7 World Trade Center

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New York City, New York

Background

Standing 750 feet tall, 7 World Trade Center is a 52-story building containing 1,300,000 square feet of office space. Silverstein Properties, owner of the building, sought to incorporate life-safety enhancements that would become the proto-type for high-rise construction. With the help of the New York State Energy Research and Development Authority (NYSERDA), 7 World Trade Center became New York City's first "green" office tower by achieving the Gold rating in the United States Green Building Council's Leadership in Energy and Environmental Design (LEED®) Core and Shell System program.

Steven Winter Associates, Inc., a NYSERDA technical consultant, was contracted to analyze the energy use of the proposed building under the New Construction Program. The energy analysis was cost-shared by NYSERDA. Baum and Bolles, a full service mechanical and electrical consulting engineering firm was provided commissioning assistance to ensure the long-term efficiency of the building.

Recommendations

Energy-efficient measures were identified as cost-effective and incorporated into the design of 7 World Trade Center. These measures, which will result in positive environmental impacts and energy efficiency include:

- Glass that has a low-emissivity coating applied which controls heat transfer
- High efficiency, direct expansion air-conditioning units
- Wetbulb reset temperature controls on the cooling tower
- Fans with variable speed drives on the cooling tower

Incentives and Results

NYSERDA's provided an incentive of **$435,611** for the implementation of these measures that will result in:

- Annual energy savings of 1,324,232 kWh
- Demand savings of 1,847 kW in the summer and 161 kW in the winter
- Annual cost savings of $436,403
- Greenhouse gas reductions of 723 tons per year

NYSERDA

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