



Florida Department of Environmental Protection

Florida *Green School Designation* Best Management Practice



ENERGY EFFICIENCY

With the increased amount of electronics used in the classroom, schools are the third biggest energy user of all commercial building types. Accounting for ten (10) percent of the energy used by non-residential buildings, they take a negative toll on not only the environment, but they are also spending way too much money on energy – with K-12 schools spending \$8 billion.

As renewable energy is not yet accessible, schools must look to reduce the amount of energy they use daily. According to ENERGY STAR®, approximately 30 percent of the energy in school buildings is used inefficiently or unnecessarily. After evaluating the amount of energy your school uses and addressing the behaviors that exacerbate it, taking action and making changes is key.

Changes made on every level are necessary to reduce the overall energy consumption of each school and achieve the goals set forth on your Environmental Action Plan. Daily practice and routines, along with a better understanding of how energy is wasted, all ensure that the school maximizes their energy efficiency.

The following Best Management Practices (BMPs) will assist in increasing energy efficiency.

General Energy Efficiency Best Management Practices

Schools that participate in energy efficiency programs typically achieve electricity savings between 5 and 15 percent on average, and reducing energy use, on average, by 12 percent. This is through no cost behavioral and operational changes.

Top 10 Energy Tips for Schools:

1. Turn off lights when not in use (lighting accounts for nearly 35 percent of the electric bill in most schools).
2. Stop leaks!
3. Use energy efficient lighting options.
4. Create an energy efficient, comfortable environment (consider setting the thermostats at 68 degrees for heating and 78 degrees for cooling).
5. Install programmable thermostats.
6. Set inactive computers to sleep mode (monitors account for 80 percent of a computer's energy).
7. Turn off equipment that will not be used for the next class period.
8. Maintain appliances and replace old appliances.
9. Purchase energy efficient equipment (look for ENERGY STAR®).
10. Remove unneeded light fixtures near windows.



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Have your local energy utility provider conduct an energy audit at your location

Many utility companies provide these audits free of charge. These audits are a great way to learn about how your specific utility usage can be reduced. The auditor may be able to provide information on monetary rebates or incentive programs to assist in any equipment or operational changes that may need to be made.

Track energy use

Keep monthly records of energy usage. Analyzing the records on a monthly basis can assist in finding energy consumption issues. If inconsistencies are found, determine the reason and correct the issue as soon as possible.

Ensure the proper insulation is used for all buildings, equipment, pipes and appliances

Insulation can be one of the most important factors in achieving energy efficiency in buildings. It works primarily to slow the flow of heat through a building envelope. Insulation not only saves money by reducing heating and cooling loads, but also is a key factor in achieving comfortable living and working spaces.

Consider installing white or reflective roofing

White or reflective roofing helps reflect heat, keeps building cooler and lower utility costs.

Add window film or tinting to windows and glass doors to reduce energy loss and solar heat emissions through windows

For relatively little cost per window, tints and films to doors and windows can have a significant impact on energy consumption.

Utilize light colored walls and ceilings

Light colored walls and ceilings can increase ambient light levels by 15 percent to 50 percent, reducing the need for artificial lighting.

Use exhaust fans only when needed. Turn off when not in use

Extensive use of exhaust fans requires the HVAC system to work harder to maintain a consistent temperature in the building.

Consider installing an Energy Management System

An Energy Management System (EMS) is a program that allows operators to monitor the building's energy load. The most common use is in monitoring the HVAC system. An EMS usually includes a computer, energy management software program, sensors and controls, and in larger systems, a communications network. An energy management system can save 10 percent to 40 percent on electric utility costs.



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Lighting Energy Efficiency Best Management Practices

Upgrade lighting to energy efficient lamps and fixtures by doing the following:

- Replace standard incandescent bulbs with compact fluorescent or other high efficiency lighting.
- Use energy-saving fluorescent T-8 lamps over old-style T-12 lamps.
- Replace old ballasts with electronic ballasts.
- Replace incandescent lamps in exit signs with LED exit signs.

Install occupancy sensors to detect the presence or absence of people and turn lights on and off accordingly

Occupancy sensors may reduce lighting related to energy consumption by 50 percent or more in some circumstances. They are used most effectively in spaces that are often unoccupied, including offices, warehouses, storerooms, restrooms, loading docks, corridors, stairwells, office lounges and conference rooms.

Use the lowest wattage lamp necessary

Using no more light than necessary reduces energy consumption.

Eliminate or reduce external lighting not needed for safety or security

Student, staff and guest safety and security are the first priority of any school. However, reducing or eliminating external lighting, where possible, can save energy.

Clean bulbs for maximum efficiency

Bulbs will produce more lighting after cleaning. This is especially true with large bulbs such as those used in hallways, lobby areas and auditorium.

Consider using natural daylight in areas, where appropriate

Using natural light can reduce lighting and energy consumption; however, heat loss may occur in winter and heat gain may occur in summer with open draperies and shades.

Use timers or sensors to control outdoor lighting

Install timers or outdoor light level sensors to control the amount of outdoor lighting.

Equipment Energy Efficiency Best Management Practices

Operate all equipment in an efficient manner and according to the manufacturer's instructions. This includes keeping all equipment clean and free of obstructions.

Follow all manufacturer's instructions. These instructions were designed to provide for the most efficient use of the equipment.

Use preventative maintenance schedule to clean and maximize efficiency in appliances and equipment



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Preventative maintenance schedules can increase machine efficiencies, lower repair costs and can lead to lower utility costs by correcting problems before they become larger issues. All equipment should be placed on a preventative maintenance schedule and any necessary records kept accordingly.

Turn off any equipment not in use

Leaving a printer or computer on, even if in sleep or hibernate mode, still consumes electricity. Turning equipment off is the best way to increase efficiency.

Use ENERGY STAR® Equipment

Incorporate ENERGY STAR® equipment throughout your hotel. ENERGY STAR® is a U.S. Environmental Protection Agency (EPA) Program that identifies equipment that is energy efficient and protects the environment.

Focus on Heating, Ventilation and Air Conditioning (HVAC) units and systems

The following conservation measures can help decrease HVAC energy consumption:

- Set thermostats to the correct temperature depending on the season.
- Turn off heating and cooling in unoccupied rooms.
- Plan and perform scheduled maintenance on HVAC equipment.
- Change filters regularly.
- Local all thermostats that are accessible to the public.
- Use programmable thermostats.
- Clean condenser and evaporator coils at least once every six months. Dust accumulation leads to decreased efficiency.
- Check for leaks around doors, windows and duct work on a regular basis.
- Properly vent any heat generating appliances to the outside.
- When possible, consider purchasing HVAC equipment that is more efficient. This would apply to new construction, rehabilitation or building upgrades.

Locate outside vending machines under cover and in shaded areas. Regularly inspect and clean vending machine condenser coils

Follow all manufacturer's instructions.