

LEED® Energy Modeling of McCrory Gardens Center

Helping the new McCrory Gardens Facility achieve LEED® Silver

In an effort to better serve the community of Brookings, SD and surrounding areas, a new facility was needed in the McCrory Gardens. The McCrory Gardens is a 65 acre botanical garden that is managed by the Plant Science department at South Dakota State University (SDSU). The Plant Science department uses this space for research and development of new species, but it also provides a public space that is frequently visited by the surrounding community. The gardens are also a premier location for outdoor weddings. The state of South Dakota and SDSU require that all new buildings achieve a Silver rating for the Leadership in Energy and Environmental Design (LEED®) Green Building Rating System™. BTU Engineering's highly skilled staff provided the building energy modeling expertise required to help meet LEED® design objectives.



THE SOLUTION

To help McCrory Gardens Center achieve LEED® Silver, BTU Engineering's professional engineers worked with Perspective Inc. and Associated Consulting Engineering Inc. to construct a building energy model. The building energy model allows for energy use and utility bills to be predicted for the building. This information can be used to inform design decisions that result in the construction of a high energy performance building. These high performance buildings reduce the utility costs associated with operating the building while providing a superior level of comfort. Highlights include high insulating-value walls and roof, high-performance glazing, high efficiency centralized geothermal heating/cooling, variable speed drives, demand-control ventilation, and energy efficient lighting.

SUMMARY

- 34% Improved Energy Performance over ASHRAE 2007
- Demonstrated 12 of 19 EAc1 points
- LEED® Silver Rating

BTU Engineering energy modeling demonstrated that these measures provided a 34% improved energy performance over ASHRAE 2007 standards, yielding approximately \$3,500/yr in energy savings. Construction of the beautiful

McCrory Gardens facility was completed in early 2012. The McCrory Gardens facility is an excellent representation of the commitment to sustainable high-performance building design. South Dakota State University's most recent strategic plan specifically includes contributing to sustainable communities. The local Brookings, SD community is also strongly committed to better building design with a Sustainability Council working to, "improve our future quality of life while still meeting the needs of the present."

For more information about BTU Engineering and how we can help your team achieve LEED status please click, call, or email.

Energy Audits | Energy Modeling | Energy Measurement | Incentives & Grants | Renewable Energy | Energy Training

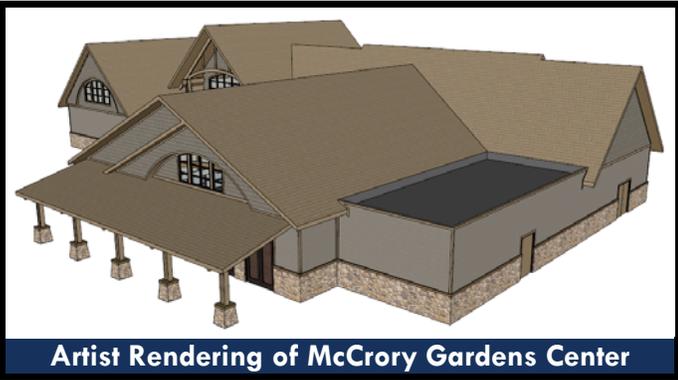


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DETAILED DESCRIPTION

The higher education Board of Regents (BOR) in South Dakota fully support the state of South Dakota's mandate, South Dakota Codified Law (SDCL) §§5-14-33 to 5-14-38, for buildings that are designed and constructed in conformance with high-

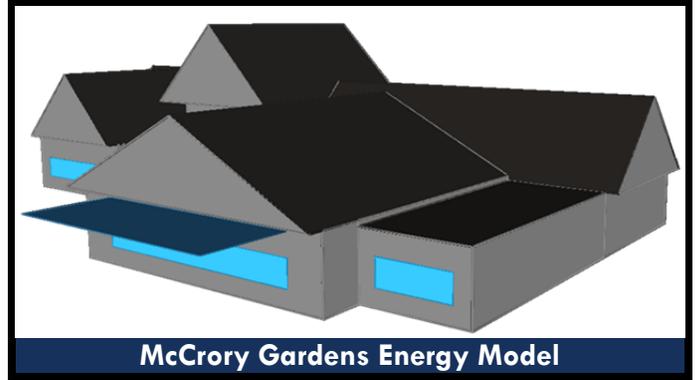


Artist Rendering of McCrory Gardens Center

performance green building standards; LEED Silver requirements. The Leadership in Energy and Environmental Design (LEED) Silver rating under the United States Green Building Council (USGBC) LEED rating system uses ASHRAE Standard 90.1-2007 as minimum energy code. This applies to new buildings and for substantial renovations to existing buildings.

LEED®

The LEED Green Building Rating Systems are voluntary, consensus-based, and market-driven. Based on existing and proven technology, they evaluate environmental performance from a whole building perspective over a building's life cycle, providing a definitive standard for what constitutes a green building in design, construction, and operation. The LEED rating systems are designed for rating new and existing commercial, institutional, and residential buildings. They are based on accepted energy and environmental principles and strike a balance between known, established practices and emerging concepts.



The LEED 2009 Green Building Rating System for New Construction and Major Renovations is a set of performance standards for certifying the design and construction of commercial or institutional buildings and high-rise residential buildings of all sizes, both public and private. The intent is to promote healthful, durable, affordable, and environmentally sound practices in building design and construction. Prerequisites and credits in the LEED 2009 for New Construction and Major Renovations addresses 7 topics:

- **Sustainable Sites (SS)**
- **Water Efficiency (WE)**
- **Energy and Atmosphere (EA)**
- **Materials and Resources (MR)**
- **Indoor Environmental Quality (IEQ)**
- **Innovation in Design (ID)**
- **Regional Priority (RP)**

LEED 2009 for New Construction and Major Renovations certifications are awarded according to the following scale:

- **Certified 40–49 points**
- **Silver 50–59 points**
- **Gold 60–79 points**
- **Platinum 80 points and above**

Energy performance typically plays a large role (up to 19 points) in achieving these certifications.

ABOUT BTU ENGINEERING

Founded in 1995, BTU Engineering has been providing energy solutions for over 17 years. The staff includes licensed professional engineers, all with advanced engineering degrees. The skilled staff has the experience and knowledge necessary to develop tailored solutions meeting our client's unique needs. Highlights include completion of well over 300 commercial energy audits/assessments, over 100 REAP feasibility studies, energy efficiency and renewable energy award projects, energy efficiency Commercial Tax Credit analysis and documentation, and successful LEED energy modeling services. BTU Engineering provided energy modeling for one of the first LEED® Platinum buildings in South Dakota.