

# Space Utilization vs Energy Consumption Savings

Energy savings efforts in existing facilities should be a priority for school districts. However, many are not aware that improvement in space utilization typically results in more savings than energy consumption efforts. This is not to say districts should abandon energy saving efforts. Ideally, districts should focus on both saving energy and improving space utilization.

Energy saving efforts typically include capital costs such as lighting replacement, lighting controls, HVAC control systems and HVAC equipment upgrades. Space utilization improvements can often be implemented with space re-assignment, which requires little if any cost.

### Target Energy Saving Goals

Target energy saving goals from building improvements vary. The United States Green Building Council (USBC) promotes a 25% reduction goal with their LEED system. The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) promotes a 20% savings in its 2010 "Advanced Energy Design Guide for K-12 School Buildings" compared to buildings designed with its 2004 guide.

### Methodology

The table below demonstrates the comparison of energy savings and space utilization. The energy and overall M&O cost is based on American School & University's 2009 Maintenance & Operations Cost Survey. The space utilization is based on square feet per student for a 300,000 sf high school. The comparison indicates projected cost savings for each percentage point of energy savings compared to each percentage point in space utilization (sf per student).

### How They Compare

The following demonstrates savings from percent improvement in space utilization that are similar to savings due to percent improvement in energy costs.

**7%** Savings from improvement in space utilization is \$87,780

**20%** Reduction in energy use savings is \$85,800

### What Targets Are Realistic?

Districts should strive to reduce energy use and improve space utilization. A long term goal of reducing energy by 20% is within reach for many facilities. Improving space utilization by 5% is also within reach. Below is a summary of annual savings for the sample 300,000 sf high school.

20% Reduction in Energy Use	\$85,800
5% Space Utilization Improvement	\$62,700

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