

# EXISTING BUILDING COMMISSIONING

## CASE STUDY

### Oak Grove Middle School

Bloomington, Minnesota

#### PROJECT BACKGROUND

Oak Grove Middle School hired CEE to reduce the school's energy consumption because, for its size, its energy use was among the highest in the district. Oak Grove Middle School is a 6th to 8th grade school with many before and after school activities. The building has a gym, a pool, and a large auditorium. The building also houses the district offices which operate year-round.

#### INVESTIGATION

CEE engineers investigated all the heating, cooling, and ventilation systems that provide comfort to the building. These systems were older and near the end of their useful life, but the district wanted to do what it could to improve their operation until full replacements could be budgeted for. Given the volume of the district's heating and cooling utility bills, these systems were the primary focus of the study. Lighting was not addressed because the district was already in the process of an LED lighting upgrade project.

#### IMPROVEMENTS

In addition to identifying eight energy conservation opportunities, CEE identified five possible maintenance improvements without energy savings. CEE also provided seven capital plan recommendations to prioritize the order in which equipment is upgraded, as funds become available. CEE's energy conservation recommendations were relatively typical for recommissioning work. Better scheduling the operations of air handling systems would result in over 50% of the potential savings identified. If implemented, annual savings from the eight recommendations would total \$96,623, with a one-time implementation cost of \$127,650, amounting to a simple payback within 1.3 years. Additionally, the site is eligible for a \$10,000 bonus rebate on relevant implementation, effectively reducing the payback to just 1.2 years.



#### OPPORTUNITIES

- Improve operations scheduling
- Decrease energy impact of pool
- Eliminate simultaneous heating and cooling

#### SOLUTIONS

- Match air handler schedule to space use
- Reduce outside air volume to pool and improve air recirculation.
- Lockout heating in warm weather or when not needed

#### ANNUAL SAVINGS POTENTIAL

##### Financial Tally

- \$127,650 in estimated one-time implementation costs
- \$96,623 annual savings
- \$10,000 bonus rebate

##### Annual Energy Savings

- 453,154 kWh
- 106,505 therms
- 2 kW of peak summer demand
- Project payback in 1.2 years

#### FOR MORE INFORMATION CONTACT:

Mark Hancock | 612-335-5861 | mhancock@mncee.org