Gwinnett Environmental & Heritage Center
"Green" Design Strategies

Introduction

Construction on the Gwinnett Environmental & Heritage Center – a partnership of the Gwinnett County Board of Commissioners, the Gwinnett County Public School System, the University of Georgia (UGA) and the Gwinnett Environmental & Heritage Center Foundation – was completed in August 2006. The center, which opened to the public on Oct. 6, 2006, is located on a 233-acre site featuring a creek, constructed wetlands, a forest amphitheater, council rings for small groups, two covered pavilions, granite rock outcroppings, diverse native plant communities and green space with 10 miles of trails for passive recreational activities such as hiking, biking and jogging.

The architecture firm Lord, Aeck & Sargent designed this "green" building, which is targeted for LEED[1] gold-level certification by the U.S. Green Building Council. The Center, which features a wide array of sustainable design strategies and products, is projected to use 75 percent less potable water and 35 percent less energy than a conventional building of the same size – 59,000 square feet. Some water- and energy-saving strategies and products are described below.

Water-saving strategies

- A 40,000-square-foot green roof – one of the largest in the Southeast and the largest sloped green roof installation in the United States[2], reduces and improves the quality of storm water runoff. The roof is planted with six species of drought-resistant flowering sedum, one of them native to Georgia. The sedum requires minimal maintenance and will be watered only during the first year of plant establishment and during extended periods of drought. (see also **Energy-saving strategies** on p. 2)

- Bathrooms use water-conserving automatically controlled faucets, and toilets flush with clean, non-potable reuse water from the County's nearby wastewater treatment facility. Men's rooms have waterless urinals. Combined, these sewage conveyance water-saving strategies are projected to save 316,000 gallons of potable water annually.

- The non-potable reuse water also is utilized for the native landscape's water-efficient drip irrigation system. (The reuse water also was used to fill the cascading water feature referenced in **Energy-saving strategies** on p. 2).

- Walkways and parking lots utilize pervious paving that allows water to seep into the ground instead of running off into storm drains. Excess storm water flows into vegetated bio-swales and constructed mini-wetlands to help contain onsite surface runoff. These strategies allow water from heavy rainfall to replenish underground aquifers instead of flooding overburdened streams.

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Energy-saving strategies

- The building spans a dry ravine that Lord, Aeck & Sargent's design turned into a cascading cooling shoals water feature. The water feature draws clean, non-potable "reuse water" from the County's nearby wastewater treatment facility. The recirculating water is then used in the building's air conditioning.

- The building was sited to maintain existing shade from the tree canopy.

- The Center's building envelope is well insulated and tightly constructed to prevent heating and cooling loss.

- The 40,000-square-foot green roof (see also p. 1 under **Water-saving strategies**), which covers the entire building, also is well insulated and is constructed to mitigate the heat island effect and reduce air conditioning needs.

- Building ambient lighting is controlled by sensors that measure harvested daylight to maintain an even lighting level. As natural light increases, artificial light decreases.

- Roof overhangs shade the south windows in summer, minimizing heat gain inside the building. Tall vertical exterior shade fins on the east and west sides, and glass with aluminum horizontal and vertical shading reduce heat buildup and glare.

- Clerestory windows provide natural light and relief air for the Center's mechanically assisted natural ventilation system, which efficiently conditions the facility during the temperate "shoulder seasons".

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[1] The LEED (Leadership in Energy and Environmental Design) Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. Members of the U.S. Green Building Council representing all segments of the building industry developed LEED and continue to contribute to its evolution. For more information, visit http://www.usgbc.org.

[2]the geenroof projects database: http://www.greenroofs.com/projects

NOTE TO EDITORS: For further information about the Gwinnett Environmental & Heritage Center, see accompanying press materials including:

1. Gwinnett County Educational Center – A Working Model of Sustainable Design – Now Open for K-12 Students and Adults

2. Facts About the Sloped Green Roof at the Gwinnett Environmental & Heritage Center

3. The Sloped Green Roof at the Gwinnett Environmental & Heritage Center – Construction Overview

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January 2007