



**BIG ASS FANS R&D LABORATORY
LEXINGTON, KENTUCKY**

35% energy cost savings

58% reduced water usage

9% reduced material use



LEED® Facts

**Big Ass Fans R&D Laboratory
Lexington, Kentucky**

LEED for New Construction
Certification awarded July 7, 2009

Gold 41 points*

Sustainable Sites	7/14
Water Efficiency	5/5
Energy & Atmosphere	10/17
Materials & Resources	6/13
Indoor Environmental Quality	8/15
Innovation & Design	5/5

*Out of a possible 69 points

The information provided is based on that stated in the LEED® project certification submittals. USGBC and Chapters do not warrant or represent the accuracy of this information. Each building's actual performance is based on its unique design, construction, operation, and maintenance. Energy efficiency and sustainable results will vary.



BIG ASS FANS RESEARCH & DEVELOPMENT LABORATORY

Big Ass Fans Take the LEED

Sustainable design provides both comfort and energy savings

PROJECT BACKGROUND

Big Ass Fans® purchased a 32-acre building site in Lexington, Kentucky, with the intention of building an administrative facility and a fan testing lab. The primary goal of the design team was to create a testing lab that would meet all of the owner's needs while using significantly less materials, energy, and water than standard construction practices.

STRATEGIES AND RESULTS

The design team utilized elevated air speed and large amounts of ventilation to provide thermal comfort in the test lab in the summer. In the winter, radiant heaters paired with Big Ass Fans for destratification are used to minimize the heating energy consumed by the lab. The office and workshop were designed to utilize large Big Ass Fans for air distribution. This strategy reduces ductwork, lowers material costs, minimizes the static pressure experienced by the supply fans, and increases the air distribution effectiveness of the HVAC system. In addition, the elevated air speed provided by the overhead fans allows the thermostat to be set higher in the summer, which also decreases the HVAC system's energy consumption and the required capacity. Other energy conservation measures include 40 percent lower-than-code lighting power densities, reduced domestic hot water usage from the ultra low-flow fixtures, and a reflective, well insulated roof. Overall, the energy conservation strategies led to a 35 percent reduction in building energy cost. To ensure that all of these systems operate as designed, an independent commissioning agent was selected. From April 2009 through March 2010, operation of the building has performed exceptionally with energy utilization of only 18.9 kBtu/sq. ft./year and water consumption of 1625 gallons per month.

Material use reduction and recycling are also an important part of the project. The design team worked with Big Ass Fans to reduce the amount of finished areas and implemented a recycling/reuse strategy for any excess building materials. Strategies to minimize materials use include leaving structural systems exposed and eliminating flooring over the concrete slabs. The installation of Big Ass Fans minimizes the amount of ductwork needed to distribute conditioned air and serves as the primary method of cooling occupants by evenly distributing the conditioned air. For potable water reduction, the site will use only native/adaptive vegetation, eliminating the need for irrigation. In addition, all fixtures used in the building consume 58% less water than a standard design.

Indoor environmental quality was increased by utilizing low-emitting materials throughout the facility and supplementing the breathing zone with 30 percent outside air. Thermal comfort was a top priority as well, incorporating ASHRAE Standard 55 in the design of the systems for both the conditioned and non-conditioned spaces. Due to the company's creative nature, all four innovation credits were earned. Strategies include 50+percent less potable water usage, an educational program, low mercury lighting, and the minimization of construction materials and conditioned space. Six additional credits significantly exceeded the minimum requirements and would have been eligible for innovation credits.

ABOUT THE BIG ASS FAN COMPANY

Big Ass Fans is the leading manufacturer of huge ceiling fans for large industrial, agricultural, commercial and residential settings. Big Ass Fans range in size from 6 feet to 24 feet in diameter, using low horsepower motors to generate energy-efficient air movement for large spaces. Big Ass Fans can be used year-round to provide occupant comfort and energy savings. There are over 40,000 Big Ass Fans installed worldwide in applications such as office buildings, residences, stadiums, art galleries, restaurants, health clubs, manufacturing plants, distribution centers, horse arenas, dairy barns, and even zoos!

"This new R&D building is evidence of our commitment to sustainable practices. By significantly reducing the energy and water consumption and incorporating our own Big Ass Fans within the construction, the R&D lab demonstrates our dedication to "walking the talk"."

Carey Smith, President & CEO, Big Ass Fans



Architect: John Clarke, WS Construction
Design Architect: Stephanie Gilbert, WS Construction
Civil Engineer: Chris Howard, Carman
Commissioning Agent: Isaac Fedyniak, CMTA Engr. Consultants
Landscape Architect: Chris Howard, Carman
LEED Consultant: Christian Taber, Big Ass Fans
Lighting Designer: Brian Carruba, DBR Engineering
MEP Engineer: Ralph Whitley, Green Mechanical Const. Inc.
Structural Engineer: Jim Johnson, Freeland Harris - WS Const.
Project Coordinator: Mike Adams, WS Construction
Project Manager: Chris Elder
Project Size: 45,000 sf
Total Project Cost: \$4,350,691
Cost Per Square Foot: \$97

Photographs Courtesy of: Big Ass Fans

ABOUT KENTUCKY USGBC

Our goal is to improve the health and welfare of all Kentucky citizens through a sustainable and responsible built environment. Through education and awareness we encourage the use of sustainable practices that provide our residents with a healthy environment in which to live, work and learn.



www.usgbckentucky.org
 888-KY-USGBC