

School Energy Consumption Survey

Even if school buildings are well insulated and have the most modern, efficient energy systems, a significant amount of energy can be wasted if these systems are not controlled and managed wisely. That is where the human element comes in—learning about energy and conservation so that you can use the systems wisely.

Temperature Management

The best heating system in the world cannot operate efficiently if outside doors or windows are left open, or if the temperature is not controlled. The same is true for cooling systems. In classrooms and offices, temperature control systems should be set at 68°F during the heating season and 78°F during the cooling season—during the day—and set back at night for optimum efficiency. Programmable thermostats—with access limited to authorized personnel—are recommended. There should also be policies prohibiting the opening of windows and doors during heating and cooling seasons.

If the temperature of offices and classrooms can be individually controlled, there should be policies on permissible temperature ranges in keeping with the recommendations above. Temperature ranges can vary for other rooms in the school—gyms, for example, need not be heated to the same temperature as classrooms when physical activity is scheduled. Auditoriums, hallways, storage rooms, and other little used rooms need not be heated and cooled to the same temperature as occupied rooms.

Rooms and areas that have windows in direct sunlight should be equipped with operational blinds that can help control temperature—closed in cooling months and opened in heating months when sunlight is focused on them. Adjustable vents can also help control temperature.

The relative humidity—the amount of moisture—of the air also affects comfort level. The more moisture, the warmer the air feels. Many furnaces and boilers are equipped with humidifiers to add moisture during heating months when cold air carries little moisture. Many cooling systems have dehumidifiers that remove moisture during cooling months, because hot air is capable of holding more moisture. Optimum comfort for relative humidity is between 35–60 percent during the cooling season, and above 50 percent during the heating season.

Lighting

Lighting—even the most efficient fluorescent system—is not efficient if it is used indiscriminately. In most schools, more light is used than is necessary in most areas and lights are often left on when not in use. Maximum use of natural lighting should be encouraged. Studies have shown that students learn better in natural light than in artificial light. Partial lighting and dimmer switches should be used where available. All lights not necessary for safety should be turned off when rooms are not in use. The same is true for outside lights. Experiment with light levels in your classrooms and determine optimum levels for different tasks, such as reading and taking notes.

Water Heating

Heating water can use a lot of energy, especially if the water is heated all of the time and at too high a temperature. Water heaters should be equipped with timers and the temperature settings should be regulated according to task. For example, washing hands does not require water as hot as washing dishes. Most water heaters are set much higher than necessary for the task. The water in classrooms and lavatories need not be set higher than 90°F. In shower rooms, it need not be set higher than 100°F. Only kitchens may require hotter temperatures for safety purposes. In science labs, it is more efficient to heat water when it is needed than to maintain tap water at high temperatures.

Electrical Appliances

Many computers, VCRs and other electrical appliances draw electricity even when they are turned off. These appliances should be plugged in to surge protectors so that all of the power can be turned off when they are not in use, or at the end of the day. These surge protectors can also protect equipment against sudden power surges that can damage their electrical systems.

Many copiers and computers have a long warm-up time that makes it difficult to turn them off and on as they are needed. In many schools, however, they are left on 24 hours a day. Turning TVs and VCRs off when not in use and computers and copiers off at the end of the day can save a significant amount of energy.