Case Study: North Santiam School District

Homework pays off for North Santiam Schools

It's no small feat to stretch $350,000 into $1.2 million to upgrade antiquated school buildings in today's economic environment. But, North Santiam School District, located in the foothills of Oregon's Central Cascade Mountains, diligently did its homework and accomplished the seemingly impossible with its partners the Oregon Office of Energy, Nike and Siemens.

> ***"This is a win-win for everyone. This is good for the environment and good for the schools. It shows how partnerships between government and business can save Oregon's greatest resources, schools and the environment."***
>
> *- Jim Petsche*
> *Director of Corporate Facilities*
> *Nike*

"Four years ago, we made our facilities a priority," said North Santiam School Board Chair Dave Kinney. "There is no doubt that the learning environment is affected by the physical environment."

And, the district's school buildings were in dire need. The outdated lighting fixtures in most classrooms created a buzzing background noise, continually flickered and provided a low quality light. The classrooms were often uncomfortably hot or cold because the old heating valves would get stuck in the wrong position. The maintenance staff kept busy answering complaints and had less time for other work.

New Facilities Manager

Tom Hogstad joined the school district in August of 2000 as the district's first full-time facilities director. "It was very apparent to me from the start that we had some basic problems with the school infrastructure – lighting and heating and cooling in particular," Hogstad said. "A review of the utility bills showed we were spending way too much money per square foot for energy and too much of our maintenance staff's time on energy-related issues."

But, like most Oregon school districts today, North Santiam had no money for improvements.

Hogstad, who had just come from private industry in Bend, didn't flinch at his prospects for success. He had some important positives on his side: Dave Kinney and the School Board and District Superintendent B.J. Hollensteiner.

"B.J. created an environment for creative

Stayton Elementary School and Stayton Middle School students, teachers and staff benefited from lighting and heating/cooling system improvements.

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problem solving," said Hogstad. "She encouraged us to use our skills — learned in both the public and private sectors — to make change happen."

Stayton Elementary School improved its lighting with funds from Nike and SB 1149 funds.

First step

Hogstad's first step was to create a monitoring program to see where the problems were. He had some background from an energy management course he had taken.

Hogstad also called the Oregon Office of Energy's School Program Energy Analyst Greg Churchill to see if he could help. Churchill explained that the 1999 Legislature had passed a bill that would have an impact on energy regulation and would provide financial assistance for school energy projects.

Senate Bill 1149 would restructure the regulated electric industry. The bill also provided for a 3 percent "public purpose charge" to be collected by the two investor-owned utilities, Portland General Electric and Pacific Power. A portion of the charge would be directed to school energy projects. The bill required energy audits of all school district facilities before releasing funds. It would take effect March 1, 2001.

With his homework done, Hogstad went into action. He got approval to put out a request for proposals (RFPs) for performing energy audits, providing service on the more technically advanced heating and cooling equipment, assisting with development of a strategic plan and accessing funds.

The criteria: "We wanted to resolve the problems and be budget neutral, provide lower energy and maintenance costs, be environmentally friendly and be good stewards of the taxpayer's money," Hogstad said.

Siemens Building Technology's proposal met the district's criteria. Eric Latimer was the Siemens contact for North Santiam.

"Eric and Siemens were wonderful partners in this," said Hogstad. "Siemens' ability to provide integrated services — audit, project development, financing analysis, installation and post-construction support — was critical. If they could not have provided all of these services, we would still be developing the project — not celebrating its completion."

Tom Hogstad, former facilities manager at North Santiam, is now a part-time consultant for the district.

Latimer started attending Hogstad's "Action Team" meetings with district maintenance mechanics Ron Osborne, Bob Gore, Dave Travers and Ken Rawlings. Osborne was designated to manage the installation portion of the energy project.

"Ron is great with the details. I'm more the creative thinker," said Hogstad. "Between the two of us, and with the help of the entire maintenance team, it truly was a cooperative process."

