New York State
Department of Environmental Conservation

Reinstein Woods Nature Preserve

“Green” Environmental Education Center

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Welcome to Our “Green” Building!

The Environmental Education Center at Reinstein Woods Nature Preserve was designed and constructed as a “green” building.

What does “Green” Mean?

Complying with a 2001 Executive Order, to meet environmental efficiency standards, the new environmental education center at Reinstein Woods is designed to achieve a LEED (Leadership in Energy and Environmental Design) rating. The LEED Green Building Rating System is a voluntary program that represents the U.S. Green Building Council's effort to provide a national standard for what constitutes a "green building." LEED aims to create buildings that are energy efficient and use fewer natural resources in construction and operation than traditional buildings. LEED uses both established and innovative practices, standards and technologies to achieve these goals.

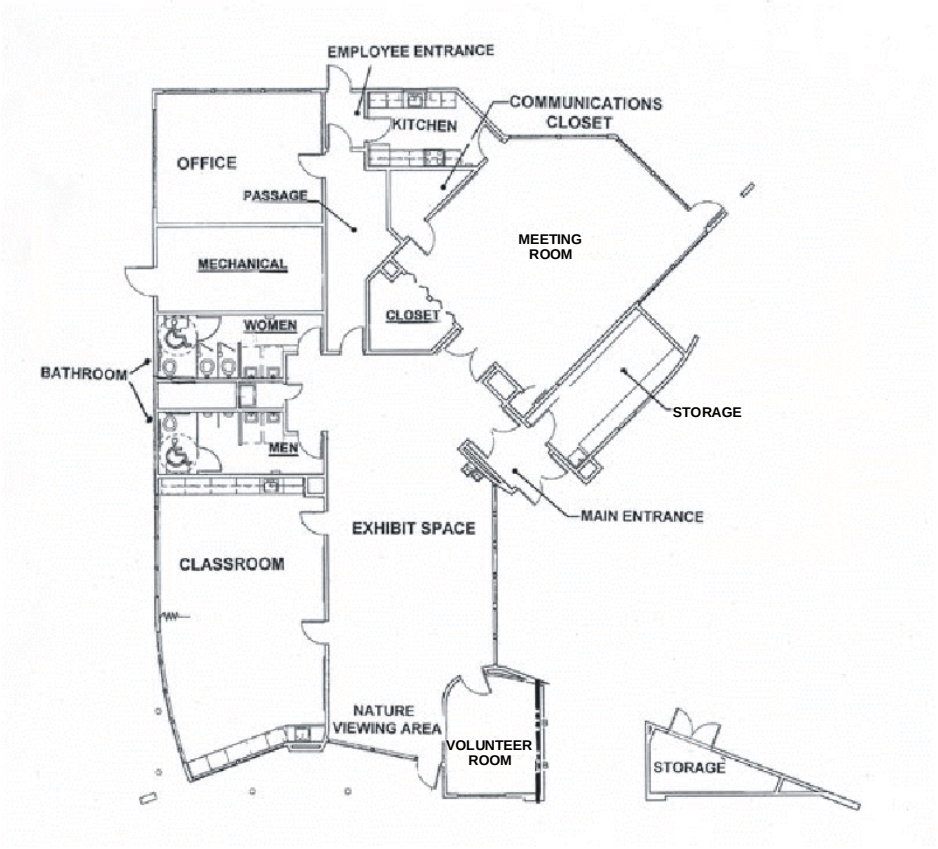
Why Build “Green”?

Green buildings use resources—energy, water, materials, and land—more efficiently and effectively and they provide healthier environments for working, learning and living. By building green, developers can save money, reduce construction costs and creating sustainable buildings. Owners save money by reducing operation and maintenance costs and lowering utility bills.

Take a “Green” Building Tour!

Use this guide to learn more about the green features throughout our Education Center.

Education Center Floor Plan



Construction of this 4,900 square foot building began in March 2006 and was completed in January 2007.

Meeting Room

Use of On-site Materials
- The wood trim in this room is different from the rest of the building. Several black cherry trees were removed in clearing the site for this building. The trees were locally milled for re-use as trim.

Carpet Tiles (also in office and hallway)
- The carpet tiles have 20% post-consumer recycled content by weight.
- The tiles are easily cleaned and replaced if damaged.

Exposed Ductwork (also in exhibit area and classroom)
- If you look up, you can see pipes from the sprinkler system and heating and cooling ducts. These were left exposed to reduce the amount of materials typically used to frame and conceal.

