

## Energy Conservation Ideas

- Start a program of replacing existing T-12 fluorescent light fixtures with T-8 fixtures with electronic ballasts.
- Install motion detector switches for lighting in seldom used areas.
- Remove unneeded light fixtures that are located over the chillers and furnaces and in inaccessible storage areas.
- When needed, replace the forced air furnaces in the maintenance garage with gas-fired radiant heaters.
- Place weather stripping around the large overhead doors in maintenance areas.
- Implement a documented preventive maintenance program for all maintenance equipment to ensure that all equipment operates at peak efficiency.
- Implement a preventive maintenance program for the compressed air system in the maintenance garage.
- In the Pro Shop, replace U-shaped fluorescent lamps with T-8 lamps and electronic ballasts.
- Remove some of the spot lamps in the retail area.
- Remove the lights and ballasts from the vending machines.
- In course restrooms, replace incandescent lamps with halogen type lamps.
- Install timers to control outdoor security lighting.
- Date stamp all replacement lamps for warranty purposes.
- Remove paint (or other obstructions) from the air intake vents under the eaves.
- If necessary, install gable end vents for increased air ingress.
- Inspect ventilation equipment air filters regularly and replace as needed.
- Convert to higher efficiency fluorescent lamps and electronic ballasts for most general lighting applications.
- Take advantage of natural light or daylighting, particularly when a building undergoes significant remodeling or when new structures are added.
- Consider high intensity discharge lights (e.g., high pressure sodium) instead of standard fluorescent lights for outdoor areas.
- Replace incandescent bulbs in exit signs with a light-emitting diode (LED) or compact fluorescent replacement kit.

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- Turn off lights in unoccupied rooms and machines during non-use hours.
- Consider time clocks, occupancy sensors, and dimming controls to reduce lighting energy.
- Investigate variable speed drives for fans and pumps.
- Turn off the light in vending machines.
- Ensure that walls, floors, roofs and windows are as energy efficient as possible.
- Use high efficiency HVAC equipment that is "right sized" for the estimated demands of the facility. Use economizers and other controls that optimize system performance.
- Consider on-site renewable energy like solar hot water, wind and photovoltaics to generate a portion of your facility's energy use.
- Do not over-illuminate. Lighting levels should be tailored to the type of task being performed and the function off the illuminated space.
- Direct exterior lighting downward to reduce light pollution and allow the use of lower wattage lamps.
- Replace electric water heaters in maintenance facilities with "on-demand" heaters beneath wash basins.
- Replace manual thermostats with 7-day programmable thermostats.
- Reduce the compressed air system operating pressure to the minimum required by the pneumatic equipment. Each 2 psi reduction will reduce the electricity consumption of the compressor by 1%.
- Replace single pane windows with insulated thermopane. Heat reflective thermopane windows can triple the heat loss resistance in winter and reduce heat gain in summer by as much as 66%.

## Resources

US Department of Energy – Energy Savers Website  
<http://www.eere.energy.gov/redirects/consumerinfo.html>

Energy Efficiency and Renewable Energy Website  
<http://www.eere.energy.gov/>

Energy Efficiency and Waste Minimization  
[http://iac.rutgers.edu/technicaldocs/Useful\\_Stuff/rulesofthumb.pdf](http://iac.rutgers.edu/technicaldocs/Useful_Stuff/rulesofthumb.pdf)