Audits and priorities

Siemens quickly started the energy audits on the district's school facilities allowing North Santiam to be one of the first districts to complete their

audits. For Phase I, Siemens recommended lighting, heating and control projects at Stayton Elementary and Middle Schools.

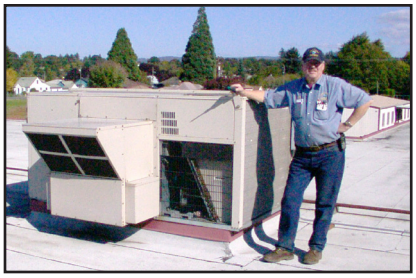
Hallways at Stayton Middle School are lighter and brigher thanks to the installation of new lighting.

Recommendations for Stayton Elementary:

- Replace older lighting with high quality energy efficient T-8 fluorescent lighting and electronic ballasts.
- Retrofit eight-foot metal-finned pendant-mounted fixtures with specially designed kits to lower operational costs, provide full-spectrum light, and improve appearance. Include four-foot T-8 fluorescent lamps that have a rated life of 24,000 hours and allow the school to standardize their lamp inventory. They also would eliminate the buzzing and flickering.
- Retrofit incandescent lighting to compact fluorescent and replace all non-LED (light emitting diode) exit signs with new LED exit signs. The compact fluorescent lamps consume about 25 percent of the energy used by incandescents and put out the same amount of light. The LED exit signs have a rated life of 50,000 hours compared with 1,500 hours for incandescents.
- Install a new distributed digital control (DDC) system to reduce energy use, extend equipment life, reduce maintenance and improve comfort in the classrooms. The rooftop ventilation system worked in conflict with the heating system, often heating and cooling simultaneously. This caused energy waste, overuse of equipment, and higher maintenance costs in addition to uncomfortable classrooms. The new DDC system allows for the boiler to be the first source of heating and the rooftop unit to come on as a second stage of heating if auxiliary heat is needed. During the cooling season, the DDC system uses the rooftop units to cool without outside air as the first source of cooling.

Recommendations for the Middle School:

- Replace outdated T-12 fluorescent lights with magnetic ballasts with T-8 fluorescent lighting and electronic ballasts. The new T-8s, while providing better quality lighting, don't flicker and have a rated life 33 percent longer than the T-12s.
- Replace inefficient high-bay mercury vapor lighting in the hallway and library with new high-bay metal halide fixtures that provide much better quality light.
- Replace incandescent lighting with compact fluorescent lights.
- Replace non-LED exit signs with new LED exit signs.



Ron Osborne, manager of the energy installation projects for North Santiam School District, shows off the roof top unit at Stayton Elementary School.

- Replace the pneumatic control system with a DDC system. The poorly maintained pneumatic control system was outdated technology. Parts were difficult to find and trained technicians were retiring. All temperature sensors, valves and actuators were replaced.

Financing

The cost for the recommendations for Phase I at Stayton Elementary and Middle Schools was $478,000.

Hogstad turned to the Office of Energy for a 5.75 percent, 15-year, fixed-rate energy loan so the district could begin the project. The loan of $332,250 would be paid with the money the district would save on energy use and the funds they collected from the SB1149 public purpose funds,

approximately $35,000 a year or $350,000 for a 10-year period.

Hogstad also learned that the district was eligible for a tax credit offered by the Oregon Office of Energy. The Business Energy Tax Credit has been available to private-sector businesses since 1980 to encourage investment in energy conservation, renewable energy resources, recycling and alternative fuels.

The 2001 Legislature extended the tax credit to non-profit organizations and public entities effective October 8, 2001. A school could use the tax credit "Pass-through Option" and transfer the tax credit worth 35 percent of eligible project costs to a private business or individual with state tax liability. In exchange, the business or individual would provide the school with a lump-sum cash payment of 27 percent of the eligible project costs. Most of the Phase I project costs were eligible for the tax credit pass-through option.

