

REACHING LEED EB CERTIFICATION

*Wilmore Elementary School
Jessamine County School District
By William Sharp, PE, LEED AP BC+D*

“Existing buildings hold incredible promise.” Encouraging existing buildings to be more sustainable is the goal of the United States Green Building Council’s (USGBC) Leadership in Energy and Environmental Design certification for Existing Buildings (LEED EB). This Certification, which focuses on improving building operations and maintenance, is being sought by Wilmore Elementary School through a volunteer program supported by the USGBC Kentucky Chapter, the Kentucky School Boards Association, the Kentucky School Plant Management Association, the Kentucky National Energy Education Development (NEED) Project, the Kentucky Department of Energy Development and Independence and the Kentucky Community and Technical College System and a grant from the national USGBC.

Wilmore Elementary School is a 67,700 square foot school, constructed in 2000 housing 677 students and 52 staff. The school was selected for this project by a committee comprised of representatives from Kentucky USGBC, Kentucky Department of Education, and independent third parties. The committee reviewed applications from school districts across the Commonwealth for potential candidates for Kentucky’s first LEED EB school.

The LEED EB certification is a point based system with six general categories, each with points that required volunteer resources for the Wilmore project. Categories include Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, and Innovation in Operations. Within each category are several individual credits that, if attempted and verified, will contribute points to the rating. LEED certification has four levels: Certified, 40-49 points; Silver, 50-59 points; Gold, 60-79 points; and Platinum, 80+ points. There are currently only seven certified LEED EB buildings in Kentucky: one Gold and Six Certified.

The Process

In order to begin organizing the volunteers and the District staff, the first task was benchmarking the existing conditions to determine what credits would be achievable. Based upon the evaluation the volunteer team concluded that out of the five certification levels (Certified, Bronze, Silver, Gold and Platinum) the school should target a LEED EB Silver Certification. Silver Certification requires between 50-59 points.

An ENERGY STAR Target Finder was completed for the school building and it achieved a beginning benchmark score of 71. ENERGY STAR is the Environmental Protection Agency’s program for benchmarking building performance. The formula compares a building’s energy use against its peer group in the same climate zone to arrive at the score.



Wilmore Elementary School

Fortunately the LEED Energy and Atmosphere category has a lot of opportunity for improvement and was a strong focus for the volunteers.

First, volunteers toured the building identifying overlit areas where artificial light sources could be removed or reduced. A volunteer work session was held at the school to rewire existing linear fluorescent light fixtures to allow for energy reduction. Second, Chris Zerhusen



Volunteers rewire light fixtures to allow for energy reduction

with Zerhusen Holten Commissioning volunteered a retro commissioning of the entire facility including mechanical systems, controls, lighting, and other intelligent and adjustable building features. The report and adjustments will ensure that the building is operating at an optimum level. Third, Jessamine County Energy Manager John Clemons worked closely with the community and the Jessamine County School Board to implement a “dark campus” after hours which greatly reduces the energy consumption when the building is unoccupied. Finally, the HVAC system’s geothermal pumps were found to be operating constantly due to the

electronic equipment in the Telecommunications Room. Thermal Equipment Sales donated a mini-split system cooling unit to allow the Telecommunications Room to be cooled while allowing the overall building system to shut down or scale back based on the remaining HVAC load. These key strategies used in conjunction with occupant behavior (turning off lights and devices when not in use) improved the building’s overall ENERGY STAR rating (an increase of 12 points to date), which creates LEED points

based on the energy reduction.

Indoor Air Quality is another important category. These points focus on not only preparing an air quality management plan but establishing a best practices management program for future facility alterations and additions. It also addressed materials purchased and brought into the building like green cleaning products, integrated pest management and low emitting volatile organic compounds (VOC) products.

Sustainable Sites presents a challenge for the Existing Building certification as there is little that can be done regarding location and building orientation; however, LEED EB offers points for establishing ways to deal with the overall site. These practices include hardscape management plans to reduce the natural resources used to clean, maintain, paint, and seal the hardscape areas, reductions in transportation through the promotion of alternative transportation and carpooling to the community (walk to school day, bike to school day, etc.) and stormwater control plans and protection of open (non-developed) habitat. Scott Southall with CDP Engineers was instrumental in documenting these credits.



