

733 RULE METHODS OF ENERGY CONSERVATION

Building Users

A. Buildings

- **Windows:** Close operable windows when heating or air conditioning space. If windows have storm windows, use during heating season.
- **Window Blinds and Shades:** Adjust blinds and shades during air conditioning season to reflect direct sunlight outdoors. At other times adjust to maximize natural daylighting. Close blinds and shades during heating season at night.
- **Doors:** Keep passage and overhead doors closed as much as possible and do not block open while heating or air conditioning.
- **Elevators:** Promote the use of stairs in place of elevators, where possible.
- **Process Equipment**
 - Fume Hoods:** Close sashes when not in use. Do not use as storage cabinets or to evaporatively dispose of chemicals.
 - Kilns, Drying/Curing Ovens, Sterilizers:** Minimize preheat and run times. Shut off when not in use.
 - Food Service and Kitchen Ventilation Equipment:** Shut off when not in use.
 - Wood Dust Collection, Process Exhaust and Makeup Air Ventilation:** Shut off when not in use.

B. Plumbing Systems

- **Water Conservation:** Avoid using domestic water as a source of heating or cooling. Water lawns and plantings before 10 a.m. or during the evening hours. Run dishwashers and clothes washers using full loads. Minimize shower time.

C. Lighting and Electrical Systems

- **Lighting:** Turn off lights when space is not in use or natural daylighting is adequate. Use task lighting to reduce overall illumination levels.
- **Office Equipment:** Turn off personal computers, printers, copy machines and other office equipment when not in use and during unoccupied hours. Use Energy Star rated electrical products and appliances. Set up office equipment for automatic sleep modes.
- **Personal Equipment:** Eliminate use of individual cooking, space heating or cooling appliances and incandescent or halogen floor lamps.

General

A. Building

- **Insulation:** Repair damaged, displaced or missing building insulation.
- **Windows and Doors:** Maintain weather stripping, glazing compound, caulking, seals and door closers to minimize infiltration. Repair broken glazing. Keep overhead doors closed as much as possible when heating or air conditioning. Close operable windows when heating or air conditioning space. If windows have storm windows, use during heating season.
- **Finishes and Furnishings:** When refinishing and refurnishing, use light colors for better illumination at lower lighting levels. Minimize height of systems furniture and partitions for transfer of daylight.

B. Plumbing Systems

- **Water Conservation:** Repair leaking faucets, fixtures, valves and piping. Avoid using domestic water as a source of heating or cooling. Water lawns and plantings before 10 a.m. or during the evening hours. Use 0.5 GPM flow restrictors on faucet outlets and 2.5 GPM restricted flow showerheads. Use 1.6 gallon/flush water closets and 1.0 gallon/flush urinals when replacing fixtures. Select water conserving models when purchasing dishwashers and clothes washers.
- **Pumping:** Shut down domestic hot water recirculating pumps when unoccupied. Adjust domestic water pressure booster pumps for the minimum pressure and run time necessary to maintain adequate delivery pressure to fixtures.
- **Water Heaters:** Periodically blow down water heaters to eliminate sediment buildup on heat exchange surfaces. Adjust burners and induced draft fans for optimum combustion efficiency. Adjust water temperature set-point to minimum acceptable to building occupants.

C. Heating, Ventilating and Air Conditioning (HVAC)

- **Thermostats:** In small buildings and in exterior zones of large buildings, adjust to 70°F maximum in the winter and 76°F minimum in the summer. Reduce to 60°F during unoccupied winter hours.

In interior variable air volume zones of large buildings, adjust to 76°F minimum.

In interior constant air volume zones of large buildings, adjust to 70°F maximum in the winter and 76°F minimum in the summer. Reduce to 60°F during unoccupied winter hours. Minimize the use of reheat.

In vestibules, stairwells, mechanical/electrical rooms, elevator equipment rooms, unoccupied storage and similar spaces, adjust to 60°F in the winter.

Use setback thermostats for perimeter heating zones.

Calibrate thermostats on a regular basis.

- **Ventilation and Air Conditioning:** Shut down equipment during unoccupied hours.

Do not air condition gymnasiums, locker rooms, swimming pools, food service occupancies, commercial/institutional laundry areas, mechanical/electrical rooms, unoccupied storage spaces, correctional facility inmate areas, state park toilet/shower facilities, vehicle service and storage buildings, industrial/shop occupancies, utility buildings, wastewater treatment plants and similar areas.

- **Filters:** Routinely replace or clean filters to minimize pressure drop.
- **Belts:** Routinely adjust drive belts for proper tension and replace worn belts.
- **Bearings:** Routinely lubricate motor and equipment bearings.
- **Dampers:** Inspect dampers, damper seals, linkages and operators for proper sealing and operation. Repair and replace as needed for proper cycling, full closure and tight sealing.
- **Insulation:** Repair or replace damaged or missing pipe, duct and equipment insulation. Provide high level of insulation in unconditioned spaces.
- **Piping Systems:** Routinely blow down strainers and clean strainer screens. Repair or replace leaking system components. Where excessive pump throttling is used, trim impellers or add variable frequency drive pump control.
- **Air Systems:** Seal leaks in ductwork, around coils and in air handling equipment with duct sealer and/or sheet metal closures. Periodically check louver screens and accessible turning vanes and clean to minimize pressure drop.
- **Building Automation and Controls:** Train appropriate building operators in the use of building automation and controls to minimize energy use. Optimize building start/stop equipment schedules to minimize operating time and stagger start-up times to limit electrical, central plant steam and chilled water demand.

Calibrate controls and check for correct operation on a regular basis.

Review air compressor run times on a routine basis, adjust pressure setting to minimum acceptable and repair pneumatic system leaks.

Use reset schedules to minimize energy use for discharge air temperature control, heating hot water temperature and humidification setpoints.

- **Boiler Tubes, Chiller Tubes, Coils and Heat Exchange Surfaces:** Clean fouled surfaces on a routine basis to ensure efficient heat exchange and minimal pressure drop. Use proper chemical water treatment program to minimize scale, fouling, corrosion and biological activity.
- **Boiler and Cooling Tower Blowdown Systems:** Check and adjust automated blowdown systems to minimize blowdown while maintaining appropriate cycles of concentration.
- **Cooling Towers:** Check and clean spray nozzles, distribution basin, fill and sump screens.

- **Burners:** Routinely analyze flue gas and adjust burners for optimum fuel-air ratios.
- **Steam Traps:** Routinely test and repair or replace leaking or failing steam traps.

D. Lighting and Electrical Systems

- **Lighting:** Turn off lights when space is not in use. Use occupancy sensors indoors and photoelectric sensors outdoors when retrofitting systems. Maintain sensors to ensure lights are off when not needed. Use LED exit lights when retrofitting.
- **Office Equipment:** Turn off personal computers, printers, copy machines and other office equipment when not in use and during unoccupied hours. Use Energy Star rated electrical products and appliances.

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