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Groundbreaking school attracts attention from bevy of builders Richardsville Elementary is designed to use less energy than it sells back to utility

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Plans to build a school that could save as much as \$200,000 a year in energy costs thanks to solar panels has contractors lining up with bids.

The deadline to submit plans for the new Richardsville Elementary School is Dec. 23, and architect Kenny Stanfield with Sherman Carter & Barnhart of Louisville said he has already seen tremendous interest by contractors interested in being part of the first “net zero” school in the country.

“We had a very large turnout at the pre-bid meeting recently,” Stanfield said. “Typically, when we present the plans for a new school, about 30 people are there. This time we stopped counting at 125.”

What makes the school appealing is its initiative to eventually operate without any energy costs at all.

While the typical school building in the United States uses 73 kilo-British thermal units per square foot annually, the Richardsville School is expected to operate on less than 18. The school will still operate on standard energy, Stanfield explained, but the 40,000 square feet of solar panels will produce “clean energy” that will be sold at premium price to the energy company – not only accommodating the school’s energy usage, but also providing a profit once the panels are fully paid for.

The panels are anticipated to cost around \$2 million, in addition to \$13 million for the school building, but Stanfield pointed out that if the board approves the purchase, the panels will pay for themselves and more.

Stanfield said it would cost \$9 million to install solar panels to accommodate energy for the typical U.S. school, so in order to make the “net zero” school a reality, they had to look at every aspect of the building to save energy.

“Warren County already does better than the average school in energy saving for a number of years,” Stanfield said. “Currently, Warren County already has the most energy efficient school in the state with Plano Elementary using 28 kBtu (per square foot annually), and that’s an extremely good number.”

Officials looked at Plano Elementary and reviewed the areas where the most energy was being used in an effort to reduce the consumption rate in the Richardsville school. Stanfield said 25 percent of the school’s energy was being used in the kitchen, so officials went to Charlotte, N.C., to a kitchen conservation study group to look at alternatives.

“We essentially got rid of fryers and machines that create grease vapors,” Stanfield said. “Now we are not only saving energy, but the food is healthier than before.”

Justin McElfresh, project manager with SC&B, said the school will also use a geothermal water system – essentially, underground wells that maintain water temperature without the added cost of heating or cooling.

McElfresh pointed to the smaller area between the ceiling and roof of the building as being more energy efficient, but he said the active day-lighting feature has made the project extremely cost

effective. The school will use natural sunlight with large windows throughout the building; an automatic system will sense when there is not enough daylight and will bring the lights up in the building on its own.

Richardsville will feature four hallways with the themes “recycle,” “geothermal,” “solar energy” and “water consumption.” Each will have demonstrations on how the building uses those energy-saving methods to create a better environment.

McElfresh said an LCD monitor will be located in the lobby of the school, showing students and visitors the real-time energy savings and the energy produced by the solar panels, while another geothermal station will show gauges on pipes and how energy is being saved there as well.

“One of the most exciting things in the school is not only the way we’ve incurred all these things into the building design, but the way it’s featured so the school can have a learning experience for students,” McElfresh said.

One of the goals of the building is to achieve LEED Platinum certification from the U.S. Green Building Council. And while it hasn’t even been built, the school design has already been featured in American School and University magazine.

Mark Ryles, director of facilities maintenance for the Kentucky Department of Education, said the project is one of the most exciting things to occur in school building “not only in Kentucky, but the nation.” He pointed to the collaboration between numerous state and local agencies, in addition to the architects and CMTA Inc. Consulting Engineers, as part of the design’s success. “On some level, it’s kind of like having a car that doesn’t need gasoline ...” Ryles said. “It’s helping reduce our carbon footprint.”

Ryles said while other schools in the state are working toward low-energy consumption, he is excited to see a project aimed at consuming none at all.

“It’s one thing when adults walk around and talk about it, but when you have third-graders coming up and telling you about it, it’s really exciting,” he said.

Stanfield said once the bids are received on Dec. 23, he anticipates moving forward as soon as possible to reach the expected completion in spring 2010. He said the building also will feature some of the old school building’s materials – the gym floor will be used as a frame for its replacement, while fieldstone will be used on some of the indoor columns.

“It’s been a real once-in-a-lifetime experience,” Stanfield said. “You don’t know how many times you get to say, ‘I worked on the first one.’ ”