

## CASE STUDY



### **USGBC Regional Office Meets Sustainable Objectives with Concrete**

*Southface Eco Office will incorporate donated concrete materials to achieve durability, energy efficiency*

The new Eco Office of the Southface Energy Institute, an Atlanta, Ga.-based organization focused on promoting sustainable development, is designed to be the region's most prominent "green" building. Currently under construction, the building's extensive use of concrete on various sections of the structure showcases the benefits of concrete solutions in sustainable development and demonstrates the versatility of the world's most widely-used building material.

Many concrete products have been incorporated into the building's design for optimal durability and energy performance:

- The walls of the Eco Office were designed with ICF systems to improve energy performance and lower heating and cooling costs. In an ICF system, concrete is poured around a stacked foam frame to create a solid wall, which provides continuous insulation as well as a point of attachment for interior and exterior finishes. As a result, the Southface Eco Office will require far less energy to regulate temperature than buildings with traditional walls.



Photograph Courtesy of Lord, Aeck & Sargent, Inc.

- Plans call for the use of pervious concrete on sidewalks and similar hardscape around the exterior of the building. Pervious concrete is a low-density material designed to allow rainwater to filter into the ground beneath the hardtop rather than settling on the surface. This innovation is especially beneficial for sidewalks, parking lots, and other public spaces to improve stormwater drainage. Pervious concrete also has a reduced heat storing capacity, creating a cooler surface.

This is a particularly important asset in cities like Atlanta, where the urban heat island effect raises temperatures significantly in the metropolitan area.

- The “green roof” that will sit atop the Eco Office at Southface is another sustainable development application made possible by the use of concrete. To build a green roof, a thick layer of topsoil is poured over a concrete base, and vegetation is planted for an attractive, environmentally sound roof. Green roofs reduce stormwater runoff, provide additional insulation, and can help reduce the heat island effect. Concrete is an ideal choice because green roofs require a solid base that can support a significant amount of weight from soil and vegetation.
- Southface also will incorporate recycled materials in the concrete portions of its Eco Office. Up to 40 percent of the cementitious portion of the concrete mix in the building is composed of recovered material. The recycled cementitious materials in the Eco Office will include flyash, the by-product of burning coal for electricity, and slag cement, which is produced from the ground slag by-product of steel manufacturing.

According to the architect of the building, the versatility of concrete and the contributions of concrete companies throughout Georgia made it an excellent material choice for the Eco Office. “Concrete plays an important role in helping the Southface Eco Office achieve several sustainable development objectives, among them the use of local resources,” said Joe Greco, AIA, the Principal-in-Charge of the project at Lord, Aeck & Sargent. “When completed, the Eco Office will serve as a model of environmentally-responsible construction and real-world strategies for commercial buildings for years to come.”

The United States Green Building Council (USGBC), a national organization that set the standard for green building in the United States with its Leadership in Energy and Environmental Design (LEED) certification system, has announced that the Southface Eco Office will serve as a training facility and resource to educate builders about green building and LEED certification.

The USGBC Atlanta Chapter is a partnership between Southface and USGBC, and Southface’s annual Greenprints Conference will co-host the foremost greenbuilding event of the year, the 2005 USGBC Greenbuild International Conference and Expo in Atlanta.

**Project Team:**

Project Manager: Paulk, Southface

Architect: Lord, Aeck & Sargent, Inc.