



# Non-Residential Energy Efficiency Tips

## General

- Identify a person to drive the conservation and energy efficiency plan in the company. Have them identify tasks and roles and expected results. Have a written plan that can be handed off to the next employee.
- Consistently review electric, gas and water rates. Identify why spikes happen and make a plan to reduce usage or make repairs if necessary if changes indicate problems.
- Engage all employees by educating and training them in Energy Efficiency methods and practices.
- Create an incentive program to encourage employees to participate and practice environmentally-friendly practices.
- Make sure building operators, maintenance and their staff are up to date in Energy Efficiency building maintenance and that they all practice the teachings.
- Perform routine and regular maintenance on mechanical equipment and your building. Inspect and patch leaks, clean or replace air filters, check fan belts, lubricate motors, pumps and fans, clean condenser coils and make sure refrigeration seals are airtight. Well maintained equipment runs much more efficiently, reducing energy costs and extending the life of the equipment.
- Have employees dress comfortably for the weather. Adjust layers of clothing before adjusting the thermostat.
- For hotels, start a linen (both towels and sheets) reuse program in all guest rooms.
- Check with your utility company for any energy efficiency rebates or financing programs. Check local and state governmental agencies to see if any energy efficiency programs are available. Check with product manufacturers to see if they are running any energy efficiency rebate programs.

## Heating/Cooling

- Check and clean (or replace) filters regularly to maintain proper air flow. Clean coils.
- Install programmable thermostats and automatic timers.
- Insulate all heating ductwork located in unheated areas.
- Keep temperatures down in corridors, stairs and hallways.
- Perform maintenance on our heating, ventilation and air conditioning system at least once every six months. The better shape your HVAC system is in, the less energy it will need. Businesses that use their ventilation systems extensively, like restaurants, should consider servicing their HVAC systems quarterly.
- Calibrate thermostats and sensors, inaccuracies in their readings will increase energy consumption.
- Have night time set backs so HVAC system powers down during unoccupied periods.
- Reduce heating (68-70 Degree F) and cooling (74-76 Degree F)
- Reduce your heating load. Keep exterior doors closed. Pull curtains, shades and blinds at night to retain heat and open on clear days to take advantage of heat from the sun.
- Avoid placing televisions, computers and lamps near thermostats. The heat from other appliances or equipment may affect thermostat readings.

## Lighting

- Replace inefficient incandescent light bulbs. Modern compact fluorescent light bulbs (CFL's) can fit nearly any socket designed for traditional incandescent bulbs. CFL's burn cooler, use up to two-thirds less energy and last about 10 times longer than incandescent bulbs.
- Regularly clean light fixtures. Dust build up on lights will dim them and make them less efficient.



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- Night set backs to ensure lighting shuts down during unoccupied periods or install sensor motions in rooms not in constant use such as conference rooms, restrooms, closets and break rooms. Motion sensors can reduce lighting costs up to 40 percent in areas where lights are generally left burning all the time.
- Replace fluorescent and incandescent lights in exit signs with LED fixtures, which use 80-95 percent less energy and last 10-20 times longer. While LED exit signs may cost around \$100 more than incandescent signs, a typical exit sign will last about 10 years, and the energy saved and reduced maintenance costs will pay back your investment in less than three years.
- Maximize natural light and turn off unnecessary office lights.
- Install and calibrate automatic lighting controls in conjunction with skylights in open areas to dim lights in response to daylight.
- Upgrade garage parking lighting.
- Old four-foot, T-12 technology fluorescent lamps and ballasts should be replaced with more efficient electronic ballasts and T-5 or T-8 lamps.
- Switch to high-pressure sodium or low-wattage metal halide lamps for outdoor lighting.
- Install photo sensors to turn off exterior lights at dawn and turn them on at dusk, more efficient than a time clock.

