

# 108 WAYS to REDUCE YOUR USE

## Lighting

- 1) Avoid using incandescent task lights (desk lamps). Ask your building manager for a compact fluorescent lamp to replace the incandescent lamp in your task light. Also replace halogen torchiere floor lamps with compact fluorescent models.
- 2) Compact fluorescent lamps use one fourth as much energy and last ten times longer
- 3) Turn off lights when out of your office or cubicle. Also turn off lights in unused common area such as copy rooms, break rooms, conference rooms, and restrooms. The effect on lamp life and energy use when turning the lamp back on is negligible.
- 4) Turn off all lights at night, including task and office lights.
- 5) Turn off lights near windows when daylighting is adequate. Enjoy natural light whenever possible.
- 6) Many areas are lit more than necessary for their present use. Only use lights that are necessary for tasks being performed.
- 7) Ask janitorial services to only light one area of the building at a time rather than having the entire building brightly lit until midnight.
- 8) Use task lighting when possible. Focus light where it's needed rather than lighting an entire room.
- 9) If you spend a large amount of time at your computer, consider reducing the light level in your office. This may improve CRT (cathode ray tube) screen visibility as well as save energy (contact \_\_\_\_\_ for action).
- 10) Install motion detectors to frequently unoccupied areas, such as restrooms and copy rooms to be sure the lights are off when the room is not in use.
- 11) Clean lamps and fixtures on a regular basis to maintain maximum illumination levels.
- 12) Reduce the diameter of fluorescent tubes (use 26mm rather than 38mm tubes).
- 13) Clean light tubes and fittings every two years.
- 14) Install reflectors in light fixtures to reduce the number of tubes needed.
- 15) Use timers for outdoor security and parking areas to automatically turn outdoor lights on at dusk and off at dawn. Make sure you adjust the timers for daylight savings time.
- 16) Paint walls and ceilings in light colors to make the most of light reflection.

# 108 WAYS to REDUCE YOUR USE

- 17) Replace lamps before they lose their effectiveness. The light output of a fluorescent lamp decreases near the end of its life, but it still uses the same amount of energy to produce this lower level of light.
- 18) Consider installing a more energy-efficient lighting system. Timers and motion sensors can be used in areas that don't need to be lit all the time. Use photocells to turn on outdoor lighting only when needed.
- 19) By using aluminum or silver reflectors in overhead lights to maximize light output, only half the number of light bulbs are required to maintain the same level of brightness. Replacing existing 40 W fixtures with reflective units and using 32 W bulbs on a 20,000 sq. ft. floor can save \$13,500 per year. In addition, the reduced number of lights will mean lower internal heat gain from lighting, which will result in additional savings in air conditioning.
- 20) Replace incandescent lighting in stairwells with compact fluorescents. The payback period on compact fluorescent retrofitting is usually less than a year for areas in which lights are left on 24 hours a day.
- 21) A 20-storey building with an area of 20,000 sq. Ft. per floor can save \$120,000 annually by replacing all T12 fluorescent bulbs with energy-efficient T8 fluorescents.

## **Heating and Cooling**

- 22) Sitting close to a window during the cloudy winter can make you feel cold. If so, close the blinds or shades or move further from the window.
- 23) In the winter, close blinds at the end of the day to cut down on heat loss. In the summer, close blinds during the day to avoid the heat gain of direct sunlight.
- 24) In cold weather, dress warmly and in layers that can be adjusted for optimal comfort.
- 25) Set the thermostats to 78F for cooling in the summer and 68F for heating in the winter.
- 26) Check to make sure that exhaust fans operate only during occupied periods unless required to operate continuously.
- 27) Avoid the use of personal heaters in air-conditioned offices.
- 28) Ensure that air conditioning is turned off at the end of the day and on weekends.
- 29) Avoid placing heat sources such as photocopiers or heaters near thermostats.
- 30) Close windows and exterior doors when you're using air conditioning or heating.

