

# Jefferson Elementary School

Sterling, Illinois



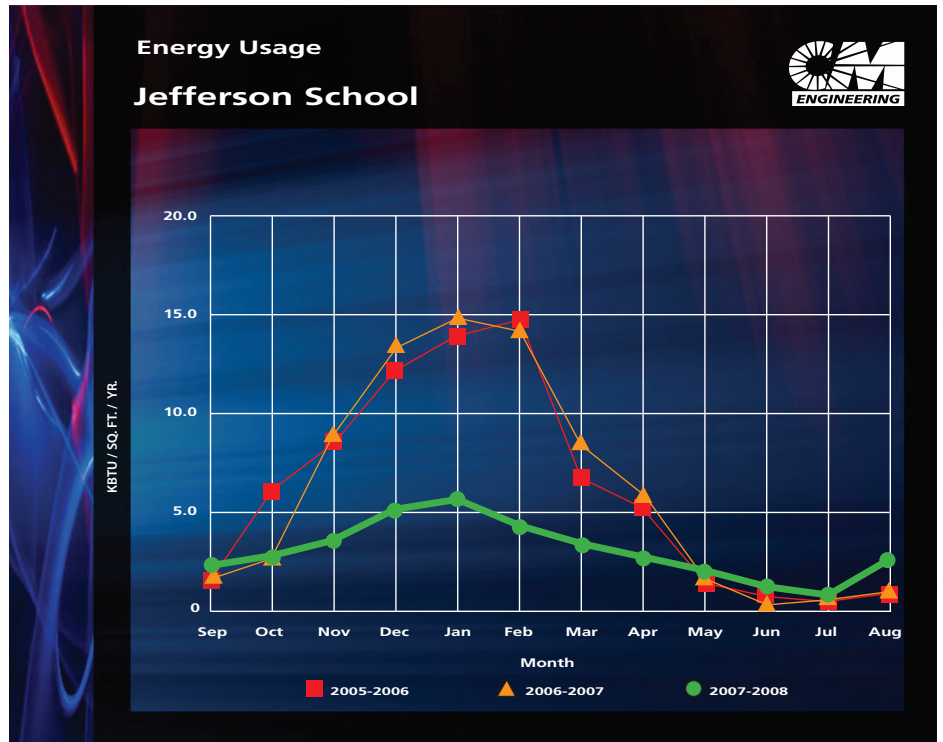
Like many schools, Jefferson Elementary suffered through very high spikes of energy consumption in the winter months, followed by uncomfortably warm interior spaces in spring, summer and fall.

In the summer after the 2006-2007 school year, we installed a One-Pipe ground source geo-exchange system and added individual temperature controls and air conditioning to every room in the building, at a very low first cost.

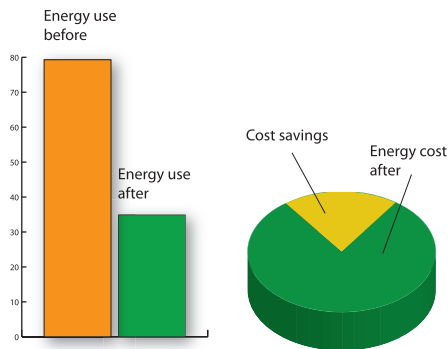
The teachers and students now enjoy year-round comfort and the school district enjoys an 80% annual savings on their energy bills.

## Retrofit of existing school

- Air conditioning added to every room
- Ground source geo-exchange system
- One-pipe design
- 39,020 square feet
- 26 Classrooms
- Approximately 427 students
- Individual temperature controls in every space
- Retrofit cost \$19.20 / sq. ft.
- Energy use BEFORE retrofit: 79.3 KBTU / sq. ft.
- Energy use AFTER retrofit: 34.9 KBTU / sq. ft.
- Carbon equivalent savings 13-14 lbs. / sq. ft. / yr



The green tracing above shows measured energy consumption after installation of One-Pipe Geo-exchange heating and cooling system. Red and orange show consumption for two years prior to retrofit. (Data source: Sterling, Illinois Department of Education)



Energy use before retrofit: 79.3 kbtu per square foot  
 Energy use after retrofit: 34.8 kbtu per square foot  
 Energy cost after retrofit: 80% of previous cost  
 Energy cost savings: 20%

**Annual savings: \$7,200**