

Green Buildings Program

Jamaica Bay Wildlife Refuge



Jamaica Bay Wildlife Refuge

Queens, New York

Background



This project strived to feature the very best in sustainable practices and features from the earliest stages of project formulation through finished construction. While considered a “small” structure in size to achieve a LEED® gold rating (pending), the design team set-out to conceive a project that could serve as a model to other agencies and the private sector; a project that the National Park Service (NPS) could be proud of and one that would exemplify its core mission.

The building was designed to minimize the development footprint. Through the value analysis process, it was determined that adaptive re-use of the 6,000 sf structure instead of complete demolition and construction of a new building was both environmentally friendly and cost efficient. A new administrative wing and lobby/ conference area was added to the concrete core bringing the square footage to a total of 11,000 square feet.

The NPS recruited a team that would establish and meet performance goals. NPS team members included Gateway NRA park staff and Denver Service Center project management and technical expertise. The National Renewable Energy Lab (NREL) was added to the team to provide critical value engineering and energy modeling from planning through construction. NREL and the New York State Energy Research and Development Authority (NYSERDA) cost shared enhanced commissioning to ensure that LEED® criteria was maximized and implemented. Non-NPS members included the design team of Beyer Blinder Belle, a New York City-based architectural firm.



Recommendations

- A “recycling station” in addition to using recycled products in the construction.
- Passive Solar Heating: A thermal storage wall has been incorporated (re-using the existing CMU wall of the original concrete structure) and overhangs to provide shade in summer.
- Daylighting: Special glazing screens out infrared solar heat while admitting visible spectrum for daylighting. In areas where supplemental lighting is needed, occupancy sensors turn off lights in areas not occupied.
- Ground source heat pumps, active solar water heater, integrated solar photovoltaic, and natural ventilation turbine extractors are also integrated into the building system.
- Use of sustainable materials such as cork and bamboo flooring

Incentives and Results

- NYSERDA provided the Jamaica Bay Wildlife Refuge with an incentive of \$34,600 for recommended improvements.
- Reduced Water Consumption: 25% reduction in maintenance costs and \$1,800 in water/sewer costs.
- Associated pollution savings are 60lbs. of NO_x, 120 lbs. of SO₂ and 34,000 lbs. of CO₂ per year
- Expected savings of 378 million Btu of energy valued at approximately \$7,000 in energy cost, annually



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