CASE STUDY

CONTROL TECHNOLOGY AND SOLUTIONS
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Scotland Co. R-I

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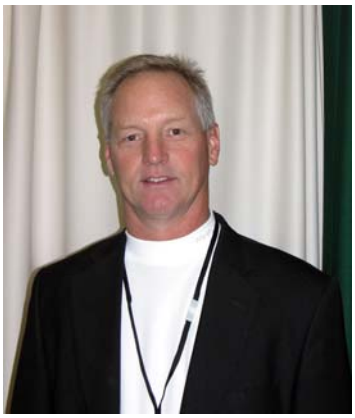
Energy Star Award: Scotland's High School and Elementary School have both been awarded the EPA's Energy Star Award for rating in the nation's top 25% for superior energy efficiency and environmental protection.



Existing Conditions:

The Scotland County R-I School District was operating with very uncomfortable environments. The building was experiencing many hot and cold areas and the existing mechanical equipment, which was well past its life expectancy, was not able to create the comfort needed for a healthy and productive learning environment. Additionally, the original heating only multi-zone system had been altered 10 years ago by adding air conditioning to the roof top units. This alteration had not been adequately sized to provide proper conditioning of the space. Also, the outdated and inefficient lighting systems were not providing recommended lighting levels for productive learning.

Project Overview:

CTS reviewed the existing conditions and various systems that could possibly be used to alleviate the problems the District was facing. After careful analysis and review of life-cycle costs, it was determined that a ground source geothermal system would provide the best solution to the comfort issues. The scope of the project included:

- Geothermal ground source heat pump system consisting of 100 wells at a depth of 200 feet. The classroom/hallway heat pump units were installed above the ceilings wherever possible.
- A building automation temperature control system was installed. Individual classroom controls are networked to a campus wide system. The District now has the ability to schedule, trouble shoot, monitor and adjust the heat pump systems remotely through any PC equipped with the Windows operating system and Internet Explorer software.
- New energy efficient hot water heaters were installed along with a new kitchen make up air unit to provide compensation for exhausted air.
- The electrical system was upgraded to accommodate the retrofits.
- The lighting systems were retrofitted with T-8 lamps and electronic ballasts providing proper lighting and reducing energy costs.

Project Results

"The project has been very successful. We had been faced with severe comfort issues for several years. We now see a huge improvement in both our comfort and lighting levels, and our utility costs are lower. The students, faculty and community are all pleased with the project. CTS's on site project management was a big asset and allowed the project to progress smoothly. We would definitely recommend CTS to other districts."

Dave Shalley, Superintendent

The new improvements cut utility expenditures over 35% saving the District $46,800 in first year energy costs and over $135,000 in annual operating costs.

The District's Energy Star Rating Jumped from 31 to 80 following the improvement project with CTS