

News Release

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Southface Dedicates Innovative “Green” Eco Office, Announces LEED Platinum Certification for the Commercial Office, Demonstration and Training Facility

*“One of the greenest commercial buildings in the world”
uses 84 percent less water and 53.3 percent less energy*



ATLANTA, Aug. 18, 2009 – At a building dedication ceremony held today to celebrate the completion of the Southface Eco Office, Southface executive director Dennis Creech announced that the Eco Office, which serves as an office, demonstration and training facility, has achieved [LEED®](#) (Leadership in Energy & Environmental Design) Platinum certification from the [U.S. Green Building Council](#). It has also qualified for [ENERGY STAR](#) and EarthCraft Light Commercial certifications, and meets [The 2030 Challenge](#) launched by the non-profit group [Architecture 2030](#).



“The Eco Office demonstrates that small commercial buildings can be green and achieve high performance standards at a reasonable cost. Our design and construction teams have exceeded our goals for the Eco Office, making it one of the greenest commercial buildings in the world,” Creech said. “We want everyone from the architectural, engineering, construction and development communities to attend our workshops and training events so that they can see firsthand the myriad off-the-shelf and emerging technologies they can use to design and build high-performance facilities that reduce operating costs.

“Furthermore, we are continuously measuring the environmental performance of our building, which has been fully instrumented for this purpose, and we invite members of the worldwide research community to access our data, which we make available online,” Creech noted. “We want researchers to analyze it and use it to model enhancements to existing architectural designs and building techniques.”

As an example, Creech said that the Georgia Institute of Technology will model the performance of the building’s photovoltaic (PV) array system (see p. 3). He also noted that visitors from Canada, England, Germany, China, Japan and other countries toured the building during construction and are eager to track building performance. “We are confident that the Eco Office will continue to attract increasing worldwide attention for the research and educational opportunities we offer.”

Measuring performance via the Building Dashboard®

Southface measures the Eco Office’s performance through [Lucid Design Group’s Building Dashboard®](#), which provides real-time and historical data on the facility’s resource use. Results can be viewed online at <http://www.buildingdashboard.com/clients/southface> and at the Eco Office via an interactive touch screen.

The Eco Office’s dashboard measures electricity consumption; daily kilowatt hours of electricity produced onsite through the PV array; daily water consumption; daily gallons of water consumed and saved; and current rainwater levels in the building’s above- and below-ground cisterns. The dashboard also displays Atlanta’s current weather conditions and provides information on many of the building’s green features. On average, performance models project that the Eco Office will use 84 percent less potable water and 53.3 percent less energy than a comparable code-built building.

Creech explained that this performance puts the Eco Office among the top 9 percent of such U.S. buildings with regard to energy efficiency.

How energy efficiency was achieved

Many strategies and products combined to achieve the Eco Office's energy efficiency, among them the 10,100-square-foot building's:

- Site orientation, glazing allocation, and exterior shading controls that maximize daylighting while controlling unwanted solar heat gain.
 - Building site orientation maximizes daylighting from the north and south, with limited view windows on the east and west. The routinely occupied spaces were located to the north and south to maximize access to natural light.
 - The electrochromic glazing to shade east-facing windows. This glazing uses a low-voltage electrical current to switch clear glass to opaque while preserving views.
 - Shading includes louvers on the building's south and east sides to control glare, minimize solar heat gain in the summer and maximize it during the winter;
- High-performance thermal envelope, including insulated concrete form walls and low-e insulated glazing with thermally broken frames;
- 6.4-kilowatt photovoltaic canopy, which supplied approximately 7 percent of the building's annual energy needs over the past 12 months. The PV array was salvaged from a BP gas station that was being de-commissioned;
- 1,937-square-foot extensive green roof, which reduces the urban heat island effect, stormwater runoff and air conditioning demands;

- Dedicated Outdoor Air System (DOAS) with an evaporative cooler, energy recovery ventilator and liquid desiccant system. The DOAS processes about 8 tons of cooling during peak summer conditions at roughly half the cost of conventional air conditioning; and
- High-performance lighting system, which includes high-efficiency lighting, dimmable ballasts and light sensors that automatically adjust artificial lighting to complement natural light.