Compact Fluorescent Lighting (also featured in Exhibit Space recessed lights)
- These bulbs use about a quarter as much energy as incandescent bulbs and need replacing less often, making them cost effective.
- Dimmable electronic ballasts also reduce electricity costs.

Kitchen

Energy-efficient Appliances
- The refrigerator and dishwasher are ENERGY STAR® appliances. ENERGY STAR refrigerators use half as much energy as those produced before 1993. ENERGY STAR dishwashers use less energy and water than conventional models.

Composting
- Worms in the kitchen? Under the sink is our worm-composting or *vermiculture* bin. The "red wigglers" will eat kitchen waste (apple cores, bread, coffee grounds, etc.), reducing what is put in the trash. The resulting compost will be used to fertilize our native landscaping.

Exhibit Space

Concrete Floor (also in classroom and kitchen)
- Exposed concrete is stained and sealed as the finished floor, eliminating the need for sub-flooring or floor covering.

Exposed Beams (also in classroom, meeting room, and exterior)
- Glue-laminated southern yellow pine beams are manufactured within 500 miles of Reinstein Woods. This helped to reduce transportation costs associated with construction.

Tree Fiber Ceilings (also in classroom and meeting room)
- The ceiling is made from fast-growing aspen trees, a rapidly renewable resource. Exposed ceilings reduce materials needed.

Classroom

Hydronic Radiant Floor (HRF)
- Unlike forced air heating systems, radiant heat floors don't stir up dust and allergens and are noiseless.
- The system warms people and objects as opposed to just air.
- No energy is lost through ducts as in base-board and forced air heating.
- Operating costs can be 20 to 40% lower than forced air systems.

Electric Tankless Water Heater (also featured in kitchen)
- Unlike "conventional" tank water heaters, tankless water heaters heat water only as it is used, or on demand.
- Saves energy costs by not keeping water hot 24 hours a day.

Laminate Countertops and Cabinets (also featured in kitchen)
- Surface finishes meet low pollutant-emitting standards of the Greenguard Environmental Institute (GEI), an industry-independent, non-profit organization that certifies indoor products.
- Only renewable forest products are used in laminates. They contain no heavy metals, rain forest timber or tropical hardwoods.

Marker Boards (also in Meeting Room)

- The boards contain 7% post-consumer and 61% post-industrial recycled content.
- They were assembled approximately 135 miles from Reinstein Woods. This helped to reduce transportation costs.

Nature Viewing Area

Recycled Rubber Flooring (also in Volunteer Library)

- 100% recyclable tiles are easily replaced if damaged without having to replace the entire floor. Black chips are 100% post-consumer recycled rubber; remainder has 30% recycled material.

Eco-friendly Furniture (sofa and ottomans)

- Steel components contain at least 25% post-industrial recycled content steel
- Terratex upholstery fabric is made of 100% post-consumer and/or post-industrial recycled polyester. This material is made using processes that reduce waste, emissions, energy, water usage, and toxic by-products. It is made of a single fiber type, without backcoating, so that it too can be recycled or composted.
- Glues and adhesives used are water based.
- Furniture meets low pollutant-emitting standards of the Greenguard Environmental Institute (GEI).
- 100% of the electricity used to make the furniture is matched by green-e certified renewable energy certificates.

Volunteer Library

Eco-friendly Furniture

- The table and chairs and desk in this room are made from rubberwood. Rubberwood is a member of the maple family, and is used to produce latex for rubber-based products. The tree is only harvested when the latex production decreases (after about 30 years), and a new tree is then planted to replace it.

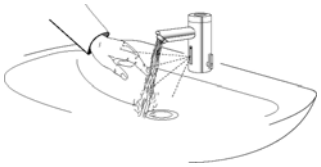
Ceiling Tile (also in restrooms, kitchen and office)

- The ceiling tiles have 72-82% recycled content.
- The tiles have high light reflectance to enhance daylighting.

Bathroom

Sink Faucets

- Our low-flow aerator faucets provide only one gallon per minute, half the water used by standard faucets. The aerators mix air with water to decrease water consumption.
- The solar sensor faucet changes light into electric energy. These faucets are powered by indoor lighting day and night. When hands are moved away from the sensor, an electrical signal shuts off the water flow, saving additional water.



Waterless Urinals

- Each water-free urinal saves up to 40,000 gallons of water annually; reducing both discharge to the sewer system and water and sewer costs.

Office

Eco-friendly workstations

- The office chairs are 100% recycled content aluminum and 30% recycled content steel, and are Greenguard certified for indoor air quality. The workstation systems are 90% recycled content particleboard and 30% recycled content steel.
- Glues and adhesives used in the chairs and work stations are water based.

