Headquarters 4 Irving Place New York, New York

Program

ASHRAE Level I, II and III Audit on headquarters building

Scope of Services

- Conduct LEED-EB Charrette
- Analyze Utility Data
- Review Facility Documentation
- Facility Surveys
- Perform Infrared Imaging
- Develop DOE 2.1E Computer Model
- Identify Energy Conservation Projects
- Prepare Investment Grade Energy Audit

Facility Size

1,132,690 sq. ft.

Facility Type

Corporate Office, Data Center, Utility Security

Project Results

- Retro-Commission Lighting Controls
- Upgrade Building Management System
- Install Hybrid Chiller Plant
- Upgrade Dual Temperature Pumping Loop
- Install VAV air distribution system
- Replace Windows

EME Group completed a detailed energy analysis of 4 Irving Place, Con Edison's headquarters located in Manhattan. Con Edison undertook this project to identify energy saving opportunities to reduce building operating cost and energy use. EME Group's approach was to conduct the audit following ASHRAE energy auditing guidelines which encompasses a three-level approach; Level 1, 2 and 3.

The energy use at 4 Irving Place includes electricity, district steam and cooking gas supplied by Consolidated Edison.

The mechanical plant consists of purchased steam that is used for space heating, space cooling and service hot water. Low pressure steam is used to generate heating hot water that is supplied through constant volume pumping to induction units installed around the building perimeter. Low pressure steam is also used directly in steam preheat coils and steam heating coils in air handling units. There are also steam reheat coils located throughout the building.



Con Edison Headquarters

Chilled water is produced by steam driven centrifugal chillers. The chiller plant consists of two 1,200 ton and one 2,300 ton chiller with a rated efficiency of 10.65 lbs of steam per ton-hour. The turbines that drive the chillers are designed for 125 psig inlet steam pressure and 4-inches Hg outlet pressure. The steam leaving the turbine is cooled by a steam condenser where the remaining heat is rejected via the cooling towers. Condensate from the steam condenser is then dumped into a sump pit, where it is pumped into the sewer.

The existing windows are the original double hung, single pane glazing in metal (copper & copper clad) frames with no thermal break. The windows date from original construction and the facility was interested in upgrading the building envelope. EME Group examined two options; first, the complete replacement of the existing windows with high-efficient, low-e thermal pane units considering two scenarios, (1) a double hung window or, (2) a fixed window. Second, we looked at the installation of an internal storm window, at significantly lower first-cost with nearly the same energy savings, but this option does not address the physical condition of the existing window.