Energy Loans

The Office of Energy offers low-interest, fixed-rate loans for projects that save energy, produce energy from renewable resources, use recycled materials to create products, or use alternative fuels.

For more information, school officials can contact Dennis Knight at the Oregon Office of Energy Loan Program at (503) 373-1032 or 1-800-221-8035.

Nike, an Oregon-based shoe, apparel and sports equipment manufacturer, agreed to be a pass-through partner to Oregon public schools that did energy projects that qualified for a Business Energy Tax Credit. Nike had Oregon tax liability; the schools did not. Nike committed $1 million to the partnership so the schools could transfer their tax credits to Nike in exchange for a cash payment.

"This is a win-win for everyone," says Jim Petsche, Nike's director of corporate facilities. "This is good for the environment and good for the schools. It shows how partnerships between government and business can save Oregon's greatest resources, schools and the environment."

For North Santiam's Phase I project, Nike would provide the school district with a $128,997 cash payment. In turn, Nike would receive a tax credit of $167,406.

New lighting does not flicker or hum like the previous lighting. The light quality improved too

Energy savings

To qualify for the tax credit pass-through, lighting projects are required to save a minimum of 25 percent and heating and cooling projects must show a minimum of 10 percent savings. Siemen's calculated an overall anticipated savings of nearly 31 percent for Phase I of North Santiam's project.

This translated into an estimated $29,000 in annual fuel savings.

The initial winter energy bills verify that savings. The December 2002 electricity bill was 39 percent less at Stayton Middle School from December 2001 with an average daily temperature down a degree. The gas bill for the Middle School was down by 50 percent. At the Elementary School, the gas bill in December 2002 showed a 29 percent reduction.

The energy savings combined with the Nike tax credit pass-through payment and the SB 1149 funds are expected to cover the loan payments. Meanwhile, students, teachers and support staff benefit from a much-improved physical surroundings.

Empowering

"These have been great projects for our district and our students," said District Superintendent B.J. Hollensteiner. "The difference in lighting and the ability to control the heat, air movement, and coolness of buildings has really added to the environment for students and staff. Tom and the maintenance crew have spent a lot of time putting this together. I have been very impressed with their commitment to the district and improving the atmosphere for our students and staff. They are a great team and Tom is a dynamic leader."

Business Energy Tax Credit Pass-through Option

The Business Energy Tax Credit Pass-through Option allows schools (or non-profit organizations and other public entities) to transfer a tax credit to a business or individual with an Oregon tax liability in exchange for a lump sum cash payment. The Business Energy Tax Credit application form must be completed and sent to the Office of Energy **BEFORE** the project begins. The tax credit amount is 35 percent of eligible project costs. The payment to the school is 27 percent of eligible project costs. Contact Roland Gilchrist or Catherine Hardy at 1-800-221-8035 or by e-mail sb1149.sch@state.or.us. for more information.

Hogstad is pleased with the results. "It's fun. It's been a challenge," he said. "I have a lot of pride in this. But it never would have happened if not for the team - from B.J. and the School Board to the office and the maintenance staff, Eric and Siemens and the Office of Energy staff."

"Tom did his homework and used his resources very effectively," said Betty Merrill, School Program Manager for the Oregon Office of Energy. "Tom worked with us, and the results speak for themselves."

"The Office of Energy staff has been exceptional in offering information, support, guidance and critical thinking," Hogstad said. "They were truly a team partner in this."

What next?

North Santiam School District is analyzing financing options to begin the Phase II energy project at Stayton High School. The $796,000 for Phase II will complete the $1.2 million of proposed building upgrades for North Santiam.

Tom Hogstad is now a part-time consultant for the district. He currently is employed by the Deschutes Public Library System and oversees six facilities in Central Oregon. He also has an RFP out. "I want to duplicate what I did for North Santiam."

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