

# Liberty Public Schools

Energy-Efficiency Improvements  
Liberty, MO



## QUICK FACTS

**Total Square Feet:** 1,400,000

**Number of Buildings:** 17

**Total Project Cost:** \$5.9 million

**Annual Savings:** \$542,000

**Utility Savings:** 28%

## ENERGY CONSERVATION MEASURES

- lighting system upgrades
- water conservation
- energy management system expansion
- vending machine controls
- occupancy based controls
- boiler replacements
- chiller and condensing unit replacements
- rooftop unit replacements
- rooftop unit conversion at Liberty Junior High
- constant volume multi-zone to variable
- air volume conversion
- retro-commissioning
- window replacements

## BACKGROUND

The Liberty Public School district is located just northeast of Kansas City, and serves more than 11,800 students in preschool through 12th grade. The district has seen rapid growth over the past 12 years; so much, in fact, that it has become the 2nd fastest growing school district in the state. The project encompassed 17 buildings; including one high school, two junior high schools, two middle schools, nine elementary schools, a preschool/administration building, an alternative learning academy, and an educational resource center.

## CHALLENGE

ESP conducted an investment grade energy audit that identified numerous energy-saving opportunities, especially a large number of heating and cooling systems that needed replacement. With limited funds for maintenance, the district tasked ESP to develop solutions that could be paid for from energy savings.

## SOLUTION

The resulting project was a comprehensive district-wide energy-saving performance contract. Numerous improvements were made throughout the district, including: new lighting, water saving measures, expansion of the energy management systems, vending machine controls, occupancy based controls to turn off lights in unoccupied spaces, several boiler replacements, chiller and condensing unit replacements, rooftop unit replacements, conversion of constant volume multi-zone systems to variable air volume systems, retro-commissioning to identify systems not operating per original design intent, and new windows.

## BENEFITS

Students and teachers enjoy the improved lighting, space comfort, and air quality in the classrooms, which support effective learning. Additionally, the project was designed and implemented in a tight nine month time frame. Because of the effectiveness of the implementation the project was completed under budget, allowing the district to secure \$165,000 in additional work within the original project budget.