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MSCC's Marion Berry Renewable Energy Center Earns LEED Certification

Mid-South Community College's Marion Berry Renewable Energy Center has earned silver level certification through the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED).

LEED is a voluntary, third-party verified "green building" rating system that addresses the site, water energy, materials, and indoor environmental quality of a facility. The Marion Berry Renewable Energy Center qualified for LEED certification based on building achievements that have a positive impact on the facility itself and the broader community.

"This is a great accomplishment for Mid-South Community College and one that comes as the result of much planning, hard work, persistence, and patience," said MSCC President Dr. Glen Fenter. "We set out to construct a facility that makes a statement



about renewable and sustainable energy, and this recognition by the U.S. Green Building Council certainly validates our efforts.”

Dr. Gibson “Sunny” Morris, Arkansas Delta Training and Education Consortium Liaison for Special Projects at MSCC, said the Center is an amazing building, both in what it is and what it does.

“The Marion Berry Renewable Energy Center was designed and constructed to be a high-efficiency, environmentally-friendly building, while reducing maintenance and utility cost for the life of the building,” Dr. Morris said. “The Center implements several key technologies aimed at reducing the building carbon footprint while drastically reducing its operating expenses.”

“This facility also possesses the potential for economic development that we probably can’t fully comprehend or envision at this juncture. We believe its projected impact is representative of the success that community colleges can achieve in transforming the workforce and improving the industrial capacity of U.S. business.”

The Center, designed by PKM Architects and built by Kinco Constructors, was built to meet, and in most cases exceed, international certification standards. It features a patented, advanced, geothermal heating/cooling system from Hydro-Temp that utilizes a naturally-sustainable energy source. Haltom Engineering provided the mechanical system design for the structure, and Canup Engineering developed the electrical system design.

Viridian, an independent sustainable building consulting firm specializing in LEED Consulting, Commissioning, Energy Services, Building Testing, and Building Asset Evaluations, assisted with the evaluation/certification effort. On the MSCC campus, Mark Wilson, Lead Instructor for Diesel Technology/Renewable Energy, helped to facilitate the process.

Through engineering, design, and construction, the Marion Berry Center exceeds American Society for Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 90.1-2007 energy efficiency codes in all mechanical and electrical systems. The Center boasts a 19% energy efficiency improvement over a baseline modeled comparison to a similar building constructed to the ASHRAE energy efficiency standard.

In addition, the structure has the potential to become recognized as a “Net Zero Energy Building” after a period of years and a comprehensive energy-use review.

According to ASHREA, such a facility is “a building which, on an annual basis, uses no more energy than is provided by the building’s on-site renewable energy sources.”

The Marion Berry Center features numerous energy-saving devices including variable speed air-conditioning units with direct digital control system, radiant-slab heating, a water heating system that uses recycled “waste heat” in most instances, and two enthalpy wheel heat exchangers that recover 50-80% of the energy lost in typical systems.

Other energy-friendly features include a distributed pumping system, computerized interior and exterior “daylighting” system that automatically decreases illumination when outside light is available/sufficient, low-flow water fixtures on plumbing system, and solar-assisted lighting in the diesel bay area.

To incentivize alternative forms of transportation, low-emitting and fuel efficient vehicle and carpool preferred parking spaces, as well as, bicycle parking and showers are provided.

The MBREC’s roof utilizes white TPO roofing that has a high Solar Reflective Index to assist in preventing Heat Island Effect as well as mitigating solar heat gain through the roof.

Of the materials used in construction, more than 17% contained recycled content and more than 33% were both extracted and manufactured from within 500 miles of the project site. Nearly 80% of the total construction waste generated was diverted away from landfills.

All of the interior paints and coatings, adhesives and sealants, and flooring systems contained minimal or no Volatile Organic Content (VOC). Efficient shower, faucet, toilet, and urinal fixtures result in a 41% reduction of potable water over a baseline modeled comparison.

The \$9 million, 35,120 square foot structure, named in honor of long-time First District Congressman Marion Berry, boasts technology and equipment that is second to none in Arkansas, west Tennessee, north Mississippi and southeast Missouri.

Through partnerships with Arkansas State University and the University of Memphis, the facility supports applied research in biofuel production including testing the effects of alternative energy sources and lubricants on engine performance and

durability. In addition it provides incubation resources for biofuel entrepreneurs and provides advanced capacity to the transportation industry for equipment development and implementation.

The structure includes eight full-scale diesel bays that support a career pathway in diesel technology, from high school through a baccalaureate degree. The baccalaureate degree, which is offered by Montana State Northern University, provides students the skills to support big-bore engines such as those found on locomotives and ocean-going vessels.

The building also houses a biofuel production facility including an ethanol distillation unit, a pyrolysis-gasification unit (under development with the University of Memphis) which converts biomass to syngas and fuels. A second-generation micro-biodiesel refinery is housed in the Center and serves as a production, research, and workforce development tool. Technology needed to create a fully-integrated biomass-based biofuel refinery is in place, and the facility has the capability to produce alternative fuels for automobiles and jets.

MSCC received a \$2 million grant from the U.S. Department of Commerce's Economic Development Administration to assist in the construction of the center. An additional \$1.2 million from the U.S. Department of Labor provided for program development and equipment for the engine testing facility.

For information on "green" and other technology-related initiatives or opportunities at the College, visit the campus at 2000 West Broadway in West Memphis, call (870) 733-6728, email admissions@midsouthcc.edu, or see the website at www.midcouthcc.edu.