

Architecture Firm Renovates Office for Sustainability

Contributed by Patrick D. Nall, AIA, LEED AP

June 2007

The AIA collects and disseminates Best Practices as a service to AIA members without endorsement or recommendation. Appropriate use of the information provided is the responsibility of the reader.

SUMMARY

When the 34-year-old architecture firm Tucker Booker Donhoff + Partners (TBD+) decided to buy property and design a new office in east downtown Louisville's gallery district, the firm's partners tried an experiment in sustainable design. "Every architect dreams of designing a space for his or her own firm, and we were given the chance to showcase our design talents," said TBD+ CEO Rob Donhoff, AIA.

CHOOSING THE SUSTAINABLE PATH



TBD+ has seen increasing client interest in sustainable design, specifically regarding LEED® certification. The LEED (Leadership in Energy and Environmental Design) Green Building Rating System™ of the U.S. Green Building

Council comprises a set of consensus-based sustainability criteria for building design and construction. "Going through the development of a sustainable project ourselves gives us the ability to help owners and developers make sustainable choices when building a project if they are interested in doing so", said TBD+ principal Patrick Nall, AIA.

The new space was designed to foster firm growth, including creation of adequate training space for the staff's continuing education coursework. TBD+ introduced natural light and integrated the old structure with the new space to produce a contemporary atmosphere in harmony with the old structure. "The project is a real showpiece of our firm's talents," said Bob Booker, president of TBD+.

The firm's partners also wanted to be able to realistically answer the burning question from many clients: "How much will building a sustainable project and getting LEED certification cost me?" After the

project was completed, TBD+ is comfortable with replying, "Not much." In fact, the firm found that LEED certification did *not* increase building costs. In TBD+'s case, the only added expense for the project would have been in soft costs for commissioning and additional professional services fees needed to document the process.

LEED-friendly products are readily available in today's construction market, the firm discovered. Sustainable design is taking hold of the construction industry, even in Louisville. "Sustainable construction is not necessarily more expensive; it's the documentation process by both the design professionals and contractors that adds some cost to the project's bottom line," noted principal Tom Kargl, AIA.

Sustainable design brings significant operational savings. TBD+'s utility bill for January, the first month of operation in the new building, was slightly more than one of the partner's residential utility bills.

THE LEED CERTIFICATION PROCESS

The LEED rating system comprises five categories, with points assigned for each. TBD+'s design earned LEED points in these categories:

1. Sustainable sites

The building was near public transportation, and the design incorporates a bike rack and shower for employees who want to ride their bikes to work. These design features decrease dependence on automobiles for transportation. The firm is also within close proximity of the riverfront and ballpark. Many locally owned restaurants are within walking distance. TBD+ used a high-reflectance roof membrane to reduce the heat-island effect—an environmental issue involving urban areas as "hot spots" contributing to global warming.

2. Water efficiency

TBD+ installed a low-flow shower head, low-flush toilets, and infrared automatic lavatory faucets. These items helped increase the project's water efficiency by 30 percent.



3. Energy and atmosphere

The firm added insulation above and beyond code requirements to both the walls and the roof, increasing the thermal efficiency of the building and also decreasing the firm's utility bills. A higher level of reflectance on the interior paint scheme reduced lighting requirements. Highly energy efficient air conditioning equipment saved utility costs. The contractor also used environmentally friendly refrigerant in the air conditioning systems to reduce greenhouse gas emissions. The mechanical engineer commissioned the HVAC system and building to ensure that all systems would work properly for maximum efficiency.



4. Materials and resources

TBD+ established a recycling program for the office to reduce the amount of garbage the firm sends to the landfill each week. The firm reused 75 percent of the existing shell building, which limited the use of new building materials. High-recycled-content building materials included the structural steel, ceramic tile, and raised access floor. The firm used rapidly renewable materials such as a sunflower and agrifiber panel material for countertops, flooring, and the toilet partition. The firm incorporated MDF

(medium density fiberboard) painted with a zero-VOC finish for the custom casework. A corn-fiber-based carpet was used for all carpeted areas and a soy-based concrete sealant was used for exposed concrete in the lobby and conference rooms.

5. Indoor environmental air quality

The building is a smoke-free workplace. The air conditioning system incorporates carbon dioxide detection in the building's outside air system so that the system is energy efficient in conditioning of outside air. Low- or no-VOC adhesives, sealants, and paint products were used throughout the building. Formaldehyde-free carpeting with no-VOC adhesive was specified. Occupancy sensors were used on all lighting, along with daylight dimming in the main studio space to save electricity. An underfloor air-delivery system enabled each employee to control the air flow at his or her own workstation. Thirteen new skylights were added to the existing roof structure in the studio space to increase natural light and create a more pleasant atmosphere.



The project has been a tremendous success. TBD+'s associates look forward to coming to work every day; and the building itself has become a showplace for the firm and sustainable architecture. TBD+ had a positive experience with its first sustainable design project.

All images in this Best Practice courtesy of TBD+.

About the Contributor

Patrick D. Nall, AIA, LEED AP, joined TBD+ in 1995 and became a partner of the Louisville firm in 2002. He has been the principal-in-charge and project architect on a wide range of projects.

RESOURCES

For More Information on This Topic

See also “Sustainable Building Design” by Muscoe Martin, AIA, *The Architect’s Handbook of Professional Practice*, 13th edition, Chapter 18, page 656. *The Handbook* can be ordered from the AIA Bookstore by calling 800-242-3837 (option 4) or by sending an e-mail to bookstore@aia.org.



More Best Practices

The following AIA Best Practices provide additional information related to this topic:

- 18.11.03 Basic, No-Cost Green Building Practices
- 18.18.02 Green Roof Design
- 18.11.05 Green Practice Advice

Feedback

The AIA welcomes member feedback on Best Practice articles. To provide feedback on this article, please contact bestpractices@aia.org.

Key Terms

- Building performance
- Sustainability
- Sustainable business practices
- Design