

Project Profile

A Zero Energy-Capable Building



Photo courtesy of The Trustees of Reservations © Frank Siteman

Overview

Site Details

- Location: Leominster, MA
- Building type(s): Commercial office, Assembly
- 82% new construction, 18% renovation
- 22,000 ft²
- Completed June 2004

DOYLE CONSERVATION CENTER (DCC)

Built on a 50-acre reservation in Leominster, the Doyle Conservation Center (DCC) houses core Trustees staff and serves as a central training facility that showcases the organization's conservation activities. The DCC's LEED Gold rating reflects the mission of the Trustees of Reservations, which is "To preserve, for public use and enjoyment, properties of exceptional scenic, historic, and ecological value in Massachusetts." The DCC is accessible to the public and is often rented out by various groups and organizations. Making the center available for private functions publicizes its green features to the surrounding community.

Energy

From January 2005 to December 2005, the building consumed approximately 6.83 kWh/ft², which is very close to the design goal of 6.25 kWh/ft².

One recurring challenge for green buildings is maximizing their energy management systems, which require substantial programming and maintenance but can produce exceptional energy savings. Successful projects such as the DCC provide thorough training to building managers, who dedicate approximately one-third of their time to maintaining the systems. The system was preprogrammed and has achieved the savings that it was projected to generate.

Efficiency Strategies

Wall Insulation. Achieve a whole-wall R-value of 15 or greater.

Ground-coupled Systems. Use ground-source heat pumps as a source for heating and cooling.

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Daylighting for Energy Efficiency. Use large interior windows to increase daylighting penetration.

Photovoltaics. Use a photovoltaic (PV) system to generate electricity on-site.

Ventilation Systems. Use heat-recovery ventilation.

Lighting Controls. Use modulating photoelectric daylight sensors. Use occupancy sensors.

HVAC Controls and Zoning. Use direct digital control (DDC) systems and occupancy-based conditioning controls.

For an in-depth case study, visit:

buildings.newbuildings.org/overview.cfm?projectid=366

New Buildings Institute

New Buildings Institute (NBI) is a nonprofit organization working collaboratively with commercial building professionals and the energy industry to improve the energy performance of commercial buildings.