Bill Sharp of CMTA Consulting Engineers is facilitating the LEED process for Wilmore Elementary School's LEED EB Certification

The Material and Resource Credits category had to be addressed at the School Board purchasing level. Fortunately Jessamine County has multiple sustainable practices already in place. Volunteers including Billie Hardin with KCTCS, Kelly Ives and Sarah Lamere with RossTarrant Architects, and Celia Moore with Sherman-Carter-Barnhart Architects reviewed the sustainable purchasing policies for items such as ongoing consumables, power equipment, low-mercury lamps, and future facility construction products. The volunteers also addressed Solid Waste Management including a waste stream audit that featured a fun afternoon of dumpster diving.

The easy fix for Water Efficiency is to replace the existing fixtures with low-flow plumbing; however, the Wilmore approach was to utilize the existing plumbing fixtures to avoid any capital costs. The volunteers were able to track water performance and help with water efficient landscape and irrigation techniques.

Finally, the project team tested their creativity and

ability to go above and beyond the prescriptive requirements to seek Innovation in Operation (IO) credits. IO credits “provide the opportunity to be awarded points for exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in green building categories not specifically addressed by LEED.” These credits can be obtained through education of the LEED process and translating the sustainable features of the building to the student and/or public. An IO credit is also obtained if a LEED AP oversees the documentation of the project and tracks sustainable building cost impacts for the site.

What makes LEED EB different from other LEED certification paths is that the point system is based on the operation and maintenance of the existing facility. Some credits require that performance data be measured and documented for a performance period. The process is tracked and documented over the performance period with the results submitted for verification. The project is currently in this performance tracking phase. The documentation for the Wilmore project will be submitted to the USGBC in 2015.

A Model for Other Schools

The goal for the Wilmore project is two-fold: first, to obtain LEED EB certification for Wilmore Elementary and second, to develop a LEED EB model for other Kentucky schools. This entire process is being thoroughly documented so that other Kentucky schools wishing to pursue LEED EB certification will have a local benchmark for the time and effort involved. Volunteer/staff hours, costs to obtain credits (either by buying new equipment or changing purchasing procedures) and time spent organizing the submitting the documentation are all being tracked.

Volunteers and Partners

The Wilmore Elementary LEED EB project was made possible through a volunteer workforce from the Kentucky USGBC and partner organizations in cooperation with the Jessamine County School Board and Wilmore Elementary staff. Kentucky USGBC, under the leadership of executive director Nancy Church, mobilized member volunteers throughout the project. Bill Sharp is the LEED AP responsible for organizing and facilitating the documentation of the LEED process. Mr. Sharp is a Board Member with Kentucky USGBC and an electrical engineer with CMTA in Lexington, Kentucky. John Clemons, School Energy Manager for Jessamine County Schools and a recently appointed Kentucky USGBC Board Member, is also leading the volunteer effort. Mr. Clemons has organized several volunteer workshops at Wilmore Elementary including improvements to the overall energy consumption and operation of the building to improve the points available for certification. Chris Tyler with Kentucky's

Green Building Council, Kentucky USGBC, and Thermal Equipment Sales has masterminded and contributed to the project from its inception.

The Kentucky USGBC is one of six partners for the project along with the Kentucky School Boards Association, the Kentucky School Plant Management Association, the Kentucky National Energy Education Development (NEED) Project,

the Kentucky Department of Energy Development and Independence, and the Kentucky Community and Technical College System. The volunteers and the time and resources donated to

the project will be tracked to provide a benchmark to other schools on the effort it would take to follow Wilmore's example.

The Wilmore Elementary staff and students also play important roles. The students are not only directly involved in some of the certification data gathering, but will benefit directly from the activities and improvements in the school. Current Wilmore Elementary Principal Dawn Floyd has been a constant supporter of the team's efforts and the Jessamine County School Board and Superintendent have supported revised sustainable policies throughout the school district as part of the project.

The saying "it takes a village" is certainly applicable to this project. There has only been space in this article to acknowledge the contributions of some of the volunteers, but the project team appreciates the efforts and contributions from all those involved.

Tour the Wilmore Elementary LEED ED Project

Engineers, architects, and other professionals will have a chance to tour the Wilmore project on March 11, 2015 as part of the High Performance Sustainable School Buildings Workshop. The site visit will include presentations by the key partners of the LEED EB project. The event is hosted by the Kentucky Department for Energy Development and Independence and the Kentucky National Energy Education Development (NEED) Project. Attending engineers will receive certificates of professional development. For registration information contact Pam Proctor at pproctor@need.org.



Volunteers discuss tasks to be accomplished



Owen Thomas Crumpton
Born October 21, 2014
Weight 8lb. 1 oz.

Congratulations to the Crumpton Family on the arrival of their baby boy!

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