# 108 WAYS to REDUCE YOUR USE

- 31) Don't leave doors open when the area inside is being heated or cooled. If outside doors need to be open for long periods of time, use heat curtains to keep warm or cool air inside.
- 32) Consider altering the thermostat setting in unoccupied rooms or areas. You may even decide not to heat or cool unoccupied rooms.
- 33) Consider closing air conditioning vents to unused areas to redirect airflow into the areas that need it most.
- 34) Use blinds or insulating curtains to help keep inside temperatures stable throughout the year.
- 35) Consider replacing old HVAC systems with new energy-efficient systems.
- 36) Install time clocks or setback-programmable thermostats to maximize efficiency.
- 37) Perform scheduled maintenance on units including cleaning condenser coils, replacing air filters regularly, and checking ducts and pipe insulation for damage.
- 38) Install blinds, or solar screen shades and ceiling fans to cool the office.
- 39) Install reflective window film or awning on all south-facing windows.
- 40) Windows can account for up to 25% of the heat loss. New double-pane windows with such features as coating that prevents heat loss/gain and gas-filled spaces are twice as efficient as standard double-glazed units, but cost only about 25% more. Metal is a poor insulator, so opt for wood, vinyl, or fiberglass framed windows. Casement and awning windows, which close against a compression seal, tend to be more airtight than double-hung or horizontal slider windows.
- 41) Consider installing an air conditioning economizer to bring in outside air when cool outside.
- 42) Install sufficient ceiling and wall insulation.
- 43) Insulate water heaters and supply pipes.
- 44) Seal any cracks, including around window and door frames, and block unused openings in the walls or roof.
- 45) Weather strip around windows and doors and replace worn out weather stripping.
- 46) Fix doors and windows so they close tightly and automatic doors so they close quickly.
- 47) If your ceilings are excessively high, put in a false ceiling to reduce heating costs.
- 48) Consider raising cooling settings and lowering heating settings on programmable thermostats or both during occupied and unoccupied hours.

# 108 WAYS to REDUCE YOUR USE

- 49) Check that dampers on exhaust fans close when the fan is not operating. Adjust fan belt tension.
- 50) Use time controls for your office heating and air conditioning (i.e. start them 30 minutes before people arrive at work and stop them 30 minutes before they leave).
- 51) Use the recommended heat settings for comfortable working conditions (offices 19C, workshops 16C, and stores 10 – 12C). Ask your team not to adjust the settings (or lock your thermostat) and check the settings regularly.
- 52) In rooms with high ceilings, consider using ceiling fans to push rising warmer air down.
- 53) Consider using infrared heaters in high bay areas and warehouses. Workers find infrared heating more comfortable, and it also reduces condensation.
- 54) Weatherstrip windows and doors, and caulk and seal all cracks. Check and repair insulation and vapor barriers where accessible on ceilings, in walls and in roofs.
- 55) Recycle cooled or heated air when possible while maintaining good ventilation.
- 56) Insulate pipes that run through unheated or uncooled areas.
- 57) If possible, avoid using doors that exit directly to the outside. Use exit doors with enclosed entries, vestibules or revolving doors to help keep warm or cool air inside.
- 58) Keep industrial doors closed when an inside area is being heated or cooled.
- 59) Replacing incandescent bulbs in a building's 100 exit signs with LED bulbs or panels could save \$2000 annually. LED bulbs are affordable, they can be inserted into the same sockets as incandescent bulbs, and they use approximately 2 W of power compared with 30 to 50 W for incandescent bulbs. As well, LED bulbs have a life expectancy of up to 25 years, which substantially reduces maintenance labor and replacement costs.
- 60) Installing capacitors will increase the power factor on an electricity bill to more than 90%. If the real power is less than 90% of the reactive power, many utilities will charge the billing demand as 90% of the reactive power. For a large building with 6000 kVa of reactive power demand and an 80% power factor, annual savings of \$41,000 could be realized.

## **Computers**

- 61) Turn off your computer monitor when you are away from your desk for more than 15 minutes. Turn off computer and monitor at the end of the day. Your monitor uses up to 75% of the

# 108 WAYS to REDUCE YOUR USE

energy powering your computer. Most monitors come with power management features; talk to your staff's computer expert about activating these features.

- 62) Note that screen savers don't save energy; complex screen savers actually increase energy use.
- 63) Instead of saving energy, screen savers that display moving images actually cause your monitor to consume almost as much electricity as during active use. Since these programs involve interactions with the CPU, they require even further energy consumption. Even a blank screen saver only reduces monitor energy consumption by a few percent.
- 64) The best screen saver is no screen saver at all – turn off your monitor when you are not using it. This option is second best only to turning off your computer all together.
- 65) Only buy a monitor as large as you really need. Although a large monitor might seem more attractive, you should remember that a 17-inch monitor uses more energy than a 14-inch monitor. Also, the higher the resolution you buy, the more energy it needs.
- 66) Ink jet printers, though a little slower than laser printers, use 80 – 90% less energy.
- 67) Request recycled/recyclable packaging from your computer vendor.
- 68) Buy vegetable (or non-petroleum-based) inks. These printer inks are made from renewable resources; require fewer hazardous solvents; and in many cases produce brighter, cleaner colors.
- 69) If your computer is equipped with power management functions (Energy Star), screen savers with moving images may prevent your computer from entering "sleep mode", thus canceling out the energy-saving features.
- 70) In accordance with EPA guidelines, computer manufacturers are producing computers, monitors, and printers that can automatically power down to a "sleep mode" to save energy when not in use. They also use up to 30% less energy when running than conventional equipment.
- 71) The "sleep" feature could cut a product's electricity use by one-half.
- 72) A PC system can easily consume 300 watts of electricity an hour – the same amount of energy needed to operate three 100-watt light bulbs.
- 73) Do not turn on the printer until you are ready to print. Printers consume energy even while they are idling.
- 74) Reduce the brightness level of the screen.

