

## Open Fourm: H. Bishop Dansby

# New School Should Be Green

The Harrisonburg School Board is building a new middle school. The development of the design concept is taking place. Meetings and a website will allow the public to provide its input.

The only thing we know about the specifications at this point is that it will serve at least 900 students, and based on board comments, more likely at least 1,000. Earlier reporting on the new school indicates the cost will be in the range of \$30million to 40 million. All of this suggests a facility with floor space around 150,000 square feet.

If this school building has the energy use intensity of the average existing U.S. school buildings, its utility bill will be \$330,000 per year. If it is built to the current minimum recognized standard for school buildings, its utility bill will be \$240,000 per year. If it is built to LEED standards, its utility bill will be about \$97,500 per year. (\$0.10/kwh is assumed.)

LEED construction is intended to make the construction and operation of a

building as sustainable as possible; that is, as environmentally responsible and resource efficient as possible. There are more LEED buildings in Virginia than in any other state. "Over the course of last year, 170 LEED certified projects were completed in Virginia, representing 30 million square feet of real estate," according to the U.S. Green Building Council. "In total, the state has 560 LEED-certified projects, representing 74 million square feet. That's the equivalent to 11 Pentagons. And there are another 1,200 LEED projects in the pipeline as registered projects, representing 224 million square feet."

LEED buildings need not cost any more than conventional construction. The Virginia Beach school system has built numerous LEED school buildings and actual construction costs have come in below costs of conventional construction. If the new middle school is LEED, the savings on energy during the 60-year life of the building will be \$13.95 million compared to the national average, or \$8.55 million com-

pared to the current minimum building standard.

However, there is absolutely no reason the new Harrisonburg middle school should have any utility bill at all. School buildings are particularly well suited to be Zero Energy Buildings (ZEB), which means that during the course of the year, as much energy is produced on-site as is used by the building.

A ZEB building can be thought of as a LEED building with solar panels added. For the example given, to generate the \$97,500 in electricity per year, the investment in the solar array would be about \$2 million. During, say, a 60-year life of the school, the energy generated would have a value of \$5.85 million, and the net savings to the school after maintenance costs could be as much as \$3 million. Added to the savings from going LEED, the school saves \$192,500 per year in energy costs compared to the minimum building standard, or a whopping \$282,500 per year compared to the national average.

Alternatively, the school

system could enter into a power purchase agreement from a third party that would install, own and maintain the array and sell the power back to the school at, say, a 10-percent discount. There would be no investment by the school system, and the savings during the 60-year life of the building would be \$585,000. Added to the LEED savings, the school saves \$152,250 to 242,250 per year in energy costs.

Where school systems have built LEED and ZEB facilities, they have used them as learning laboratories for the students, using kiosks in the buildings and working the actual data into the social studies and science curricula, not only for the students in the one school, but for the whole school district.

By building LEED/ZEB, the board can save millions, be kinder to the environment, and provide a valuable learning resource to the school division.

*H. Bishop Dansby, co-leader of the Middle School LEED/ZEB Project, lives in Keezletown.*