### Building Envelope

- Insulate building to reduce heat loss. If renovating, check insulation levels and upgrade to current standards where possible. Insulate attic, sidewalls, basement walls, band joist, and crawl space.
- Draft-proof windows and doors with weather-stripping. Replace missing or cracked windows.
- Use suspended ceilings to reduce heating costs and act as extra insulation.
- Install double-glazed windows to reduce your use of natural gas. Double-glazed windows also help reduce noise comfort levels. The payback period on this capital cost is typically 10-15 yrs.
- Regularly clean windows, allowing in natural light.
- Install window film to lower heating and cooling loads and reduce glare.
- Check for worn and cracked caulking and weather-stripping on doors and windows.
- Cover wall-mounted air conditioners with plastic film or airtight cover during winter months.
- For doors, garage doors, and cooler doors, which are continually opening and allowing cold/warm in and heated/cooled air out, consider installing an air curtain.
- Use reflective roof coverings or install an ENERGY STAR cool roof.

### Water

- Set the water temperature to 55 degrees C (131 F). Settings above this temperature wastes energy; settings below this temperature increase bacterial growth.
- Ensure that all hot water pipes, valves and flanges in accessible areas are insulated to reduce heat loss. Insulate the first three feet of cold water pipes and all hot water pipes. Start insulation three inches above the vent opening.
- Install low-flow showerheads and sink aerators.
- Switch to low-flow toilets or install toilet-tank fill diverters.
- Use cold water laundry washing where possible.
- Replace old washing machines with both water and energy conserving models.
- For buildings such as schools, hospitals, or hotels, with pools or hot/tubs, install a solar water heating system and use hot tub covers when the pool area is closed.
- Check and repair all leaky toilets, tubs, showers and sinks.
- Reduce the landscaping water cycles where possible. Use mulch, it reduces recurring water bills.
- Switch to drought resistant native plants in garden areas. Replace mowed land with native ground cover.



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## Appliances

- Shut down or program office equipment to power down when not in use, such as computers, fax machines, copiers, printers, coffee makers. Turning off one computer and monitor nightly and on weekends can save up to \$80 a year. Setting PC's, monitors and copiers to sleep mode when not in use can help cut energy costs by up to 50%.
- Plug all radios, cell phone and MP3 charges, fans and other personal electronics into a power strip that can be turned off when not in use. These devices draw energy 24/7, even when switched off.
- Rewire toilet exhaust fans to operate only when lights are on.
- Choose ENERGY STAR products when upgrading or replacing equipment. These products meet federal standards for energy efficiency and are often available at the same cost as other models.
- Use the duplex mode on copying machines to save energy and paper.
- Install Vending Miser or similar device on vending machines.
- Check freezer and walk-in seals for cracks and warping. Replace if necessary.
- Allow hot food to cool before storing it in refrigerators and freezers.
- Do not overfill refrigerator shelves. Proper cooling occurs when air can circulate.
- Ensure refrigerator doors close properly. Maintain door gaskets and seals.
- Ensure refrigerator compressor belts maintain proper tension.
- Defrost freezers frequently since frost buildups reduce efficiency.
- Ensure freezer curtains remain in a vertical position to retain cool air and keep out warm air
- Oil stains near refrigerator compressors may indicate leaks that should be serviced promptly.
- For steam systems, keep steam traps clean.
- Reduce temperature on fryer and grill during standby times.
- Clean and polish heat reflectors. Clean burners and check regularly to maintain efficiency.

## Trees

- Avoid planting trees on the south side of businesses. Trees in this location can block 50% of the sun's energy which provides warmth in the winter.
- Plant trees around air conditioners and pavement to provide a cooler environment.
- Plant conifers to the north of business to provide shelter from harsh winter winds.
- Be mindful of overhead lines when planting trees. Large trees within utility rights-of-way sometimes require pruning or removal in order to avoid electrical hazard.

## Reference

### Web Sites

- ENERGY STAR website holds lots of great information for both residential and commercial. [http://www.energystar.gov/index.cfm?c=small\\_business.sb\\_index](http://www.energystar.gov/index.cfm?c=small_business.sb_index)
- Industrial Energy Efficiency Clearinghouse: Alliance to Save Energy <http://www.ase.org/section/topic/industry/clearinghouse/>
- Building Operator Certification (BOC) [www.boccentral.org](http://www.boccentral.org)
- Trees Forever [www.treesforever.org](http://www.treesforever.org)
- [www.BHEHowto.com](http://www.BHEHowto.com)