



**UNIVERSITY OF KENTUCKY
DAVIS MARKSBURY BUILDING
LEXINGTON, KENTUCKY**

44% or better energy consumption
over the ASHRAE 90.1 baseline

30 kW photovoltaic panels will supply as
much as 3% of the building's electrical energy

University of Kentucky's **First** LEED project

LEED® Facts

University of Kentucky
Davis Marksbury Building

LEED for New Construction - 2009
Certification awarded August 3, 2011

Gold 67 points*

Sustainable Sites	20/24
Water Efficiency	4/11
Energy & Atmosphere	26/33
Materials & Resources	5/13
Indoor Environmental Quality	10/19
Innovation & Design	2/6

*Out of a possible 106 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.



UNIVERSITY OF KENTUCKY - DIGITAL VILLAGE PHASE II (DAVIS MARKSBURY BUILDING)

Davis Marksbury Building Achieves LEED Gold Certification

Achieving LEED Gold Represents a Significant Milestone for the University of Kentucky

PROJECT BACKGROUND

With the Digital Village's emphasis on leading-edge multidisciplinary research, the Davis Marksbury Building project's main goal was to unite various departments scattered throughout the campus and Lexington under one roof. The building provides a place for faculty, staff and students from a variety of units and colleges across campus to engage and solve problems collaboratively. The building is flexible in design so as to be easily adapted to support research into emerging areas of interest.

STRATEGIES AND RESULTS

During the design phase, the stakeholders requested that the building reflect the research activities within the building. The design response was to glaze the western wall of the building's research area to provide translucency. Sun and glare control was provided by incorporating fritted glazing and custom vertical sunscreens into the assembly. The resulting affect not only produces the building's most distinguishable feature, but also allows for abundant daylight to enter the research areas as well as transparency from the exterior into the research labs.

The overall lighting demand of the building has been reduced with the use of task lighting and occupancy sensors throughout the office space. The building also utilizes a daylight harvesting system which reduces artificial lighting consumption by using the natural daylight transmitted into the spaces.

The mechanical system is based on a Variable Air Volume system which is connected to the campus central steam and chilled water system. An airside economizer is used to cool the building, avoiding the need for the campus chilled water system when temperature is appropriate. The building also has a very large computer load which will require cooling 24 hours a day, 7 days a week. In lieu of rejecting this heat to the ambient air, the waste heat is being captured through the use of a heat recovery chiller and will be used to heat the building a large amount of the time.

The solar cell data and the building's power usage are all being monitored through the Direct Digital Control system (DDC) of the building. The power usage of the building is also being monitored between the lighting loads, plug loads, HVAC loads and domestic water heating loads. Data collected from the DDC system will be used as a basis for monitoring the overall energy consumption of the building and to help reduce the building's energy use.

The University of Kentucky is committed to reducing their carbon footprint, and as a testament to this effort, the building's roof surface is lined with photovoltaic panels. The system of 30 kW worth of photovoltaic panels is connected into the building's electrical grid and will supply as much as 3% of the building's electrical energy demand. Additionally, two tracking photo-voltaic systems serve not only the building's on-site power, but can also be used as a research tool by the College of Engineering.

The project is also the University's first LEED building. With special emphasis placed on energy efficiency, the project surpasses the ASHRAE 90.1 baseline for energy consumption by 44%, or better.

ABOUT DAVIS MARKSBURY BUILDING

Named for College of Engineering alumnus and lead donor Davis Marksbury, the 45,000 square-foot facility houses the research activities of the Center for Visualization and Virtual Environments. Select research activities in the Department of Computer Science and the Department of Electrical and Computer Engineering are also housed in the building. The University of Kentucky felt the design should develop a new pattern language for the remaining two buildings within the Digital Village Master Plan but also maintain the context of the adjacent buildings and neighborhood.

"Given the College of Engineering's role as a leader in advancing environmental-related research in efficient energy production, it is extremely appropriate that the Davis Marksbury Building - a building dedicated to engineering and computer science research - is not only the first LEED certified building on UK's campus, but a Gold-certified building as well."

Thomas Lester, Dean
UK College of Engineering



Architect: JRA Architects
Associate Architect: Ratio Architects
Civil Engineer: Carman
Commissioning Agent: Facility Commissioning Group
Landscape Architect: Ratio Architects
Interior Design: Chase Design Group
MEP Engineer: CMTA Consulting Engineers
Structural Engineer: BFMJ Structural Engineers
Utility Engineer: Staggs and Fisher Consulting Engineers
Project Size: 45,019 gsf
Total Project Cost: \$14,390,804
Cost Per Square Foot: \$319.66

Photographs Courtesy of: Moberly Photography

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.



KENTUCKY CHAPTER
Greening the Bluegrass

www.usgbkentucky.org
888-KY-USGBC