# 108 WAYS to REDUCE YOUR USE

- 75) If possible, batch documents to print at certain times of the day to reduce total operating time and idle time.
- 76) Network computers to share printers and modems.
- 77) Use email and fax modems to avoid printing messages.

## **Equipment**

- 78) Eliminate unnecessary hot plates, coffee pots, and other small appliances in your area and turn off all tools, office machines, and portable appliances when not in use. If you're the last one leaving at the end of the day, turn off the photocopiers and other office equipment.
- 79) When purchasing equipment, purchase "Energy Star" products, and consider replacing old refrigerators.
- 80) Less frequently used equipment with remote controls such as televisions and VCRs should be unplugged when not in use because they still use some power even when turned off.
- 81) Encourage staff to use the toaster and microwave whenever possible – they are more efficient than an oven or stovetop.
- 82) Encourage staff to defrost food naturally instead of using the microwave.
- 83) Let food cool before putting it in the fridge or freezer.
- 84) Keep food covered to reduce moisture build up on the inside of the fridge. Wipe moisture from bottles and other containers before you put them back in the fridge.
- 85) Freezers are most efficient at –18C. The best fridge temperature is between 2C and 5C.
- 86) Fridges and freezers operate most efficiently when they're full but not overloaded.
- 87) Defrost your freezer regularly.
- 88) Avoid placing your fridge or freezer next to your oven or stove, or in direct sunlight. Leave space around the back of your fridge or freezer for air to circulate.
- 89) Make sure staff wait until the dishwasher is full before switching it on.
- 90) Use the economy cycle on your dishwasher. If the dishwasher can generate its own hot water – use this function – it's much more economical than hot water from the cylinder.
- 91) Report any dripping taps – they waste water and energy.
- 92) If it doesn't have an automatic timer, turn off the coffee machine at night.
- 93) Make sure oven seals are kept clean and are properly fitted.

# 108 WAYS to REDUCE YOUR USE

- 94) Electrical outlets and switch plates are leakage areas. Gaskets can be purchased at very little cost that reduce or eliminate air leakage by sealing between the plate and the wall. Using childproof plugs in unused sockets will also reduce air leaks.
- 95) Simply shutting off machines, equipment or lights when they're not required substantially reduces your company's energy use. Develop and post simple instructions on how to shut down all machinery and equipment when not in use.
- 96) Use dedicated circuits for equipment that must be left on.
- 97) About 60% of the electricity used in industry is used to power electric motors. Consider installing high-efficiency motors. They may cost a little more than standard motors but the money saved on electricity soon pays back the difference.
- 98) Compressed air leaks can waste a lot of energy and money. Regularly check for leaks, and repair them as soon as possible.
- 99) Air pressure should be set at a level needed to best do the job. Consult the technical manual for proper use, then experiment to find the best pressure for the job being performed. You can check the air pressure by reading the gauge in the discharge line of the compressor or holding tank, then adjust the pressure controller to lower the discharge pressure to the minimum level required. The equipment manufacturer or a firm which specialized in compressed air systems can provide you with detailed advice.
- 100) When possible, allow products to air dry instead of using compressed air.
- 101) Only use compressed air to perform the kinds of jobs for which it was intended.
- 102) Retrofitting toilets for water reduction is very affordable, takes only minutes to install and reduces water consumption by up to 60%.

## **Recycling**

- 103) When typing documents, especially drafts, use smaller font and decrease the spacing between lines, or reformat to keep your document to as few pages as possible, especially when typing drafts.
- 104) Review your document on the screen instead of printing a draft. If you must print a draft, use the blank back side of used sheets. It may be possible to keep once-used paper in an extra tray in your printer.

# 108 WAYS to REDUCE YOUR USE

- 105) Use a printer than can print double-sided documents. When making copies, use double-sided copying.
- 106) Always buy and use recycled-content paper. Look for papers with 50 – 100% post-consumer waste and non-chlorine bleached. Also, recycle your paper when done.
- 107) A single high-density 3.5-inch floppy disk can hold the equivalent of 750 sheets of paper, about one and a half reams.
- 108) Printer toner cartridges can be refilled, remanufactured, and reused. Many remanufacturers will take your spent cartridge, refurbish it, refill it, and return it to you for about half the price of buying a new one.