

NATURAL RESOURCES & THE ENVIRONMENT

*the*  
GeorgiaEngineer

Price \$6.50

August/September 2006





Sweetwater Creek State Park is located west of Atlanta. Take Interstate-20 west to Exit #44, Thornton Road, turn left and follow the signs.

*For more information about green buildings visit the U.S. Green Building Council website at: [www.usgbc.org](http://www.usgbc.org).*

*For more information about Georgia's State Parks visit: [www.gastateparks.org](http://www.gastateparks.org).*

# Greening Georgia's State Parks

## The Sweetwater Creek State Park Visitor Center

By David Freedman, P.E. • Chief Engineer • Georgia Department of Natural Resources

Photographs by Georgia DNR & Alison Smith • Ecos Environmental Design.

**H**igh performance building envelope, composting toilets, vegetated roof, rainwater capture and reuse, pervious pavement, bio-retention ponds and photovoltaic panels. These are all terms associated with green or sustainable buildings. These are also some of the elements that have been incorporated into the new Visitor Center at Sweetwater Creek State Park in Douglas County. The new visitor center opens to the public in the summer of 2006. It will be one of Georgia's greenest buildings and will serve as a full-scale demonstration for designing, constructing, and operating green buildings.

Sweetwater Creek State Park, located 30 minutes from downtown Atlanta, is a State Conservation Park. Its purpose is to preserve and protect the many natural and cultural resources on the park. During the initial planning stages of the visitor center there was no question that the building has to serve as a model of environmentally responsible building construction. At the time design started the building owner, the Georgia Department of Natural Resources, had already established itself as a national leader in the green building movement. It was, therefore, a natural fit for the building to be designed and constructed to the

Leadership in Energy and Environmental Design (LEED) standards developed by the U. S. Green Building Council. According to Becky Kelley, Director of the Parks, Recreation and Historic Sites Division of the Georgia Department of Natural Resources, "The LEED rating criteria is an excellent tool for us to use when designing and constructing our buildings. Using the LEED criteria ensures that our buildings are designed and constructed to achieve our mission of protecting and preserving our natural resources."

The Sweetwater Creek State Park Visitor Center is an 8,743-ft.<sup>2</sup> building that includes a retail area, offices, large exhibit space, restrooms, classrooms and a learning laboratory. The total construction cost was \$1,973,647 including sitework and exhibits. The cost for the building only was \$1,514,393 or \$173 per square foot. The project team included the following members:

Some of the most significant benefits of a green building result from the integrated design process, a key feature of a green building. In the integrat-

ed design process the entire project team meets several times during the design phase to discuss the project design using the LEED scorecard as a guide. This collaborative effort is an excellent means to fine tune the project design and obtain the best building design possible. Some of the integrated design benefits for the Sweetwater project included the following:

1. Through the use of composting toilets and rainwater capture and reuse, the water needs of the building were reduced significantly. This allowed the building to be served by the existing two-inch water line as opposed to installing several thousand feet of a larger line. A new line would have been a significant capital expense and installation would have resulted in significant disturbance to a previously undisturbed area.
2. The composting toilet/rainwater reuse system eliminated the need for a large onsite wastewater system, which would have been expensive and would have resulted in the

removal of several specimen trees in a previously undisturbed area.

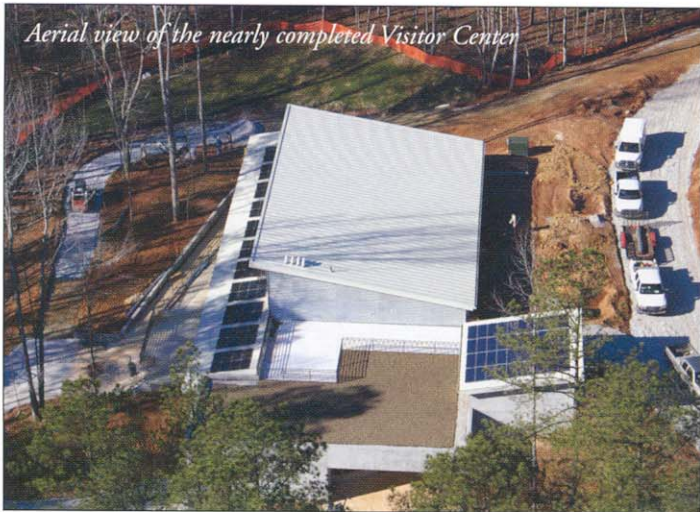
3. The vegetated roof serves as an outdoor plaza and gathering area reducing the square footage that would have been required to construct this area adjacent to the building.
4. The high efficiency HVAC system will provide the optimum indoor environment for the museum quality artifacts in the exhibit area.
5. The graywater wastewater treatment and disposal system provides water for the demonstration garden eliminating the need for an irrigation system.

Many of the building's design features will also reduce operating costs as follows:

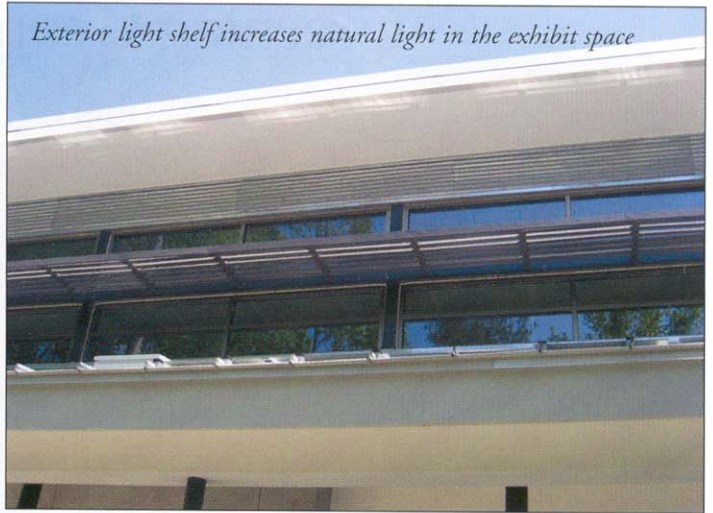
1. The rainwater collection reuse/wastewater system will significantly reduce water use.
2. The siting of the building with a south facing and glass and glazing place-