In addition, captured rainwater is used to save energy by cooling the air-source heat pump condensing units and solar electric system. Each kilowatt-hour of electricity saved saves approximately 1 gallon of water from being evaporated at a power plant.

Water-efficiency strategies and products

Southface exceeded its original goal of 50 percent water efficiency beyond the LEED baseline, again by using a variety of complementary strategies and products that eliminate the use of potable water for sewage conveyance and irrigation, and save an estimated 61,000 gallons of potable water annually.

A storm water management system is comprised of a 1,750-gallon cistern, which collects rainwater from the PV canopy, and a 14,500-gallon underground cistern, which collects storm water from the green roof and the overall Southface site. The collected non-potable water is then used for toilet flushing and minimal rooftop irrigation. If the larger cistern overflows, a weir diverts the storm water to the municipal system. The roof's drought-resistant sedum plants and native wildflowers manage storm water runoff by filtering and diverting water to the underground cistern, and pervious paving throughout the Southface site also reduces storm water runoff and groundwater recharge.

The volume of water required for sewage conveyance is dramatically reduced through a combination of waterless urinals; dual-flush toilets that provide an option of using either 0.8 or 1.6 gallons per flush; and pressure-assist toilets that use only 1 gallon per flush. High-efficiency faucets with automatic solar-powered sensor controls use only a half gallon of water per minute.

Educated users are part of the efficiency equation

“The super-efficient performance of the Eco Office, however, is not only due to its innovative green design strategies and products, but also to the Southface staff who oversee the building’s systems on an ongoing basis,” Creech pointed out. “Educated users are an important part of the efficiency equation and make a major difference in any green building’s ongoing operational performance, helping building owners realize their return on investment.”

Donors help create a virtual Noah’s Ark

Since part of the Eco Office mission is to educate the commercial architectural, engineering, construction and development communities about sustainable building practices as well as products and technologies they can use in their next project, one of Southface’s goals was for the building to be a demonstration facility showcasing many different but complementary approaches to solving each functional and operational challenge. “As a result of generous donations to Southface from many manufacturers and service providers, the Eco Office is a virtual Noah’s Ark in that we have two different examples – and often more than two – of just about every building element including multiple flooring materials, lighting technologies, toilets, roofing materials, and more,” Creech said.

He noted that there were more than 200 organizations that donated products and services to the Eco Office project. “We are exceptionally grateful to everyone – businesses,

government and nonprofit organizations, and individuals – who shared our vision of creating a world-class demonstration facility,” Creech said.

Efforts of architectural designer and contractors cited

Creech also cited the efforts of the Eco Office architecture firm Lord, Aeck & Sargent and of the unique consortium of commercial general contractors who came together to build the structure.

“Lord, Aeck & Sargent has been our partner in designing the Eco Office since shortly after we conceived the idea of a commercial green building demonstration facility in late 2001,” Creech noted. “We chose the firm because they understood that we wanted a building that was replicable and elegant, with passive solar and great daylighting design, but with a simple shape to hold down costs. They also understood the importance of modeling the building’s energy- and water-use performance and using that information to influence the building’s design. There’s no doubt that Lord, Aeck & Sargent’s green design experience has proven invaluable, and they added considerable extra value to the project by assisting with the all-important process of identifying and securing product donors.

“The work of the Eco Office Green Building Consortium – DPR, Hardin, Holder, R.J. Griffin, Skanska, and Winter – all normally competitors here in the Atlanta market has been exemplary. These firms came together, each with its own job function, and showed an extraordinary level of enthusiasm and cooperation. They have reason to be proud of what they have achieved together, building a facility that can set such a positive example of what’s possible in green building. The Eco Office clearly demonstrates the considerable depth of expertise within the Atlanta design and construction community,” Creech said.

