Green Infrastructure & Stormwater Management CASE STUDY

Ruffner Mountain Nature Center

Location: Birmingham, AL
Client: Ruffner Mountain Nature Coalition
Design Firm(s): KPS Group, Inc.
Landscape architect/Project contact: Amy Smith
Email: asmith@kpsgroup.com
ASLA Chapter: Alabama

Project Specifications

Project Description: The first phase of the Ruffner Mountain Master Plan calls for a nature center and administrative building with an outdoor pavilion for school and other groups. The approx. 5,000 sq/ft building provides both indoor and outdoor animal exhibits, animal care facilities, a community meeting room, gift shop, and administrative space. Located on a steep, heavily wooded portion of the northern slope of the mountain, the site is also a trailhead for three existing trails. The building incorporates sustainable design principles and is targeted for LEED silver status. Heating and cooling, when required, is geothermal. Natural and artificial lighting are carefully synchronized to minimize energy consumption. The site was minimally disturbed resulting in a building that is almost tree house like. The roof is approximately fifty percent green with the rest highly reflective. Rainwater is collected for use where potable water is not required including the tanks for amphibians. Even the furnishings are made from recycled materials. Ruffner's education mission is served not only by the exhibits but also by the building itself whose design and construction will be interpreted for visitors.

Project Type:
Institutional/Education
A retrofit of an existing property

Design features: Green roof, cistern, porous pavers, and curb cuts.

This project was designed to meet the following specific requirements or mandates:
To meet funding criteria

Impervious area managed: 5,000 sq/ft to 1 acre

Amount of existing green space/open space conserved or preserved for managing stormwater on site: 1 acre to 5 acres.

The regulatory environment and regulator was supportive of the project.

Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements? The client requested LEED certification for this project.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: $10,000-$50,000 (Public funding: Federal)

Related Information:

- Cistern systems - $15,000.00
- Green Roof - $25,000.00
- Porous Paving / Curb Cuts - $10,000.00

Was a green vs. grey cost analysis performed? No

Cost impact of conserving green/open space to the overall costs of the site design/development project: The site development costs were reduced as very little of the overall site was impacted. Cost of constructing a "tree house" type building on a wooded site on the side of a mountain always costs more than standard building practices, but this approach was never a consideration for this type of educational facility.

Number of jobs created: Not available.

Job hours devoted to project:

Planning and Design: Not available
Construction: Not available
Annual Maintenance: Not available

Performance Measures

Stormwater reduction performance analysis:
No additional stormwater run-off was created with the construction of additional buildings, drive, and parking area.

Community & economic benefits that have resulted from the project: Ruffner Mountain is a destination point for school and other groups, tourists, and the citizens of Birmingham.

Increasing the value of this property spills over to the neighboring properties and makes the nearby commercial area more appealing for the location of new businesses. Improved and expanded facilities also increases the number of visitors and dollars spent in the City. The educational and recreational benefits are also an extremely valuable asset to the City.

Project Recognition

- 2009 Green Building Project of the Year, Birmingham Business Journal
- 2009 Southeast Wood Design Award
- Cahaba River Society Conservation Development Award, 2010
- Honor Award, Alabama Council AIA, 2010
- Institutional Honor Award, Birmingham AIA