Green Buildings Program

Bringing Green Design Principles to New York City's Whitehall Ferry Terminal

The New York State Energy Research and Development Authority (NYSERDA) and Steven Winter Associates, Inc. (SWA) conducted energy analyses of designs for the Whitehall Ferry Terminal in New York City. The study was conducted on behalf of the New York City Economic Development Corporation, Office of Management and Budget, Department of Transportation, and Office of Energy Conservation.

The study identified measures to reduce energy costs for the terminal and included life-cycle cost analyses to confirm the economic viability of these measures.

The study made design recommendations that will reduce energy use at the terminal by 40% compared to a New York State Energy Code-compliant design. The operation and maintenance savings generated from the energy-efficient design will pay for the added cost of incorporating the measures in less than six years.

Project Objectives

The primary purpose of the study was to identify cost-effective energy efficient technologies and design principles that could be incorporated into the Manhattan terminus of the Staten Island Ferry. This was accomplished using DOE-2.1E software to model the facility based on its architecture and schedule of operation. Fuel and electricity bills for the existing terminal were analyzed to establish baseline data, and a careful analysis of the existing structure identified several target areas to reduce energy use in the new facility. Despite the fact that this new terminal is larger and will handle more passengers than the existing terminal, it will consume less energy and cost less to operate and maintain. The cost of incorporating these measures represented less than 1% of the total construction costs for the terminal.

Measures Recommended

- Infiltration reduction through use of air curtains
- Daylight dimming
- Radiant floor heating
- Demand-based ventilation using CO_2 sensors
- Hot-water pumps with variable-frequency drives
- Efficient (85%) boilers with modulating flame and oxygen trim
- Displacement ventilation
- Efficient centrifugal chillers

About The Green Buildings Program

NYSERDA's Green Buildings program provides computer modeling and materials analysis to building design teams. These programs help make new and rehabilitated commercial, industrial, and institutional buildings environmentally responsible, economically viable, and healthier places in which to work. For more information about these services, contact Craig Kneeland at: (518) 862-1090, ext. 3311; e-mail: cek@nyserda.org

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