

LET'S SAVE ENERGY

School Energy Efficiency News

KSBA-SEMP ... Cultivating energy efficiency,
best practices in Kentucky school districts



June 2016

"It's an OLD building so it's going to be an energy hog!"

Garth Elementary blows that myth by being first in K-12 category for Kentucky in National Building Competition

In just about any conversation about school energy use, you will hear, "Our buildings are too old to do anything – they are just going to use a lot of energy."

It is true that with older buildings there will be challenges in daily operation. And some believe that starting all over with a brand new school is the only way to have a significant impact on energy use. Yet, board decisions made a number of years ago led Scott County School District to renovate one of the oldest schools in the nation. That school is now being recognized in the 2015 National Building Competition as being first in Kentucky for energy reduction, as compared to 2014.

Garth Elementary School was opened in 1926. With enrollment currently close to 500, it served first as a community school for first through twelfth grades. Recent renovations included:

Installation of an Automated Logic HVAC Control System (2003)

Conversion of T12 Light Fixtures to T8 with Electronic Ballasts and Energy Saving Lamps (2010)

Installation of LED Lights in Gym and Media Center with Occupancy Sensors (2013)

Installation of high-efficiency cooling tower and boiler system (2014)

The renovations have been completed with the most energy efficient equipment for the building, with the goal of low cost operation and maintenance.

In 2013 when Suzy Armishaw became principal at Garth, she had some knowledge of school energy



Steve Peyton, Jon Saylor and Suzy Armishaw, team together with students to further reduce their energy use and become #1 in Kentucky in the National Building Competition!

management from her previous school in Oklahoma. What impressed her at Garth was the involvement from students and staff. "Without everyone joining our team to turn-off lights, projectors, document cameras and, most importantly monitoring doors at arrival and dismissal times, we would not be as efficient as we are," says Armishaw.

At that time, energy use measured at 44.8/kBtus/sf, and Garth was already an ENERGY STAR School. Armishaw pointed to the additional involvement of teacher Jon Saylor and custodian Steve Peyton for reducing energy use to 27.9/kBtus/sf.

Saylor was amazed that the school had saved over \$7,000 as compared to last year and pointed to the

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KSBA/KISTA

Funding for School Construction (Energy Improvements)

The Kentucky School Boards Association (KSBA) and the Kentucky Interlocal School Transportation Association (KISTA) continue to provide a funding alternative to implement energy improvement projects. To date, the program has funded over \$6,500,000 of energy improvement projects.

The KSBA/KISTA program provides an economical funding mechanism for small energy improvement projects. The program allows school districts with smaller energy improvement re-



Owen County Facilities Director Dan Logan and SEMP Project Manager discuss actual energy savings from a recent LED gym project.

lated projects to participate in a combined tax-exempt financing and be able to take advantage of lower interest costs with the same costs of issuance as school districts with larger projects.

Some benefits of the program include:

- Tax-exempt interest rates;
- Prorated costs of issuance among districts;
- Repayment flexibility with terms from 2 to 20 years; and,
- Flexibility in the designated fund for repayment (unrestricted, restricted or guaranteed savings).

The program is structured through the issuance of tax-exempt certificates of participation. All projects must receive standard construction project approval from the Kentucky Department of Education (KDE) prior to funding. Through the KDE District Facilities Branch, all projects adhere to a detailed approval process allowing oversight from planning to implementation.

Many different types of energy projects qualify for the program. This includes HVAC upgrades and replacements, lighting, building controls, commissioning, kitchen equipment and envelope improvement including windows, doors, insulation and roofs.

For more information on the KSBA/KISTA funding program for energy improvements, please contact:

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Garth Elementary . . . First in K-12 Category

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everyday work that Peyton has done. "Even when we as teachers, try to keep things off we're not always in the room. He, (pointing to Peyton), he is the one that makes it happen."

"All I do is turn-off lights or a projector when no one is in a room," says Payton. "That has become such a habit, that I do that whether I am at work or at home!"

Peyton went on to say that changes made to the HVAC system had significant impact on reducing energy use. Armishaw reemphasized the impact of monitoring the doors at arrival and dismissal. "We were losing a lot of energy during bus loading, by keeping the doors open when no one was entering or leaving the school."

"Every school can be a pioneer for energy conservation, no matter the age of the school or number



Garth Elementary – built 1926. Current Energy Utilization Index (EUI) – 27.9/kBtus/sf

of students," adds Armishaw. "We are proud of this recognition!"

Scott County Schools is currently the fourth most energy efficient district in the state, behind Butler, Owen and Nelson Counties. With continued focus on reducing waste and improving energy use, Scott County expects to challenge Butler County for the top spot for FY16.



What is the district maintenance strategy for replacing T12 fixtures?

What improvements are being made this summer?

Consider these:



Incandescent in the auditorium?
Consider installing LED!



Replacing metal halide fixtures in the gymnasium saves between \$40 and \$55 annually PER FIXTURE!

Energy Projects

. . . Bottom-line opportunities

Board members govern the activities of the school district by setting policy and providing resources to improve achievement for each student in the district. What do these responsibilities have to do with energy projects? The answer is everything!

Resources are stretched to the point that it requires careful leadership to ensure all are used appropriately. This not only includes people resources, but also facility and energy resources.

There are three questions to ask:

1. Where does the district rank in energy efficiency?
2. Is our district moving in the right direction?
3. What can we point to that has made a difference?

The most efficient district has an Energy Utilization Index (EUI) of 32.7/kBtu/sf. The state average is 57.6/kBtu/sf. District rankings can be located online at: <http://www.ksba.org/Downloads/Dec%202015%20updated.pdf>

If there has been improvement over the previous year, what actions were taken in the district? If there has NOT been improvement, ask to review the District Energy Management Plan. Consider the progress in implementing this plan and the process for updating the plan.

A few basic steps can be taken by facilities staff OR a Professional Engineer to identify the opportunity to reduce. A few questions to consider include:

- ◆ What type of lighting is in the hallway? Classroom? If it is incandescent, or T12 fluorescent, this is a significant opportunity.
- ◆ Are the EXIT signs still using incandescent bulbs?
- ◆ What about the gymnasium lighting? If the older 450 metal halide, again a significant opportunity.
- ◆ Are doors propped open for bus/car unloading and loading? ("unconditioned" air, costs \$\$\$\$ to be "conditioned.")



With our Utility Partners, many school districts are saving energy and reducing "demand" by 2.5% annually!

- ◆ During evening hours, what is the temperature of the school? (This provides a clue to whether or not the HVAC control system is working.)
- ◆ How long are lights "left-on" during the evening?

Gathering this information will enable the district to then develop a listing of potential energy projects. Identification of the watts reduced by project, will then enable calculations to be completed to determine the potential "payback" for each of the energy projects.

Identifying the most efficient use of any resource will have an impact on the bottom-line. Developing short-term and long-term plans to implement various energy projects will have a growing impact on that bottom-line, as utility rates continue to increase. KSBA-SEMP staff are available to answer general questions to support this effort.

Don't forget to submit Utility Rebates for energy projects!

Many utility companies have rebate programs for installing higher efficiency equipment! Don't forget to confirm, and then complete the application process! Your district name could be on the next check!

KU
a PPL company

DATE 4/27/2015

PAY TO THE ORDER OF Webster County Board of Education \$ \$34,349

Thirty four thousand, three hundred and forty nine dollars DOLLARS

MEMO Commercial Rebate Program Kentucky Utilities Company