ENERGY SMART CHOICES AND FINANCIAL CONSIDERATIONS FOR SCHOOLS

WHY SAVE ENERGY IN SCHOOLS?

- Current energy modeling indicates school districts could save up to 50 percent in energy costs by incorporating energy-saving measures – daylighting, energy controls and upgrades in electrical lighting, HVAC systems and the building envelope – into the design and renovation of school buildings.
- Communities across the nation are saddled with aging school buildings. More than 70 percent of our schools were built before 1970.
- Fifty percent of school buildings in this country need renovation, according to the Council of Educational Facility Planners International.
- The 118,000 public and private K-12 schools in the nation are spending about $6 billion annually on energy costs – 25 percent to 30 percent more than they need to. That money could be used to hire 30,000 new teachers or purchase 40 million new textbooks each year.
- An enormous opportunity exists to substantially improve the quality of existing schools and those yet to be built by incorporating energy-saving measures and smart practices into school design and construction.
- Between 2001 and 2003, school districts will spend $41.4 billion on new buildings, $33 billion on improvements to existing schools, and $9.9 billion for building additions.
- Rebuild America EnergySmart Schools has introduced energy-saving measures in 174 million square feet of school buildings, resulting in annual savings of more than $72 million.

SNAPSHOTS OF SCHOOLS

- Lighting - The Broward County School District in Florida replaced 40-watt incandescent light bulbs in their EXIT signs with 3-watt LED bulbs saving $22.68 per bulb per year, resulting in annual savings of $100,000.
- Retrofitting - Ohio's Springfield Local School District retrofitted 521,000 square feet of school building space and reduced its energy costs by 25 percent, saving the district $234,000 each year.
- Air Quality - Wausau West High School in Wisconsin uses 100 percent outdoor air for heating and cooling, which has improved the school's indoor air quality and cut the school's natural gas costs in half, saving $100,000 annually.
- Integrated Design - The Dalles School in Oregon, which opened in September 2002, was designed to use 50 percent less energy than traditionally built schools. The 97,000 square-foot school incorporates geothermal heating and cooling with a heat recovery system, an adjustable fresh air ventilation system and natural lighting. The use of horizontal sunscreens, light shelves and sensors, combined with solar tubes in each classroom, add up to substantial energy savings.

STATISTICS AND FACTS ABOUT SAVING ENERGY IN SCHOOLS

Source: the *National Best Practices Manual*, except where otherwise indicated.

Electric Lighting and Daylighting

Properly designed systems can substantially reduce the need for electric lighting, which can account for 35 percent of a school's electrical energy consumption. As an added benefit, waste heat from the lighting system is reduced, lowering demands on the school's cooling equipment. The savings can be as much as 10 percent to 20 percent of a school's cooling energy use. And daylighting provides these savings during the day when demand for electric power is at its peak and electricity rates are at their highest.

In California, about 40 percent of school building energy use is attributable to electric lighting.

HVAC

The HVAC system is one of the largest energy consumers in a school. Even modest improvements in system efficiency can represent relatively large savings to a school's operating budget. With the highly efficient systems available today – and the sophisticated analysis tools that can be used to select and size them – there's no reason why every school HVAC system can't be designed to the highest levels of performance.

Reflective "Cool" Roofs

A 100,000 square-foot building outfitted with a reflective cool roof in Austin, Texas, is projected to save $65,000 in energy costs over the life of the roof, according to a study by the Department of Energy and the Environmental Protection Agency.

Water Efficiency

Basic efficiency measures – landscaping, water-conserving fixtures and equipment and recycling strategies – can reduce a school's water use by 30 percent or more.

Renewable Energy Systems

The nation's energy needs are expected to grow by 33 percent during the next 20 year. Renewable energy sources not only release less pollutants into the environment than traditional energy sources, but they save school districts money in the long term while also serving as valuable teaching tools for students and faculty.

Ground source heat pumps can provide a 20 percent to 50 percent energy cost savings over traditional heating and cooling systems.

Transportation

The cost premium for providing for energy-efficient and environmentally safe transportation may be offset by grants offered by various agencies.