

LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)

BY KEN BEALE

Hubbell Lighting's new 185,000 sq. ft. headquarters in Greenville, SC is as easy on the environment as it is to view from its majestic hilltop location overlooking Interstate 85. The four-story, \$41 million building is registered to achieve a Silver rating under the LEED (Leadership in Energy and Environmental Design) program of the U.S. Green Building Council.

As a leading manufacturer of energy-efficient lighting, Hubbell Lighting wanted "to practice what they preach," said K. J. Jacobs, lead architect on the project. "They wanted to be good stewards of the environment as consumers as well as manufacturers."

As a result, the new structure is 30 percent more energy efficient than a typical office building of this size, said Jacobs, of McMillan Smith & Partners, based in Spartanburg, SC, with offices in Charleston and Greenville.

Energy savings start with the windows. In contrast to the building's north face, which Jacobs describes as "basically one large curtain wall" of glass, the sun-facing south side is pierced by windows with a special glazing minimizing solar penetration. This eases the load on the air-conditioning system.

In addition to high-performing glass, the building design incorporates the use of white precast concrete and stone around the curved structure to make it brighter and non-industrial looking.

ENERGY EFFICIENT IN EVERY SENSE

The roof also plays an important role in the building's energy conservation as it features a highly reflective white surface that absorbs very little of the sun's heat. The return for this roof treatment is not only a cooler building but also a minimized "urban heat island effect" produced by Hubbell Lighting's headquarters and neighboring structures in Greenville's Millennium Campus. Trees on the 19-acre site, many of which shade the parking lot, further reduce the potential heat island.

Virtually absent throughout the building's interior is the usual "new building smell," since the design team chose paints, carpets, furniture, and adhesives that emit few or no volatile organic compounds (VOCs). The building also won LEED points for diverting more than half of the construction leftovers and debris from landfills. Excess steel, concrete, wallboard, and other materials were hauled away by a recycling contractor to be reused on other construction projects. Also reused is much of the office furniture transported from Hubbell Lighting's former corporate headquarters in Spartanburg, SC.

All faucets, toilets and urinals in lavatories are low-flow, and storm water is treated onsite by two underwater filtration units before being discharged to the campus' common storm water detention pond. The building's two boilers are

also highly efficient. One is powered by natural gas, the other by electricity, affording Hubbell Lighting the ability to determine which boiler will be in use at any particular time based on current utility rates.

IT ALL ADDS UP

In the photometric lab area, a special mechanical system was installed to provide extensive control of both temperature and air flow. While a typical office building of this size would usually have one air-handling unit per floor, Hubbell's laboratory facilities have seven air handlers for seven individual spaces since a one or two-degree temperature differential can skew test results, said Jacobs. For similar reasons, the facility's photometer rooms all feature a 30-foot high, double ceiling to create a pressurized plenum to distribute air evenly in a large spatial volume. Even with such strict mechanical requirements, Wade Crow Engineering, the project's mechanical engineering firm, managed to save 30 percent in energy costs.

Energy savings, compared to another building of similar construction, usage, occupancy, and location, amounts to 2,616,199 kilowatts per year, a \$147,577 per year energy bill savings.

In addition to saving nearly \$150,000 on its annual energy bill, other impressive savings are found in water conservation and carbon emissions. Over 1,480,000 gallons of water per year are saved, which amounts to \$6,500 per year in avoided water costs. Carbon emissions avoided, compared to similar buildings that are all electric and with coal generated power, would equal 982 tons of pure carbon or 3,465 tons of carbon dioxide (the greenhouse gas).

LEADING BY EXAMPLE

While the building they work in is helping to conserve the environment, employees enjoy some of that environment by escaping from their office space into all-glass breakrooms—with a view. "You can see outside, so you have that connection," Jacobs said. In addition, the interior design and colors of the breakrooms are a "little more playful" than in the rest of the building, he said.

Building with LEED in mind added two to three percent to construction costs, but such improvements as the highly-efficient, mechanical equipment, for example, will pay for themselves in the long run, Jacobs pointed out. And, as an owner-occupant of the new headquarters, Hubbell Lighting will be there for a long time to come, realizing operating cost savings throughout the life of the building.

The architect is also impressed by the company's commitment to respect the environment. "LEED buildings are still fairly unique in this area," Jacobs said. "The Hubbell facility will be only the second commercial building in the Upstate of South Carolina to be LEED certified. Hubbell Lighting is leading by example through proven commitment to sustainability with their new corporate headquarters."