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Oak Bluffs School upgrades energy efficiency

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By Janet Hefler

With energy costs expected to soar this winter, Oak Bluffs school and town officials are poised to take advantage of an energy conservation program to install state-of-the-art digital technology that will control the school building's utilities. The new system is expected to save close to \$76,000 a year in fuel oil and electricity costs for the Oak Bluffs School. The savings will pay for the system in about nine years, making it cost-free to the taxpayers.

The project, which awaits contract approval by the Oak Bluffs School's lawyers, will renovate the heating system and install a new digital system produced by Siemens Building Technologies to monitor and control utilities in the entire school. The school will contract its installation and maintenance from Nelson Mechanical Design, Inc., an Island-based plumbing, heating and air-conditioning contractor.

"To fund this, we take the savings that we are guaranteed, and use that by way of payment," said Laury Binney, Oak Bluffs School principal.

Siemens provides the financing for the project and guarantees the energy savings over the life of the loan. The project costs \$561,187 to implement. Siemens will loan the school a total of \$694,080, factoring in \$132,893 interest at 4 percent annually. The school will pay roughly \$76,000, the amount guaranteed in savings by Siemens, from its annual energy budget towards paying off the loan in 9.18 years.

The contract from Siemens currently is undergoing review by attorneys for the Oak Bluffs School. The school committee met Tuesday night to get an update on the project and agreed to support it, once some contract issues are resolved. The committee voted to empower Priscilla Sylvia, the chair, to sign the contract as soon as it is approved, should it happen before next month's meeting.

Once the contract is signed, the first phase of the project, replacing the boilers, could be completed this fall before the cold weather arrives, which Mr. Binney said would give the school a head-start on energy savings this year.

Brian Nelson, a master plumber and mechanical engineer and co-owner of Nelson Mechanical Design, first presented the system proposal to school officials. "The goal is to have the school janitor sitting in his pajamas at home, using a laptop to connect to the Internet to turn on the lights in the gym," Mr. Nelson explained.

Mr. Nelson's initial interest was not strictly business. His daughter attends the Oak Bluffs School. Mr. Nelson credits his wife, Claudia, for his company's involvement.

When their daughter Sophie transferred to Oak Bluffs School last fall, Mrs. Nelson mentioned her husband's business to Laury Binney, school principal. The school had

recently received the results of an energy audit provided by the Cape Light Compact (CLC), a municipal energy-buying group made up of Cape and Island towns that provides energy conservation programs.

Mr. Binney called Mr. Nelson for advice.

"We looked through the school's heating and ventilation system, and realized that quite a large yearly savings in electricity and fuel oil was possible," recalled Mr. Nelson.

The school uses oil-fired boilers to run a forced hot air heating system. The system is very inefficient.

In some classrooms where thermostats are located on outside walls, the call for heat is constant.

At Mr. Binney's suggestion, Mr. Nelson contacted John Burns, a Cape Light Compact (CLC) staff member who oversees commercial and industrial programs. Mr. Burns said that if Mr. Nelson and the school partnered with a corporation that would guarantee a yearly energy savings, the school could apply to the CLC for energy conservation funds to offset the project's cost.

In October 2004, the Oak Bluffs School Board issued a request for bids for a proposal to renovate the school's entire mechanical system and install a digital control system. Siemens and Nelson Mechanical Design responded with a proposal.

Mr. Binney then contacted Siemens, a leading provider of building controls, fire safety, and security systems. The company examined the school's equipment and utility bills, and projected energy savings at \$65,000 annually, based on boiler replacement, an energy management system, and demand control ventilation.

"At the moment, everything runs 24 hours a day," Mr. Binney said. "It is an inefficient way to run a school. The new system will offer a sort of individual zoned control system in which you can turn on and shut down circulation systems, heating, and hot water."

If given the go-ahead, Mr. Nelson and his partner Dave Sprague, also a master plumber, plan to assemble a team of seven to nine Island employees to complete the renovation at the school.

"We will replace boilers and motors, and the rest of it will be direct digital control. Siemens provides the training to us and the Oak Bluffs staff. They assist us with the installation, and they also will train us in maintenance," said Mr. Nelson.

The Siemens APOGEE tm building automation system utilizes a Pentium-based personal computer, networked throughout the school. The system includes an energy management feature utilizing Microsoft Windows technology to monitor temperature, humidity, and ventilation over a fiber optic network.

Should the energy-saving project begin soon, one of the school's returning students, Mr. Nelson's daughter Sophie, will be watching it closely.

"She felt better when I explained that this winter, for the first time since the school was built 10 years ago, the Oak Bluffs School will save 24,000 gallons of fuel oil," said Mr. Nelson. "She is proud that her school will be making such a significant contribution to reducing pollution and global warming."