Recycling and salvaged materials help Southface achieve more goals

An example of cooperation among the contractors, as well as their sub-contractors, was the way in which they diverted some 98 percent of construction waste from the landfill, again achieving Southface's goal to minimize the Eco Office's environmental impact. Metal, drywall, wood, plastic and cardboard from the building site were all recycled.

A related goal was to use salvaged and high-content recycled materials as much as possible throughout construction. In addition to the PV roof canopy, other salvaged material includes oak window sills and benches, which were built from lumber from a demolished barn, and pedestrian bridge framing, which came from a nearby construction site.

Building materials with high recycled content include floor tiles made from recycled cork and rubber, roof garden walkway squares made from twice recycled shredded rubber mats, cement countertops with high fly ash content, and roof decking that includes recycled wood flour.

The Eco Office layout

The Eco Office is a three-story structure with the "fourth-floor" being The Turner Foundation Green Roof. Situated to the east of Southface's Resource Center, which is a residential green building constructed in 1996, the two facilities are now joined by the Eco Office's three-story Melaver Atrium.

The first floor includes The Home Depot Foundation Training Center, bathrooms and a lobby area; the second floor the Kendeda Board Room and mechanical room; and the third floor the Epic Metals Conference Room, an office area, break room and staff bathrooms.

“At 10,100 square feet, our building isn’t huge but rather in the same size range – under 10,000 feet – as about 74 percent of commercial buildings in the United States¹. For that reason, and because the Eco Office is constructed primarily with off-the-shelf technologies, it should serve as an inspiration to the architecture, engineering, construction and development world by demonstrating that green building design and construction, even for smaller facilities, can be cost-effective,” Creech said.

The Eco Office Project Team

- Owner: Southface Energy Institute (Atlanta)
- Architect: Lord, Aeck & Sargent (Atlanta)
- Structural Engineer: KSi/Structural Engineers (Atlanta)
- MEP/FP Design Engineer: KEEN Engineering (San Francisco) (now part of Stantec)
- Civil Engineer: Eberly & Associates (Atlanta)
- Landscape Architect: ECOS Environmental Design (Atlanta)
- Daylighting Consultant: RMI Built Environment Team (Boulder, Colo.)
- Audio/Visual: Waveguide Consulting (Atlanta)
- Commissioning Agent: Working Buildings (Atlanta)
- Mechanical Design Assist and Installation Contractor: McKenney’s Mechanical Contractors & Engineers (Atlanta)
- Electrical Contractor: Dynalectric Georgia (Atlanta)
- Contractor’s Consortium:
 - DPR Construction (Atlanta)
 - Hardin Construction (Atlanta)
 - Holder Construction (Atlanta)
 - R.J. Griffin & Company (Atlanta)
 - Skanska USA Building (Atlanta)
 - The Winter Construction Company (Atlanta)
- Lighting/Controls: Lithonia Lighting, an Acuity Brands company (Atlanta)
- Fire/Security/Mechanical Controls: Johnson Controls
- Building Dashboard Monitoring System: Lucid Design Group (Oakland, California)

About Southface

Southface is the Southeast’s non-profit leader in the promotion of sustainable homes, workplaces and communities. Driven by the region’s growing need to save energy and water, and to preserve our natural resources, Southface proactively encourages responsible solutions for environmental living through its research, advocacy, training programs and technical assistance. Please visit Southface at www.southface.org.

¹ Source: The 2003 Commercial Building Energy Consumption Survey (CBECS)

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Trademark Notes:

LEED® is a registered trademark of the U.S. Green Building Council.

Building Dashboard® is a registered trademark of Lucid Design Group.

Note to editors: For more information about the Southface Eco Office, please refer to these additional press kit documents, which can be found on the Southface website at www.southface-eco-office.org.

- Frequently Asked Questions (document)
- Architect's Design Overview (document)
- The Eco Office Green Building Consortium - Members Overview (document)
- The Eco Office List of Vendors (list)
- The Eco Office LEED Platinum Scorecard (document)
- The Eco Office Green Building Features (list)
- High Resolution Photographs (interior and exterior)

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