

HIGH PERFORMANCE BUILDINGS

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Case Study: Wind NRG Partners, LLC, New Manufacturing Facility (Wind NRG Partners Manufacturing Facility)

Making the Case for High Performance Building

Overview

- Location: Hinesburg, VT
- Building type(s): Commercial office, Industrial
- New construction
- 46,500 sq. feet (4,320 sq. meters)
- Project scope: 3-story building
- Rural setting
- Completed August 2004
- Rating: U.S. Green Building Council LEED-NC, v.2/v.2.1--Level: Gold (44 points)



NRG Systems designs and manufactures wind-measuring equipment for the global wind energy industry. NRG planned this new office and manufacturing facility to embody its core mission: furthering the use of renewable energy and providing a healthy, productive, and beautiful workplace for its employees.

Environmental Aspects

An integrated design approach was used, and active and passive environmental strategies were incorporated into the project to accomplish NRG's ambitious human and environmental goals to build a model workplace and to achieve a LEED(r) Gold rating.

Careful building siting preserved native vegetation, agriculture, recreation, and wildlife habitat while providing a serene and healthy setting for NRG. The site is located within walking distance of the town center.

The open floor plan and three-story vertical openings at the building's center enhance ventilation and cooling. The exterior skin of this steel building was carefully detailed to eliminate all major thermal breaks while allowing penetrations for solar gain, daylighting, and ventilation. A wood-pellet boiler provides radiant heat. The radiant slab also delivers cooling, with heat rejection to a combined stormwater, cooling, and recreation pond. Renewable energy is provided onsite by photovoltaic panels, and solar thermal collectors, and a wind turbine.

Sophisticated mechanical and electrical controls provide occupant comfort, monitor building operations, and optimize performance. Paints, sealants, carpet, glued-wood products, stains, and adhesives were selected for their low emissions of volatile organic compounds. Recycled-content materials, FSC-certified wood, water-saving devices, local materials, construction waste recycling, and other strategies were also utilized to minimize the project's environmental impact.

Owner & Occupancy

- Owned and occupied by NRG Systems, Inc., Corporation, for-profit
- Typically occupied by 45 people, 46 hours per person per week; and 20 visitors per week, 1 hour per visitor per week

While the facility currently houses 45 employees, about 65 are projected.

Building Programs

Indoor Spaces: Other (40%), Manufacturing (25%), Warehouse (20%), Circulation (11%), Office (10%), Public assembly (1%), Restrooms (1%), Mechanical systems (1%), Conference (1%), Gymnasium, Lobby/reception

Outdoor Spaces: Wildlife habitat (50%), Other (33%), Drives/roadway (10%), Parking (5%), Pedestrian/non-motorized vehicle path (2%), Patio/hardscape

Keywords

[Integrated team](#), [Green framework](#), [Green specifications](#), Contracting, [Commissioning](#), [Performance measurement and verification](#), Operations and maintenance, Transportation benefits, Open space preservation, Wildlife habitat, Wetlands, Indigenous vegetation, [Stormwater management](#), [Efficient fixtures and appliances](#), Drought-tolerant landscaping, Massing and orientation, [Insulation levels](#), [Glazing](#), [Airtightness](#), [Passive solar](#), [HVAC](#), [Lighting control and daylight harvesting](#), [Efficient lighting](#), [On-site renewable electricity](#), Adaptable design, Durability, Benign materials, Recycled materials, [Local materials](#), Certified wood, [C&D waste management](#), Occupant recycling, Connection to outdoors, [Daylighting](#), Natural ventilation, [Ventilation effectiveness](#), Thermal comfort, Noise control, Low-emitting materials, Indoor air quality monitoring

Photo credit: Carolyn L. Bates

Process 

Case Studies Database provided by the U.S. Department of Energy's [Building Technology Program, High Performance Buildings](#).

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