ENVIRONMENTAL Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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DWGB-26-14 2020

Water Efficiency: Health Care Facilities

Health care facilities with steam sterilizers, autoclaves, x-ray equipment and in-house laundries or kitchens can be significant water consumers, using as much as 30,000 gallons of water a day. The water efficiency practices found in this fact sheet can save considerable water and water-related costs. A comprehensive audit should be performed to assess the facility's water system and identify locations where these practices can be employed to conserve water. The NHDES fact sheet DWGB-26-16 "Water Efficiency: Business or Industry Water Use and Conservation Audit" provides information about performing water audits.

Domestic/Sanitary Water Efficiency Practices

Approximately 35% of the total water use at health care facilities goes to domestic purposes, plumbing fixtures and appliances.

- Install high performance low-flow toilets that use a maximum of 1.28 gal/flush (4.8 L/flush) or retrofit existing toilets with displacement bottles or dams. Install ultra low-flow urinals that use a maximum of 0.5 gal/flush (1.9 L/flush).
- Install low-flow faucets, faucet aerators, or laminar flow restrictors that limit flow to ≤1.5 gpm.
- Install low-flow showerhead devices that limit flow to ≤2.0 gpm.
- Install flow restrictors on plumbing fixtures wherever possible.
- Install automatic faucet shut-off valves in public water use areas.
- Replace older-model piped-in drinking water fountains with stand-alone water coolers/dispensers.
- Replace top-loading vertical-axis washing machines with front-loading horizontal-axis types.
- If a commercial type laundry exists onsite, consider using tunnel or similar washers that recycle the final rinse water into the next wash cycle. The NHDES fact sheet DWGB-26-10 "Water Efficiency: Laundry Facilities" provides information about water efficiency practices related to laundry operations.

Sterilizing Equipment Water Efficiency Practices

Sterilizers and autoclaves can use a significant amount of water if run constantly. The following water efficiency practices can save water when using these devices:

- Install automatic shut-off valves, when possible, to shut off water flow to the unit when not in use. If shutting off is not possible, determine the minimum flow the unit can sustain and set it to this level.
- Shut down the sterilizer when not in use, if possible.
- Recycle steam condensate and non-contact cooling water from sterilizers to make-up water in cooling

towers or boilers.
- As they wear out, replace old sterilizers with water-efficient models with water recirculation automatic shut-off.
- Run the sterilizer or autoclave with full loads only. If the device you presently use is too large to routinely run full loads, replace it with a smaller-capacity model.

X-Ray Equipment Water Efficiency Practices

X-ray equipment uses water in the processing of prints. The following water efficiency practices will help save water when using this type of equipment:

- Adjust flow rates in rinse baths to the minimum recommended by the manufacturer.
- Install solenoid-controlled flow valves to shut off units when not in use.
- Reuse rinse bath water for make-up water in the developer solution.
- Install flow meters and regulators to limit the rinse water flow rate.

Kitchen/Cafeteria Water Efficiency Practices

Large quantities of water are used in the food preparation process. The following water efficiency practices can save significant amounts of water in kitchens and cafeterias:

- Minimize pre-wash spray systems and replace spray heads with low-flow models.
- Use high-pressure, low-volume nozzles for increased cleaning efficiency.
- Install automatic shut-off valves or shut off water when not in use.
- Remove garbage disposals or reuse wash and rinse water for disposal purposes. Composting food waste is a practical disposal method for water conservation and nutrient recycling.
- Replace water-cooled machines with air-cooled models or recirculating non-contact cooling systems.
- Reuse non-contact cooling water for other purposes.
- Upgrade to water-saving machinery as old equipment wears out.
- Install on-demand point-of-use water heating systems to eliminate the need to purge lines for hot water. Insulate pipes to retain heat.
- Operate dishwashers with full loads only and shut them off when not in use. Install sensors on conveyor systems that automatically shut off water when no dishes are present.
- Use high-temperature rinse dishwashers rather than low-temperature ones, as they require less water and wash more racks per hour.
- Consider using ultrasonic pre-rinse units.
- Pre-rinse utensils and dishes in a water basin.
- Rinse vegetables in a water basin.
- Reuse rinse water where appropriate for pre-rinsing, dish washing, garbage disposers, or scrapping troughs.
- Eliminate or minimize water flow-through scrapping troughs.
- Do not use running water to melt ice or frozen foods.

Dartmouth-Hitchcock Medical Center in Lebanon, New Hampshire, replaced toilets and urinals with water-efficient models, installed flow restrictors on all faucets and kitchen equipment, and installed recirculation systems on their autoclaves, RO/DI water treatment, medical air and vacuum pumps and boiler blowdown wastewater and now save an average of $100,000 a year in water, sewer and energy costs.

Outdoor Water Efficiency Practices

Outdoor water use can be a significant portion of total use by a facility, especially if large turf areas are irrigated. The following water efficiency practices will help you save water in outdoor applications. For more detailed information about outdoor water use, check out the "Water Efficiency Practices" fact sheets on the NHDES website.

- Wash fleet vehicles less often.
- Sweep parking lots, driveways, walks, and steps rather than hosing them off.
- Landscape watering frequency should be based on soil moisture, weekly precipitation, and plant/turf conditions. Typically, established landscape plants and turf grass require an inch of water per week, and this amount may be applied in one application.
- Employ rain sensors and soil moisture sensors on outdoor irrigation systems to ensure they don't turn on when not needed.
- Be sure sprinkler heads are producing drops rather than a mist. This helps reduce evaporative losses.
- Incorporate soil moisture and rain sensors into automatic sprinkler systems.
- Operate automatic sprinkler systems only when the water demand is low, usually between 4 and 6 a.m.
- Don't water the pavement. Adjust sprinklers so they water only the plants.
- Plant drought-resistant turf grass. The most drought-tolerant grasses are fine leaf fescues. The UNH Cooperative Extension recommends a mix containing hard fescue, Chewings fescue, and perennial ryegrass.
- Soil moisture sensors are useful in determining how wet your soil is. You can check the moisture of the soil to determine watering needs. In some instances, you will find that you do not need to water, even if it has not rained recently. Water should be applied until the soil moisture meets the Cooperative Extension's recommendations for your soil type.
- Check soil moisture before watering, even if it hasn't rained. Then spot water, irrigating only those areas that are dry. Water by hand, if possible.
- Do not irrigate during windy conditions.
- Use hose nozzle shut-off devices
- Use drip or trickle irrigation wherever possible. These systems apply water near the root zone of the plant, ensuring a complete watering while eliminating excess water usage.
- Use mulch wherever possible.
- Minimize your lawn area. Replace grass with moss, rocks, gravel, wood chips, or mulched flowerbeds.
- Plant species native to New Hampshire. Native plants are hardier and tend to need less water. Check out the Native Plant Trust website for information about native plants.

For More Information

Please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov or visit our website at www.des.nh.gov.

References

U.S. Department of Defense; *MIL-Handbook-1165, Water Conservation*; U.S. Dept. of Defense; 1997; pp 66-67.

Vickers, Amy; *Handbook of Water Use and Conservation;* WaterPlow Press; Amherst, MA; 2001; pp 256-257, 265-280.

Note: This fact sheet is accurate as of July 2019. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.