Energy efficient office machines

- The printers and copier are ENERGY STAR® appliances. Preheat and auto shut-off modes reduce power consumption when the machines are not being used.

Building Systems

Heating, Ventilation and Cooling (HVAC)

The HVAC system utilizes an "Economizer Cycle". When the system is in this mode, the air-handlers use outside air for cooling instead of using the mechanical air-conditioning equipment for cooling the building. This saves the cost of

- running those units when ambient temperatures are below a designated level.
- The three boilers installed in the Mechanical Room are high-efficiency boilers instead of conventional lower efficiency boilers.
- An indoor air quality plan was implemented to prohibit dust and other undesirables from getting into the ventilation system, so they would not get blown around once the air-handling units were started. This was accomplished by covering all the duct openings during construction.

Building Construction
- The building was framed with 2x6 boards (FSC certified hem-fir). This allows installation of thicker insulation, for more efficient heating and cooling.

Building-wide features

Windows
- ENERGY STAR® designated, high-efficiency windows were installed throughout the building. The argon-filled glass helps prevent the transfer of heat, and a Low-E (emittance) glass coating further reduces heat transfer and blocks ultraviolet rays from entering the building.

Daylighting
- Ample windows will provide the building with natural light in 75% of its spaces. The windows minimize the need for artificial lights during the day, while connecting indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.

Forest Stewardship Council (FSC) certified wood
- The Forest Stewardship Council (FSC) sets high standards that ensure forestry is practiced in an environmentally responsible, socially beneficial, and economically viable way.
- FSC certified wood was used in the framing of the building. FSC certified maple from Pennsylvania was used as the trim throughout most of the building and FSC-certified white birch was used for the wooden doors throughout the building.

Occupancy Sensors
- These infrared and ultrasonic sensors automatically turn off lighting in unoccupied spaces, which helps to reduce energy costs.
- Occupancy sensors are most effective in areas which are often unoccupied, such as the meeting room and classroom.

Recycling
- Recycling is encouraged both indoors and outdoors.
- Easily accessible and identifiable recycling containers allow both staff and visitors to recycle paper, plastic and glass bottles, as well as aluminum cans.
- Outdoor recycling bins contain a minimum of 30% recycled content and are recyclable.

Low-emitting Paints, Coatings, Adhesives and Sealants
- All paints, coatings, adhesives, and sealants used in the building adhere to standards that reduce the quantity of indoor air contaminants that are odorous, potentially irritating and/or harmful to the comfort and well-being of the installers and occupants of the building.

LED Exit Signs
- By design, exit signs operate 24 hours per day, and can consume large amounts of energy to operate. ENERGY STAR® light-emitting diodes (LED) exit signs feature very low energy consumption and last up to 25 years.

Green Seal Certified Cleaning Supplies
- Green Seal Certification ensures that a product meets rigorous, science-based environmental leadership standards. This gives manufacturers the assurance to back up their claims and purchasers confidence that certified products are better for human health and the environment.

Entry Ways
- Foot grilles were installed to capture dirt and particulates from entering the building at all high volume entryways. This contributes to increased indoor environmental air quality.

Carbon Monoxide Monitoring
- A carbon monoxide monitoring system was installed to

- provide indoor air quality monitoring to help sustain long-term occupant comfort and well-being.

Exterior

Long –Lasting Siding

- The cement-fiber siding is highly durable and non-combustible, with a limited warranty for up to 50 years. It was pre-finished, with a 15-year paint warranty.

Sustainably Harvested Wood

- The cedar planks on the building exterior are certified by the Forest Stewardship Council, which recognizes products that contain wood from responsibly managed forests.

Roof Insulation

- Environmentally-friendly polyiso roof insulation was installed. This insulation contains no ozone-depleting hydrochlorofluorocarbons (HCFC's).
- The roof of the building has an R-value of 30. An R-value is a measure of how well a roof prevents heat transfer through the roof. A typical residential roof has a R-value of 19.

Site Plan

Building Orientation

- The front of the building is oriented south, to maximize exposure to the sun for daylighting and winter heat.

Local Quarry Rock

- The stone benches in front of the building were acquired from a quarry from within 50 miles of the site.

Native Landscaping

- Native plant species were used in the landscaping around the building. Native plants require less watering that non-native varieties and supply fruits, nuts, and nectar for native wildlife.

Recycled Content Bird Feeders

- Several of the bird feeders (hopper feeder and tray, suet feeder and oriole feeder) are made from recycled plastic milk jugs.

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