

Case Study ID

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ENERGY OFFICE

Case Study Series

Saving Energy in Michigan's Schools Kalamazoo Public Schools Installation of District-Wide Controls System

DDC controls upgrade offers 8.2% energy savings. A computerized energy management system and other energy improvements are saving the Kalamazoo Public School District more than \$6,000 per month on utility bills.

A central energy management system is assisting Kalamazoo Public Schools in managing energy use in its schools. In 1995, a direct digital controls (DDC) energy management system (EMS) was installed in a 17 building complex. The EMS offers nighttime setback of heating systems in all buildings and optimal start/stop of fans.

The EMS for Kalamazoo Public Schools was designed to include a local DDC controller at each building and a central operations station at the Community Education Center, which offers central control. The optimal start/stop system feature of the EMS allows delay of the start of occupied cycles based on indoor and outdoor temperatures, providing energy savings during occupied periods. The night setback feature controls heating systems based upon space temperature in each building, thus providing a lower night setback and additional energy savings.

At an installed cost of \$127,000 and estimated energy savings of \$63,250 per year, Kalamazoo received a two-year payback.

Other Energy Improvements

In addition to identifying savings from the installation of DDC controls, an energy audit identified further savings of approximately \$10,000 per year from other energy efficiency measures. These measures included:

- adding turbulators to boilers at the Administration Building and Lincoln Elementary School, for a savings of \$2,177 per year
- adding an adjustable frequency drive to control the cooling tower fan at the Administration Building
- fluorescent lighting upgrades, including replacing existing 40-watt T12 lamps and standard magnetic ballasts with energy efficient 32-watt T8 lamps and electronic ballasts
- incandescent lighting upgrade, replacing high-wattage incandescent down lights with new 2'x4' 2-lamp fluorescent fixtures
- add occupancy sensors for lighting controls

Project Cost

Total cost for the additional energy efficiency measures was \$29,269. With projected annual energy savings of \$9,370, these measures paid for themselves in a little over three years.

Funding

A federal grant program funded by the U.S. Department of Energy assisted Kalamazoo Public Schools in funding the DDC controls upgrade and additional measures. Although this program is no longer available, the Michigan Department of Consumer & Industry Services, Energy Office (EO) has developed a low-cost financing program to allow all public schools in Michigan to obtain financing for energy improvements.

For more information about low-cost financing, please contact :

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