*Owner*  
*Contractor*  
*Architect*  
*Mechanical/Plumbing Engineer*  
*Landscape Architect*  
*Civil Engineer*  
*Commissioning Agent*  
*Electrical Engineer*  
*Structural Engineer*  
*LEED Consultant*  
*Exhibit Consultant*  
*Exhibit Fabricator*

Georgia Department of Natural Resources  
Mooney Construction  
Gerding Architects  
Johnson, Spellman & Associates  
jb+a  
Long Engineering  
Commissioning and Green Building Services  
Barnett Consulting Engineers  
Palmer Engineering  
Donna McIntire  
Deem Loureiro  
Southern Custom Exhibits



*Aerial view of the nearly completed Visitor Center*



*Exterior light shelf increases natural light in the exhibit space*

ment with sunshades will reduce heating and lighting costs. Interior photocells and occupancy sensors will contribute to the energy savings for lighting.

3. The high efficiency HVAC system will cost less to operate than a standard system.

Lastly, the innovative design has resulted in significant project partnerships. The Georgia Environmental Facilities Authority (GEFA) provided a grant for the installation of photovoltaic (solar) panels (PV) and BP donated a large PV array from a gas station it demolished. This resulted in one of the largest PV arrays in the State.

Concerning the LEED rat-

ing system, the project has been submitted to the U.S. Green Building Council at the platinum level. This is the highest level of certification that is awarded by the U.S. Green Building Council and would be the first new construction project in the southeast to achieve a platinum level certification. Some of the green building highlights are summarized below:

#### Sustainable Sites

There is no post development increase in stormwater discharge and the detention facilities provide adequate treatment for suspended solids and phosphorus.

- Light colored impervious surfaces and a vegetated roof minimize the heat island effect.

## COMMITMENT

Stevenson & Palmer Engineering, Inc. has been involved in Georgia communities throughout the state for 46 years, helping build public infrastructure, manage water resources, and promote community development. Our clients have come to depend on the expert advice, sound engineering, and top-quality projects that Stevenson & Palmer staff deliver each and every time.

## ANNOUNCEMENT

Saussy Engineering of Savannah, GA, joined forces with Stevenson & Palmer Engineering (SPE) effective August 1, 2006. Saussy Engineering has operated from Savannah since 1968, specializing in structural, civil, and marine engineering. The Principals of Saussy will play key roles in the continued growth of SPE; F. Michael Sikes, PE will be the Structural Engineering Discipline Leader and will oversee Project Management in the combined Savannah Office. Mark S Boyles, PE has substantial land development experience and will serve as Site Civil Discipline Leader.

Jim Vaughn, PE, SPE Vice President, views the acquisition "as a positive step toward execution of our strategic plan, and a clear benefit to the clients of both firms in terms of a more diversified scope of engineering services and depth of resources to accommodate their needs. We are excited about working with the Saussy Staff and look forward to a bright future together."

# Stevenson & Palmer Engineering, Inc.

[www.speng.com](http://www.speng.com)

ENGINEERING A BETTER WORLD



*Interior light shelf increases natural light in the exhibit space*

#### Water Efficiency

- No potable water is used for irrigation.
- Water use has been reduced by 77 percent.

#### Energy and Atmosphere

The building is 51 percent more energy efficient than a standard building. This includes 20 percent of energy needs that are derived from a renewable energy source.

#### Materials and Resources

A construction waste management plan resulted in 80 percent of the construction waste being diverted from a landfill.

- 14 percent of the building materials were salvaged materials
- 13 percent of building materials had recycled content.
- 33 percent of the building materials were manufactured within 500 miles and 25 percent of those materials were extracted within 500 miles

#### Indoor Environmental Quality

An Indoor Air Quality Management Plan during construction and prior to occupancy resulted in a clean and healthy interior environment.

- All paints, adhesives, sealants

and carpets contained low VOC levels.

- 83 percent of the interior spaces receive natural light and 98 percent of the interior spaces have views to the outside.

The Sweetwater Creek State Park Visitor Center serves as a model of environmentally friendly building design, construction and operation. According to DNR Commissioner Noel Holcomb, "The Sweetwater Creek Visitor Center captures the essence of the DNR conservation ethic and will serve as a model for others to follow." The Sweetwater Creek facility is a prime example of how commitment and compassion can produce a high performance building at a non-high performance budget. It is fitting that the Sweetwater Creek Facility will open on the 75th Anniversary of the Georgia State Parks and Historic Sites system. The Georgia Park system was founded 75 years ago based on a commitment to conservation that still holds true today and is exemplified by the opening of the Sweetwater Creek State Park Visitor Center. ❖

# Help Is On the Way

**Compliance with GDOT's new requirements is more than just an audit.** It is an examination of how you accumulate and report data. By working with us you will benefit from a seamless, proactive process that incorporates systems to capture information, the audit, and dispute resolution. If you would like to run your business better including:

- Planning your rates with GDOT
- Maximizing expense reimbursement
- Speeding up collections
- Being better prepared for fee negotiations

then contact **Wayne Owens, CPA, 770-498-1400 or 800-852-6075.**

**DEEMER  
DAVIDSON**  
Deemer Davidson Prather PC  
Certified Public Accountants

**JAT** CONSULTING SERVICES, INC.  
Financial & Management Consultants

**PSMJ | Resources, Inc.**